

Supplement tabellen bij het richtlijnartikel van R.W.F. van Leeuwen et al., getiteld 'Richtlijn voor management van geneesmiddelinteracties met oncologische middelen in de klinische praktijk'.

Supplement Tabel 3. Resultaten van gestructureerde beoordeling van oncologische middelen.

TABEL 3A. Klinisch relevant, interventie vereist				
Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Abemaciclib, palbociclib, ribociclib	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine; overige inductoren: etravirine)	Therapie-falen van abemaciclib, palbociclib of ribociclib	Vermijd de combinatie of monitor het effect van abemaciclib, palbociclib of ribociclib bij starten, dosiswijziging of staken van de inductor	<ol style="list-style-type: none"> Hoffman JT ea. A phase 1 randomized, open-label, fixed-sequence, 2-period study of the effect of multiple doses of rifampin on palbociclib (PD-0332991) pharmacokinetics in healthy volunteers. <i>Cancer Res</i> 2015;75(15 Suppl):4515. Hoffman JT ea. A phase 1 randomized, open-label, fixed-sequence, 2-period study of the effect of multiple doses of rifampin on palbociclib (PD-0332991) pharmacokinetics in healthy volunteers. <i>Cancer Res</i> 2015;75(15 Suppl):4515. SPC Ibrance, Kisqali, Verzenio.
Abemaciclib, palbociclib, ribociclib	CYP3A4-remmers (claritromycine, cobicistat, erytromycine, itraconazol, ketocozazol, posaconazol, voriconazol, ritonavir, lopinavir/rtv)	De toxiciteit van abemaciclib, palbociclib of ribociclib stijgt	Vermijd de combinatie of verlaag de dosering	<ol style="list-style-type: none"> Hoffman JT ea. Abstract LB-196: a phase I open-label, fixed-sequence, two-period crossover study of the effect of multiple doses of itraconazole on palbociclib (PD-0332991) pharmacokinetics in healthy volunteers. AACR Annual Meeting. <i>Cancer Res</i> 2016;76(Suppl. 14):abstract LB-196. SPC Ibrance, Kisqali, Verzenio.
Abirateron	CYP3A4-inductoren	De abirateronspiegel daalt	Vervang CYP-3A4-inductor of overweeg dosisverhoging van abirateron	<ol style="list-style-type: none"> Bernard A ea. Impact on abiraterone pharmacokinetics and safety: open-label drug-drug interaction studies with ketoconazole and rifampicin. <i>Clin Pharmacol Drug Dev</i> 2015;4:63-73. Benoist GE ea. A clinically relevant decrease in abiraterone exposure associated with carbamazepine use in a patient with castration-resistant metastatic prostate cancer. <i>Br J Clin Pharmacol</i> 2018;84:1064-7. SPC Zytiga 25/07/2013. www.janssennederland.nl/sites/stage-janssen-emea-nl.emea.cl.datapipeline.net/files/Zytiga_SPC_1.pdf. Geraadpleegd 20-9-2013. Zytiga Prescribing Information (USA). www.zytiga.com/sites/default/files/pdf/full_product_information.pdf. Geraadpleegd 8-10-2013. Stockley IH. Drug Interactions.
Afatinib	Ritonavir, lopinavir, cobicistat	De abirateronspiegel stijgt	Afatinib ten minste 1 uur VOOR de HIV-medicatie innemen	<ol style="list-style-type: none"> Wind S ea. Pharmacokinetic drug interactions of afatinib with rifampicin and ritonavir. <i>Clin Drug Investig.</i> 2014 Jan 8. [Epub ahead of print]. + persoonlijke mededeling auteur. SPC Giotrif. Amerikaanse productinformatie Giotrif. http://www.accessdata.fda.gov/drugsatfda_docs/label/2013/201292s000lbl.pdf. Geraadpleegd 29-10-2013. Eskens FA ea. A phase I dose escalation study of BIBW 2992, an irreversible dual inhibitor of epidermal growth factor receptor 1 (EGFR) and 2 (HER2) tyrosine kinase in a 2-week on, 2-week off schedule in patients with advanced solid tumours. <i>Br J Cancer</i> 2008;98:80-5.
Anthracyclines (excl. pixantron)	Ciclosporine	De anthracyclinespiegel stijgt	Vermijd de combinatie, of monitor anthracyclinespiegel	<ol style="list-style-type: none"> Hansten PhD ea. Drug interactions analysis and management. Stockley IH. Drug interactions. List AF ea. Benefit of cyclosporine modulation of

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Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				<p>drug resistance in patients with poor-risk acute myeloid leukemia: a Southwest Oncology Group study. <i>Blood</i> 2001;98:3212-20.</p> <p>4. Rushing DA ea. The effects of cyclosporine on the pharmacokinetics of doxorubicin in patients with small cell lung cancer. <i>Cancer</i> 1994;74:834-41.</p> <p>5. Pea F ea. Multidrug resistance modulation in vivo: the effect of cyclosporin A alone or with dexverapamil on idarubicin pharmacokinetics in acute leukemia. <i>Eur J Clin Pharmacol</i> 1999;55:361-8.</p> <p>6. Smeets M ea. Cyclosporin increases cellular idarubicin and idarubicinol concentrations in relapsed or refractory AML mainly due to reduced systemic clearance. <i>Leukemia</i> 2001;15:80-8.</p> <p>7. Lacayo NJ ea. Pharmacokinetic interactions of cyclosporine with etoposide and mitoxantrone in children with acute myeloid leukemia. <i>Leukemia</i> 2002;16:920-7.</p> <p>8. SPC Myocet, doxorubicine.</p>
Anti-androgenen	Androgenen	Tegengestelde werking	Vermijd de combinatie	<p>1. Page ST ea. Dutasteride reduces prostate size and prostate specific antigen in older hypogonadal men with benign prostatic hyperplasia undergoing testosterone replacement therapy. <i>J Urol</i> 2011;186:191-7.</p> <p>2. Amory JK ea. Oral testosterone with and without concomitant inhibition of 5-α-reductase by dutasteride in hypogonadal men for 28 days. <i>J Urol</i> 2011;185:626-32.</p> <p>3. Armory JK ea. Oral testosterone in oil: pharmacokinetic effects of 5α reduction by finasteride or dutasteride and food intake in men. <i>J Androl</i> 2006;27:72-8.</p> <p>4. Stockley IH. Drug interactions.</p>
Anti-oestrogenen, aromataseremmers	Oestrogenen	Tegengestelde werking	Vermijd de combinatie	<p>1. Stockley IH. Drug interactions.</p> <p>2. SPC Arimidex, Aromasin, Dagynil, Nolvadex.</p> <p>3. Dew JE ea. Tamoxifen, hormone receptors and hormone replacement therapy in women previously treated for breast cancer: a cohort study. <i>Climacteric</i> 2002;5:151-5.</p>
Apixaban	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine; overige inductoren: griseofulvine, etravirine, oxcarbazepine)	De apixabanspiegel daalt	Vermijd de combinatie	<p>1. Vakkalagadda B ea. Effect of rifampin on the pharmacokinetics of apixaban, an oral direct inhibitor of factor Xa. <i>Am J Cardiovasc Drugs</i> 2016;16:119-27.</p> <p>2. Di Gennaro L ea. Carbamazepine interaction with direct oral anticoagulants: help from the laboratory for the personalized management of oral anticoagulant therapy. <i>J Thromb Thrombolysis</i> 2019;48:528-31.</p> <p>3. SPC Eliquis.</p> <p>4. Le Comte M ea. Pas op met inductoren bij DOAC's. Ook bij ticagrelor bestaat theoretisch risico op therapiefalen. <i>Pharm Weekbl</i> 2015;150:29.</p>
Aprepitant, fosaprepitant	CYP3A4-inductoren (claritromycine, cobicistat, erytromycine, itraconazol, ketocanazol, posaconazol, voriconazol, ritonavir)	De aripiprazolspiegel daalt	Overweeg de aripiprazoldosering te verhogen en monitor het effect	<p>1. Stockley IH. Drug interactions.</p> <p>2. Hansten PhD ea. Drug interactions analysis and management.</p> <p>3. Nakamura A ea. Pharmacokinetic and pharmacodynamic interactions between carbamazepine and aripiprazole in patients with schizophrenia. <i>Ther Drug Monit</i> 2009;31:575-8.</p>

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Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				<p>4. Citrome L ea. Pharmacokinetics of aripiprazole and concomitant carbamazepine. <i>J Clin Psychopharmacol</i> 2007;27:279-83.</p> <p>5. Birkeland Waade R ea. Influence of comedication on serum concentrations of aripiprazole and dehydroaripiprazole. <i>Ther Drug Monit</i> 2009;31:233-8.</p> <p>6. Castberg I ea. Effects of comedication on the serum levels of aripiprazole: evidence from a routine therapeutic drug monitoring service. <i>Pharmacopsych</i> 2007;40:107-10.</p>
Azathioprine, mercaptopurine, tioguanine	Allopurinol, febuxostat	Ernstige beenmerg-depressie	Vervang allopurinol of febuxostat, of verlaag de dosering van azathioprine of mercaptopurine en controleer extra het bloedbeeld en de leverfunctie	<p>1. Stockley IH. Drug interactions.</p> <p>2. Hansten PhD ea. Drug interactions analysis and management.</p> <p>3. Zimm S ea. Inhibition of first-pass metabolism in cancer chemotherapy: interaction of 6-mercaptopurine and allopurinol. <i>Clin Pharmacol Ther</i> 1983;34:810-7.</p> <p>4. Levine AS ea. Combination therapy with 6-mercaptopurine (NSC-755) and allopurinol (NSC-1390) during induction and maintenance of remission of acute leukemia in children. <i>Cancer Chemother Rep</i> 1969;53:53-7.</p> <p>5. Castleman B ea. Case records of the Massachusetts general hospital. <i>N Engl J Med</i> 1972;286:205-12.</p> <p>6. Rundles RW ea. Effects of a xanthine oxidase inhibitor on thiopurine metabolism, hyperuricemia and gout. <i>Trans Assoc Am Physicians</i> 1963;76:126-40.</p> <p>7. Kennedy DT ea. Azathioprine and allopurinol: the price of an avoidable drug interaction. <i>Ann Pharmacother</i> 1996;30:951-4.</p> <p>8. Garcia-Ortiz RE ea. Pancytopenia associated with the interaction of allopurinol and azathioprine. <i>J Pharm Technol</i> 1991;7:224-6.</p> <p>9. Boyd IW. Allopurinol-azathioprine interaction. <i>J Intern Med</i> 1991;229:386.</p> <p>10. Venkat Raman G ea. Azathioprine and allopurinol: a potentially dangerous combination. <i>J Intern Med</i> 1990;228:69-71.</p> <p>11. Cummins D ea. Myelosuppression associated with azathioprine-allopurinol interaction after heart and lung transplantation. <i>Transplantation</i> 1996;61:1661-2.</p> <p>12. Adverse Drug Reactions Advisory Committee. Allopurinol and azathioprine. Fatal interaction. <i>Med J Aust</i> 1980;2:130.</p> <p>13. Anonymous. Clinicopathologic conference: hypertension and the lupus syndrome. <i>Am J Med</i> 1970;49:519-28 + Nies AS ea. Clinicopathologic conference: hypertension and the lupus syndrome-revisited. <i>Am J Med</i> 1971;51:812-4.</p> <p>14. Anonymous. Clinicopathologic conference: hypertension and the lupus syndrome. <i>Am J Med</i> 1970;49:519-28.</p> <p>15. Adverse Drug Reactions Advisory Committee. Allopurinol and azathioprine. Fatal interaction. <i>Med J Aust</i> 1980;2:130.</p> <p>16. Kaczmorski S ea. Gout and transplantation: new treatment option - same old drug interaction. <i>Transplantation</i> 2011;92:e13-4.</p> <p>17. SPC Adenuric.</p> <p>18. Van der Wiel SK ea. Behandeling van chronische inflammatoire darmziekten. Wat als medicamenteuze therapie faalt? <i>Ned Tijdschr Geneeskd</i> 2014;158:A7589.</p> <p>19. Curkovic I ea. Low allopurinol doses are sufficient to optimize azathioprine therapy in inflammatory bowel disease patients with inadequate thiopurine metabolite concentrations. <i>Eur J Clin Pharmacol</i> 2013;69:1521-31.</p>

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Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				20. Alhubaishi AA. Pancytopenia and septic infection caused by concurrent use of allopurinol and mercaptopurine: a case report illustrating the importance of clinical pharmacist consultation. <i>Am J Case Rep</i> 2019;20:1245-7.
Azathioprine, mercaptopurine, tioguanine	Ribavirine	Pan-cytopenie (reversibel)	Monitor bijwerkingen en het bloedbeeld	1. Peyrin-Biroulet L ea. Interaction of ribavirin with azathioprine metabolism potentially induces myelosuppression. <i>Aliment Pharmacol Ther</i> 2008;28:984-93. 2. Chaparro M ea. Azathioprine plus ribavirin treatment and pancytopenia. <i>Aliment Pharmacol Ther</i> 2009;30:962-3. 3. SPC Rebetol, Copegus, Imuran, Purinethol.
Bedaquiline	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	Mogelijk therapiefalen van bedaquiline	Vermijd de combinatie	1. SPC + EPAR Sirturo. 2. Van Heeswijk RP ea. Bedaquiline: a review of human pharmacokinetics and drug-drug interactions. <i>J Antimicrob Chemother</i> 2014 May 23. 3. Healan AM ea. Impact of rifabutin or rifampin on bedaquiline safety, tolerability, and pharmacokinetics assessed in a randomized clinical trial with healthy adult volunteers. <i>Antimicrob Agents Chemother</i> 2017;62. pii: e00855-17.
Bendamustine	Allopurinol	Stevens-Johnson-syndroom en toxische epidermale necrolyse	Vermijd de combinatie	1. HOVON 110 FL/GLSG. ReBeL study: a randomized phase I/II trial of lenalidomide and rituximab with or without bendamustine in patients ≥ 18 years with relapsed follicular lymphoma. A HOVON/GLSG/NCRI study. Versie 9, 1-9-2014. http://www.hovon.nl/trials/trials-by-type/nhl.html?getfile=1&studie=85&studieveld=26 . 2. Fallon M ea. Fatal Stevens-Johnson syndrome/toxic epidermal necrolysis induced by allopurinol-rituximab-bendamustine therapy. <i>J Oncol Pharm Pract</i> 2015;21:388-92. 3. Alamdari HS ea. Severe cutaneous interface drug eruption associated with bendamustine. <i>Dermatol Online J</i> 2010;16:1. 4. SPC Levact, SPC Bendamustine Accord, Acepurin, Zyloric. 5. Brugger W ea. Bendamustine in indolent non-Hodgkin's lymphoma: a practice guide for patient management. <i>Oncologist</i> 2013;18:954-64. 6. Hummel M ea. Recurrent chemotherapy-induced tumor lysis syndrome (TLS) with renal failure in a patient with chronic lymphocytic leukemia - successful treatment and prevention of TLS with low-dose rasburicase. <i>Eur J Haematol</i> 2005;75:518-21. 7. Mundipharma Medical Company. Medical Department. Stellungnahme. Allopurinol und Hautreaktionen. 2012. 8. Sinterniklaas B. KNMP-werkgroep beoordeelt interacties oncologische middelen. Adviezen doorgevoerd in de interacties in de G-Standaard. <i>Pharm Weekbl</i> 2017;152:30.
Bleomycine	Zuurstof	Longtoxiciteit	Attendeer de anesthesist op het gebruik van bleomycine in het verleden	1. Stockley IH. Drug interactions. 2. SPC Bleomycine PCH. 3. Goldiner PL ea. Factors influencing postoperative morbidity and mortality in patients treated with bleomycin. <i>Br Med J</i> 1978;1:1664-7. 4. Gilson AJ ea. Reactivation of bleomycin lung toxicity following oxygen administration. A second response to corticosteroids. <i>Chest</i> 1985;88:304-6.

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Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				<p>5. Cersosimo RJ ea. Bleomycin pneumonitis potentiated by oxygen administration. <i>Drug Intell Clin Pharm</i> 1985;19:921-3.</p> <p>6. Hulbert JC ea. Risk factors of anesthesia and surgery in bleomycin-treated patients. <i>J Urol</i> 1983;130:163-4.</p> <p>7. Ingrassia TS ea. Oxygen-exacerbated bleomycin pulmonary toxicity. <i>Mayo Clin Proc</i> 1991;66:173-8.</p> <p>8. Douglas MJ ea. Bleomycin and subsequent anaesthesia: a retrospective study at Vancouver General Hospital. <i>Can Anaesth Soc J</i> 1980;27:449-52.</p> <p>9. Donohue JP ea. Complications of retroperitoneal lymph node dissection. <i>J Urol</i> 1981;125:338-40.</p> <p>10. Donat SM ea. Bleomycine associated pulmonary toxicity: is perioperative oxygen restriction necessary? <i>J Urol</i> 1998;160:1347-52.</p> <p>11. Huls G ea. Bleomycin and scuba diving: to dive or not to dive? <i>Neth J Med</i> 2003;61:50-3.</p>
Boceprevir	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine, oxcarbazepine, dexamethason, modafinil)	De boceprevirspiegel daalt	Monitor het effect van boceprevir (dexamethason) of vermijd de combinatie (overige CYP3A4-inductoren)	<p>1. Burger DM. Klinisch relevante interacties met anti-HCV-middelen. www.knmp.nl.</p> <p>2. SPC Victrelis.</p> <p>3. Jackson A ea. Pharmacokinetics of the co-administration of boceprevir and St John's wort to male and female healthy volunteers. <i>J Antimicrob Chemother</i> 2014;69:1911-1915.</p>
Brexiprazol	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	De brexiprazolspiegel daalt	Vermijd de combinatie of monitor het effect en pas zo nodig de dosering aan	<p>1. SPC + EPAR Rxulti. www.ema.europa.eu.</p> <p>2. Stockley IH. Drug interactions.</p>
Broomperidol	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	De broomperidolspiegel daalt	Monitor het effect van broomperidol	<p>1. Stockley IH. Drug interactions.</p> <p>2. Otani K ea. Interaction between carbamazepine and bromperidol. <i>Eur J Clin Pharmacol</i> 1997;52:219-22.</p> <p>3. SPC Impromen.</p>
Buspiron	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, primidon, rifabutine, rifampicine, modafinil, oxcarbazepine, etravirine)	De buspironspiegel daalt	Vervang buspiron afhankelijk van de indicatie door een benzodiazepine (kortdurend gebruik) of een SSRI/venlafaxine (chronische angststoornis) of monitor het effect van buspiron	<p>1. Hansten PhD ea. Drug interactions analysis and management.</p> <p>2. Stockley IH. Drug interactions.</p> <p>3. SPC Buspar.</p> <p>4. Kivistö K ea. Interactions of buspirone with traconazole and rifampicin: effects on the pharmacokinetics of the active 1-(2-pyrimidinyl)-piperazine metabolite of buspirone. <i>Pharmacol Toxicol</i> 1999;84:94-7.</p> <p>5. Lambert TS ea. Concentrations and effects of buspirone are considerably reduced by rifampicin. <i>Br J Clin Pharmacol</i> 1998;45:381-5.</p>

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Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Busulfan	Itraconazol, ketoconazol	De busulfanspiegel stijgt	Vermijd de combinatie, staak gebruik van itraconazol of ketoconazol	<ol style="list-style-type: none"> Hansten PhD ea. Drug interactions analysis and management. Stockley IH. Drug interactions. SPC Myleran, Busilvex, Itraconazol, Ketoconazol. Buggia I ea. Itraconazole can increase systemic exposure to busulfan in patients given bone marrow transplantation. GITMO (Gruppo Italiano Trapianto di Midollo Osseo). <i>Anticancer Res</i> 1996;16:2083-8. Méresse V ea. Risk factors for hepatic veno-occlusive disease after high-dose busulfan-containing regimens followed by autologous bone marrow transplantation: a study in 136 children. <i>Bone Marrow Transplant</i> 1992;10:135-41.
Busulfan	Metronidazol	De busulfanspiegel stijgt	Vermijd de combinatie, staak gebruik van ketoconazol	<ol style="list-style-type: none"> Chung H ea. A significant influence of metronidazole on busulfan pharmacokinetics: a case report of therapeutic drug monitoring. <i>Ther Drug Monit</i> 2017;39:208-10. Gulbis AM ea. Busulfan and metronidazole: an often forgotten but significant drug interaction. <i>Ann Pharmacother</i> 2011;45:e39. De Castro FA ea. Influence of metronidazole on oral busulfan test dose. <i>Int J Transplant Res Med</i> 2016, 2:019. Open Access, uploaded by de Castro. www.researchgate.net/publication/309538729_Influence_of_Metronidazole_on_Oral_Busulfan_Test_Dose. Nilsson C ea. The effect of metronidazole on busulfan pharmacokinetics in patients undergoing hematopoietic stem cell transplantation. <i>Bone Marrow Transplant</i> 2003;31:429-35. SPC Metronidazol.
Capecitabine, fluorouracil	Foliumzuur (5 mg)	Toxiciteit van capecitabine of fluorouracil	Vermijd de combinatie	<ol style="list-style-type: none"> Stockley IH. Drug interactions. SPC Xeloda, Fluracedil, Fluorouracil-TEVA. Clippe C ea. Lethal toxicity of capecitabine due to abusive folic acid prescription? <i>Clin Oncol (R Coll Radiol)</i> 2003;15:299-300. Mainwaring P ea. Interaction of 5-fluorouracil with folates. <i>Aust N Z J Med</i> 1995;25:60.
Capecitabine, fluorouracil, tegafur	Fenytoïne	De fenytoïnespiegel stijgt	Monitor de fenytoïnespiegel	<ol style="list-style-type: none"> Tsuda A ea. The first case of phenytoin intoxication associated with the concomitant use of phenytoin and TS-1, a combination preparation of tegafur, gimeracil, and oteracil potassium. <i>Cancer Chemother Pharmacol</i> 2008;62:427-32. Grenader T ea. Significant drug interaction: phenytoin toxicity due to erlotinib. <i>Lung Cancer</i> 2007;57:404-6. Rosemergy I ea. Phenytoin toxicity as a result of 5-fluorouracil administration. <i>N Z Med J</i> 2002;115:U124. Gilbar PJ ea. Phenytoin and fluorouracil interaction. <i>Ann Pharmacother</i> 2001;35:1367-70. Brickell K ea. Phenytoin toxicity due to fluoropyrimidines (5FU/capecitabine): three case reports. <i>Br J Cancer</i> 2003;89:615-6. SPC Xeloda, UFT. Vasbinder EC ea. Intoxicatie door fenytoïne na gebruik van capecitabine. <i>Casus medicatiebewaking: cytostatica in de openbare apotheek. Pharm Weekbl</i> 2004;139:239-41. Stockley IH. Drug interactions Hansten PhD ea. Drug interactions analysis and management. NVZA-Commissie Analyse & Toxicologie. Fenytoïne TDM. www.nvza.nl.

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Capecitabine, fluorouracil, tegafur	Metronidazol	Toxiciteit van capecitabine of fluorouracil	Vermijd de combinatie, kies een alternatief voor metronidazol, of staak gebruik capecitabine, fluorouracil of tegafur	<ol style="list-style-type: none"> 1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. Windle R ea. Neutropenia associated with metronidazole. <i>BMJ</i> 1979;2:1219. 4. Bardakji Z ea. 5-Fluorouracil-metronidazole combination therapy in metastatic colorectal cancer. Clinical, pharmacokinetic and in vitro cytotoxicity studies. <i>Cancer Chemother Pharmacol</i> 1986;18:140-4. 5. SPC Flagyl.
Cariprazine	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, rifabutine, rifampicine)	De werking van cariprazine kan afnemen	Vermijd de combinatie	<ol style="list-style-type: none"> 1. SPC + EPAR Reagila. 2. FDA Prescribing Information Vraylar.
Oncologische middelen (cytostatisch: bleomycine, carboplatine, carmustine, cisplatine, cyclofosfamide, dacarbazine, doxorubicine, mercaptopurine, vinblastine, vincristine)	Fenytoïne	Therapie-falen van fenytoïne	Monitor de fenytoïnespiegel en pas zo nodig de dosering aan	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. Hansten PhD ea. Drug interactions analysis and management. 3. De Jonge ME ea. Significant induction of cyclophosphamide and thiotepa metabolism by phenytoin. <i>Cancer Chemother Pharmacol</i> 2005;55:507-10. 4. Sladek NE ea. Plasma concentrations of 4-hydroxycyclophosphamide and phosphoramidate mustard in patients repeatedly given high doses of cyclophosphamide in preparation for bone marrow transplantation. <i>Cancer Treat Rep</i> 1984;68:1247-54. 5. SPC Diphantoïne, Vinblastine, Vincristine. 6. Gattis WA ea. Possible interaction involving phenytoin, dexamethasone, and antineoplastic agents: a case report and review. <i>Ann Pharmacother</i> 1996;30:520-6. 7. Dofferhoff AS ea. Decreased phenytoin level after carboplatin treatment. <i>Am J Med</i> 1990;89:247-8. 8. Grossman SA. Decreased phenytoin levels in patients receiving chemotherapy. <i>Am J Med</i> 1989;87:505-10. 9. Neef C ea. An interaction between cytostatic and anticonvulsant drugs. <i>Clin Pharmacol Ther</i> 1988;43:372-5. 10. Jarosinski PF ea. Altered phenytoin clearance during intensive chemotherapy for acute lymphoblastic leukemia. <i>J Pediatr</i> 1988;112:996-9. 11. Sylvester RK ea. Impaired phenytoin bioavailability secondary to cisplatin, vinblastine, and bleomycin. <i>Ther Drug Monit</i> 1984;6:302-5. 12. Fincham RW ea. Decreased phenytoin levels in antineoplastic therapy. <i>Ther Drug Monit</i> 1979;1:277-83. 13. Bollini P ea. Decreased phenytoin level during antineoplastic therapy: a case report. <i>Epilepsia</i> 1983;24:75-8. 14. Villikka K ea. Cytochrome P450-inducing antiepileptics increase the clearance of vincristine in patients with brain tumors. <i>Clin Pharmacol Ther</i> 1999;66:589-93. 15. Chen TL ea. Nonlinear pharmacokinetics of cyclophosphamide in patients with metastatic breast cancer receiving high-dose chemotherapy followed by autologous bone marrow transplantation. <i>Cancer Res</i> 1995;55:810-6. 16. Williams ML ea. Enantioselective induction of cyclophosphamide metabolism by phenytoin. <i>Chirality</i> 1999;11:569-74. 17. Slattery JT ea. Conditioning regimen-dependent disposition of cyclophosphamide and hydroxycyclophosphamide in human marrow transplantation patients. <i>J Clin Oncol</i> 1996;14:1484-94. 18. Bagley CM ea. Clinical pharmacology of cyclophosphamide. <i>Cancer Res</i> 1973;33:226-33. 19. NVZA- Commissie Analyse & Toxicologie. Fenytoïne TDM. www.nvza.nl.

VERVOLG TABEL 3A. Klinisch relevant, interventie vereist

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Oncologische middelen (cytostatisch: bleomycine, cisplatine, cyclofosfamide, cytarabine, doxorubicine, etoposide, ifosfamide, methotrexaat, paclitaxel)	Valproïnezuur	Therapiefa- len van val- proïnezuur	Monitor de valproïnezuur- spiegel en pas zo nodig de dosering aan	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. Hansten PhD ea. Drug interactions analysis and management. 3. Ikeda H ea. Pharmacokinetic interaction on valproic acid and recurrence of epileptic seizures during chemotherapy in an epileptic patient. <i>Br J Clin Pharmacol</i> 2005;59:593-7. 4. Neef C ea. An interaction between cytostatic and anticonvulsant drugs. <i>Clin Pharmacol Ther</i> 1988;43:372-5. 5. Schröder H ea. Interference of high-dose methotrexate in the metabolism of valproate? <i>Pediatr Hematol Oncol</i> 1994;11:445-9. 6. Morikawa N ea. Pharmacokinetics of cytosine arabinoside, methotrexate, nimustine and valproic acid in cerebrospinal fluid during cerebrospinal fluid perfusion chemotherapy. <i>Biol Pharm Bull</i> 2000;23:784-7. 7. SPC Diphantoine. 8. NVZA-Commissie Analyse & Toxicologie. Valproïnezuur TDM. www.nvza.nl
Oncologische middelen (cytostatisch: cisplatine, cyclofosfamide, cytarabine, daunorubicine, doxorubicine, hydroxycarbamide, tioguanine, vincristine)	Carbamazepine	Therapiefa- len van carba- mazepine	Monitor de car- bamazepine- spiegel en pas zo nodig de dose- ring aan	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. Neef C ea. An interaction between cytostatic and anticonvulsant drugs. <i>Clin Pharmacol Ther</i> 1988;43:372-5. 3. Perez Nahum M ea. Reduced plasma carbamazepine level during chemotherapy in a child with malignant lymphoma. <i>Acta Paediatr Scand</i> 1990;79:873-5. 4. Villikka K ea. Cytochrome P450-inducing antiepileptics increase the clearance of vincristine in patients with brain tumors. <i>Clin Pharmacol Ther</i> 1999;66:589-93. 5. SPC Tegretol. 6. NVZA-Commissie Analyse & Toxicologie. Carbamazepine TDM. www.nvza.nl
Cisplatine	Aminoglycosiden/ amfotericine b	Nefrotoxi- citeit	Monitor de bijwerkingen (nefrotoxiciteit)	<ol style="list-style-type: none"> 1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. Haas A ea. The influence of aminoglycosides on the nephrotoxicity of cis-diamminedichloroplatinum in cancer patients. <i>J Infect Dis</i> 1983;14:363. 4. Cooper BW ea. Renal dysfunction during high-dose cisplatin therapy and autologous hematopoietic stem cell transplantation: effect of aminoglycoside therapy. <i>Am J Med</i> 1993;94:497-504. 5. Dentino M ea. Long term effect of cis-diamminedichloride platinum (CDDP) on renal function and structure in man. <i>Cancer</i> 1978;41:1274-81. 6. SPC Platosin, Amukin, Gentamicine, Tobramycine, Fungizone.
Cisplatine	Lisdiuretica	Nefrotoxi- citeit	Gebruik van lisdiuretica wordt ontraden tot 1 maand na staken van cisplatine	<ol style="list-style-type: none"> 1. Markman M ea. Nephrotoxicity with cisplatin and anti-hypertensive medications. <i>Ann Intern Med</i> 1982;96:257. 2. Ostrow S ea. High-dose cisplatin therapy using mannitol versus furosemide diuresis: comparative pharmacokinetics and toxicity. <i>Cancer Treat Rep</i> 1981;65:73-8. 3. Dumas M ea. Influence of frusemide on cis-dichloro-diammineplatinum (II) pharmaco-kinetics. <i>Eur J Drug Metab Pharmacokinet</i> 1987;12:203-6. 4. Dumas M ea. Evaluation of the effect of furosemide on ultrafilterable platinum kinetics in patients treated with cis-diamminedichloroplatinum. <i>Cancer Chemother Pharmacol</i> 1989;23:37-40. 5. Santoso JT ea. Saline, mannitol, and furosemide hydration in acute cisplatin nephrotoxicity: a randomised trial. <i>Cancer Chemother Pharmacol</i> 2003;52:13-8. 6. Hallmark RJ ea. Factors influencing ototoxicity in ovarian cancer patients treated with cis-platinum based chemotherapy. <i>Eur J Gynaec Oncol</i> 1992;13:35-44. 7. SPC's Platosin, Lasix, Burinex.

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Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Cladribine	Lamivudine, emtricitabine	Therapie-falen van cladribine	Vermijd gebruik van lamivudine of emtricitabine	1. Chtioui H ea. Concomitant treatment with lamivudine renders cladribine inactive by inhibition of its phosphorylation. <i>Br J Haematol</i> 2009;144:136-7.
Clozapine	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine) en omeprazol	Verminderde werking van clozapine	Overweeg de clozapinedosering te verhogen en monitor de clozapinespiegel	1. Joos AA ea. Pharmacokinetic interaction of clozapine and rifampicin in a forensic patient with an atypical mycobacterial infection. <i>J Clin Psychopharmacol</i> 1998;18:83-5. 2. Jerling M ea. Fluvoxamine inhibition and carbamazepine induction of the metabolism of clozapine: evidence from a therapeutic drug monitoring service. <i>Ther Drug Monit</i> 1994;16:368-74. 3. Tiihonen J ea. Carbamazepine-induced changes in plasma levels of neuroleptics. <i>Pharmacopsychiatry</i> 1995;28:26-8. 4. Raitasuo V ea. Effect of switching carbamazepine to oxcarbazepine on the plasma levels of neuroleptics. A case report. <i>Psychopharmacology (Berl)</i> 1994;116:115-6. 5. Raitasuo V ea. Carbamazepine and plasma levels of clozapine. <i>Am J Psychiatry</i> 1993;150:169. 6. Miller DD ea. Effect of phenytoin on plasma clozapine concentrations in two patients. <i>J Clin Psychiatry</i> 1991;52:23-5. 7. Mujeeb U Shad. A complex interaction between clozapine and phenytoin. <i>J Pharm Technol</i> 2004;20:280-2. 8. Facciola G ea. Inducing effect of phenobarbital on clozapine metabolism in patients with chronic schizophrenia. <i>Ther Drug Monit</i> 1998;20:628-30. 9. Lane HY ea. Elevated plasma clozapine concentrations after phenobarbital discontinuation. <i>J Clin Psychiatry</i> 1998;59:131-3. 10. Mookhoek EJ ea. Retrospective evaluation of the effect of omeprazole on clozapine metabolism. <i>Pharm World Sci</i> 2004;26:180-2. 11. Frick A ea. Omeprazole reduces clozapine plasma concentrations. A case report. <i>Pharmacopsychiatry</i> 2003;36:121-3. 12. Hansten PhD ea. Drug interactions analysis and management. 13. Stockley IH. Drug interactions. 14. SPC Leponex, Losec, Tegretol. 15. Nettekoven M. Oppassen met omeprazol. <i>Interactie met clozapine. Pharm Weekbl</i> 2010;27.
Cobicistat	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon; overige inductoren: dexamethason, oxcarbazepine)	De werking van het met cobicistat gebooste middel kan afnemen	Dexamethason: controleer de effectiviteit van het met cobicistat gebooste middel (elvitegravir of een HIV-proteaseremmer). Overige inductoren: combinatie wordt ontraden	1. SPC Tybost.
Anticonceptiva: vaginale ring/pleister	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine; overige inductoren: (fos) aprepitant, griseofulvine, modafinil,	De betrouwbaarheid van de vaginale ring of de pleister is verminderd tijdens het gebruik van en tot ten minste 4 weken na	Vervang de inductor of vervang de vaginale ring of de pleister door een levenorgestrelbevattend spiraaltje, een koperhoudend spiraaltje of de prikpil	1. SPC NuvaRing, Evra. 2. Brand AK ea. NHG-Standaard Anticonceptie. <i>Huisarts Wet</i> 2011;54:652-76. 3. Le Comte M ea. Nieuw advies bij interacties anticonceptiva en inductoren. Dosisverhoging pil geschrapt. <i>Pharm Weekbl</i> 2014;149:20.

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Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
	oxcarbazepine, perampanel, rufinamide, topiramate)	staken van de inductor		
Cortico-steroiden	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine, modafinil, oxcarbazepine, etravirine)	De corticosteroiden-spiegels dalen, de interactie is niet relevant bij een stootkuur corticosteroiden	Verhoog zo nodig de dosering corticosteroiden op geleide van het ziektebeeld	<ol style="list-style-type: none"> Hansten PhD ea. Drug interactions analysis and management. Stockley IH. Drug interactions. Ma RC ea. Carbamazepine and false positive dexamethasone suppression tests for Cushing's syndrome. <i>BMJ</i> 2005;330:299-300. Gullo D ea. The antiepileptic drug carbamazepine can cause adrenal insufficiency in patients under hormone replacement therapy for congenital adrenal hyperplasia. <i>Hormones (Athens)</i> 2013; 12:470-1. McAllister WA ea. Rifampicin reduces effectiveness and bioavailability of prednisolone. <i>Br Med J (Clin Res Ed)</i> 1983;286:923-5. Kyriazopoulou V ea. Rifampicin-induced adrenal crisis in Addisonian patients receiving corticosteroid replacement therapy. <i>J Clin Endocrinol Metab</i> 1984;59:1204-6. Carrie F ea. Rifampin-induced nonresponsiveness of giant cell arteritis to prednisone treatment. <i>Arch Intern Med</i> 1994;154:1521-4. Maisey DN ea. Letter: Rifampicin and cortisone replacement therapy. <i>Lancet</i> 1974;2:896-7. Olivesi A. Modified elimination of prednisolone in epileptic patients on carbamazepine monotherapy, and in women using low-dose oral contraceptives. <i>Biomed Pharmacother</i> 1986;40:301-8. Bartoszek M ea. Prednisolone and methylprednisolone kinetics in children receiving anticonvulsant therapy. <i>Clin Pharmacol Ther</i> 1987;42:424-32. Köbberling J ea. The influence of diphenylhydantoin and carbamazepine on the circadian rhythm of free urinary corticoids and on the suppressibility of the basal and the "impulsive" activity by dexamethasone. <i>Acta Endocrinol (Copenh)</i> 1973;72:308-18. Chalk JB ea. Phenytoin impairs the bioavailability of dexamethasone in neurological and neurosurgical patients. <i>J Neurol Neurosurg Psychiatry</i> 1984;47: 1087-90. McLelland J ea. Phenytoin/dexamethasone interaction: a clinical problem. <i>Lancet</i> 1978;1:1096-7.
Cyclofosfamide	Ciclosporine	De ciclosporinespiegel daalt	Monitor de ciclosporinespiegel	<ol style="list-style-type: none"> Stockley IH. Drug interactions. Nagamura F ea. Effect of cyclophosphamide on serum cyclosporine levels at the conditioning of hematopoietic stem cell transplantation. <i>Bone Marrow Transplant</i> 2003;32:1051-8. NVZA-Commissie Analyse & Toxicologie. Ciclosporine TDM. www.nvza.nl.
Ciclosporine	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine, modafinil, oxcarbazepine, etravirine)	De ciclosporinespiegel daalt	Vermijd de combinatie of monitor de ciclosporinespiegel en pas zo nodig de dosering aan	<ol style="list-style-type: none"> Stockley IH. Drug interactions. Hansten PhD ea. Drug interactions analysis and management. Valk-Swinkels CG ea. Lage ciclosporinespiegel na kort rifampicinegebruik. Immunosuppressie kan langdurig tekortschieten. <i>Ned Tijdschr Geneesk</i> 2013;157:1495-1500. Freitag VL ea. Effect of short-term rifampin on stable cyclosporine concentrations. <i>Ann Pharmacother</i> 1999;33:871-2. Rösche J ea. Possible oxcarbazepine interaction with cyclosporine serum levels: a single case study. <i>Clin Neuropharmacol</i> 2001;24:113-6.

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Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				<p>6. Allen RD ea. Cyclosporin and rifampicin in renal transplantation. <i>Lancet</i> 1985;1:980.</p> <p>7. Howard P ea. Cyclosporine-rifampin drug interaction. <i>Drug Intell Clin Pharm</i> 1985;19:763-4.</p> <p>8. Modry DL ea. Acute rejection and massive cyclosporine requirements in heart transplant recipients treated with rifampin. <i>Transplantation</i> 1995;39:313-4.</p> <p>9. Vandeveld C ea. Rifampin and ansamycin interactions with cyclosporine after renal transplantation. <i>Pharmacotherapy</i> 1991;11:88-9.</p> <p>10. Langhoff E ea. Rapid metabolism of cyclosporin and prednisone in kidney transplant patients on tuberculo-static treatment. <i>Lancet</i> 1983;ii:1303.</p> <p>11. Daniels NJ ea. Interaction between cyclosporin and rifampicin. <i>Lancet</i> 1984;ii:639.</p> <p>12. Alvarez JS ea. Effect of carbamazepine on cyclosporin blood level. <i>Nephron</i> 1991;58:235-6.</p> <p>13. Lele P ea. Cyclosporine and tegretol-another drug interaction. <i>Kidney Int</i> 1985;27:344.</p> <p>14. Hillebrand G ea. Valproate for epilepsy in renal transplant recipients receiving cyclosporine. <i>Transplantation</i> 1987;43:915-6.</p> <p>15. Schofield OM ea. Cyclosporin A in psoriasis: interaction with carbamazepine. <i>Br J Dermatol</i> 1990;122:425-6.</p> <p>16. Freeman DJ ea. Evaluation of cyclosporin-phenytoin interaction with observations on cyclosporin metabolites. <i>Br J Clin Pharmacol</i> 1984;18:887-93.</p> <p>17. Keown PA ea. Interaction between phenytoin and cyclosporine following organ transplantation. <i>Transplantation</i> 1984;38:304-6.</p> <p>18. Carstensen H ea. Interaction between cyclosporin A and phenobarbitone. <i>Br J Clin Pharmacol</i> 1986;21:550-1.</p> <p>19. Ruschitzka F ea. Acute heart transplant rejection due to Saint John's wort. <i>Lancet</i> 2000;355:548-9.</p> <p>20. Breidenbach T ea. Drug interaction of St John's wort with cyclosporin. <i>Lancet</i> 2000;355:1912.</p> <p>21. Breidenbach T ea. Profound drop of cyclosporin A whole blood trough levels caused by St. John's wort (<i>Hypericum perforatum</i>). <i>Transplantation</i> 2000;69:2229-30.</p> <p>22. De Smet PA ea. Sint-janskruid op de balans van werking en interacties. <i>Pharm Weekbl</i> 2000;135:455-62.</p> <p>23. Anoniem. Geneesmiddeleninteracties met Sint Janskruid. <i>Gebu Prikbord</i> 2000;34:48-9.</p> <p>24. Le Cacheux Ph ea. Syndrome de Gélinau chez une transplantée rénale. <i>La Presse Médicale</i> 1997;26:466.</p> <p>25. NVZA-Commissie Analyse & Toxicologie. Cyclosporine TDM. www.nvza.nl.</p>
Oncologische middelen (cytostatisch, bijv. capecitabine, fluorouracil en mercaptopurine)	Vitamine K-antagonisten	De verlenging van de stollingstijd kan sterker fluctueren	Trombosedienst inlichten en INR monitoren	<p>1. Stockley IH. Drug interactions.</p> <p>2. Hansten PhD ea. Drug interactions analysis and management.</p> <p>3. Standaard afhandeling VKA-interacties. www.fnt.nl.</p> <p>4. Richtlijn Antitrombotisch beleid 2015, pag. 221. Nederlandse Internisten Vereniging. https://richtlijndatabase.nl/richtlijn/antitrombotisch_beleid. Geraadpleegd februari 2019.</p> <p>5. Oudega R ea. NHG-Standaard Diepe veneuze trombose. <i>Huisarts Wet</i> 2008;51:24-37.</p> <p>6. SPC Xeloda, Teysuno, Pixuvri, Jevtana, Dacogen, Farydak, Zejula, Lynparza, Rubraca, Kyprolis, Ninlaro, Verzenios, Ibrance, Kisqali, Kymriah, Zydelig, Talzenna, Polivy, Adcetris, Yescarta, Imlygic.</p> <p>7. Tomlow B ea. Doorgesloten INR door gelijktijdig gebruik van acenocoumarol en capecitabine. <i>Ned Tijdschr Geneesk</i> 2012;156:1059-61.</p> <p>8. Fernández MA ea. Acenocoumarol and 6-mercaptopurine: an important drug interaction. <i>Haematologica</i> 1999;84:664-5.</p>

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Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				<p>9. Lyman HG ea. American Society of Clinical Oncology guideline: recommendations for venous thromboembolism prophylaxis and treatment in patients with cancer. <i>J Clin Oncol</i> 2007;25:5490-505.</p> <p>10. Nijland HM ea. Overzicht van interacties tussen oncolytica en orale anticoagulantia. <i>Pharm Weekbl</i> 2005;140:1442-7.</p> <p>11. Suzuki T ea. Probable interaction between warfarin and antitumor agents used in R-ESHAP chemotherapy. <i>Clin Ther</i> 2008;30:1155-9.</p> <p>12. Spiers AS ea. Increased warfarin requirement during mercaptopurine therapy: a new drug interaction. <i>Lancet</i> 1974;2:221-2.</p> <p>13. Martin LA ea. Diminished anticoagulant effects of warfarin with concomitant mercaptopurine therapy. <i>Pharmacotherapy</i> 2003;23:260-4.</p> <p>14. Cuddy PG ea. Influence of mitotane on the hypoprothrombinemic effect of warfarin. <i>South Med J</i> 1986;79:387-8.</p> <p>15. Buyck HC ea. Capecitabine-induced potentiation of warfarin. <i>Clin Oncol (R Coll Radiol)</i> 2003;15:297.</p> <p>16. Blum JL ea. Multicenter phase II study of capecitabine in paclitaxel-refractory metastatic breast cancer. <i>J Clin Oncol</i> 1999;17:485-93.</p> <p>17. Reigner B ea. Clinical pharmacokinetics of capecitabine. <i>Clin Pharmacokinet</i> 2001;40:85-104.</p> <p>18. Yildirim Y ea. Drug interaction between capecitabine and warfarin: a case report and review of the literature. <i>Int J Clin Pharmacol Ther</i> 2006;4:80-2.</p> <p>19. Scarfe MA ea. Possible drug interaction between warfarin and combination of levamisole and fluorouracil. <i>Ann Pharmacother</i> 1994;28:464-7.</p> <p>20. Wajima T ea. Possible interactions between warfarin and 5-fluorouracil. <i>Am J Hematol</i> 1992;40:238.</p> <p>21. Brown MC. Multisite mucous membrane bleeding due to a possible interaction between warfarin and 5-fluorouracil. <i>Pharmacotherapy</i> 1997;17:631-3.</p> <p>22. Kolesar JM ea. Warfarin-5-FU interaction - a consecutive case series. <i>Pharmacotherapy</i> 1999;19:1445-9.</p> <p>23. Brown MC. An adverse interaction between warfarin and 5-fluorouracil: a case report and review of the literature. <i>Chemotherapy</i> 1999;45:392-5.</p> <p>24. Le AT ea. Enhancement of warfarin response in a patient receiving etoposide and carboplatin chemotherapy. <i>Ann Pharmacother</i> 1997;31:1006-8.</p> <p>25. Tashima CK. Cyclophosphamide effect on coumarin anticoagulation. <i>South Med J</i> 1979;72:633-4.</p> <p>26. Ward K ea. Warfarin, etoposide, and vindesine interactions. <i>Cancer Treat Rep</i> 1984;68:817-8.</p> <p>27. Kinikar SA ea. Identification of a gemcitabine-warfarin interaction. <i>Pharmacotherapy</i> 1999;19:1331-3.</p> <p>28. Hall G ea. Intravenous infusions of ifosfamide/mesna and perturbation of warfarin anticoagulant control. <i>Postgrad Med J</i> 1990;66:860-1.</p> <p>29. Seifter EJ ea. Possible interactions between warfarin and antineoplastic drugs. <i>Cancer Treat Rep</i> 1985;69:244-5.</p> <p>30. Suzuki T ea. Probable interaction between warfarin and antitumor agents used in R-ESHAP chemotherapy. <i>Clin Ther</i> 2008;30:1155-9.</p> <p>31. Xiao JJ ea. Evaluation of drug-drug interactions of rucaparib and CYP1A2, CYP2C9, CYP2C19, CYP3A, and P-gp substrates in patients with an advanced solid tumor. <i>Clin Transl Sci</i> 2019;12:58-65.</p>

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Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Dabrafenib	Gemfibrozil	De dabrafenibspiegel stijgt	Vermijd gemfibrozil	1. SPC Tafinlar. 2. GSK result summary for 113771. http://www.gsk-clinicalstudyregister.com/result_detail.jsp?protocolld=113771&studyld=013C-CA7D-6002-478F-BEFC-343893AB5DAF&compound=GSK2118436 (geraadpleegd 22-10-2013). 3. Tafinlar prescribing information. http://www.accessdata.fda.gov/drugsatfda_docs/label/2013/202806s0001-bl.pdf . Geraadpleegd 10-12-2013.
Dabrafenib, lorlatinib, apalutamide	Midazolam	De midazolamspiegel daalt	Kies een alternatief voor midazolam (temazepam, flurazepam of oxazepam)	1. SPC Tafinlar, Erleada, Lorviqua. 2. Amerikaanse productinformatie Tafinlar. http://www.accessdata.fda.gov/drugsatfda_docs/label/2013/202806s0001bl.pdf (geraadpleegd nov 2013).
Daclatasvir	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine; overige inductoren: dexamethason, etravirine, modafinil, oxcarbazepine)	De werking van daclatasvir kan afnemen De spiegel van daclatasvir daalt door inductie	Daclatasvir + efavirenz, nevirapine of etravirine: verhoog dosering daclatasvir naar 90 mg 1x per dag Overige situaties: vermijd combinatie	1. SPC Daklinza. 2. Bifano M ea. Assessment of pharmacokinetic interactions of the HCV NS5A replication complex inhibitor daclatasvir with antiretroviral agents: ritonavir-boostered atazanavir, efavirenz and tenofovir. <i>Antivir Ther</i> 2013;18:931-40.
Dacomitinib	Dextromethorfan	De dextromethorfan-spiegel stijgt	Vermijd de combinatie	1. Bello CL ea. The effect of dacomitinib (PF-00299804) on CYP2D6 activity in healthy volunteers who are extensive or intermediate metabolizers. <i>Cancer Chemother Pharmacol</i> 2012;69:991-7. 2. SPC Vizimpro.
Darolutamide	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	De darolutamidespiegel daalt	Vermijd de combinatie	1. Zurth C ea. Drug-drug interaction potential of darolutamide: in vitro and clinical studies. <i>Eur J Drug Metab Pharmacokinet</i> 2019;44: 747-59. 2. SPC Nubeqa.
Disopyramide	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	Vermindert antiaritmisch effect en toegenomen anticholinerge toxiciteit	Vervang CYP-3A4-inductor of monitor het effect van disopyramide en pas zo nodig de dosering aan	1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. Staum JM. Enzyme induction: rifampin-disopyramide interaction. <i>Ann Pharmacother</i> 1990;24:701-3. 4. Nightingale J ea. Effect of phenytoin on serum disopyramide concentrations. <i>Clin Pharm</i> 1987; 6:46-50. 5. Kapil RP ea. Disopyramide pharmacokinetics and metabolism: effect of inducers. <i>Br J Clin Pharmacol</i> 1987;24:781-91. 6. Staum JM ea. Enzyme induction: rifampin-disopyramide interaction. <i>DICP Ann Pharmacother</i> 1990;24:701-3. 7. Aitio M-L ea. Enhanced metabolism and diminished efficacy of disopyramide by enzyme induction. <i>Br J Clin Pharmacol</i> 1980;9:149-52. 8. Aitio M-L ea. The effect of enzyme induction on the metabolism of disopyramide in man. <i>Br J Clin Pharmacol</i> 1981;27:9-85. 9. SPC Ritmoforine Retard.
Dolutegravir	CYP3A4-inductoren, valproïnezuur	De dolutegravirspiegel daalt	Vermijd de combinatie (hypericum, etravirine) of monitor	1. SPC Tivicay. 2. Song I ea. Effect of carbamazepine on dolutegravir pharmacokinetics and dosing recommendation. <i>Eur J Clin Pharmacol</i> 2017;72:665-70.

VERVOLG TABEL 3A. Klinisch relevant, interventie vereist

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
			het effect van dolutegravir (valproïnezuur) of overweeg de dosering dolutegravir te verhogen naar tweemaal daags 50 mg (overige CYP3A4-inductoren)	3. Palazzo A ea. Lower dolutegravir plasma concentrations in HIV-positive patients receiving valproic acid. <i>J Antimicrob Chemother</i> 2018;73:826-7.
Doravirine	CYP3A4-inductoren	De doravirinespiegel daalt	Vermijd de combinatie of verhoog de doravirinedosering naar tweemaal daags 100 mg (rifabutine, dabrafenib of modafinil)	1. SPC Pifeltro, Delstrigo.
Doxorubicine	HIV-proteaseremmers	Toxiciteit van doxorubicine	Monitor de doxorubicinetoxiciteit	1. Stockley IH. Drug interactions. 2. Bower M ea. Protease inhibitors potentiate chemotherapy-induced neutropenia. <i>Blood</i> 2004;104:2943-6. 3. Vaccher E ea. Concomitant cyclophosphamide, doxorubicin, vincristine, and prednisone chemotherapy plus highly active antiretroviral therapy in patients with human immunodeficiency virus-related, non-Hodgkin lymphoma. <i>Cancer</i> 2001; 91:155-63. 4. Ratner L ea. Chemotherapy for human immunodeficiency virus-associated non-Hodgkin's lymphoma in combination with highly active antiretroviral therapy. <i>J Clin Oncol</i> 2001;19:2171-8. 5. Toffoli G ea. Effect of highly active antiretroviral therapy (HAART) on pharmacokinetics and pharmacodynamics of doxorubicin in patients with HIV-associated non-Hodgkin's lymphoma. <i>Ann Oncol</i> 2004;15:1805-9.
Doxycycline	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine, modafinil, oxcarbazepine, etravirine)	De doxycyclinespiegel daalt en mogelijk therapiefalen	Kies een alternatief voor doxycycline of wijzig de doxycyclinedosering	1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions.
Ebastine	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	De ebastinespiegel daalt	Overweeg ebastine te vervangen of wees bedacht op een mogelijke verminderde werking van ebastine	1. Shon JH ea. Itraconazole and rifampin alter significantly the disposition and antihistamine effect of ebastine and its metabolites in healthy participants. <i>J Clin Pharmacol</i> 2010;50:195-204. 2. SPC Kestine, Rifadin.
Efavirenz, nevirapine, etravir	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, primidon, rifabutine, rifampicine, modafinil, oxcarbazepine, etravirine)	De spiegels van efavirenz, nevirapine en etravir dalen	Vermijd combinatie of monitor het effect (dexamethason)	1. De Maat MM ea. Drug interaction between St. John's wort and nevirapine. <i>AIDS</i> 2001;15:420-1. 2. Stockley IH. Drug interactions.

VERVOLG TABEL 3A. Klinisch relevant, interventie vereist

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Enzalutamide	Gemfibrozil	De enzalutamidespiegel stijgt	Vermijd gemfibrozil of verlaag de dosering van enzalutamide	1. SPC Xtandi + EPAR Xtandi. 2. Gibbons JA ea. Pharmacokinetic drug interaction studies with enzalutamide. Clin Pharmacokinet 2015;54:1057-69.
Enzalutamide, apalutamide	Vitamine K-antagonisten	Verminderde effectiviteit van VKA's	Trombosedienst inlichten	1. SPC Xtandi, Erleada. 2. Gibbons JA ea. Pharmacokinetic drug interaction studies with enzalutamide. Clin Pharmacokinet 2015;54:1057-69. 3. Parrett JL ea. Enzalutamide-warfarin interaction necessitating warfarin dosage adjustment: a case report of successful clinical management. J Clin Pharm Ther 2018;43:276-9. 4. Standaard afhandeling VKA-interacties. www.fnt.nl.
Enzalutamide, apalutamide	Omeprazol, esomeprazol	Verminderde effectiviteit van omeprazol/esomeprazol	Verhoog de dosering van omeprazol/esomeprazol	1. SPC Xtandi + EPAR Xtandi; SPC Erleada. 2. Gibbons JA ea. Pharmacokinetic drug interaction studies with enzalutamide. Clin Pharmacokinet 2015;54:1057-69.
Etoposide	Ciclosporine	De etoposidespiegel stijgt	Verlaag de etoposidedosering	1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. Lacayo NJ ea. Pharmacokinetic interactions of cyclosporine with etoposide and mitoxantrone in children with acute myeloid leukemia. Leukemia 2002;16:920-7. 4. Bisogno G ea. High-dose cyclosporin with etoposide - toxicity and pharmacokinetic interaction in children with solid tumours. Br J Cancer 1998;77:2304-9. 5. Lum BL ea. Alteration of etoposide pharmacokinetics and pharmacodynamics by cyclosporine in a phase I trial to modulate multidrug resistance. J Clin Oncol 1992;10:1635-42. 6. Kawashiro T ea. A study on the metabolism of etoposide and possible interactions with antitumor or supporting agents by human liver microsomes. J Pharmacol Exp Ther 1998;286:1294-300. 7. SPC Etoposide Sandoz, Vepesid.
Everolimus	Ciclosporine	De everolimusspiegel stijgt	Vermijd de combinatie of overweeg de everolimusdosering te verlagen	1. Kovarik JM ea. Differential influence of two cyclosporine formulations on everolimus pharmacokinetics: a clinically relevant pharmacokinetic interaction. J Clin Pharmacol 2002;42:95-9. 2. Brandhorst G ea. Everolimus exposure in cardiac transplant recipients is influenced by concomitant calcineurin inhibitor. Ther Drug Monit 2008;30:113-6. 3. SPC Certican, Afinitor, Votubia. 4. Hansten PhD ea. Drug interactions analysis and management. 5. Stockley IH. Drug interactions. 6. Hummel M ea. Recommendations for use of Certican® (everolimus) after heart transplantation: results from a German and Austrian consensus conference. J Heart Lung Transplant 2005;24:S196-200.
Everolimus	Ciclosporine CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine; overige inductoren: dabrafenib, etravirine)	De everolimusspiegel daalt	Vermijd de combinatie of verhoog de dosering van everolimus	1. Kovarik JM ea. Effect of rifampin on apparent clearance of everolimus. Ann Pharmacother 2002;36:981-5. 2. SPC Certican, Afinitor, Votubia. 3. Hansten PhD ea. Drug interactions analysis and management. 4. Stockley IH. Drug interactions. 5. Hummel M ea. Recommendations for use of Certican® (everolimus) after heart transplantation: results from a German and Austrian consensus conference. J Heart Lung Transplant 2005;24:S196-200. 6. Lefevre S ea. Management of rifamycins-everolimus drug-drug interactions in a liver-transplant patient with pulmonary tuberculosis. Transpl Int 2012;25:e120-3.

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Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				7. Levavasseur M ea. Drug interaction between dabrafenib and immunosuppressive drugs: about one case. <i>Melanoma Res</i> 2016;26:532-4.
Everolimus	CYP3A4-remmers (claritromycine, cobicistat, erytromycine, fluconazol, imatinib, itraconazol, ketocozazol, posaconazol, verapamil, voriconazol, ritonavir)	De everolimuspiegel stijgt	Vermijd de combinatie of verhoog de dosering van everolimus	<ol style="list-style-type: none"> 1. Pea F ea. Pharmacokinetic interaction between everolimus and antifungal triazoles in a liver transplant patient. <i>Ann Pharmacother</i> 2008;42:1711-6. 2. Billaud EM ea. Management of metabolic cytochrome P450 3A4 drug-drug interaction between everolimus and azole antifungals in a renal transplant patient. <i>Clin Drug Investig</i> 2009;29:481-6. 3. Kovarik JM ea. Blood concentrations of everolimus are markedly increased by ketoconazole. <i>J Clin Pharmacol</i> 2005;45:514-8. 4. Kovarik JM ea. Effect of multiple-dose erythromycin on everolimus pharmacokinetics. <i>Eur J Clin Pharmacol</i> 2005;61:35-8. 5. Kovarik JM ea. Population pharmacokinetics of everolimus in de novo renal transplant patients: impact of ethnicity and comedications. <i>Clin Pharmacol Ther</i> 2001;70:247-54. 6. Kovarik JM ea. Pharmacokinetic interaction between verapamil and everolimus in healthy subjects. <i>Br J Clin Pharmacol</i> 2005;60:434-7. 7. Hansten PhD ea. Drug interactions analysis and management. 8. Stockley IH. Drug interactions. 9. SPC Certican, Afinitor, Votubia, VFeed. 10. Hummel M ea. Recommendations for use of Certican® (everolimus) after heart transplantation: results from a German and Austrian consensus conference. <i>J Heart Lung Transplant</i> 2005;24:S196-200. 11. Lecefel C ea. Worsening pneumonitis due to a pharmacokinetic drug-drug interaction between everolimus and voriconazole in a renal transplant patient. <i>J Clin Pharm Ther</i> 2015;40:119-20. 12. Pea F ea. Everolimus overexposure in a heart transplant patient receiving clarithromycin for the treatment of pneumonia. <i>Transpl Infect Dis</i> 2015; 17:926-8. 13. Van Oosterom AT ea. Combination signal transduction inhibition: a phase I/II trial of the oral mTOR-inhibitor everolimus (E, RAD001) and imatinib mesylate (IM) in patients (pts) with gastrointestinal stromal tumor (GIST) refractory to IM. <i>J Clin Oncol</i>, 2004 ASCO Annual Meeting Proceedings (Post-Meeting Edition) 2004;22(No 14S Suppl):3002. 14. Burger DM. Klinisch relevante interacties met anti-HIV-middelen en Klinisch relevante interacties met anti-HCV-middelen. www.knmp.nl.
Fentanyl, oxycodon	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine; overige inductoren: dabrafenib, etravirine)	De spiegels van fentanyl en oxycodon dalen	Vermijd de combinatie en overweeg fentanyl of oxycodon te vervangen door morfine of monitor het effect	<ol style="list-style-type: none"> 1. Morii H ea. Failure of pain control using transdermal fentanyl during rifampicin treatment. <i>J Pain Symptom Manage</i> 2007;33:5-6. 2. Takane H ea. Rifampin reduces the analgesic effect of transdermal fentanyl. <i>Ann Pharmacother</i> 2005;39:2139-40. 3. Kharasch ED ea. Influence of hepatic and intestinal cytochrome P4503A activity on the acute disposition and effects of oral transmucosal fentanyl citrate. <i>Anesthesiology</i> 2004;101:729-37. 4. Benoist GE ea. The combination of enzalutamide and opioids: a painful pitfall? <i>Eur Urol</i> 2019;75:351-2. 5. Westdorp H ea. Difficulties in pain management using oxycodone and fentanyl in enzalutamide-treated patients with advanced prostate cancer. Letter to editor. <i>J Pain and Sym Man</i> 2018;55:e6-8.

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Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				<p>6. Sakamoto A ea. Oxycodone resistance due to rifampin use in an osteosarcoma patient with tuberculosis. <i>Am J Case Rep</i> 2017;18:1130-4.</p> <p>7. Nieminen TH ea. Rifampin greatly reduces the plasma concentrations of intravenous and oral oxycodone. <i>Anesthesiology</i> 2009;110:1371-8.</p> <p>8. Lee H-K ea. Negative urine opioid screening caused by rifampin-mediated induction of oxycodone hepatic metabolism. <i>Clin Chim Acta</i> 2006;367:196-200.</p> <p>9. Andreassen TN ea. Influences on the pharmacokinetics of oxycodone: a multicentre cross-sectional study in 439 adult cancer patients. <i>Eur J Clin Pharmacol</i> 2011;67:493-506.</p> <p>10. Nieminen TH ea. St John's wort greatly reduces the concentrations of oral oxycodone. <i>Eur J Pain</i> 2010;14:854-9.</p> <p>11. SPC Durogesic, Breakyl, OxyContin, Xtandi.</p> <p>12. Stockley IH. Drug interactions.</p> <p>13. Hansten PhD ea. Drug interactions analysis and management.</p> <p>14. Heersche A ea. Monitor effect, pas dosis aan. <i>Pharm Weekbl</i> 2016;151:25.</p> <p>15. Wensveen B ea. Voorkom falen pijnmedicatie. CYP3A4-inductoren verlagen de spiegel van fentanyl en oxycodon. <i>Pharm Weekbl</i> 2019;154:12.</p>
Fesoterodine	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	De fesoterodinespiegel daalt	Overweeg fesoterodine te vervangen door tolterodine of monitor het effect van fesoterodine	1. SPC en Scientific Discussion Toviaz.
Guanfacine	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	De guanfacinespiegel daalt	Vermijd de combinatie (geleidelijk verlagen dosering), monitor het effect of verhoog tijdelijk de dosering van guanfacine	<p>1. Stockley IH. Drug interactions.</p> <p>2. Kiechel JR ea. Pharmacokinetic aspects of guanfacine withdrawal syndrome in a hypertensive patient with chronic renal failure. <i>Eur J Clin Pharmacol</i> 1983;25:463-6.</p> <p>3. SPC Intuniv.</p> <p>4. Heersche A ea. Inductoren en remmers van CYP3A4 beïnvloeden bloedspiegels ADHD-middel. Guanfacine: alert op interacties. <i>Pharm Weekbl</i> 2017;152:21.</p>
Haloperidol	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, primidon, rifabutine, rifampicine, modafinil, oxcarbazepine, etravirine)	De haloperidolspiegel daalt	Monitor de haloperidolspiegel	<p>1. Hansten PhD ea. Drug interactions analysis and management.</p> <p>2. Stockley IH. Drug interactions.</p> <p>3. Hesslinger B ea. Effects of carbamazepine and valproate on haloperidol plasma levels and on psychopathologic outcome in schizophrenic patients. <i>J Clin Psychopharmacol</i> 1999;19:310-5.</p> <p>4. Hirokane G ea. Interindividual variation of plasma haloperidol concentrations and the impact of concomitant medications: the analysis of therapeutic drug monitoring data. <i>Ther Drug Monit</i> 1999;21:82-6.</p> <p>5. Cohen D ea. Verergering van schizo-affectieve stoornis door interactie tussen haloperidol en carbamazepine. <i>Ned Tijdschr Geneesk</i> 2002;146:1942-4.</p> <p>6. Kidron R ea. Carbamazepine-induced reduction of blood levels of haloperidol in chronic schizophrenia. <i>Biol Psychiatry</i> 1985;20:219-22.</p> <p>7. Arana GW ea. Does carbamazepine-induced reduction of plasma haloperidol levels worsen psychotic symptoms? <i>Am J Psychiatry</i> 1986;143:650-1.</p> <p>8. Jann MW ea. Effects of carbamazepine on plasma haloperidol levels. <i>J Clin Psychopharmacol</i> 1985;5:106-9.</p>

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Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				<p>9. Kahn EM ea. Change in haloperidol level due to carbamazepine - a complicating factor in combined medication for schizophrenia. <i>J Clin Psychopharmacol</i> 1990;10:54-7.</p> <p>10. Fast DK ea. Effect of carbamazepine on neuroleptic plasma levels and efficacy. <i>Am J Psychiatry</i> 1986;143:117-8.</p> <p>11. Linnoila M ea. Effect of anticonvulsants on plasma haloperidol and thioridazine levels. <i>Am J Psychiatry</i> 1980;137:819-21.</p> <p>12. Kim YH ea. Effect of rifampin on the plasma concentration and the clinical effect of haloperidol concomitantly administered to schizophrenic patients. <i>J Clin Psychopharmacol</i> 1996;16:247-52.</p> <p>13. Takeda M ea. Serum haloperidol levels of schizophrenics receiving treatment for tuberculosis. <i>Clin Neuropharmacol</i> 1986;9:386-97.</p>
HIV-protease-remmers	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine, modafinil, oxcarbazepine, etravirine)	De spiegels van HIV-proteaseremmers dalen	Monitor de spiegel van HIV-proteaseremmers, monitor de toxiciteit van carbamazepine, monitor het effect van fenytoïne bij gelijktijdig gebruik met lopinavir of ritonavir, vermijd de combinatie met hypericum	<p>1. Stockley IH. Drug interactions.</p> <p>2. Hansten PhD ea. Drug interactions analysis and management.</p> <p>3. Piscitelli SC ea. Indinavir concentrations and St John's wort. <i>Lancet</i> 2000;355:547-8.</p> <p>4. De Smet PA ea. Sint-janskruid op de balans van werking en interacties. <i>Pharm Weekbl</i> 2000;135:455-62.</p> <p>5. Hugen PW ea. Carbamazepine-indinavir interaction causes antiretroviral therapy failure. <i>Ann Pharmacother</i> 2000;34:465-70.</p>
Ibrutinib	CYP3A4-remmers	De ibrutinibspiegel stijgt	Vermijd de combinatie of kies een alternatief voor de CYP3A4-remmer	<p>1. SPC Imbruvica.</p> <p>2. De Jong J ea. A drug-drug interaction study of ibrutinib with moderate/strong CYP3A inhibitors in patients with B-cell malignancies. <i>Leuk Lymphoma</i> 2018;59:2888-95.</p> <p>3. De Jong J ea. Effect of CYP3A perpetrators on ibrutinib exposure in healthy participants. <i>Pharmacol Res Perspect</i> 2015;3:e00156.</p>
Ibrutinib	Vitamine K-antagonisten	De bloedingsneiging neemt toe, maar de INR wordt niet beïnvloed	Monitor extra op bloedingen	<p>1. SPC Imbruvica.</p> <p>2. De Jong J ea. A drug-drug interaction study of ibrutinib with moderate/strong CYP3A inhibitors in patients with B-cell malignancies. <i>Leuk Lymphoma</i> 2018;59:2888-95.</p> <p>3. De Jong J ea. Effect of CYP3A perpetrators on ibrutinib exposure in healthy participants. <i>Pharmacol Res Perspect</i> 2015;3:e00156.</p>
Idelalisib, olaparib	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine; overige inductoren: etravirine)	De idelalisib- of olaparibspiegel daalt	Vermijd de combinatie of monitor het effect	<p>1. Dirix L ea. Effect of itraconazole and rifampin on the pharmacokinetics of olaparib in patients with advanced solid tumors: results of two phase I open-label studies. <i>Clin Ther</i> 2016;38:2286-99</p> <p>2. Jin F ea. Clinical drug interaction profile of idelalisib in healthy subjects. <i>J Clin Pharmacol</i> 2015;55:909-19.</p> <p>3. SPC Lynparza.</p> <p>4. SPC Zydelig + Zydelig prescribing information. www.accessdata.fda.gov/drugsatfda_docs/label/2014/2065451bl.pdf. Geraadpleegd 17-10-2014.</p>
Idelalisib, ribociclib	Midazolam	De midazolamspiegel stijgt	Kies een alternatief voor midazolam of monitor de bijwerkingen (toegenomen sedatie)	<p>1. SPC Zydelig + Zydelig prescribing information. www.accessdata.fda.gov/drugsatfda_docs/label/2014/2065451bl.pdf. Geraadpleegd 17-10-2014.</p> <p>2. SPC Kisqali.</p>

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Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Imatinib	Simvastatine	De simvastatinespiegel stijgt	Kies een alternatief voor simvastatine	1. Stockley IH. Drug interactions. 2. O'Brien SG ea. Effects of imatinib mesylate (STI571, Glivec) on the pharmacokinetics of simvastatin, a cytochrome p450 3A4 substrate, in patients with chronic myeloid leukaemia. Br J Cancer 2003;89:1855-9.
Imatinib	Ciclosporine	De ciclosporinespiegel stijgt	Monitor de ciclosporinespiegel en de nierfunctie	1. Bleyzac N ea. Pharmacokinetic drug interaction between cyclosporine and imatinib in bone marrow transplant children and model-based reappraisal of imatinib drug interaction profile. Ther Drug Monit 2014;36:724-9. 2. Mulder KE ea. Renal dysfunction in a renal transplant patient treated concurrently with cyclosporine and imatinib. Invest New Drugs 2012;30:2400-2. 3. Stockley IH. Drug interactions. 4. SPC Neoral, Glivec. 5. NVZA - TDM ciclosporine. www.kennisplein-nvza.nl. Geraadpleegd april 2015.
Immunocytine	Immunosuppressiva	Verminderde werking van immunocytine	Vermijd de combinatie	1. SPC Immucothel.
Immuno-modulerende oncologische middelen (atezolizumab, avelumab, blinatumomab, cemiplimab, dinutuximab, dinutuximab beta, durvalumab, ipilimumab, nivolumab, pembrolizumab)	Vaccins levend	Gegeneraliseerde infectie en verminderd effect vaccin	Vermijd de combinatie	1. SPC Vivotif, OncoTice, Priorix, Provarivax, Bavencio, Dinutuximab beta Apeiron, Imfinzi, Libtayo.
Immunosuppressiva	Vaccins niet-levend	Verminderd effect vaccin	Overweeg of het vaccin herhaald toegediend moet worden	1. LCI. Vragen en antwoorden over seizoensgriepvaccinatie bij oncologiepatiënten met of zonder chemotherapie. Medische Oncologie 2016:25-7. 2. Nationaal Programma Grieppreventie. SNPG-Handleiding Influenzavaccinatie. http://www.snpng.nl/griepvaccinatieprogramma . Geraadpleegd oktober 2016. 3. LCR-protocol Afweerstoornissen. www.lcr.nl. Geraadpleegd feb 2016. 4. LCI-richtlijnen Hepatitis B, Pneumokokkose, Rabiës, Tetanus. www.rivm.nl/Documenten_en_publicaties/Professioneel_Praktisch/Richtlijnen/Infectieziekten. Geraadpleegd februari 2016. 5. RIVM-richtlijn Vaccineren van hiv-patiënten binnen het vaccinatieprogramma hepatitis B-risicogroepen. http://www.rivm.nl/Documenten_en_publicaties/Professioneel_Praktisch/Richtlijnen/Infectieziekten . Geraadpleegd februari 2016. 6. LCR-richtlijn Tekenencefalitis. www.mijnlcr.nl. Geraadpleegd maart 2016. 7. NVR-richtlijn Verantwoord gebruik van biologicals. Januari 2011. www.nvr.nl/wp-content/uploads/2014/11/NVR-Medicijnen-richtlijn-verantwoord-gebruik-van-biologicals-januari-2011.pdf
Immunosuppressiva	Vaccins levend	Gegeneraliseerde infectie	Vermijd de combinatie	1. SPC Vivotif, OncoTice, Priorix, Provarivax, MabCampath, MabThera, Pixuvri, Jevtana, Levact, Arzerra, Yondelis, Jakavi, Gazyvaro, Lynparza, Lonsurf, Ibrance, Empliciti, Venclyxto, Besponsa, Darzalex, Kisqali, Ninlaro, Rydapt, Zejula, Mylotarg, Rubraca, Verzenio, Mektovi, Kymriah, Talzena, Sarclisa, Poteligeo, Polivy, Yescarta, Imlygic.

VERVOLG TABEL 3A. Klinisch relevant, interventie vereist

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				2. Geneesmiddel Informatie Centrum KNMP. Informatarium Medicamentorum. 3. LCR. Protocollen Reizigersadviesing. Indicaties en contra-indicaties (voor vaccinatie) en interferentie. Oktober 2011:B20-1 t/m B20-4. 4. LCR. Protocollen Reizigersadviesing. Niet-hiv-gerelateerde afweerstoornissen. Juli 2006:G10-2 t/m G10-8. 5. Stockley IH. Drug interactions. 6. Allison J. Methotrexate and smallpox vaccination. Lancet 1968;2:1250. 7. Rosenbaum EH ea. Vaccination of a patient receiving immunosuppressive therapy for lymphosarcoma. JAMA 1966;198:737-40.
Irinotecan	CYP3A4-remmers (claritromycine, cobicistat, erytromycine, itraconazol, ketocanazol, posaconazol, voriconazol, ritonavir, lopinavir/rtv)	De SN-38-spiegel neemt toe (actief metaboliet van irinotecan)	Kies een alternatief voor CYP3A4-remmer of monitor de SN-38-spiegel	1. Stockley IH. Drug interactions. 2. Kehrer DF ea. Modulation of irinotecan metabolism by ketoconazole. J Clin Oncol 2002;20:3122-9. 3. SPC Campto. 4. Corona G ea. Lopinavir-ritonavir dramatically affects the pharmacokinetics of irinotecan in HIV patients with Kaposi's sarcoma. Clin Pharmacol Ther 2008;83:601-6.
Irinotecan	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine; overige inductoren: etravirine)	De SN-38-spiegel neemt af (actief metaboliet van irinotecan)	Kies een alternatief voor CYP3A4-inductor of monitor de SN-38-spiegel	1. Yonemori K ea. Potential interactions between irinotecan and rifampin in a patient with small-cell lung cancer. Int J Clin Oncol 2004;9:206-9. 2. Mathijssen RH ea. Altered irinotecan metabolism in a patient receiving phenytoin. Anticancer Drugs 2002;13:139-40. 3. Crews KR ea. Altered irinotecan pharmacokinetics in pediatric high-grade glioma patients receiving enzyme-inducing anticonvulsant therapy. Clin Cancer Res 2002;8:2202-9. 4. Murry DJ ea. Influence of phenytoin on the disposition of irinotecan: a case report. J Pediatr Hematol Oncol 2002;24:130-3. 5. Innocenti F ea. A phase I trial of pharmacologic modulation of irinotecan with cyclosporine and phenobarbital. Clin Pharmacol Ther 2004;76:490-502. 6. Gajjar A ea. Effect of inpatient dosage escalation of irinotecan on its pharmacokinetics in pediatric patients who have high-grade gliomas and receive enzyme-inducing anticonvulsant therapy. Cancer 2003;97(9 Suppl): 2374-80. 7. Kuhn JG. Influence of anticonvulsants on the metabolism and elimination of irinotecan. A North American Brain Tumor Consortium preliminary report. Oncology (Williston Park) 2002;16(8 Suppl 7):33-40. 8. Mathijssen RH ea. Effects of St. John's wort on irinotecan metabolism. J Natl Cancer Inst 2002;94:1247-9. 9. Hansten PhD ea. Drug interactions analysis and management. 10. Stockley IH. Drug interactions. 11. SPC Campto.
Isavuconazol	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine, modafinil, oxcarbazepine, etravirine)	De isavuconazolspiegel daalt en mogelijk therapiefalen	Vermijd de combinatie	1. Townsend R ea. Pharmacokinetic evaluation of CYP3A4-mediated drug-drug interactions of isavuconazole with rifampin, ketoconazole, midazolam, and ethinyl estradiol/norethindrone in healthy adults. Clin Pharmacol Drug Dev 2016 Jun 8. 2. SPC + EPAR Cresemba.
Ivabradine	CYP3A4-inductoren (carbamazepine, efavirenz,	De ivabradinespiegel daalt	Pas de ivabradinedosering aan op geleide van	1. Portoles A ea. Effects of hypericum perforatum on ivabradine pharmacokinetics in healthy volunteers: an open-label, pharmacokinetic interaction clinical trial. J Clin Pharmacol 2006;46:1188-94.

VERVOLG TABEL 3A. Klinisch relevant, interventie vereist

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
	enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)		de hartfrequentie of vermijd de combinatie	2. SPC Procoralan.
Ixazomib	Rifampicine	De ixazomibspiegel daalt	Vermijd de combinatie of monitor het effect van ixazomib	1. SPC Ninlaro. 2. Gupta N ea. Effects of strong CYP3A inhibition and induction on the pharmacokinetics of ixazomib, an oral proteasome inhibitor: results of drug-drug interaction studies in patients with advanced solid tumors or lymphoma and a physiologically based pharmacokinetic analysis. J Clin Pharmacol 2018;58:180-192.
Lapatinib/vemurafenib	Digoxine	De digoxinespiegel stijgt	Monitor de digoxinespiegel en bijwerkingen	1. Stockley IH. Drug interactions. 2. SPC Tyverb, Zelboraf. 3. Tykerb prescribing information. www.accessdata.fda.gov/drugsatfda_docs/label/2011/022059s011s012bl.pdf. 4. McIntyre C ea. Effect of vemurafenib on the pharmacokinetics of a single dose of digoxin in patients with BRAFV600 mutation-positive metastatic malignancy. Poster AAPS 2015. http://abstracts.aaps.org/Verify/AAPS2015/PosterSubmissions/W5238.pdf. Ontvangen van fabrikant.
Levonorgestrel (morning after)	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine; overige inductoren: etravirine, griseofulvine, oxcarbazepine)	De levonorgestrelspiegel daalt en mogelijk therapiefalen	Kies een alternatief voor levonorgestrel of verhoog de levonorgestrel-dosering (eenmalig gebruik) naar 3 mg (niet bij combinatie met rifampicine)	1. SPC NorLevo. 2. Carten ML ea. Pharmacokinetic interactions between the hormonal emergency contraception, levonorgestrel (plan B), and efavirenz. Infect Dis Obstet Gynecol 2012;2012:137192. 3. CBG nieuwsbericht 09-08-2016. www.cbg-meb.nl/actueel/nieuws/2016/08/09/aangepast-advies-voor-gebruikers-morning-afterpil-die-ook-andere-medicatie-gebruiken. 4. Questions and answers on Levonelle and associated names (levonorgestrel, 1500 microgram tablets). Outcome of a procedure under Article 13 of Regulation (EC) 1234/2008. 27 May 2016. EMA/353887/2016. EMEA/H/A-13/1427. www.ema.europa.eu/docs/en_GB/document_library/Referrals_document/Levonelle_13/WC500207294.pdf. 5. Faculty of Sexual & Reproductive Healthcare Clinical Guidance. Emergency Contraception Clinical Effectiveness Unit. August 2011 (Updated January 2012). https://www.fsrh.org/documents/ceu-emergency-contraception-jan-2012/. Geraadpleegd 8-8-2016. 6. Crawford P ea. The interaction of phenytoin and carbamazepine with combined oral contraceptive steroids. Br J Clin Pharmacol 1990;30:892-6. 7. Fattore C ea. Induction of ethinylestradiol and levonorgestrel metabolism by oxcarbazepine in healthy women. Epilepsia 1999;40:783-7. 8. Klosterskov Jensen P ea. Possible interaction between oxcarbazepine and an oral contraceptive. Epilepsia 1992;33:1149-52. 9. Meyer B ea. A model to detect interactions between roxithromycin and oral contraceptives. Clin Pharm Ther 1990;47:671-4. 10. Stockley IH. Drug interactions. 11. Le Comte M ea. Faalkans morning-afterpil groter. CYP-inductoren verlagen spiegels levonorgestrel en ulipristal. Pharm Weekbl 2016;151:17.
Lurasidon	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	De lurasidonspiegel daalt	Vermijd de combinatie of monitor het effect	1. Chiu Y et al. Lurasidon drug-drug interaction studies: a comprehensive review. Drug Metab Drug Interact 2014;29:191-202. 2. SPC Latuda. 3. Hansten PhD ea. Drug interactions analysis and management.

VERVOLG TABEL 3A. Klinisch relevant, interventie vereist

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Maraviroc	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, primidon; overige inductoren: dexamethason, etravirine)	De maravirocspiegel daalt	Verhoog de maraviroc dosering (carbamazepine, efavirenz, etravirine, fenobarbital, fenytoïne) of monitor het effect van maraviroc (dexamethason) of vermijd de combinatie (hypericum)	<ol style="list-style-type: none"> 1. SPC Celsentri. 2. Stockley IH. Drug interactions. 3. Hansten PhD ea. Drug interactions analysis and management.
Maviret/zepatier	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, primidon; overige inductoren: dexamethason, etravirine)	De spiegels van maviret of zepatier dalen	Vermijd de combinatie	<ol style="list-style-type: none"> 1. SPC Maviret, Zepatier.
Mefloquine	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	De mefloquinespiegel daalt	Vermijd de combinatie	<ol style="list-style-type: none"> 1. Ridditid W ea. Effect of rifampin on plasma concentrations of mefloquine in healthy volunteers. J Pharm Pharmacol 2000;52:1265-9. 2. Stockley IH. Drug interactions. 3. SPC Lariam. 4. LCI Richtlijn Malaria. https://lci.rivm.nl/richtlijnen/malaria.
Methadon	Cotrimoxazol, CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine, modafinil, oxcarbazepine, etravirine)	De methadonspiegel daalt, gevallen van ontrekkingsverschijnselen zijn gemeld	Monitor het effect van methadon en pas zo nodig de dosering aan of kies een alternatief voor de CYP3A4-inductor	<ol style="list-style-type: none"> 1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. SPC Symoron. 4. Holmes VF. Rifampin-induced methadone withdrawal in AIDS. J Clin Psychopharmacol 1990;10:443-4. 5. Van Leeuwen DJ. Rifampicine leidt tot onthoudingsverschijnselen bij methadongebruikers. Ned Tijdschr Geneesk 1986;130:548-50. 6. Bending MR ea. Rifampicin and methadone withdrawal. Lancet 1977;1:1211. 7. Kreek MJ ea. Rifampin-induced methadone withdrawal. N Engl J Med 1976;294:1104-6. 8. Bell J ea. The use of serum methadone levels in patients receiving methadone maintenance. Clin Pharmacol Ther 1988;43:623-9. 9. Liu SJ ea. Case report of barbiturate-induced enhancement of methadone metabolism and withdrawal syndrome. Am J Psychiatry 1984;141:1287-8. 10. Tong TG ea. Phenytoin-induced methadone withdrawal. Ann Intern Med 1981;94:349-51. 11. Finelli PF. Phenytoin and methadone tolerance. N Engl J Med 1976;294:227.
Methotrexaat	Cotrimoxazol, trimethoprim	Methotrexaattoxiciteit	Vermijd de combinatie, behalve in behandeling van acute lymfoblastische leukemie (ALL) is profylaxe met laag gedoseerd cotrimoxazol	<ol style="list-style-type: none"> 1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. Cudmore J ea. Methotrexate and trimethoprim-sulfamethoxazole: toxicity from this combination continues to occur. Can Fam Physician 2014;60:53-6. 4. Davis SA ea. Prescriptions for a toxic combination: use of methotrexate plus trimethoprim-sulfamethoxazole in the United States. South Med J 2014;107:292-3. 5. Levinsen M ea. Pneumocystis jiroveci pneumonia prophylaxis during maintenance therapy influences methotrexate/6-mercaptopurine dosing but not event-free survival for childhood acute lymphoblastic leukemia. Eur J Haematol 2012;88:78-86.

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Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				<p>6. Sosin M ea. Low dose methotrexate and bone marrow suppression. <i>BMJ</i> 2003;326:266-7.</p> <p>7. Maricic M ea. Megaloblastic pancytopenia in a patient receiving concurrent methotrexate and trimethoprim-sulfamethoxazole treatment. <i>Arthritis Rheum</i> 1986;29:133-5.</p> <p>8. Govert JA ea. Pancytopenia from using trimethoprim and methotrexate. <i>Ann Intern Med</i> 1992;117:877-8.</p> <p>9. Kobrinsky NL ea. Acute megaloblastic anemia induced by high-dose trimethoprim-sulfamethoxazole. <i>Ann Intern Med</i> 1981;94:780-1.</p> <p>10. Chevrel G ea. Allergic pancytopenia to trimethoprim-sulphamethoxazole for <i>Pneumocystis carinii</i> pneumonia following methotrexate treatment for rheumatoid arthritis. <i>Rheumatology (Oxford)</i> 1999;38:475-6.</p> <p>11. Yang CH ea. Toxic epidermal necrolysis following combination of methotrexate and trimethoprim-sulfamethoxazole. <i>Int J Dermatol</i> 2000;39:621-3.</p> <p>12. Ferrazzini G ea. Interaction between trimethoprim-sulfamethoxazole and methotrexate in children with leukemia. <i>J Pediatr</i> 1990;117:823-6.</p> <p>13. Steuer A ea. Methotrexate and trimethoprim: a fatal interaction. <i>Br J Rheumatol</i> 1998;37:105-6.</p> <p>14. Jeurissen ME ea. Pancytopenia and methotrexate with trimethoprim-sulfamethoxazole. <i>Ann Intern Med</i> 1989;111:261.</p> <p>15. Ng HWK ea. Near fatal drug interactions with methotrexate given for psoriasis. <i>BMJ</i> 1987;295:752-3.</p> <p>16. Saravana S ea. Myelotoxicity due to methotrexate - an iatrogenic cause. <i>Eur J Haematol</i> 2003;71:315-6.</p> <p>17. Hendriks FA ea. Is <i>Pneumocystis</i>-profylaxe met co-trimoxazol geïndiceerd bij patiënten die behandeld worden voor reumatoïde artritis? <i>Reumatologen Vademecum</i> 2008;11:1-3.</p> <p>18. Watts CS ea. Prophylactic trimethoprim-sulfamethoxazole does not affect pharmacokinetics or pharmacodynamics of methotrexate. <i>J Pediatr Hematol Oncol</i> 2016;38:449-52.</p> <p>19. Tamaki H ea. Safety of methotrexate and low-dose trimethoprim-sulfamethoxazole in patients with ANCA-associated vasculitis [abstract]. <i>Arthritis Rheumatol</i> 2017;69(suppl 10). http://acrabstracts.org/abstract/safety-of-methotrexate-and-low-dose-trimethoprim-sulfamethoxazole-in-patients-with-anca-associated-vasculitis. Geraadpleegd 8 maart 2018.</p>
Methotrexaat	Ciclosporine	De spiegels van beide geneesmiddelen stijgen	Monitor de bijwerkingen van methotrexaat, monitor de nierfunctie en de ciclosporine-spiegel	<p>1. Hansten PhD ea. Drug interactions analysis and management.</p> <p>2. Stockley IH. Drug interactions.</p> <p>3. Fox RI ea. Combined oral cyclosporin and methotrexate therapy in patients with rheumatoid arthritis elevates methotrexate levels and reduces 7-hydroxy-methotrexate levels when compared with methotrexate alone. <i>Rheumatology (Oxford)</i> 2003;42:989-94.</p> <p>4. Korstanje MJ ea. Cyclosporine and methotrexate: a dangerous combination. <i>J Am Acad Dermatol</i> 1990;23:320-1.</p> <p>5. Powles AV ea. Cyclosporin toxicity. <i>Lancet</i> 1990;335:610.</p> <p>6. NVZA-Commissie Analyse & Toxicologie. Cyclosporine TDM. www.nvza.nl.</p>
Methotrexaat	Nonsteroidal anti-inflammatoire drugs (NSAID's)	De methotrexaat spiegel stijgt	Vermijd de combinatie of monitor de methotrexaat-spiegel, toxiciteit en de nierfunctie	<p>1. Stockley IH. Drug interactions.</p> <p>2. Hansten PhD ea. Drug interactions analysis and management.</p> <p>3. Jacobs JW ea. Medicamenteuze behandeling van patiënten met (beginnende) reumatoïde artritis. <i>Ned Tijdschr Geneesk</i> 2000;144:211-6.</p>

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Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Methotrexaat	Probenecide	De methotrexaat spiegel stijgt	Vermijd de combinatie of monitor de methotrexaatspiegel, toxiciteit en de nierfunctie	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. Hansten PhD ea. Drug interactions analysis and management. 3. Aherne GW ea. Prolongation and enhancement of serum methotrexate concentrations by probenecid. <i>Br Med J</i> 1978;1:1097-9. 4. Howell SB ea. Effect of probenecid on cerebrospinal fluid methotrexate kinetics. <i>Clin Pharmacol Ther</i> 1979;26:641-6. 5. Lilly MB ea. Clinical pharmacology of oral intermediate-dose methotrexate with or without probenecid. <i>Cancer Chemother Pharmacol</i> 1985;15:220-2. 6. Basin KS ea. Severe pancytopenia in a patient taking low dose methotrexate and probenecid. <i>J Rheumatol</i> 1991;18:609-10.
Methotrexaat hoge dosis	Protonpompremmers (PPI)	De methotrexaatspiegel stijgt	Onderbreek gebruik PPI	<ol style="list-style-type: none"> 1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. Schellens JH ea. Beleid bij methotrexatintoxicatie. <i>Ned Tijdschr Geneesk</i> 2007;151:337-41. 4. Bauters TG ea. Interaction between methotrexate and omeprazole in an adolescent with leukemia: a case report. <i>Pharm World Sci</i> 2008;30:316-8. 5. Suzuki K ea. Co-administration of proton pump inhibitors delays elimination of plasma methotrexate in high-dose methotrexate therapy. <i>Br J Clin Pharmacol</i> 2008;67:44-9. 6. Joerger M ea. Determinants of the elimination of methotrexate and 7-hydroxy-methotrexate following high-dose infusional therapy to cancer patients. <i>Br J Clin Pharmacol</i> 2006;62:71-80. 7. Reid T ea. Impact of omeprazole on the plasma clearance of methotrexate. <i>Cancer Chemother Pharmacol</i> 1993;33:82-4. 8. Beorlegui B ea. Potential interaction between methotrexate and omeprazole. <i>Ann Pharmacother</i> 2000;34:1024-7. 9. Breedveld P ea. Mechanism of the pharmacokinetic interaction between methotrexate and benzimidazoles: potential role for breast cancer resistance protein in clinical drug-drug interactions. <i>Cancer Res</i> 2004;64:5804-11. 10. Ranchon F ea. Suspicion of drug-drug interaction between high-dose methotrexate and proton pump inhibitors: a case report - should the practice be changed? <i>Chemotherapy</i> 2011;57:225-9. 11. Santucci R ea. Severe intoxication with methotrexate possibly associated with concomitant use of proton pump inhibitors. <i>Anticancer Res</i> 2010;30:963-5. 12. Santucci R ea. Delayed elimination of methotrexate associated with co-administration of proton pump inhibitors. <i>Anticancer Res</i> 2010;30:3807-10. 13. Bezabeh S ea. Accumulating evidence for a drug-drug interaction between methotrexate and proton pump inhibitors. <i>Oncologist</i> 2012;17:550-4. 14. Reeves DJ ea. Retrospective evaluation of methotrexate elimination when co-administered with proton pump inhibitors. <i>Br J Clin Pharmacol</i> 2014;78:565-71. 15. SPC Metoject, Losec, Nexium. 16. Whelan J ea. Omeprazole does not alter plasma methotrexate clearance. <i>Cancer Chemother Pharmacol</i> 1999;44:88-9. 17. Tröger U ea. Severe myalgia from an interaction between treatments with pantoprazole and methotrexate. <i>BMJ</i> 2002;324:1497.

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Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Methotrexaat hoge dosis	Levetiracetam	De methotrexaatspiegel stijgt	Monitor de methotrexaatspiegel, toxiciteit en de nierfunctie	<ol style="list-style-type: none"> 1. Bain E ea. Drug-drug interaction between methotrexate and levetiracetam resulting in delayed methotrexate elimination. <i>Ann Pharmacother</i> 2014;48:292-6. 2. Parentelli AS ea. Drug-drug interaction between methotrexate and levetiracetam in a child treated for acute lymphoblastic leukemia. <i>Pediatr Blood Cancer</i> 2013;60:340-1. 3. SPC Keppra.
Methotrexaat, etoposide, teniposide	Carbamazepine, fenytoïne, fenobarbital	De carbamazepine-, fenytoïne- en fenobarbitalspiegel daalt	Monitor de spiegel van het anti-epilepticum	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. Hansten PhD ea. Drug interactions analysis and management. 3. Perez Nahum M ea. Reduced plasma carbamazepine level during chemotherapy in a child with malignant lymphoma. <i>Acta Paediatr Scand</i> 1990;79:873-5. 4. Bollini P ea. Decreased phenytoin level during antineoplastic therapy: a case report. <i>Epilepsia</i> 1983;24:75-8. 5. Jarosinski PF ea. Altered phenytoin clearance during intensive chemotherapy for acute lymphoblastic leukemia. <i>J Pediatr</i> 1988;112:996-9. 6. Rodman JH ea. Altered etoposide pharmacokinetics and time to engraftment in pediatric patients undergoing autologous bone marrow transplantation. <i>J Clin Oncol</i> 1994;12:2390-7. 7. Relling MV ea. Adverse effect of anticonvulsants on efficacy of chemotherapy for acute lymphoblastic leukaemia. <i>Lancet</i> 2000;356:285-90. 8. NVZA-Commissie Analyse & Toxicologie. Carbamazepine TDM, Fenobarbital TDM, Fenytoïne TDM. www.nvza.nl.
Midazolam, alprazolam	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine, modafinil, oxcarbazepine, etravirine)	De spiegels van midazolam en alprazolam dalen	Kies een alternatief voor midazolam of alprazolam (temazepam, flurazepam of oxazepam) of verhoog de dosering	<ol style="list-style-type: none"> 1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. Backman JT ea. The area under the plasma concentration-time curve for oral midazolam is 400-fold larger during treatment with itraconazole than with rifampicin. <i>Eur J Clin Pharmacol</i> 1998;54:53-8. 4. Backman JT ea. Rifampin drastically reduces plasma concentrations and effects of oral midazolam. <i>Clin Pharmacol Ther</i> 1996;59:7-13. 5. Backman JT ea. Concentrations and effects of oral midazolam are greatly reduced in patients treated with carbamazepine or phenytoin. <i>Epilepsia</i> 1996;37:253-7. 6. Arana GW ea. Carbamazepine-induced reduction of plasma alprazolam concentrations: a clinical case report. <i>J Clin Psychiatry</i> 1988;49:448-9. 7. Greenblatt DJ ea. Alprazolam pharmacokinetics, metabolism, and plasma levels: clinical implications. <i>J Clin Psychiatry</i> 1993;54(10 suppl):4-11. 8. Gibbons JA ea. Pharmacokinetic drug interaction studies with enzalutamide. <i>Clin Pharmacokinet</i> 2015;54:1057-69. 9. SPC + EPAR Xtandi
Mirtazapine	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	De mirtazapinespiegel daalt	Verhoog de mirtazapinedosering of monitor het effect	<ol style="list-style-type: none"> 1. Spaans E ea. Concomitant use of mirtazapine and phenytoin: a drug-drug interaction study in healthy male subjects. <i>Eur J Clin Pharmacol</i> 2002;58:423-9. 2. Sitsen JM ea. Drug-drug interaction studies with mirtazapine and carbamazepine in healthy male subjects. <i>Eur J Drug Metab Pharmacokinet</i> 2001;26:109-21. 3. Stockley IH. Drug interactions. 4. SPC Remeron.
Mitotaan	Spironolacton	Verminderd effect van mitotaan	Vermijd de combinatie of monitor de spironolactonspiegel	<ol style="list-style-type: none"> 1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. Wortsman J ea. Mitotane. Spironolactone antagonism in Cushing's syndrome. <i>JAMA</i> 1977;238:2527. 4. SPC Lysodren.

VERVOLG TABEL 3A. Klinisch relevant, interventie vereist

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Netupitant	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine; overige inductoren: etravirine)	De nepu- tantspiegel daalt	Monitor het effect van netu- pitant	1. SPC + EPAR Akynzeo. 2. Calcagnile S et al. Effect of netupitant, a highly selective NK ₁ receptor antagonist, on the pharmacokinetics of palonosetron and impact of the fixed dose combination of netupitant and palonosetron when coadministered with ketoconazole, rifampicin, and oral contraceptives. Support Care Cancer 2013;21:2879-87.
Olaparib	CYP3A4-remmers (claritromycine, cobicistat, erytromycine, itraconazol, ketocozazol, posaconazol, voriconazol, ritonavir, lopinavir/rtv)	Olaparibtoxi- citeit	Vermijd de com- binatie of verlaag de dosering van olaparib	1. Dirix L ea. Effect of itraconazole and rifampin on the pharmacokinetics of olaparib in patients with advanced solid tumors: results of two phase I open-label studies. Clin Ther 2016;38:2286-99. 2. SPC + EPAR Lynparza.
Anticonceptie- pil	Modafinil, enzalutamide, mitotaan	De spiegels van orale anticoncep- tiva dalen	Vermijd de com- binatie	1. Robertston P Jr ea. Effect of modafinil on the pharmacokinetics of ethinyl estradiol and triazolam in healthy volunteers. Clin Pharmacol Ther 2002;71:46-56. 2. Hansten PhD ea. Drug interactions analysis and management. 3. Stockley IH. Drug interactions. 4. SPC Modiodal. 5. Brand AK ea. NHG-Standaard Anticonceptie. Huisarts Wet 2011;54:652-76. 6. Le Comte M ea. Nieuw advies bij interacties anticonceptiva en inductoren. Dosisverhoging pil geschrapt. Pharm Weekbl 2014;149:20.
Panobinostat	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine; overige inductoren: etravirine)	Therapie- falen van palbociclib of ribociclib	Vermijd de com- binatie of monitor het effect van palbociclib of ribociclib	1. SPC + EPAR Farydak. 2. Farydak prescribing information. http://www.accessdata.fda.gov/drugsatfda_docs/label/2015/205353s0001-bl.pdf . Geraadpleegd 12-11-2015.
Panobinostat	CYP3A4-remmers (claritromycine, cobicistat, erytromycine, itraconazol, ketocozazol, posaconazol, voriconazol, ritonavir)	Toxiciteit van palbociclib of ribociclib	Vermijd de com- binatie of verlaag de dosering van palbociclib of ribociclib	1. Hamberg P ea. Effect of ketoconazole-mediated CYP3A4 inhibition on clinical pharmacokinetics of panobinostat (LBH589), an orally active histone deacetylase inhibitor. Cancer Chemother Pharmacol 2011;68:805-13. 2. SPC + EPAR Farydak.
Perampanel	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine, oxcarbazepine)	De peram- panelspiegel daalt	Overweeg de perampanel- dosering aan te passen op basis van de geobserve- eerde effecti- viteit	1. Stockley IH. Drug interactions. 2. Steinhoff BJ ea. Efficacy and safety of adjunctive perampanel for the treatment of refractory partial seizures: a pooled analysis of three phase III studies. Epilepsia 2013;54:1481-9. 3. Serratos JM ea. Safety and tolerability of perampanel: a review of clinical trial data. Acta Neurol Scand Suppl 2013;197:30-5. 4. SPC + EPAR Fycompa. 5. Fycompa prescribing information. www.accessdata.fda.gov/drugsatfda_docs/label/2012/202834lbl.pdf . Geraadpleegd 10 juni 2014.
Progestagenen	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, primidon, rifabutine, rifampicine, modafinil, oxcarbazepine)	De spiegel van proges- tagen daalt	Vermijd de combinatie en kies een andere methode van anticonceptie	1. Stockley IH. Drug interactions. 2. Hansten PhD ea. Drug interactions analysis and management. 3. SPC Cerazette, Implanon, Exluton. 4. Back DJ ea. Evaluation of Committee on safety of Medicines yellow card reports on oral contraceptive-drug interactions with anti-convulsants and antibiotics. Br J Clin Pharmacol 1988;25:527-32.

VERVOLG TABEL 3A. Klinisch relevant, interventie vereist

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				<p>5. Crawford P ea. The interaction of phenytoin and carbamazepine with combined oral contraceptive steroids. <i>Br J Clin Pharmacol</i> 1990;30:892-96.</p> <p>6. Bacon L ea. Comment on: Unintended pregnancies with the etonogestrel implant (Implanon): a case series from postmarketing experience in Australia. <i>Contraception</i> 2006;73:111-2.</p> <p>7. Patni S ea. Ectopic pregnancy with Implanon. <i>J Fam Plann Reprod Health Care</i> 2006;32:115.</p> <p>8. Medicines Safety Update. Unintended pregnancy due to interaction between etonogestrel implant (Implanon) and carbamazepine. <i>Aust Prescriber</i> 2010;33:185.</p> <p>9. Anonymous. Implanon: interactions and failure of contraception. <i>Aust Adverse Drug React Bull</i> 2007:14-5.</p> <p>10. Harrison-Woolrych M ea. Unintended pregnancies with the etonogestrel implant (Implanon): a case series from postmarketing experience in Australia. <i>Contraception</i> 2005;71:306-8.</p> <p>11. Schindlbeck C ea. Failure of Implanon contraception in a patient taking carbamazepin for epilepsy. <i>Arch Gynecol Obstet</i> 2006;273:255-6.</p> <p>12. Lange J ea. Decreased efficacy of an etonogestrel implant in a woman on antiepileptic medications: a case report. <i>J Med Case Rep</i> 2014;8:43.</p> <p>13. Pfrunder A ea. Interaction of St John's wort with low-dose oral contraceptive therapy: a randomized controlled trial. <i>Br J Clin Pharmacol</i> 2003;56:683-90.</p> <p>14. Contraception. Clinical Effectiveness Unit. January 2011 (updated september 2011). www.fsrh.org/pdfs/CEUGuidanceDrugInteractionsHormonal.pdf. Geraadpleegd mei 2013.</p> <p>15. Barditch-Crovo P ea. The effects of rifampin and rifabutin on the pharmacokinetics and pharmacodynamics of a combination oral contraceptive. <i>Clin Pharmacol Ther</i> 1999;65:428-38.</p> <p>16. LeBel M ea. Effects of rifabutin and rifampicin on the pharmacokinetics of ethinylestradiol and norethindrone. <i>J Clin Pharmacol</i> 1998;38:1042-50.</p> <p>17. Joshi JV ea. A study of interaction of a low-dose combination oral contraceptive with anti-tubercular drugs. <i>Contraception</i> 1980;21:617-29.</p> <p>18. Doose DR ea. Effect of topiramate or carbamazepine on the pharmacokinetics of an oral contraceptive containing norethindrone and ethinyl estradiol in healthy obese and nonobese female subjects. <i>Epilepsia</i> 2003;44:540-9.</p> <p>19. Brand AK ea. NHG-Standaard Anticonceptie. <i>Huisarts Wet</i> 2011;54:652-76.</p> <p>20. Nederlandse Vereniging voor Neurologie en de Nederlandse Liga tegen Epilepsie. Richtlijn Epilepsie 2013. http://epilepsie.neurologie.nl. Geraadpleegd mei 2014.</p> <p>21. Nederlandse Vereniging van Artsen voor Longziekten en Tuberculose. Richtlijn medicamenteuze behandeling van tuberculose 2005. www.nvalt.nl. Geraadpleegd mei 2014.</p> <p>22. Faculty of Sexual & Reproductive Healthcare - Clinical Guidance. Drug interactions with hormonal contraception. Clinical Effectiveness Unit. January 2011 (updated september 2011). www.fsrh.org/pdfs/CEUGuidanceDrugInteractionsHormonal.pdf. Geraadpleegd mei 2013.</p> <p>25. Leticee N ea. Contraceptive failure of etonogestrel implant in patients treated with antiretrovirals including efavirenz. <i>Contraception</i> 2012;85:425-7.</p>

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Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				26. Matiluko AA ea. Early contraceptive failure of Implanon in an HIV-seropositive patient on triple antiretroviral therapy with zidovudine, lamivudine and efavirenz. <i>J Fam Plann Reprod Health Care</i> 2007;33:277-8.
QT-verlengende middelen (hoog/middel/laag QT-verlengend potentieel)	QT-verlengende middelen (hoog/middel/laag QT-verlengend potentieel)	QTc-intervalverlenging	Vermijd de combinatie of monitor ECG	<ol style="list-style-type: none"> 1. Woosley RL ea. www.CredibleMeds.org, QTdrugs List - Known Risk of TdP, AZCERT, Inc. 1822 Innovation Park Dr., Oro Valley, AZ 85755. Geraadpleegd maart 2020. 2. Note for guidance on the clinical evaluation of QT/QTc interval prolongation and proarrhythmic potential for non-antiarrhythmic drugs (CHMP/ICH/2/04). www.ema.europa.eu/docs/en_GB/document_library/Scientific_guideline/2009/09/WC500002879.pdf. Geraadpleegd februari 2018. 3. Werkgroep QT-interacties. Afhandeling van QT-interacties: wijzigingen per 1 juni 2019. Adviezen bij QTc-verlenging aangepast na evaluatie. <i>Pharm Weekbl</i> 2019;154:14. 4. Werkgroep QT-interacties. Drie categorieën en nieuwe adviezen bij QTc-verlenging. Afhandeling van QT-interacties: praktische leidraad bij medicatiebewaking. <i>Pharm Weekbl</i> 2018;153:16-7. 5. Bindraban AN ea. Development of a risk model for predicting QTc interval prolongation in patients using QTc-prolonging drugs. <i>Int J Clin Pharm</i> 2018;40:1372-9. 6. Van den Bemt PM. ea. Eindrapport project: Ontwikkeling en implementatie van een clinical rule ter ondersteuning van afhandeling van QT-verlengende interacties. 31 maart 2017. 7. Tisdale JE ea. Effectiveness of a clinical decision support system for reducing the risk of QT interval prolongation in hospitalized patients. <i>Circ Cardiovasc Qual Outcomes</i> 2014;7:381-90. 8. Haugaa KH ea. Institution-wide QT alert system identifies patients with a high risk of mortality. <i>Mayo Clin Proc</i> 2013;88:315-25. 9. Vandael E ea. A smart algorithm for the prevention and risk management of QTc prolongation based on the optimized RISQ- PATH model. <i>Br J Clin Pharmacol</i> 2018;84:2824-35.
Quetiapine	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine; overige inductoren: oxcarbazepine)	De quetiapinespiegel daalt en mogelijk therapiefalen	Vermijd de combinatie of monitor het effect en/of de quetiapinespiegel	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. Hansten PhD ea. Drug interactions analysis and management. 3. Castberg I ea. Quetiapine and drug interactions: evidence from a routine therapeutic drug monitoring service. <i>J Clin Psychiatry</i> 2007;68:1540-5. 4. Savasi I ea. Quetiapine blood level variability (letter to editor). <i>Can J Psychiatry</i> 2002;47:94. 5. Wong YW ea. The effects of concomitant phenytoin administration on the steady-state pharmacokinetics of quetiapine. <i>J Clin Psychopharmacol</i> 2001;21:89-93. 6. Grimm SW ea. Effects of cytochrome P450 3A modulators ketoconazole and carbamazepine on quetiapine pharmacokinetics. <i>Br J Clin Pharmacol</i> 2006;61:58-69. 7. Fitzgerald BJ ea. Elevation of carbamazepine-10,11-epoxide by quetiapine. <i>Pharmacotherapy</i> 2002;22:1500-3. 8. SPC Seroquel, Tegretol, Diphantoïne, Rifadin, fenobarbital, Trileptal, Rifabutin. 9. McGrane IR ea. Serum quetiapine concentration changes with concomitant oxcarbazepine therapy in a boy with autism spectrum disorder. <i>J Child Adolesc Psychopharmacol</i> 2015;25:729-30.

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Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Kinidine	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine, modafinil, oxcarbazepine, etravirine)	De kinidine-spiegel daalt	Monitor de kinidinespiegel, monitor het klinisch effect van kinidine, wijzig de dosering of stop de CYP3A4-inductor	<ol style="list-style-type: none"> 1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. Data JL ea. Interaction of quinidine with anticonvulsant drugs. N Engl J Med 1976;294:699. 4. Russo ME ea. The effect of phenytoin on quinidine pharmacokinetics. Drug Intell Clin Pharm 1982;16:480. 5. Kroboth FJ ea. Phenytoin-theophylline-quinidine interaction. N Engl J Med 1983;308:725. 6. Twum-Barima Y ea. Evaluation of rifampicin-quinidine interaction. Clin Pharmacol Ther 1980;27:290. 7. Twum-Barima Y ea. Quinidine-rifampicin interaction. N Engl J Med 1981;304:1466-9. 8. Schwartz A ea. Quinidine-rifampin interaction. Am Heart J 1984;107:789-90.
Raltegravir	UGT-inductoren (carbamazepine, enzalutamide, fenobarbital, fenytoïne, mitotaan, oxcarbazepine, primidon, rifampicine)	De raltegravirspiegel daalt	Vermijd de combinatie (raltegravir 600 mg eenmaal daags) of verhoog de dosering van 400 mg tweemaal daags naar 800 mg tweemaal daags	<ol style="list-style-type: none"> 1. SPC Isentress.
Regorafenib, darolutamide	Rosuvastatine	Rosuvastatinetoxiciteit (myopathie)	Instrueer patiënt om rosuvastatinetoxiciteit te monitoren	<ol style="list-style-type: none"> 1. SPC Stivarga, Crestor, SPC Nubeqa. 2. PSUR Rosuvastatin. https://www.ema.europa.eu.proxy.library.uu.nl/documents/psusa/rosuvastatin-cmdh-scientific-conclusions-amendments-product-information-implementation-timetable/00002664/201711_en.pdf 3. Zurth C ea. Drug-drug interaction potential of darolutamide: in vitro and clinical studies. Eur J Drug Metab Pharmacokinet 2019;44:747-59.
Regorafenib, vandetanib	Rifampicine	De werking van regorafenib of vandetanib kan wijzigen	Kies een alternatief voor regorafenib of vandetanib, of monitor het effect van regorafenib of vandetanib	<ol style="list-style-type: none"> 1. Martin P ea. Pharmacokinetic drug interactions with vandetanib during coadministration with rifampicin or itraconazole. Drugs RD 2011;11:37-51. 2. SPC + EPAR Caprelsa, SPC + EPAR Stivarga. 3. Stivarga prescribing information USA. www.accessdata.fda.gov/drugsatfda_docs/label/2012/2030851bl.pdf. Geraadpleegd 26-10-2012.
Rilpivirine	CYP3A4-inductoren (carbamazepine, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, primidon, rifabutine; overige inductoren: dexamethason, oxcarbazepine)	De rilpivirine-spiegel daalt	Verhoog de rilpivirinedosering naar 50 mg eenmaal daags (rifabutine) of vermijd de combinatie (overige CYP3A4-inductoren)	<ol style="list-style-type: none"> 1. SPC Edurant.
Risperidone	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	De risperidonspiegel daalt	Monitor de risperidonspiegel	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. Hansten PhD ea. Drug interactions analysis and management. 3. De Leon J ea. Risperidone and cytochrome P450 3A. J Clin Psychiatry 1997;58:450. 4. Takahashi H ea. Development of parkinsonian symptoms after discontinuation of carbamazepine in patients concurrently treated with risperidone: two case reports. Clin Neuropharmacol 2001;24:358-60. 5. Spina E ea. Adverse drug interaction between risperidone and carbamazepine in a patient with chronic schizophrenia and deficient CYP2D6 activity. J Clin Psychopharmacol 2001;21:108-9.

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Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				<p>6. Spina E ea. Plasmaconcentrations of risperidon and 9-hydroxyrisperidone: effect of comedication with carbamazepine or valproate. <i>Ther Drug Monit</i> 2000;22:481-5.</p> <p>7. Ono S ea. Significant pharmacokinetic interaction between risperidone and carbamazepine: its relationship with CYP2D6 genotypes. <i>Psychopharmacol</i> 2002;162:50-4.</p> <p>8. Yatham LN ea. Mood stabilisers plus risperidone or placebo in the treatment of acute mania. <i>Br J Psychiatry</i> 2003;182:141-7.</p> <p>9. Sanderson DR. Drug interaction between risperidone and phenytoin resulting in extrapyramidal symptoms. <i>J Clin Psychiatry</i> 1996;57:177.</p> <p>10. Kim K-A ea. Effect of rifampin, an inducer of zCYP3A4 and P-glycoprotein, on the pharmacokinetics of risperidone. <i>J Clin Pharmacol</i> 2008;48:66-72.</p> <p>11. Mahatthanatrakul W ea. Rifampin, a cytochrome CYP3A4 inducer, decreases plasmaconcentrations of antipsychotic risperidone in healthy volunteers. <i>J Clin Pharmacol Ther</i> 2007;32:161-7.</p> <p>12. Alfaro CL ea. Carbamazepine and/or fluvoxamine drug interaction in a patient on multiple psychotropic medications. <i>Ann Pharmacother</i> 2000;34:122-3.</p> <p>13. Mula M ea. Carbamazepine - risperidone interactions in patients with epilepsy. <i>Clin Neuropharmacol</i> 2002;25:97-100.</p>
Rivaroxaban	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	De rivaroxabanspiegel daalt en verhoogt risico op cardiovasculaire events	Vermijd de combinatie	<p>1. SPC + Scientific Discussion Xarelto.</p> <p>2. Altena R ea. Clinical challenges related to novel oral anticoagulants: drug-drug interactions and monitoring. <i>Haematologica</i> 2014;99:e26-7.</p> <p>3. Mega JL ea. Rivaroxaban in patients with a recent acute coronary syndrome. <i>N Engl J Med</i> 2012;366:9-19.</p> <p>4. Becerra AF ea. Decreased rivaroxaban levels in a patient with cerebral vein thrombosis receiving phenytoin. <i>Case Rep Hematol</i> 2017;2017:4760612.</p> <p>5. Stöllberger C ea. Recurrent venous thrombosis under rivaroxaban and carbamazepine for symptomatic epilepsy. <i>Neurol Neurochir Pol</i> 2017;51:194-6.</p> <p>6. Le Comte M ea. Pas op met inductoren bij DOAC's. Ook bij ticagrelor bestaat theoretisch risico op therapiefalen. <i>Pharm Weekbl</i> 2015;150:29.</p>
Rolapitant	Rifampicine	De rolapitantspiegel daalt	Monitor het effect van rolapitant	<p>1. SPC/EPAR Varuby.</p>
Ruxolitinib	Fluconazol	De ruxolitinibspiegel stijgt	Vermijd de combinatie of overweeg de ruxolitinibdosering te verlagen	<p>1. SPC Jakavi</p> <p>2. Aslanis V ea. Multiple administrations of fluconazole increase plasma exposure to ruxolitinib in healthy adult subjects. <i>Cancer Chemother Pharmacol</i> 2019;84:749-57.</p> <p>3. Shi JG ea. Predicting drug-drug interactions involving multiple mechanisms using physiologically based pharmacokinetic modeling: a case study with ruxolitinib. <i>Clin Pharmacol Ther</i> 2015;97:177-85.</p> <p>4. Umehara K. Drug-drug Interaction (DDI) assessments of ruxolitinib, a dual substrate of CYP3A4 and CYP2C9, using a verified physiologically based pharmacokinetic (PBPK) model to support regulatory submissions. <i>Drug Metab Pers Ther</i> 2019;34(2).</p>
Sertindol	CYP3A4-Inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, primidon, rifabutine, rifampicine, modafinil, oxcabazepine, etravirine)	De sertindolspiegel daalt	Vermijd de combinatie of monitor het effect van sertindol	<p>1. Stockley IH. Drug interactions.</p> <p>2. Quillet D ea. Population pharmacokinetics of sertindole in patients with schizophrenia. <i>Clin Pharmacol Ther</i> 1997;61:177.</p> <p>3. Data on file Lundbeck. Uit: Ereshefsky L. Pharmacokinetics and drug interactions: update for new antipsychotics. <i>J Clin Psychiatry</i> 1996;57:12-25.</p>

VERVOLG TABEL 3A. Klinisch relevant, interventie vereist

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Simvastatine/ atorvastatine	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, primidon, rifabutine, rifampicine, modafinil, oxcarbazepine, etravirine)	De spiegels van atorvastatine en simvastatine dalen	Vervang door pravastatine of rosuvastatine of monitor de lipidenspiegels	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. Hansten PhD ea. Drug interactions analysis and management. 3. Eggertsen R ea. Effects of treatment with a commercially available St John's Wort product (Movina) on cholesterol levels in patients with hypercholesterolemia treated with simvastatin. <i>Scand J Prim Health Care</i> 2007;25:154-9. 4. Andren L ea. Interaction between a commercially available St John's Wort product (Movina) and atorvastatin in patients with hypercholesterolemia. <i>Eur J Clin Pharmacol</i> 2007;63:913-6. 5. Kyrklund C ea. Rifampin greatly reduces plasma simvastatin and simvastatin acid concentrations. <i>Clin Pharmacol Ther</i> 2000;68:592-7. 6. Ucar M ea. Carbamazepine markedly reduces serum concentrations of simvastatin and simvastatin acid. <i>Eur J Clin Pharmacol</i> 2004;59:879-82. 7. Murphy MJ ea. Efficacy of statin therapy: possible effect of phenytoin. <i>Postgrad Med J</i> 1999;75:359-60. 8. Sugimoto K ea. Different effects of St John's wort on the pharmacokinetics of simvastatin and pravastatin. <i>Clin Pharmacol Ther</i> 2001;70:518-24. 9. Eggertsen R ea. Effects of treatment with a commercially available St John's Wort product (Movina) on cholesterol levels in patients with hypercholesterolemia treated with simvastatin. <i>Scand J Prim Health Care</i> 2007;25:154-9. 10. Dingemans J ea. Investigation of the mutual pharmacokinetic interactions between bosentan, a dual endothelin receptor antagonist, and simvastatin. <i>Clin Pharmacokinet</i> 2003;42:293-301. 11. Backman JT ea. Rifampin markedly decreases and gemfibrozil increases the plasma concentrations of atorvastatin and its metabolites. <i>Clin Pharmacol Ther</i> 2005;78:154-67. 12. Andren L ea. Interaction between a commercially available St. John's wort product (Movina) and atorvastatin in patients with hypercholesterolemia. <i>Eur J Clin Pharmacol</i> 2007;63:913-6. 13. Gerber JG ea. Effect of efavirenz on the pharmacokinetics of simvastatin, atorvastatin, and pravastatin: results of AIDS Clinical Trials Group 5108 study. <i>J Acquir Immune Defic Syndr</i> 2005;39:307-12.
Sirolimus	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, primidon, rifabutine, rifampicine, modafinil, oxcarbazepine, etravirine)	De sirolimus-spiegel daalt	Vervang CYP3A4-inductor of monitor de sirolimus-spiegel	<ol style="list-style-type: none"> 1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. SPC Rapamune. 4. Fridell JA ea. Phenytoin decreases the blood concentrations of sirolimus in a liver transplant recipient: a case report. <i>Ther Drug Monit</i> 2003;25:117-9. 5. NVZA TDM Monografieën https://tdm-monografie.org/monografie/Sirolimus.
Sofosbuvir/ ledipas/ velpatas/voxila	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine, modafinil, oxcarbazepine, etravirine)	De spiegels van sofosbuvir, ledipasvir, velpatasvir en voxilaprevir dalen	Vermijd de combinatie	<ol style="list-style-type: none"> 1. SPC Sovaldi, Harvoni, Epclusa, Vosevi.

VERVOLG TABEL 3A. Klinisch relevant, interventie vereist

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Tacrolimus	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine; overige inductoren: darbafeneb, etravirine)	De tacrolimuspiegel daalt	Vermijd de combinatie of monitor de tacrolimuspiegel	<ol style="list-style-type: none"> 1. Furlan V ea. Interactions between FK506 and rifampicin or erythromycin in pediatric liver recipients. <i>Transplantation</i> 1995;59:1217-8. 2. Kiuchi T ea. A hepatic graft tuberculosis transmitted from a living-related donor. <i>Transplantation</i> 1997;63:905-7. 3. Hebert MF ea. Effects of rifampin on tacrolimus pharmacokinetics in healthy volunteers. <i>J Clin Pharmacol</i> 1999;39:91-6. 4. Kuypers DR ea. Drug interaction between mycophenolate mofetil and rifampin: possible induction of uridine diphosphate-glucuronosyltransferase. <i>Clin Pharmacol Ther</i> 2005;78:81-8. 5. Thompson PA ea. Tacrolimus-phenytoin interaction. <i>Ann Pharmacother</i> 1996;30:544. 6. McLaughlin GE ea. Use of phenobarbital in the management of acute tacrolimus toxicity: a case report. <i>Transplant Proc</i> 2000;32:665-8. 7. Mai I ea. Impact of St John's wort treatment on the pharmacokinetics of tacrolimus and mycophenolic acid in renal transplant patients. <i>Nephrol Dial Transplant</i> 2003;18:819-22. 8. Bolley R ea. Tacrolimus-induced nephrotoxicity unmasked by induction of the CYP3A4 system with St John's wort. <i>Transplantation</i> 2002;73:1009. 9. Levavasseur M ea. Drug interaction between dabrafenib and immunosuppressive drugs: about one case. <i>Melanoma Research</i> 2016; 26:532-4. 10. Stockley IH. Drug interactions. 11. Hansten PhD ea. Drug interactions analysis and management. 12. SPC Prograft.
Talazoparib	Itraconazol	De toxiciteit van talazoparib neemt toe	Vermijd de combinatie of overweeg de talazoparibdosering te verlagen	<ol style="list-style-type: none"> 1. Elmeliegy M ea. Evaluation of the effect of P-glycoprotein inhibition and induction on talazoparib disposition in patients with advanced solid tumours. <i>Br J Clin Pharmacol</i> 2020;86:771-8. 2. SPC Talzenna.
Tamoxifen	Vitamine K-antagonisten	De stollings-tijd neemt toe	Monitor het INR	<ol style="list-style-type: none"> 1. Standaard afhandeling VKA-interacties. www.fnt.nl. 2. Stockley IH. Drug interactions. 3. Gustovic P ea. [Tamoxifen-acenocoumarol interaction. A potentially dangerous interaction]. <i>Therapie</i> 1994;49:55-6. [Article in French].
Tamoxifen	CYP2D6-remmers (bupropion, cinalcacet, fluoxetine, quinidine, paroxetine, sertraline, terbinafine)	De vorming van endoxifen (actief metaboliet) daalt	Vermijd de combinatie	<ol style="list-style-type: none"> 1. Binkhorst L ea. Augmentation of endoxifen exposure in tamoxifen-treated women following SSRI-switch. <i>Clin Pharmacokinet</i> 2016;55:249-55. 2. Stearns V ea. Active tamoxifen metabolite plasma concentrations after coadministration of tamoxifen and the selective serotonin reuptake inhibitor paroxetine. <i>J Natl Cancer Inst</i> 2003;95:1758-64. 3. Jin Y ea. CYP2D6 genotype, antidepressant use, and tamoxifen metabolism during adjuvant breast cancer treatment. <i>J Natl Cancer Inst</i> 2005;97:30-9. 4. Borges S ea. Quantitative effect of CYP2D6 genotype and inhibitors on tamoxifen metabolism: Implication for optimization of breast cancer treatment. <i>Clin Pharmacol Ther</i> 2006;80:61-74. 5. Kelly CM ea. Selective serotonin reuptake inhibitors and breast cancer mortality in women receiving tamoxifen: a population based cohort study. <i>BMJ</i> 2010;340:340c693. 6. Dezentjé VO ea. Effect of concomitant CYP2D6 inhibitor use and tamoxifen adherence on breast cancer recurrence in early-stage breast cancer. <i>J Clin Oncol</i> 2010;28:2423-9.

VERVOLG TABEL 3A. Klinisch relevant, interventie vereist

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				<p>7. Azoulay L ea. Concurrent use of tamoxifen with CYP2D6 inhibitors and the risk of breast cancer recurrence. <i>Breast Cancer Res Treat</i> 2011;126:695-703.</p> <p>8. Aubert RE ea. Risk of breast cancer in women initiating tamoxifen with CYP2D6 inhibitors. <i>Proc Am Soc Clin Oncol</i> 2009;27:803s.</p> <p>9. Lehmann D ea. Lack of attenuation in the antitumor effect of tamoxifen by chronic CYP isofom inhibition. <i>J Clin Pharmacol</i> 2004;44:861-5.</p> <p>10. Regan MM. CYP2D6 genotype and tamoxifen response in postmenopausal women with endocrine-responsive breast cancer: the breast international group 1-98 trial. <i>J Natl Cancer Inst</i> 2012;104:441-51.</p> <p>11. Visvanathan K ea. American Society of Clinical Oncology clinical practice guideline update on the use of pharmacologic interventions including tamoxifen, raloxifene, and aromatase inhibition for breast cancer risk reduction. <i>J Clin Oncol</i> 2009;27:3235-8.</p> <p>12. Richtlijn Mammacarcinoom (2.0) 2012: http://www.oncoline.nl/mammacarcinoom. Geraadpleegd december 2013.</p> <p>13. Donneyong MM ea. Risk of mortality with concomitant use of tamoxifen and selective serotonin reuptake inhibitors: multi-database cohort study. <i>BMJ</i> 2016;354:i5014.</p> <p>4. Juurlink D. Revisiting the drug interaction between tamoxifen and SSRI antidepressants. Editorial. <i>BMJ</i> 2016;354:i5309.</p> <p>14. Hansten PD. The underrated risks of tamoxifen drug interactions. <i>Eur J Drug Metab Pharmacokinet</i> 2018;43:495-508.</p> <p>15. Wensveen B ea. Weg vrij voor (es)citalopram. <i>Pharm Weekbl</i> 2016;151:16.</p> <p>16. Heersche A ea. Terbinafine en cinacalcet op lijst CYP2D6-remmers. <i>Pharm Weekbl</i> 2020;155:19.</p>
Tamoxifen	CYP3A4-inductoren	De tamoxifenspiegel en de vorming van endoxifen (actief metaboliet) dalen	Vermijd de combinatie of monitor de tamoxifen- en endoxifenspiegel en wijzig zo nodig de dosering	<p>1. Binkhorst L ea. Effects of CYP induction by rifampicin on tamoxifen exposure. <i>Clin Pharmacol Ther</i> 2012;92:62-7.</p> <p>2. Kivistö KT ea. Tamoxifen and toremifene concentrations in plasma are greatly decreased by rifampin. <i>Clin Pharmacol Ther</i> 1998;64:648-54.</p> <p>3. Henderson SL ea. Profound reduction in tamoxifen active metabolite endoxifen in a breast cancer patient treated with rifampin prior to initiation of an anti-TNFα biologic for ulcerative colitis: a case report. <i>BMC Cancer</i> 2016;16:304.</p> <p>4. Gryn SE ea. Profound reduction in the tamoxifen active metabolite endoxifen in a patient on phenytoin for epilepsy compared with a CYP2D6 genotype matched cohort. <i>Pharmacogenet Genomics</i> 2014;24:367-9.</p> <p>5. Lien EA ea. Decreased serum concentrations of tamoxifen and its metabolites induced by aminoglutethimide. <i>Cancer Res</i> 1990;50:5851-7.</p> <p>6. Stockley IH. Drug interactions.</p> <p>7. Hansten PhD ea. Drug interactions analysis and management.</p> <p>8. SPC Nolvadex.</p> <p>9. Hansten PD. The underrated risks of tamoxifen drug interactions. <i>Eur J Drug Metab Pharmacokinet</i> 2018;43:495-508.</p>
Tamoxifen	Hydroxychloroquine/chloroquine	De tamoxifentoxiciteit neemt toe (irreversibele retinopathie)	Vermijd de combinatie of monitor de toxiciteit (retinopathie)	<p>1. Melles RB ea. The risk of toxic retinopathy in patients on long-term hydroxychloroquine therapy. <i>JAMA Ophthalmol</i> 2014;132:1453-60.</p> <p>2. Marmor MF ea. Recommendations on screening for chloroquine and hydroxychloroquine retinopathy (2016 Revision). <i>Ophthalmology</i> 2016;123:1386-94.</p>

VERVOLG TABEL 3A. Klinisch relevant, interventie vereist

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				<p>3. Yusuf IH ea. The Royal College of Ophthalmologists recommendations on screening for hydroxychloroquine and chloroquine users in the United Kingdom: executive summary. <i>Eye (Lond)</i> 2018;32(7):1168-73.</p> <p>4. SPC Plaquenil, Tamoxifen Sandoz.</p>
Temsirolimus	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	De (tem)sirolimuspiegel daalt	Kies een alternatief voor CYP3A4-inductor of verhoog de temsirolimusdoser	<p>1. Boni J ea. Pharmacokinetic profile of temsirolimus with concomitant administration of cytochrome P450-inducing medications. <i>J Clin Pharmacol</i> 2007;47:1430-9.</p> <p>2. Chang SM ea. Phase I/pharmacokinetic study of CCI-779 in patients with recurrent malignant glioma on enzyme-inducing antiepileptic drugs. <i>Invest New Drugs</i> 2004;22:427-35.</p> <p>3. SPC + Scientific Discussion Torisel.</p>
Temsirolimus	CYP3A4-remmers (claritromycine, cobicistat, erytromycine, itraconazol, ketocozazol, posaconazol, voriconazol, ritonavir, lopinavir/rt)	De (tem)sirolimuspiegel stijgt	Kies een alternatief voor CYP3A4-inductor of verminder de temsirolimusdoser	<p>1. Boni JP ea. Differential effects of ketoconazole on exposure to temsirolimus following intravenous infusion of temsirolimus. <i>Br J Cancer</i> 2008;98:1797-802.</p> <p>2. SPC + scientific discussion Torisel. + Torisel prescribing information. www.accessdata.fda.gov/drugsatfda_docs/label/2011/022088s002s004s005s007s010s012-bl.pdf. Geraadpleegd 15-12-2014.</p>
Temsirolimus	Disulfiram/metronidazol	Torisel®-oplossing voor injectie bevat alcohol, resulterend in toxiciteit van alcohol bij combinatie met disulfiram of metronidazol	Vermijd de combinatie	<p>1. SPC Torisel.</p> <p>2. Stockley IH. Drug interactions.</p>
Tenofovir disoproxil	Diclofenac, ibuprofen, naproxen, methotrexaat	Verhoogde kans op (nefro)toxiciteit	Monitor de nierfunctie (combinatie met antiretrovirale therapie) of overweeg tenofovir disoproxil te vervangen door tenofovir alafenamide	<p>1. Bickel M ea. Acute kidney injury caused by tenofovir disoproxil fumarate and diclofenac co-administration. <i>HIV Med</i> 2013;14:633-8.</p> <p>2. Duim AR ea. Proximal tubular dysfunction in a HIV-1 patient with coadministered tenofovir disoproxil-fumarate and ibuprofen. <i>AIDS</i> 2015;29:746-8.</p>
Ticagrelor	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine; overige inductoren: etravirine)	De ticagrelorpiegel daalt	Kies een alternatief voor CYP3A4-inductor of wees bedacht op verminderde werking van ticagrelor	<p>1. SPC Brilique + Brilique - Procedural steps taken and scientific information after the authorisation 09/10/2014. www.ema.europa.eu. Geraadpleegd 12-1-2015.</p> <p>2. Teng R ea. Effect of rifampicin on the pharmacokinetics and pharmacodynamics of ticagrelor in healthy subjects. <i>Eur J Clin Pharmacol</i> 2013;69:877-83.</p> <p>3. Weeks P ea. Improved ticagrelor antiplatelet effect on discontinuation of phenytoin. <i>Ann Pharmacother</i> 2014;48:644-7.</p> <p>4. Teng R ea. Pharmacokinetics, pharmacodynamics, tolerability and safety of single ascending doses of ticagrelor, a reversibly binding oral P2Y12 receptor antagonist, in healthy subjects. <i>Eur J Clin Pharmacol</i> 2010;66:487-96.</p> <p>5. Butler K ea. Pharmacokinetics, pharmacodynamics, safety and tolerability of multiple ascending doses of ticagrelor in healthy volunteers. <i>Br J Clin Pharmacol</i> 2010;70:65-77.</p> <p>6. Teng R ea. Absorption, distribution, metabolism, and excretion of ticagrelor in healthy subjects. <i>Drug Metabol Dispos</i> 2010;38:1514-21.</p> <p>7. Stockley IH. Drug interactions.</p> <p>8. Le Comte M ea. Pas op met inductoren bij DOAC's. Ook bij ticagrelor bestaat theoretisch risico op therapiefalen. <i>Pharm Weekbl</i> 2015;150:29.</p>

VERVOLG TABEL 3A. Klinisch relevant, interventie vereist

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Tivozanib, vemurafenib	Rifampicine	De tivozanib- of vemurafenibspiegel daalt	Vermijd de combinatie of monitor het effect van tivozanib of vemurafenib	1. Cotreau MM ea. Effects of ketoconazole or rifampin on the pharmacokinetics of tivozanib hydrochloride, a vascular endothelial growth factor receptor tyrosine kinase inhibitor. <i>Clin Pharmacol Drug Dev</i> 2015;4:37-42. 2. SPC Fotivda, Zelboraf.
Tofacitinib	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	De werking van tofacitinib daalt	Vermijd de combinatie of monitor het effect	1. Lamba M ea. The effect of rifampin on the pharmacokinetics of tofacitinib (CP-690,550) in healthy volunteers. Poster presented at the Annual Meeting of the American Society for Clinical Pharmacology and Therapeutics; 2012 March 14-17, Maryland USA. 2. SPC en EPAR Xeljanz. 3. Wensveen B ea. Attentie bij reumamiddelen. Interacties met de nieuwe medicijnen tofacitinib en baricitinib. <i>Pharm Weekbl</i> 2017;152:14.
Tolvaptan	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	De tolvaptanspiegel daalt	De te ondernemen actie is individueel; gezien de complexiteit van het onderliggende ziektebeeld is overleg tussen de behandelaars gewenst	1. SPC/EPAR Jinarc, SPC/EPAR Samsca. 2. Shoaf SE ea. Effects of CYP3A4 inhibition and induction on the pharmacokinetics and pharmacodynamics of tolvaptan, a non-peptide AVP antagonist in healthy subjects. <i>Br J Clin Pharmacol</i> 2012;73:579-87. 3. Stockley IH. Drug interactions. 4. Hansten PhD ea. Drug interactions analysis and management.
Topiramaat	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	De topiramaatspiegel daalt	Monitor het effect van topiramaat	1. Stockley IH. Drug interactions. 2. Sachdeo RC ea. Topiramate and phenytoin pharmacokinetics during repetitive monotherapy and combination therapy to epileptic patients. <i>Epilepsia</i> 2002; 43:691-6. 3. Sachdeo RC ea. Steady-state pharmacokinetics of topiramate and carbamazepine in patients with epilepsy during monotherapy and concomitant therapy. <i>Epilepsia</i> 1996;37:774-80. 4. Britzi M ea. Pharmacokinetic and metabolic investigation of topiramate disposition in healthy subjects in the absence and in the presence of enzyme induction by carbamazepine. <i>Epilepsia</i> 2005;46:378-84. 5. Mimrod D ea. A comparative study of the effect of carbamazepine and valproic acid on the pharmacokinetics and metabolic profile of topiramate at steady state in patients with epilepsy. <i>Epilepsia</i> 2005;46: 1046-54. 6. Contin M ea. Topiramate therapeutic monitoring in patients with epilepsy: effect of concomitant antiepileptic drugs. <i>Ther Drug Monit</i> 2002;24:332-7. 7. Rosenfeld WE ea. A study of topiramate pharmacokinetics and tolerability in children with epilepsy. <i>Pediatr Neurol</i> 1999;20:339-44. 8. May TW ea. Serum concentrations of topiramate in epileptic patients: the influence of dose and comedication. <i>Epilepsia</i> 1999;40:249 (poster 23RD IEC Proceedings).
Trabectedine	CYP3A4-remmers (claritromycine, cobicistat, erytromycine, itraconazol, ketoconazol, posaconazol, voriconazol, ritonavir)	De trabectedinespiegel stijgt	Vermijd de combinatie of monitor de bijwerkingen	1. Machiels JP ea. Impact of cytochrome P450 3A4 inducer and inhibitor on the pharmacokinetics of trabectedin in patients with advanced malignancies: open-label, multicenter studies. <i>Cancer Chemother Pharmacol</i> 2014;74:729-37. 2. SPC Yondelis. 3. Stockley IH. Drug interactions.
Trabectedine	Rifampicine	De trabectedinespiegel daalt	De trabectedinespiegel daalt	1. Machiels JP ea. Impact of cytochrome P450 3A4 inducer and inhibitor on the pharmacokinetics of trabectedin in patients with advanced malignancies: open-label, multicenter studies. <i>Cancer Chemother Pharmacol</i> 2014;74:729-37. 2. SPC Yondelis. 3. Stockley IH. Drug interactions.

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Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Tyrosinekinaseremmers	Vitamine K-antagonisten	De coagulatie tijd kan sterker fluctueren	Waarschuw de trombosedienst, monitor de INR	<ol style="list-style-type: none"> 1. Thomas KS ea. Elevated international normalized ratio associated with concomitant warfarin and erlotinib. <i>Am J Health Syst Pharm</i> 2010;67:1426-9. 2. Arai S ea. Effect of gefitinib on warfarin antithrombotic activity. <i>Int J Clin Oncol</i> 2009;14:332-6. 3. Onoda S ea. Drug interaction between gefitinib and warfarin. <i>Jpn J Clin Oncol</i> 2005;35:478-82. 4. Moretti LV ea. Elevated International Normalized Ratio associated with concurrent use of sorafenib and warfarin. <i>Am J Health Syst Pharm</i> 2009;66:2123-5. 5. SPC's TKI's. 6. Stockley IH. Drug interactions. 7. SPC + EPAR Tafinlar. 8. Dabrafenib. GSK result summary for 113771. http://www.gsk-clinicalstudyregister.com/result_detail.jsp?protocolId=113771&studyId=013C-CA7D-6002-478F-BEFC-343893AB5DAF&compound=GSK2118436. Geraadpleegd 12-12-2013. 9. Standaard afhandeling VKA-interacties. www.fnt.nl. 10. Richtlijn Antitrombotisch beleid 2015, pag. 221. Nederlandse Internisten Vereniging. https://richtlijnen database.nl/richtlijn/antitrombotisch_beleid. Geraadpleegd februari 2019. 11. Foxx-Lupo WT. A drug interaction between cabozantinib and warfarin in a patient with renal cell carcinoma. <i>Clin Genitourin Cancer</i> 2016;14:e119-21. 12. Primeaux B ea. Supratherapeutic INR resulting from the initiation of warfarin in a patient receiving axitinib. <i>J Oncol Pharm Pract</i> 2018;24:74-5. 13. Kubomura Y ea. A Drug Interaction between crizotinib and warfarin in non-small-cell lung cancer: a case report. <i>J Nippon Med Sch</i> 2017;84:291-3.
Tyrosinekinaseremmers (afatinib, axitinib, bosutinib, brigatinib, cabozantinib, ceritinib, cobimetinib, crizotinib, dabrafenib, dasatinib, entrectinib, erlotinib, gefitinib, ibrutinib, imatinib, lapatinib, lorlatinib, midostaurine, neratinib, nilotinib, nintedanib, osimertinib, pazopanib, ponatinib, ruxolitinib, sorafenib, sunitinib)	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine; overige inductoren: etravirine)	De TKI-spiegel daalt	Vermijd de combinatie of monitor het effect van de TKI of verlaag de dosis van de TKI	<ol style="list-style-type: none"> 1. SPC Sprycel, Nexavar, Tassigna, Inlyta, Xalkori, Giotrif, Bosulif, Jakavi, Iclusig, Vargatef, Imbruvica, Zykadia, Cotellic, Tagrisso, Tyverb, Iressa, Votrient, Tarceva, Sutent, Rydapt, Glivec, Alunbrig, Tafinlar, Nerlynx, Lorviqua, Rozlytrek. 2. Pithavala YK. Effect of rifampin on the pharmacokinetics of axitinib (AG-013736) in Japanese and Caucasian healthy volunteers. <i>Cancer Chemother Pharmacol</i> 2010;65:563-70. 3. Wind S ea. Pharmacokinetic drug interactions of afatinib with rifampicin and ritonavir. <i>Clin Drug Investig</i> 2014;34:173-82. 4. Shi JG ea. The effect of CYP3A4 inhibition or induction on the pharmacokinetics and pharmacodynamics of orally administered ruxolitinib (INCB018424 phosphate) in healthy volunteers. <i>J Clin Pharmacol</i> 2012;52:809-18. 5. Amerikaanse productinformatie Tassigna. www.fda.gov/cder/foi/label/2007/022068lbl. Geraadpleegd maart 2008. 6. Xalkori prescribing information USA. http://labeling.pfizer.com/showlabeling.aspx?id=676. Geraadpleegd 23-10-2012. 7. Amerikaanse productinformatie Giotrif. http://www.accessdata.fda.gov/drugsatfda_docs/label/2013/201292s000lbl.pdf. Geraadpleegd 30-10-2013. 8. Jakavi prescribing information USA. www.incyte.com/products/uspi_jakafi.pdf. Geraadpleegd 29-10-2012. 9. SPC + EPAR Cometriq + prescribing information Cometriq. www.exelixis.com/sites/default/files/pdf/COMETRIQ%20Prescribing%20Information.pdf. Geraadpleegd 23-10-2014. 10. Choo EF ea. Use of transgenic mouse models to understand the oral disposition and drug-drug interaction potential of cobimetinib, a MEK inhibitor. <i>Drug Metab Dispos</i> 2015;43:864-9.

VERVOLG TABEL 3A. Klinisch relevant, interventie vereist

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				<p>11. Vishwanathan K ea. The effect of itraconazole and rifampicin on the pharmacokinetics of osimertinib. <i>Br J Clin Pharmacol</i> 2018;84:1156-69.</p> <p>12. Swaisland HC ea. Pharmacokinetic drug interactions of gefitinib with rifampicin, itraconazole and metoprolol. <i>Clin Pharmacokinet</i> 2005;44:1067-81.</p> <p>13. Chun S ea. Gefitinib-phenytoin interaction is not correlated with the 14C-erythromycin breath test in healthy male volunteers. <i>Br J Clin Pharmacol</i> 2009;68:226-37.</p> <p>14. Smith DA ea. Effects of ketoconazole and carbamazepine on lapatinib pharmacokinetics in healthy subjects. <i>Br J Clin Pharmacol</i> 2009;67:421-6.</p> <p>15. Glaxo Smith Kline Clinical Trial Register www.ctr.gsk.co.uk. Geraadpleegd maart 2008 (lapatinib).</p> <p>16. Amerikaanse productinformatie Iressa. www1.astrazeneca-us.com/pi/iressa.pdf. Geraadpleegd oktober 2009.</p> <p>17. Dutreix C ea. Investigation into CYP3A4-mediated drug-drug interactions on midostaurin in healthy volunteers. <i>Cancer Chemother Pharmacol</i> 2013;72:1223-34.</p> <p>18. Hamilton M ea. The effect of rifampicin, a prototypical CYP3A4 inducer, on erlotinib pharmacokinetics in healthy subjects. <i>Cancer Chemother Pharmacol</i> 2014;73:613-621.</p> <p>19. Bolton AE ea. Effect of rifampicin on the pharmacokinetics of imatinib mesylate (Gleevec, STI571) in healthy subjects. <i>Cancer Chemother Pharmacol</i> 2004;53:102-6.</p> <p>20. Druker BJ ea. Efficacy and safety of a specific inhibitor of the BCR-ABL tyrosine kinase in chronic myeloid leukemia. <i>N Engl J Med</i> 2001;344:1031-7.</p> <p>21. Frye RF ea. Effect of St John's wort on imatinib mesylate pharmacokinetics. <i>Clin Pharmacol Ther</i> 2004;76:323-9.</p> <p>22. Smith P ea. The influence of St. John's wort on the pharmacokinetics and protein binding of imatinib mesylate. <i>Pharmacotherapy</i> 2004;24:1508-14.</p> <p>23. Luedtke D ea. Effects of ketoconazole and rifampicin on the pharmacokinetics of nintedanib in healthy subjects. <i>Eur J Drug Metab Pharmacokinet</i> 2018;43:533-41.</p> <p>24. Pursche S ea. Influence of enzyme-inducing antiepileptic drugs on trough level of imatinib in glioblastoma patients. <i>Curr Clin Pharmacol</i> 2008;3:198-203.</p> <p>25. Chen J ea. The effect of rifampin on the pharmacokinetics and safety of lorlatinib: results of a phase one, openlabel, crossover study in healthy participants. <i>Adv Ther</i> 2020;37:745-58.</p>
Tyrosinekinaserepressoren (axitinib, bosutinib, brigatinib, ceritinib, cobimetinib, crizotinib, dabrafenib, dasatinib, encorafenib, entrectinib, erlotinib, gefitinib, lapatinib, lorlatinib, midostaurine, neratinib, nilotinib, pazopanib, regorafenib, ruxolitinib, sunitinib)	CYP3A4-repressoren (claritromycine, cobicistat, erytromycine, itraconazol, ketocanazol, posaconazol, voriconazol, ritonavir, lopinavir/rvtv)	De TKI-spiegel stijgt	Vermijd de combinatie, of monitor het effect van de TKI of verhoog de dosis van de TKI	<p>1. Hansten PhD ea. Drug interactions analysis and management.</p> <p>2. Stockley IH. Drug interactions.</p> <p>3. Pithavala YK. Effect of ketoconazole on the pharmacokinetics of axitinib in healthy volunteers. <i>Invest New Drugs</i> 2012;30:273-81.</p> <p>4. Johnson FM ea. Phase 1 pharmacokinetic and drug-interaction study of dasatinib in patients with advanced solid tumors. <i>Cancer</i> 2010;116:1582-91.</p> <p>5. Smith DA ea. Effects of ketoconazole and carbamazepine on lapatinib pharmacokinetics in healthy subjects. <i>Br J Clin Pharmacol</i> 2009;67:421-6.</p> <p>6. Swaisland HC ea. Pharmacokinetic drug interactions of gefitinib with rifampicin, itraconazole and metoprolol. <i>Clin Pharmacokinet</i> 2005;44:1067-81.</p> <p>7. SPC + EPAR/Scientific discussion Tarceva, Inlyta, Sutent, Sprycel, Tasigna, 10. Iressa, Votrient, Xalkori, Tafinlar, Stivarga, Jakavi, Zykadia, Cotellix, Rydapt, Bosulif, Alunbrig, Braftovi, Nerlynx, Lorviqua, Rozlytrek.</p>



VERVOLG TABEL 3A. Klinisch relevant, interventie vereist

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				<p>8. Amerikaanse productinformatie Sprycel. www.bms.com. Geraadpleegd juli 2011.</p> <p>9. Votrient - Procedural steps taken and scientific information after the authorisation 24-09-2012. www.ema.europa.eu.</p> <p>10. Amerikaanse productinformatie Tykerb + Glaxo Smith Kline Clinical Trial Register www.ctr.gsk.co.uk. Geraadpleegd juli 2011.</p> <p>11. Xu H ea. The effects of ketoconazole and rifampin on the single-dose pharmacokinetics of crizotinib in healthy subjects. <i>Eur J Clin Pharmacol</i> 2015;71:1441-9.</p> <p>12. Xalkori prescribing information USA. http://labeling.pfizer.com/showlabeling.aspx?id=676. Geraadpleegd 23-10-2012.</p> <p>13. GSK result summary for 113771. http://www.gsk-clinicalstudyregister.com/result_detail.jsp?protocolId=113771&studyId=013C-CA7D-6002-478F-BEFC-343893AB5DAF&compound=GSK2118436. Geraadpleegd 22-10-2013.</p> <p>14. Tafinlar prescribing information. http://www.accessdata.fda.gov/drugsatfda_docs/label/2013/202806s000lbl.pdf. Geraadpleegd 10-12-2013.</p> <p>15. Jakavi prescribing information USA. www.incyte.com/products/uspi_jakavi.pdf. Geraadpleegd 29-10-2012.</p> <p>16. Stivarga prescribing information USA. www.accessdata.fda.gov/drugsatfda_docs/label/2012/203085lbl.pdf. Geraadpleegd 26-10-2012.</p> <p>17. Shi JG ea. The effect of CYP3A4 inhibition or induction on the pharmacokinetics and pharmacodynamics of orally administered ruxolitinib (INCB018424 phosphate) in healthy volunteers. <i>J Clin Pharmacol</i> 2012;52:809-18.</p> <p>18. Cotellic prescribing information USA. http://www.gene.com/download/pdf/cotellic_prescribing.pdf. Geraadpleegd 11-12-2015.</p> <p>19. Dutreix C ea. Investigation into CYP3A4-mediated drug-drug interactions on midostaurin in healthy volunteers. <i>Cancer Chemother Pharmacol</i> 2013;72:1223-34.</p> <p>20. Abbas R ea. Ascending single-dose study of the safety profile, tolerability, and pharmacokinetics of bosutinib coadministered with ketoconazole to healthy adult subjects. <i>Clin Ther</i> 2012;34:2011-9.</p> <p>21. Abbas R ea. Effect of ketoconazole on the pharmacokinetics of oral bosutinib in healthy subjects. <i>J Clin Pharmacol</i> 2011;51:1721-7.</p> <p>22. Abbas R ea. A phase I ascending single-dose study of the safety, tolerability, and pharmacokinetics of bosutinib (SKI-606) in healthy adult subjects. <i>Cancer Chemother Pharmacol</i> 2012;69:221-7.</p> <p>23. Abbas R ea. Pharmacokinetics of oral neratinib during co-administration of ketoconazole in healthy subjects. <i>Br J Clin Pharmacol</i> 2011;71:522-7.</p> <p>24. Hug B ea. A single-dose, crossover, placebo- and moxifloxacin-controlled study to assess the effects of neratinib (HKI-272) on cardiac repolarization in healthy adult subjects. <i>Clin Cancer Res</i> 2010;16:4016-23.</p> <p>25. Patel M ea. The effect of itraconazole on the pharmacokinetics of lorlatinib: results of a phase I, open-label, crossover study in healthy participants. <i>Invest New Drugs</i> 2020;38:131-9.</p>
Tyrosinekinaserepressoren (bosutinib, ceritinib, dacomitinib, dasatinib, erlotinib, gefitinib, lapatinib, neratinib, pazopanib)	Antacida	Verminderde beschikbaarheid van TKI	Staak het antacidum of wijzig antacidum van BID naar QID en neem TKI 2 uur voor antacidum [Van Leeuwen Clin Pharmacokin 2017]	<p>1. Eley T ea. Phase I study of the effect of gastric acid pH modulators on the bioavailability of oral dasatinib in healthy subjects. <i>J Clin Pharmacol</i> 2009;49:700-9.</p> <p>2. Stockley IH. Drug interactions.</p> <p>3. SPC Sprycel, Tarceva, Iressa, Tyverb, Votrient, Bosulif, Zykadia, SPC + EPAR Nerlynx.</p> <p>4. Tyverb - Procedural steps taken and scientific information after the authorisation, mei 2011: no. II/0016. www.ema.europa.eu/docs/en_GB/document_library/</p>

VERVOLG TABEL 3A. Klinisch relevant, interventie vereist

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				<p>EPAR_Procedural_steps_taken_and_scientific_information_after_authorisation/human/00079_5/WC500044961.pdf. Geraadpleegd 23-10-2012.</p> <p>5. Votrient - Procedural steps taken and scientific information after the authorisation 24-09-2012. www.ema.europa.eu/docs/en_GB/document_library/EPAR_-_Procedural_steps_taken_and_scientific_information_after_authorisation/human/001_141/WC500102180.pdf. Geraadpleegd 26-10-2012.</p>
Tyrosinekinaseremmers (bosutinib, ceritinib, dacomitinib, dasatinib, erlotinib, gefitinib, lapatinib, neratinib, pazopanib)	Secretieremmers, H2-receptorantagonisten	Verminderde beschikbaarheid van TKI	Staa de PPI of H2-antagonist of wijzig antacidum van BID naar QID en neem TKI 2 uur voor antacidum [Van Leeuwen Clin Pharmacokin 2017]	<ol style="list-style-type: none"> Eley T ea. Phase I study of the effect of gastric acid pH modulators on the bioavailability of oral dasatinib in healthy subjects. J Clin Pharmacol 2009;49:700-9. Stockley IH. Drug interactions. Hansten PhD ea. Drug interactions analysis and management. SPC Sprycel, Iressa, Tyverb, Votrient, SPC + EPAR Bosulif, SPC Zykadia, SPC + EPAR Nerlynx, SPC Vizimpro. SPC Tarceva + data on file fabrikant. Tyverb - Procedural steps taken and scientific information after the authorisation, mei 2011: no. II/0016. www.ema.europa.eu/docs/en_GB/document_library/EPAR_Procedural_steps_taken_and_scientific_information_after_authorisation/human/00079_5/WC500044961.pdf. Geraadpleegd 23-10-2012. Votrient - Procedural steps taken and scientific information after the authorisation 24-09-2012. www.ema.europa.eu/docs/en_GB/document_library/EPAR_-_Procedural_steps_taken_and_scientific_information_after_authorisation/human/001_141/WC500102180.pdf. Geraadpleegd 26-10-2012. Abbas R ea. A clinical study to examine the potential effect of lansoprazole on the pharmacokinetics of bosutinib when administered concomitantly to healthy subjects. Clin Drug Invest 2013;33:589-95. Amerikaanse productinformatie bosulif. http://www.accessdata.fda.gov/drugsatfda_docs/label/2012/203341lbl.pdf. Geraadpleegd 1 november 2013. Hilton JF ea. An evaluation of the possible interaction of gastric acid suppressing medication and the EGFR tyrosine kinase inhibitor erlotinib. Lung Cancer 2013;82:136-42. Van Leeuwen RW ea. Influence of the acidic beverage cola on the absorption of erlotinib in patients with non-small-cell lung cancer. J Clin Oncol 2016;34:1309-14. Lau YY ea. Assessment of drug-drug interaction potential between ceritinib and proton pump inhibitors in healthy subjects and in patients with ALK positive non small cell lung cancer. Cancer Chemother Pharmacol 2017;79:1119-28. Van Leeuwen RW ea. Tyrosine kinase inhibitors and proton pump inhibitors: an evaluation of treatment options. Clin Pharmacokinet 2017;56:683-8. Wensveen B ea. Afhandeling interactiecomplex. Tyrosinekinaseremmers en maagzuurremmers laten zich lastig uit elkaar houden. Pharm Weekbl 2018;153:22. Keyvanjah K ea. Pharmacokinetics of neratinib during coadministration with lansoprazole in healthy subjects. Br J Clin Pharmacol 2017;83:554-61. Ruiz-Garcia A ea. Effect of food or proton pump inhibitor treatment on the bioavailability of dacomitinib in healthy volunteers. J Clin Pharmacol 2016;56:223-30.

VERVOLG TABEL 3A. Klinisch relevant, interventie vereist

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Ulipristal (Ellaone)	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine; overige inductoren: griseofulvine, etravirine, oxcarbapazine)	De ulipristalspiegel (Ellaone) daalt	Vermijd de combinatie	1. SPC Ellaone + Procedural steps taken and scientific information after the authorisation. EMA/372642/2015. www.ema.europa.eu/docs/en_GB/document_library/EPAR_-_Procedural_steps_taken_and_scientific_information_after_authorisation/human/001027/WC500023674.pdf 2. Le Comte M ea. Faalkans morning-afterpil groter. CYP-inductoren verlagen spiegels levonorgestrel en ulipristal. Pharm Weekbl 2016;151:17.
Ulipristal (Esmya)	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine; overige inductoren: griseofulvine, etravirine, oxcarbapazine)	De ulipristalspiegel (Esmya) daalt	Vermijd de combinatie	1. SPC Esmya + Procedural steps taken and scientific information after the authorisation. www.ema.europa.eu/docs/en_GB/document_library/EPAR_-_Procedural_steps_taken_and_scientific_information_after_authorisation/human/002041/WC500131813.pdf .
Upadacitinib	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	De werking van upadacitinib neemt af	Vermijd de combinatie of monitor het effect	1. Mohamed MF ea. Assessment of effect of CYP3A inhibition, CYP induction, OATP1B inhibition, and high-fat meal on pharmacokinetics of the JAK1 inhibitor upadacitinib. Br J Clin Pharmacol 2017;83:2242-8. 2. SPC + EPAR + FDA prescribing information Rinvoq.
Vandetanib	Metformine	De metforminespiegel stijgt	Pas de metforminespiegel aan	1. Johansson S ea. Pharmacokinetic evaluations of the co-administrations of vandetanib and metformin, digoxin, midazolam, omeprazole or ranitidine. Clin Pharmacokinet 2014;53:837-47. 2. SPC + EPAR Caprelsa + Procedural steps taken and scientific information after the authorisation. www.ema.europa.eu/docs/en_GB/document_library/EPAR_-_Procedural_steps_taken_and_scientific_information_after_authorisation/human/002315/WC500139404.pdf . Geraadpleegd 24-11-2014.
Venetoclax	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine; overige inductoren: griseofulvine, etravirine, oxcarbapazine)	Therapie-falen van venetoclax	Vermijd de combinatie	1. Agarwal SK ea. Evaluation of rifampin's transporter inhibitory and CYP3A inductive effects on the pharmacokinetics of venetoclax, a BCL-2 inhibitor: results of a single- and multiple-dose study. J Clin Pharmacol 2016;56:1335-43. 2. SPC Venclyxto.
Venetoclax	CYP3A4-remmers (claritromycine, cobicistat, erytromycine, itraconazol, ketocanazol, posaconazol, voriconazol, ritonavir, lopinavir/rtv; overige inductoren: diltiazem, fluconazol, verapamil)	De toxiciteit van venetoclax kan toenemen	Vermijd de combinatie of verlaag de dosering	1. Freise KJ ea. Impact of ritonavir dose and schedule on CYP3A inhibition and venetoclax clinical pharmacokinetics. Eur J Clin Pharmacol 2018;74:413-21. 2. Agarwal SK ea. Effect of ketoconazole, a strong CYP3A Inhibitor, on the pharmacokinetics of venetoclax, a BCL-2 Inhibitor, in patients with non-Hodgkin lymphoma. Br J Clin Pharmacol 2017;83: 846-54. 3. Agarwal SK ea. Management of venetoclax- posaconazole interaction in acute myeloid leukemia patients: evaluation of dose adjustments. Clin Ther 2017;39: 359-67.

VERVOLG TABEL 3A. Klinisch relevant, interventie vereist

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				<p>4. Freise KJ ea. Quantitative prediction of the effect of CYP3A inhibitors and inducers on venetoclax pharmacokinetics using a physiologically based pharmacokinetic model. <i>J Clin Pharmacol</i> 2017;57:796-804.</p> <p>5. SPC Venclyxto.</p>
Vinblastine	CYP3A4-remmers (claritromycine, cobicistat, erytromycine, itraconazol, ketocozazol, posaconazol, voriconazol, ritonavir, lopinavir/rvt)	Vinblastine (neuro) toxiciteit	Vervang CYP3A4-remmer of monitor de toxiciteit van vinblastine	<p>1. Bashir H ea. Itraconazole-enhanced chemotherapy toxicity in a patient with Hodgkin lymphoma. <i>J Pediatr Hematol Oncol</i> 2006;28:33-5.</p> <p>2. SPC Blastivin, Trisporal.</p> <p>3. Stockley IH. Drug interactions.</p> <p>4. Hansten PhD ea. Drug interactions analysis and management.</p> <p>5. Kotb R ea. Life-threatening interaction between antiretroviral therapy and vinblastine in HIV-associated multicentric Castleman's disease. <i>Eur J Haematol</i> 2006;76:269-71.</p> <p>6. Corona G ea. Potential hazard drug-drug interaction between boosted protease inhibitors and vinblastine in HIV patients with Hodgkin's lymphoma. <i>AIDS</i> 2013;27:1033-5.</p> <p>7. Cingolani A ea. Detrimental clinical interaction between ritonavir-boosted protease inhibitors and vinblastine in HIV-infected patients with Hodgkin's lymphoma. <i>AIDS</i> 2010;24:2408-12.</p>
Vincristine	CYP3A4-remmers (claritromycine, cobicistat, erytromycine, itraconazol, ketocozazol, posaconazol, voriconazol, ritonavir, lopinavir/rvt)	Vincristine (neuro) toxiciteit	Vervang CYP3A4-remmer of monitor de toxiciteit van vincristine	<p>1. Van Schie RM ea. Effect of azole antifungal therapy on vincristine toxicity in childhood acute lymphoblastic leukaemia. <i>J Antimicrob Chemother</i> 2011;66:1853-6.</p> <p>2. Kobayashi R ea. Itraconazole for invasive fungal infection with pediatric malignancies. <i>Pediatr Int</i> 2010;52:707-10.</p> <p>3. Böhme A ea. Aggravation of vincristine-induced neurotoxicity by itraconazole in the treatment of adult ALL. <i>Ann Hematol</i> 1995;71:311-2.</p> <p>4. Jeng MR ea. Itraconazole-enhanced vincristine neurotoxicity in a child with acute lymphoblastic leukemia. <i>Pediatr Hematol Oncol</i> 2001;18:137-42.</p> <p>5. Sathiapalan RK ea. Vincristine-itraconazole interaction: cause for increasing concern. <i>J Pediatr Hematol Oncol</i> 2002;24:591.</p> <p>6. Gillies J ea. Severe vincristine toxicity in combination with itraconazole. <i>Clin Lab Haematol</i> 1998;20:123-4.</p> <p>7. Bermúdez M ea. Itraconazole-related increased vincristine neurotoxicity: case report and review of literature. <i>J Pediatr Hematol Oncol</i> 2005;27:389-92.</p> <p>8. Sathiapalan RK ea. Enhanced vincristine neurotoxicity from drug interactions: case report and review of literature. <i>Pediatr Hematol Oncol</i> 2001;18:543-6.</p> <p>9. Kamaluddin M ea. Potentiation of vincristine toxicity by itraconazole in children with lymphoid malignancies. <i>Acta Paediatr</i> 2001;90:1204-7.</p> <p>10. Ariffin H ea. Severe vincristine neurotoxicity with concomitant use of itraconazole. <i>J Paediatr Child Health</i> 2003;39:638-9.</p> <p>11. Harnicar S ea. Modification of vincristine dosing during concomitant azole therapy in adult acute lymphoblastic leukemia patients. <i>J Oncol Pharm Pract</i> 2009;15:175-82.</p> <p>12. Jain S ea. Severe life threatening neurotoxicity in a child with acute lymphoblastic leukemia receiving posaconazole and vincristine. <i>Pediatr Blood Cancer</i> 2010;54:783.</p> <p>13. SPC Vincristine, Trisporal, Vfend, Noxafil, Norvir.</p> <p>14. Vaccher E ea. Concomitant cyclophosphamide, doxorubicin, vincristine, and prednisone chemotherapy plus highly active antiretroviral therapy in patients with human immunodeficiency virus-related, non-Hodgkin lymphoma. <i>Cancer</i> 2001;91:155-163.</p> <p>15. Stockley IH. Drug interactions.</p> <p>16. Hansten PhD ea. Drug interactions analysis and management.</p>

VERVOLG TABEL 3A. Klinisch relevant, interventie vereist

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Zolpidem	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	De zolpidemspiegel daalt	Kies een alternatief voor zolpidem (tempazepam) of verhoog de dosering	<ol style="list-style-type: none"> 1. Villikka K ea. Rifampin reduces plasma concentrations and effects of zolpidem. <i>Clin Pharm Ther</i> 1997;62:629-34. 2. Vlastakis L ea. Pharmacokinetic interaction between zolpidem and carbamazepine in healthy volunteers. <i>J Clin Pharmacol</i> 2011;51:1233-6. 3. Hojo J ea. Drug interaction between St John's wort and zolpidem in healthy subjects. <i>J Clin Pharm Ther</i> 2011;36:711-5. 4. SPC Stillnoct, Rifadin. 5. Stockley IH. Drug interactions. 6. Hansten PhD ea. Drug interactions analysis and management.
Zonisamide	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	De zonisamidespiegel daalt	Overweeg de zonisamidedosering te verhogen op geleide van het klinisch effect	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. Hansten PhD ea. Drug interactions analysis and management. 3. Shinoda M ea. The necessity of adjusting the dosage of zonisamide when coadministered with other anti-epileptic drugs. <i>Biol Pharm Bull</i> 1996;19:1090-2. 4. Abo J ea. Drug interaction between zonisamide and carbamazepine: a pharmacokinetic study in children with cryptogenic localization-related epilepsy. <i>Epilepsia</i> 1995;36(Suppl 3):S162. 5. Ragueneau-Majlessi I ea. Carbamazepine pharmacokinetics are not affected by zonisamide: in vitro mechanistic study and in vivo clinical study in epileptic patients. <i>Epilepsy Res</i> 2004;62:1-11. 6. Levy RH ea. Lack of a clinically significant effect of zonisamide on phenytoin steady-state pharmacokinetics in patients with epilepsy. <i>J Clin Pharmacol</i> 2004;44:1230-4. 7. Schentag JJ ea. Influence of phenobarbital, cimetidine and renal disease on zonisamide kinetics. <i>Pharm Res</i> 1987;4(Suppl):S79. 8. Sackellares JC ea. Pilot study of zonisamide (1,2-benzioxazole-3-methanesulfonamide) in patients with refractory partial seizures. <i>Epilepsia</i> 1985;26:206-11. 9. Minami T ea. Influence of additional therapy with zonisamide (Excegran) on protein binding and metabolism of carbamazepine. <i>Epilepsia</i> 1994;35:1023-5. 10. Odani A ea. Population pharmacokinetics of phenytoin in Japanese patients with epilepsy: analysis with a dose-dependent clearance model. <i>Biol Pharm Bull</i> 1996;19:444-8. 11. Schmidt D ea. Zonisamide for add-on treatment of refractory partial epilepsy: a European double-blind trial. <i>Epilepsy Res</i> 1993;15:67-73. 12. Tasaki K ea. Drug interactions of zonisamide with phenytoin and sodium valproate: serum concentrations and protein binding. <i>Brain Dev</i> 1995;17:182-5. 13. Browne TR ea. Drug interactions of zonisamide (CI-912) with phenytoin and carbamazepine. <i>J Clin Pharmacol</i> 1986;26:555. 14. SPC Zonegran, Tegretol.
Zopiclon	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	De zopiclonspiegel daalt	Kies een alternatief voor zopiclon (tempazepam) of verhoog de dosering	<ol style="list-style-type: none"> 1. Villikka K. ea. Concentrations and effects of zopiclone are greatly reduced by rifampicin. <i>Br J Clin Pharmacol</i> 1997;43:471-4. 2. SPC zopiclon. 3. Stockley IH. Drug interactions. 4. Hansten PhD ea. Drug interactions analysis and management.

TABEL 3B. Niet-klinisch relevant, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
(Fos)aprepitant	CYP3A4-remmers	De aprepitantspiegel stijgt	Geen actie	1. Stockley IH. Drug interactions. 2. Hansten PhD ea. Drug interactions analysis and management. 3. SPC Emend, Ivemend.
Abemaciclib	Loperamide	De spiegels van loperamide en N-desmethyloperamide stijgen	Geen actie	1. SPC + EPAR Verzenios.
Abirateron	Dextromethorfan, pioglitazon	De spiegels van dextromethorfan en pioglitazon stijgen	Geen actie	1. SPC Zytiga. 2. Chi KN ea. Effect of abiraterone acetate plus prednisone on the pharmacokinetics of dextromethorphan and theophylline in patients with metastatic castration-resistant prostate cancer. <i>Cancer Chemother Pharmacol</i> 2013;71:237-44. 3. A study to assess the effect of abiraterone (JNJ-589485) on the pharmacokinetics of pioglitazone following administration of abiraterone acetate (JNJ-212082) and pioglitazone HCl tablets in healthy male participants. http://clinicaltrials.gov/show/NCT01873001 . Geraadpleegd 4-12-2014.
Abirateron	Ketoconazol	De abirateronspiegel stijgt	Geen actie	1. Bernard A ea. Impact on abiraterone pharmacokinetics and safety: open-label drug-drug interaction studies with ketoconazole and rifampicin. <i>Clin Pharmacol Drug Dev</i> 2015;4:63-73. 2. SPC Zytiga 25/07/2013. www.janssen-nederland.nl/sites/stage-janssen-emea-nl.emea.cl.datapipe.net/files/Zytiga_SPC_1.pdf . Geraadpleegd 20-9-2013. 3. Stockley IH. Drug interactions.
Alectinib	Rifampicine	De alectinibspiegel daalt, de spiegel van het actieve metaboliet M4 stijgt	Geen actie	1. Morcos PN ea. Clinical drug-drug interactions through cytochrome P450 3A (CYP3A) for the selective ALK inhibitor alectinib. <i>Clin Pharmacol Drug Dev</i> 2017;6:280-91. 2. SPC/EPAR Alesenca.
Alectinib	Posaconazol	De alectinibspiegel stijgt, de spiegel van het actieve metaboliet M4 daalt	Geen actie	1. Morcos PN ea. Clinical drug-drug interactions through cytochrome P450 3A (CYP3A) for the selective ALK inhibitor alectinib. <i>Clin Pharmacol Drug Dev</i> 2017;6:280-91. 2. SPC/EPAR Alesenca.
Apalutamide	Gemfibrozil, itraconazol	De spiegels van apalutamide en actieve metabolieten stijgen	Geen actie	1. SPC Erleada.
Apalutamide	Fexofenadine, rosuvastatine	De spiegels van fexofenadine en rosuvastatine dalen	Geen actie	1. SPC Erleada.
Aromatase-remmers (anastrozol, letrozol)	Tamoxifen	De spiegels van anastrozol en letrozol dalen	Geen actie	1. Stockley IH. Drug interactions. 2. Hansten PhD ea. Drug interactions analysis and management. 3. SPC Nolvadex.
Azathioprine, mercaptopurine	Infliximab	Er bestaat een gering	Geen actie	1. Roblin X ea. Drug interaction between infliximab and azathioprine in patients with Crohn's disease. <i>Aliment Pharmacol Ther</i> 2003;18:917-25.

VERVOLG TABEL 3B. Niet-klinisch relevant, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
		risico op hepatosplenisch T-cel-lymfoom (HSTCL) bij gebruik van azathioprine of mercaptopurine in combinatie met infliximab		<ol style="list-style-type: none"> 2. SPC Purinethol, Imuran, Remicade. 3. Handleiding behandeling IBD - 2014-2015. 4. Moderniseren van de Richtlijn IBD 2009. Gemandateerd door de Nederlandse Vereniging van Maag-, Darm- en Leverartsen, oktober 2015. www.mdl.nl/uploads/240/1774/Document_volledig_Handleiding_met_literatuur_def.pdf 4. Deepak P ea. T-cell non-Hodgkin's lymphomas reported to the FDA AERS with tumor necrosis factor-alpha (TNF-α) inhibitors: results of the REFURBISH study. <i>Am J Gastroenterol</i> 2013;108:99-105. 5. Sinagra E ea. An unusual presentation of T-lymphoma in a Crohn's disease patient treated with combo therapy: we are willing to take a risk of serious adverse events for a doubtful benefit? <i>J Crohns Colitis</i> 2012;6:954-5. [letter to editor]. 6. Thai A ea. Hepatosplenic T-cell lymphoma and inflammatory bowel disease. <i>J Crohns Colitis</i> 2010;4: 511-22. 7. Mackey AC ea. Hepatosplenic T cell lymphoma associated with infliximab use in young patients treated for inflammatory bowel disease. <i>J Pediatr Gastroenterol Nutr</i> 2007;44:265-7.
Azathioprine, mercaptopurine, tioguanine	5-aminosalicylates	Bij combinatie kan de blootstelling aan de actieve metabolieten van azathioprine en mercaptopurine (6-tioguaninenucleotiden; 6-TGN) toenemen, waardoor toxiciteit kan optreden	Geen actie	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. Wong DR ea. Invloed van mesalazine op het thiopurinemetabolisme bij patiënten met inflammatoire darmziekten. Prospectief multicentrisch farmacokinetisch onderzoek. <i>PW Wetenschappelijk Platform</i> 2008;2:62-5. 3. Stocco G ea. Interruption of mesalamine and reduction of the blood concentration of the active metabolites of azathioprine: possible causes of ulcerative colitis relapse. <i>Dig Dis Sci</i> 2008;53:3246-9. 4. Gilissen LP ea. The pharmacokinetic effect of discontinuation of mesalazine on mercaptopurine metabolite levels in inflammatory bowel disease patients. <i>Aliment Pharmacol Ther</i> 2005;22:605-11. 5. Dewit O ea. Interaction between azathioprine and aminosalicylates: an in vivo study in patients with Crohn's disease. <i>Aliment Pharmacol Ther</i> 2002;16:79-85. 6. Daperno M ea. Prospective study of the effects of concomitant medications on thiopurine metabolism in inflammatory bowel disease. <i>Aliment Pharmacol Ther</i> 2009;30:843-53. 7. Lowry PW ea. Leucopenia resulting from a drug interaction between azathioprine or 6-mercaptopurine and mesalamine, sulphasalazine, or balsalazide. <i>Gut</i> 2001;49:656-64. 8. Bliddal H ea. Leucopenia in adult Still's disease during treatment with azathioprine and sulphasalazine. <i>Clin Rheumatol</i> 1987;6:244-50. 9. De Graaf P ea. Influence of 5-aminosalicylic acid on 6-thioguanosine phosphate metabolite levels: a prospective study in patients under steady thiopurine therapy. <i>Br J Pharmacol</i> 2010;160:1083-91.
Bleomycine	G-CSF (filgrastim, lenograstim, lipegfilgrastim, pegfilgrastim)	Toegenomen longtoxiciteit	Geen actie	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. Matthews JH. Pulmonary toxicity of ABVD chemotherapy and G-CSF in Hodgkin's disease: possible synergy. <i>Lancet</i> 1993;342:988. 3. Iki S ea. Cytotoxic drug-induced pneumonia and possible augmentation by G-CSF - clinical attention. <i>Ann Hematol</i> 1993;66:217-8. 4. Dirix LY ea. Pulmonary toxicity and bleomycin. <i>Lancet</i> 1994;344:56. 5. Lei KIK ea. Serious pulmonary complications in patients receiving recombinant granulocyte colony-stimulating factor during BACOP chemotherapy for aggressive non-Hodgkin's lymphoma. <i>Br J Cancer</i> 1994;70:1009-13.

VERVOLG TABEL 3B. Niet-klinisch relevant, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				<p>6. Katoh M ea. Development of interstitial pneumonitis during treatment with granulocyte colony-stimulating factor. <i>Ann Hematol</i> 1993;67:201-2.</p> <p>7. Niitsu N ea. Interstitial pneumonia in patients receiving granulocyte colony-stimulating factor during chemotherapy: survey in Japan 1991-96. <i>Br J Cancer</i> 1997;76:1661-6.</p> <p>8. Couderc LJ ea. Pulmonary toxicity of chemotherapy and G/GM-CSF: a report of five cases. <i>Respir Med</i> 1999;93:65-8.</p>
Bortezomib	Ketoconazol	De borteze-mibspiegel stijgt	Geen actie	<p>1. Venkatakrishnan K ea. Effect of the CYP3A inhibitor ketoconazole on the pharmacokinetics and pharmacodynamics of bortezomib in patients with advanced solid tumors: a prospective, multicenter, open-label, randomized, two-way crossover drug-drug interaction study. <i>Clin Ther</i> 2009;31:2444-8.</p> <p>2. SPC Velcade.</p>
Bosutinib	(Fos)aprepitant	De bosuti-nibspiegel stijgt	Geen actie	<p>1. Hsyu PH ea. Effect of aprepitant, a moderate CYP3A4 inhibitor, on bosutinib exposure in healthy subjects. <i>Eur J Clin Pharmacol</i> 2017;73:49-56.</p> <p>2. SPC Bosulif.</p>
Brentuximab vedotine	Ketoconazol, rifampicine	Ketoconazol verhoogt/ rifampicine verlaagt de blootstelling aan MMAE (monomethyl auristatine E)	Geen actie	<p>1. SPC Adcentris.</p> <p>2. Adcentris prescribing information USA. www.adcentris.com/_pdf/Final_Adcentris_USPI_Jan12_2012.pdf. Geraadpleegd 18-10-2012.</p>
Busulfan	Fenytoïne	Fenytoïne kan het metabolisme van busulfan induceren	Geen actie	<p>1. Stockley IH. Drug interactions.</p> <p>2. Hassan M ea. Influence of prophylactic anticonvulsant therapy on high-dose busulphan kinetics. <i>Cancer Chemother Pharmacol</i> 1993;33:181-6.</p> <p>3. SPC Myleran, Busilvex.</p>
Cabazitaxel	Ketoconazol	De cabazitaxelspiegel stijgt	Geen actie	<p>1. Sarantopoulos J ea. Phase I study of cabazitaxel plus cisplatin in patients with advanced solid tumors: study to evaluate the impact of cytochrome P450 3A inhibitors (aprepitant, ketoconazole) or inducers (rifampin) on the pharmacokinetics of cabazitaxel. <i>Cancer Chemother Pharmacol</i> 2014;74:1113-24.</p> <p>2. SPC + EPAR Jevtana + Jevtana. Procedural steps taken and scientific information after the authorisation-www.ema.europa.eu/docs/en_GB/document_library/EPAR_-_Procedural_steps_taken_and_scientific_information_after_authorisation/human/002018/WC500118051.pdf. Geraadpleegd 1-12-2014.</p>
Cabazitaxel	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, rifabutine, rifampicine)	De cabazitaxelspiegel daalt	Geen actie	<p>1. Sarantopoulos J ea. Phase I study of cabazitaxel plus cisplatin in patients with advanced solid tumors: study to evaluate the impact of cytochrome P450 3A inhibitors (aprepitant, ketoconazole) or inducers (rifampin) on the pharmacokinetics of cabazitaxel. <i>Cancer Chemother Pharmacol</i> 2014;74:1113-24.</p> <p>2. SPC + EPAR Jevtana + Jevtana. Procedural steps taken and scientific information after the authorisation-www.ema.europa.eu/docs/en_GB/document_library/EPAR_-_Procedural_steps_taken_and_scientific_information_after_authorisation/human/002018/WC500118051.pdf. Geraadpleegd 1-12-2014.</p> <p>3. Belderbos BP ea. Influence of enzalutamide on cabazitaxel pharmacokinetics: a drug-drug interaction study in metastatic castration-resistant prostate cancer (mCRPC) patients. <i>Clin Cancer Res</i> 2018;24:541-6.</p>

VERVOLG TABEL 3B. Niet-klinisch relevant, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Oncologische middelen (cytostatisch: bleomycine, carmustine, cyclofosfamide, cytarabine, doxorubicine, melfalan, procarbazine, vincristine)	Digoxine (oraal)	De digoxine-spiegel daalt	Geen actie	<ol style="list-style-type: none"> 1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. Bjornsson TD ea. Effects of high-dose cancer chemotherapy on the absorption of digoxin in two different formulations. Clin Pharmacol Ther 1986;39:25-8. 4. Kuhlmann J ea. Effects of cytostatic drugs on plasma level and renal excretion of beta-acetyldigoxin. Clin Pharmacol Ther 1981;30:518-27. 5. SPC Lanoxin, Cytarabine, Doxorubicine, Bleomycine.
Oncologische middelen (cytostatisch: cyclofosfamide, cytarabine, daunorubicine, doxorubicine, etoposide, ifosfamide, mitoxantron, vincristine)	Ciprofloxacin, levofloxacin, ofloxacin	De spiegels van ciprofloxacin, levofloxacin en ofloxacin dalen	Geen actie	<ol style="list-style-type: none"> 1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. Johnson EJ ea. Reduced absorption of oral ciprofloxacin after chemotherapy for haematological malignancy. J Antimicrob Chemother 1990;25:837-42. 4. Brown NM ea. Absorption of oral ofloxacin after cytotoxic chemotherapy for haematological malignancy. J Antimicrob Chemother 1993;32:117-22.
Oncologische middelen (cytostatisch: bleomycine, cyclofosfamide, doxorubicine, epirubicine, etoposide, teniposide, vinblastine, vincristine, vinorelbine)	Zidovudine	De zidovudinespiegel daalt	Geen actie	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. SPC Retrovir. 3. Toffoli G ea. Interactions of antineoplastic chemotherapy with zidovudine pharmacokinetics in patients with HIV-related neoplasms. Chemotherapy 1999;45:418-28.
Oncologische middelen (cytostatisch: cyclofosfamide, vincristine, procarbazine, cisplatine)	Verapamil	De spiegels van cyclofosfamide, vincristine, procarbazine en cisplatine dalen	Geen actie	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. Kuhlmann J ea. Verapamil plasma concentrations during treatment with cytostatic drugs. J Cardiovasc Pharmacol 1985;7:1003-6.
Cyclofosfamide	Ranitidine	De cyclofosfamidspiegel stijgt, de spiegel van alkylerende metabolieten wordt niet beïnvloed	Geen actie	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. Alberts DS ea. Lack of ranitidine effects on cyclophosphamide bone marrow toxicity or metabolism: a placebo-controlled clinical trial. J Natl Cancer Inst 1991;83:1739-42.
Cyclofosfamide	Allopurinol	De spiegel van de cytotoxische metabolieten van cyclofosfamide stijgen	Geen actie	<ol style="list-style-type: none"> 1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. SPC Endoxan, Zyloric. 4. Witten J ea. The pharmacokinetics of cyclophosphamide in man after treatment with allopurinol. Acta Pharmacol Toxicol (Copenh) 1980;46:392-4. 5. Yule SM ea. Cyclophosphamide pharmacokinetics in children. Br J Clin Pharmacol 1996;41:13-19. 6. Bagley CM ea. Clinical pharmacology of cyclophosphamide. Cancer Res 1973;33:226-33.
Cyclofosfamide	Fenobarbital	De Cmax van de	Geen actie	<ol style="list-style-type: none"> 1. Hansten PhD ea. Drug interactions analysis and management.

VERVOLG TABEL 3B. Niet-klinisch relevant, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
		actieve alkylerende 4-hydroxymetaboliet van cyclofosfamide neemt toe, maar dit wordt tenietgedaan door de snellere verdeling van de metabolieten De effectiviteit van cyclofosfamide wordt vrijwel niet gewijzigd		2. Stockley IH. Drug interactions. 3. Sladek NE ea. Plasma concentrations of 4-hydroxycyclophosphamide and phosphoramidate mustard in patients repeatedly given high doses of cyclophosphamide in preparation for bone marrow transplantation. <i>Cancer Treat Rep</i> 1984;68:1247-54. 4. Maezawa S ea. Effects of inducer of liver drug-metabolizing enzyme on blood level of active metabolites of cyclophosphamide in rats and in cancer patients. <i>Tohoku J Exp Med</i> 1981;134:45-53. 5. Jao JY ea. Phenobarbital effects on cyclophosphamide pharmacokinetics in man. <i>Cancer Res</i> 1972;32:2761-4. 6. SPC Endoxan.
Cyclofosfamide, ifosfamide	Itraconazol, ketonazol, fluconazol	De spiegel van de actieve metaboliet daalt	Geen actie	1. Stockley IH. Drug Interactions. 2. SPC Endoxan. 3. Kerbusch T ea. Modulation of the cytochrome P450-mediated metabolism of ifosfamide by ketoconazole and rifampin. <i>Clin Pharmacol Ther</i> 2001;70:132-41. 4. Marr KA ea. Cyclophosphamide metabolism is affected by azole antifungals. <i>Blood</i> 2004;103:1557-9. 5. Yule SM ea. The effect of fluconazole on cyclophosphamide metabolism in children. <i>Drug Metab Dispos</i> 1999;27:417-21.
Cyclofosfamide, thiotepa	(Fos)aprepitant	De spiegels van cyclofosfamide, thiotepa en actieve metabolieten dalen	Geen actie	1. Stockley IH. Drug interactions. 2. SPC Ivermend, Emend. 3. Walko CM ea. The effect of aprepitant and race on the pharmacokinetics of cyclophosphamide in breast cancer patients. <i>Cancer Chemother Pharmacol</i> 2012;69:1189-96. 4. De Jonge ME ea. Aprepitant inhibits cyclophosphamide bioactivation and thiotepa metabolism. <i>Cancer Chemother Pharmacol</i> 2005;56:370-8. 5. Bubalo JS ea. Aprepitant pharmacokinetics and assessing the impact of aprepitant on cyclophosphamide metabolism in cancer patients undergoing hematopoietic stem cell transplantation. <i>J Clin Pharmacol</i> 2012;52:586-94. 6. Apro MS ea. Aprepitant: drug-drug interactions in perspective. <i>Ann Oncol</i> 2010;21:2316-23.
Dacomitinib	Paroxetine	De dacomitinibspiegel stijgt	Geen actie	1. Ruiz-Garcia A ea. A phase I open-label study to investigate the potential drug-drug interaction between single-dose dacomitinib and steady-state paroxetine in healthy volunteers. <i>J Clin Pharmacol</i> 2014;54:555-62.
Darolutamide	Midazolam	De midazolamspiegel daalt	Geen actie	1. Zurth C ea. Drug-drug interaction potential of darolutamide: in vitro and clinical studies. <i>Eur J Drug Metab Pharmacokinet</i> 2019;44:747-59. 2. SPC Nubeqa.
Dexamethason	Netupitant	De dexamethasonspiegel stijgt	Geen actie	1. SPC + EPAR Akynzeo. 2. Lanzarotti C ea. Effect of netupitant, a highly selective NK ₁ receptor antagonist, on the pharmacokinetics of midazolam, erythromycin, and dexamethasone. <i>Support Care Cancer</i> 2013;21:2783-91. 3. Herrstedt J ea. 2016 Updated MASCC/ESMO consensus recommendations: prevention of nausea and vomiting following high emetic risk chemotherapy. <i>Support Care Cancer</i> 2017;25:277-88.

VERVOLG TABEL 3B. Niet-klinisch relevant, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Dexamethason, methylprednisolon	(Fos)aprepitant	De aprepitantspiegel stijgt	Geen actie	<ol style="list-style-type: none"> 1. McCrea JB ea. Effects of the neurokinin1 receptor antagonist aprepitant on the pharmacokinetics of dexamethasone and methylprednisolone. <i>Clin Pharmacol Ther</i> 2003;74:17-24. 2. Marbury TC ea. Pharmacokinetics of oral dexamethasone and midazolam when administered with single-dose intravenous 150 mg fosaprepitant in healthy adult subjects. <i>J Clin Pharmacol</i> 2011;51:1712-20. 3. Hansten PhD ea. Drug interactions analysis and management. 4. SPC Emend, Ivemend. 5. Stockley IH. Drug interactions. 6. Herrstedt J ea. 2016 Updated MASCC/ESMO consensus recommendations: prevention of nausea and vomiting following high emetic risk chemotherapy. <i>Support Care Cancer</i> 2017;25:277-88.
Didanosine, stavudine	Hydroxycarbamide	Zowel didanosine als stavudine kunnen als bijwerking perifere neuropathie en pancreatitis geven, hydroxycarbamide kan het risico hierop vergroten. Het effect van hydroxycarbamide op de antivirale activiteit van didanosine is wisselend, deze kan toenemen of gelijk blijven.	Geen actie	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. SPC Videx, Zerit, Hydrexa.
Docetaxel	Ketoconazol	Afname van de klaring van docetaxel en de docetaxelspiegel stijgt	Geen actie	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. SPC Taxotere, Nizoral. 3. Engels FK ea. Influence of high-dose ketoconazole on the pharmacokinetics of docetaxel. <i>Cancer Biol Ther</i> 2006;5:833-9. 4. Engels FK ea. Effect of cytochrome P450 3A4 inhibition on the pharmacokinetics of docetaxel. <i>Clin Pharmacol Ther</i> 2004;75:448-54.
Docetaxel	Lopinavir, ritonavir	Verhoogd risico op docetaxel-toxiciteit	Geen actie	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. Hansten PhD ea. Drug interactions analysis and management. 3. Mir O ea. Severe toxicity related to a pharmacokinetic interaction between docetaxel and ritonavir in HIV-infected patients. <i>Br J Clin Pharmacol</i> 2010;69:99-101. 4. Koolen SL ea. Population pharmacokinetics of intravenously and orally administered docetaxel with or without co-administration of ritonavir in patients with advanced cancer. <i>Br J Clin Pharmacol</i> 2010;69:465-74. 5. Hewish M ea. Severe synergistic toxicity from docetaxel in a patient treated concurrently with protease inhibitors as part of HIV post-exposure prophylaxis: a case report. <i>J Med Case Reports</i> 2009;3:8866. 6. Loulergue P ea. Possible pharmacokinetic interaction involving ritonavir and docetaxel in a patient with Kaposi's sarcoma. <i>AIDS</i> 2008;22:1237-9.

VERVOLG TABEL 3B. Niet-klinisch relevant, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Docetaxel	Hypericum	De docetaxelspiegel daalt	Geen actie	<ol style="list-style-type: none"> Goey AK. Clinical pharmacokinetic interactions between herbal supplements and anticancer drugs. Proefschrift 2013. www.artsennet.nl/Kennisbank/Proefschriften/Promotie/132498/Clinical-Pharmacokinetic-Interactions-between-Herbal-Supplements-and-Anti-cancer-Drugs.htm. Goey AK ea. Farmacokinetische interactie tussen sint-janskruid en docetaxel. Pharm Weekbl Wetenschappelijk Platform 2014;9:A1431. Stockley IH. Drug interactions. SPC + EPAR Taxotere.
Docetaxel, paclitaxel (oraal)	Ciclosporine, ritonavir	De spiegels van beide geneesmiddelen stijgen	Geen actie	<ol style="list-style-type: none"> Stockley IH. Drug interactions. SPC Taxotere. Malingré MM ea. Coadministration of cyclosporine strongly enhances the oral bioavailability of docetaxel. J Clin Oncol 2001;19:1160-6. Meerum Terwogt JM ea. Co-administration of cyclosporin enables oral therapy with paclitaxel. Lancet 1998;352:285. Malingré MM ea. Pharmacokinetics of oral cyclosporin A when co-administered to enhance the absorption of orally administered docetaxel. Eur J Clin Pharmacol 2001;57:305-7. Malingré MM ea. Pharmacokinetics of oral cyclosporin A when co-administered to enhance the oral absorption of paclitaxel. Anticancer Drugs 2001;12:591-3. Kemper EM ea. Remming van P-glycoproteïne in de bloed-hersenbarrière; implicaties voor de behandeling van hersentumoren met taxanen. Pharm Weekbl 2006;141:380-3. De Weger VA ea. A dose-escalation study of bi-daily once weekly oral docetaxel either as ModraDoc001 or ModraDoc006 combined with ritonavir. Eur J Cancer 2017;86:217-25.
Doxorubicine, epirubicine	Verapamil	De spiegels van beide geneesmiddelen stijgen	Geen actie	<ol style="list-style-type: none"> Stockley IH. Drug interactions. Hansten PhD ea. Drug interactions analysis and management. SPC Myocet, Doxorubicine, Farmorubicine. Kerr DJ ea. The effect of verapamil on the pharmacokinetics of adriamycin. Cancer Chemother Pharmacol 1986;18:239-42. Mross K ea. Effects of verapamil on the pharmacokinetics and metabolism of epirubicin. Cancer Chemother Pharmacol 1993;31:369-75. Scheithauer W ea. Pharmacokinetic interaction between epirubicin and the multidrug resistance reverting agent D-verapamil. Br J Cancer 1993;68:8-9. Scheithauer W ea. Phase II study of D-verapamil and doxorubicin in patients with metastatic colorectal cancer. Eur J Cancer 1993;29A:2337-8. Ozols RF ea. Verapamil and adriamycin in the treatment of drug-resistant ovarian cancer patients. J Clin Oncol 1987;5:641-7.
Encorafenib	Diltiazem	De encorafenibspiegel stijgt	Geen actie	<ol style="list-style-type: none"> SPC Braftovi.
Enzalutamide	Rifampicine	De enzalutamidespiegel daalt	Geen actie	<ol style="list-style-type: none"> SPC Xtandi + Procedural steps taken and scientific information after the authorisation. 17-0-2015. www.ema.europa.eu. Geraadpleegd 4-1-2016.
Enzalutamide, darolutamide	Itraconazol	De spiegels van beide geneesmiddelen en de actieve metaboliet van enzalutamide stijgen	Geen actie	<ol style="list-style-type: none"> SPC + EPAR Xtandi, SPC Nubeqa. Gibbons JA ea. Pharmacokinetic drug interaction studies with enzalutamide. Clin Pharmacokinet 2015;54:1057-69. Zurth C ea. Drug-drug interaction potential of darolutamide: in vitro and clinical studies. Eur J Drug Metab Pharmacokinet 2019;44:747-59.

VERVOLG TABEL 3B. Niet-klinisch relevant, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Epirubicine	Cimetidine	De spiegels van epirubicine en de actieve metaboliet stijgen	Geen actie	1. Stockley IH. Drug interactions. 2. SPC Farmorubicine.
Erlotinib	CYP1A2-remmers (ciprofloxacine, fluvoxamine)	De spiegels van erlotinib en de actieve metaboliet stijgen	Geen actie	1. SPC Tarceva. 2. Hansten PhD ea. Drug interactions analysis and management.
Etoposide	Atovaquone	De spiegels van etoposide en de actieve metaboliet stijgen	Geen actie	1. Stockley IH. Drug interactions. 2. Van de Poll ME ea. The effect of atovaquone on etoposide pharmacokinetics in children with acute lymphoblastic leukemia. Cancer Chemother Pharmacol 2001;47:467-72.
Exemestaan	Rifampicine	De exemestaanspiegel daalt	Geen actie	1. Stockley IH. Drug interactions. 2. Hansten PhD ea. Drug interactions analysis and management. 3. SPC Aromasin. Productinformatie (USA) Aromasin. www.media.pfizer.com. Geraadpleegd 2-3-2009.
Exemestaan	Everolimus	Everolimus verhoogt de exemestaan Cmin Deze toename heeft waarschijnlijk geen invloed op de werkzaamheid of veiligheid	Geen actie	1. SPC Afinitor. 2. EPAR Afinitor - Assessment report - Variation 7-8-2012. www.ema.europa.eu/docs/en_GB/document_library/EPAR_-_Assessment_Report_-_Variation/human/001038/WC500130788.pdf. Geraadpleegd 21-8-2012.
Fluorouracil	Cimetidine	De fluorouracilspiegel stijgt, de toxiciteit neemt niet toe	Geen actie	1. Stockley IH. Drug interactions. 2. Hansten PhD ea. Drug interactions analysis and management. 3. Harvey VJ ea. The influence of cimetidine on the pharmacokinetics of 5-fluorouracil. Br J Clin Pharmacol 1984;18:421-30.
Fluorouracil	Interferon-alfa	De fluorouracilspiegel stijgt	Geen actie	1. Stockley IH. Drug interactions.
Gefitinib	Metoprolol	De metoprololspiegel stijgt	Geen actie	1. Swaisland HC ea. Pharmacokinetic drug interactions of gefitinib with rifampicin, itraconazole and metoprolol. Clin Pharmacokinet 2005;44:1067-81. 2. SPC Iressa.
Alpelisib, ibrutinib, entrectinib, vismodegib	Secretieremmers	Ranitidine verlaagt de alpelisibspiegel, lansoprazol verlaagt de entrectinibspiegel, omeprazol verlaagt de ibrutinibspiegel, rabeprazol verlaagt de vismodegibspiegel	Geen actie	1. SPC Erivedge, SPC Imbruvica, SPC/EPAR Rozlytrek. 2. Malhi V ea. A clinical drug-drug interaction study to evaluate the effect of a proton-pump inhibitor, a combined P-glycoprotein/cytochrome 450 enzyme (CYP)3A4 inhibitor, and a CYP2C9 inhibitor on the pharmacokinetics of vismodegib. Cancer Chemother Pharmacol 2016;78:41-9. 3. De Jong J ea. An open-label, sequential-design drug interaction study of the effects of omeprazole on the pharmacokinetics of ibrutinib in healthy adults. Blood 2016;128:1588.

VERVOLG TABEL 3B. Niet-klinisch relevant, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Idelalisib	Diazepam	Er is een casus waarbij gewijzigde mentale status, extremeiten, moeite met spreken, progressieve spierzwakte in onderste lethargie en respiratoir falen optrad, 10 dagen na de start van idelalisib bij een patiënt die ook diazepam gebruikte	Geen actie	1. Bossaer JB ea. Drug interaction between idelalisib and diazepam resulting in altered mental status and respiratory failure. <i>J Oncol Pharm Pract</i> 2017;23:470-2. 2. SPC Zydelig.
Imatinib	Metoprolol	De metoprololspiegel stijgt	Geen actie	1. Wang Y ea. Effects of imatinib (Glivec) on the pharmacokinetics of metoprolol, a CYP2D6 substrate, in Chinese patients with chronic myelogenous leukaemia <i>Br J Clin Pharmacol</i> 2008;65:885-92. 2. SPC Glivec. 3. Stockley IH. Drug interactions.
Imatinib, brigatinib	Gemfibrozil	De spiegels van de actieve metaboliet N-desmethylimatinib en brigatinib dalen	Geen actie	1. Filppula AM ea. Gemfibrozil impairs imatinib absorption and inhibits the CYP2C8-mediated formation of its main metabolite. <i>Clin Pharmacol Ther</i> 2013;94:383-93. 2. SPC/EPAR Alunbrig.
Ifosfamide	Rifampicine	De klaring van ifosfamide daalt	Geen actie	1. Stockley IH. Drug interactions. 2. Kerbusch T ea. Modulation of the cytochrome P450-mediated metabolism of ifosfamide by ketoconazole and rifampin. <i>Clin Pharmacol Ther</i> 2001;70:132-41.
Irinotecan	(Fos)aprepitant	De spiegels van irinotecan en de actieve metaboliet stijgen	Geen actie	1. SPC Ixemend, Emend. 2. Nieva JJ ea. Pharmacokinetic effect of aprepitant on irinotecan in patients with colorectal cancer. <i>J Clin Oncol</i> 2007;25(18S):19622.
Lenalidomide, recaparib, vendetanib, recaparib, neratinib	Digoxine	De digoxinespiegel stijgt	Geen actie	1. Wu A et al. Coadministration of lenalidomide has no clinical significant effect on the pharmacokinetics of digoxin. Abstract #PI-86. Abstracts of the 2007 ASCPT (American Society for Clinical Pharmacology and Therapeutics) annual meeting, Anaheim, California, USA. 2. Johansson S ea. Pharmacokinetic evaluations of the co-administrations of vandetanib and metformin, digoxin, midazolam, omeprazole or ranitidine. <i>Clin Pharmacokinet</i> 2014;53:837-47. 3. SPC + EPAR Caprelsa + Procedural steps taken and scientific information after the authorisation. www.ema.europa.eu/docs/en_GB/document_library/EPAR_-_Procedural_steps_taken_and_scientific_information_after_authorisation/human/002_315/WC500139404.pdf . Geraadpleegd 24-11-2014. 4. SPC en Scientific discussion Revlimid.

VERVOLG TABEL 3B. Niet-klinisch relevant, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				5. Xiao JJ ea. Evaluation of drug-drug interactions of rucaparib and CYP1A2, CYP2C9, CYP2C19, CYP3A, and P-gp substrates in patients with an advanced solid tumor. Clin Transl Sci 2019;12:58-65.
6. SPC Rubraca, SPC + EPAR Nerlynx, SPC + EPAR Rozlytrek.	Bupropion, tolbutamide, fexofenadine, paracetamol	De spiegels van bupropion, tolbutamide, paracetamol en fexofenadine dalen	Geen actie	1. SPC Lorviqua.
Megestrol, medroxyprogesteron	Vitamine K-antagonisten	De klaring van vitamine K-antagonisten daalt	Geen actie	1. Stockley IH. Drug interactions.
Melfalan	Interferon-alfa	De melfalanspiegel en cytotoxiciteit stijgen	Geen actie	1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. SPC Alkeran, Roferon, IntronA.
Methotrexaat	Neomycine, paromomycine, vancomycine	De absorptie en spiegel van methotrexaat dalen	Geen actie	1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. SPC Methotrexaat, Neomycine. 4. Cohen MH ea. Effect of oral prophylactic broad spectrum nonabsorbable antibiotics on the gastrointestinal absorption of nutrients and methotrexate in small cell bronchogenic carcinoma patients. Cancer 1976;38:1556-9. 5. Shen DD ea. Clinical pharmacokinetics of methotrexate. Clin Pharmacokinet 1978;3:1-13.
Methotrexaat	Tacrolimus	De biologische beschikbaarheid van tacrolimus daalt mogelijk	Geen actie	1. Stockley IH. Drug interactions. 2. Nash RA ea. Tacrolimus (FK506) alone or in combination with methotrexate or methylprednisolone for the prevention of acute graft-versus-host disease after marrow transplantation from HLA-matched siblings: a single-center study. Blood 1995;85:3746-53.
Methotrexaat	Natriumwaterstofcarbonaat	Dit is een gewenste interactie	Geen actie	1. Stockley IH. Drug interactions. 2. SPC Methotrexaat TEVA, Natriumwaterstofcarbonaat 8,4%.
Methotrexaat	Colestyramine, actieve kool	De combinatie wordt bewust toegepast bij optreden methotrexaattoxiciteit	Geen actie	1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. Gadgil SD ea. Effect of activated charcoal on the pharmacokinetics of high-dose methotrexate. Cancer Treat Rep 1982;66:1169-71. 4. Erttmann R ea. Effect of oral cholestyramine on the elimination of high-dose methotrexate. J Cancer Res Clin Oncol 1985;110:48-50. 5. Shinozaki T ea. Successful rescue by oral cholestyramine of a patient with methotrexate nephrotoxicity: nonrenal excretion of serum methotrexate. Med Pediatr Oncol 2000;34:226-8. 6. Gadgil SD ea. Effect of activated charcoal on the pharmacokinetics of high-dose methotrexate. Cancer Treat Rep 1982;66:1169-71.
Methotrexaat	Theofylline	De theofyllineklaring daalt	Geen actie	1. Hansten PhD ea. Drug interactions analysis and management. 2. Glynn-Barnhart AM ea. Effect of low-dose methotrexate on the disposition of glucocorticoids and theophylline. J Allergy Clin Immunol 1991;88:180-6.

VERVOLG TABEL 3B. Niet-klinisch relevant, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
mTOR-remmers	Cannabidiol	De spiegels van everolimus en sirolimus stijgen	Geen actie	1. Ebrahimi-Fakhari D ea. Cannabidiol elevates mechanistic target of rapamycin inhibitor levels in patients with tuberous sclerosis complex. <i>Pediatr Neurol</i> 2020;105:59-61.
Netupitant	CYP3A4-remmers (claritromycine, cobicistat, itraconazol, ketoconazol, posaconazol, voriconazol, ritonavir, lopinavir/rtv excl. erytromycine)	De netupitantspiegel stijgt	Geen actie	1. SPC + EPAR Akynzeo. 2. FDA prescribing information Akynzeo. 3. Calcagnile S et al. Effect of netupitant, a highly selective NK ₁ receptor antagonist, on the pharmacokinetics of palonosetron and impact of the fixed dose combination of netupitant and palonosetron when coadministered with ketoconazole, rifampicin, and oral contraceptives. <i>Support Care Cancer</i> 2013;21:2879-87.
Netupitant	Erytromycine, midazolam, levonorgestrel	De spiegels van erytromycine, midazolam en levonorgestrel stijgen	Geen actie	1. SPC + EPAR Akynzeo. 2. Calcagnile S et al. Effect of netupitant, a highly selective NK ₁ receptor antagonist, on the pharmacokinetics of palonosetron and impact of the fixed dose combination of netupitant and palonosetron when coadministered with ketoconazole, rifampicin, and oral contraceptives. <i>Support Care Cancer</i> 2013;21:2879-87. 3. Lanzarotti C ea. Effect of netupitant, a highly selective NK ₁ receptor antagonist, on the pharmacokinetics of midazolam, erythromycin, and dexamethasone. <i>Support Care Cancer</i> 2013;21:2783-91.
Nintedanib	Ketoconazol	De nintedanibspiegel stijgt	Geen actie	1. Luedtke D ea. Effects of ketoconazole and rifampicin on the pharmacokinetics of nintedanib in healthy subjects. <i>Eur J Drug Metab Pharmacokinet</i> 2018; 43:533-41. 2. SPC Vargatef.
Osimertinib, dabrafenib	Rosuvastatine	De rosuvastatine-spiegel stijgt	Geen actie	1. SPC Tagrisso, SPC Tafinlar.
Paclitaxel	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, rifabutine, primidon, rifampicine)	De maximaal getolereerde dosis van paclitaxel stijgt	Geen actie	1. Stockley IH. Drug interactions. 2. SPC Taxol. 3. Fetell MR ea. Preirradiation paclitaxel in glioblastoma multiforme: efficacy, pharmacology, and drug interactions. <i>New Approaches to Brain Tumor Therapy Central Nervous System Consortium</i> . <i>J Clin Oncol</i> 1997;15:3121-8. 4. Chang SM ea. Phase I study of paclitaxel in patients with recurrent malignant glioma: a North American Brain Tumor Consortium report. <i>J Clin Oncol</i> 1998; 16:2188-94.
Paclitaxel	Saquinavir	Het risico op toxiciteit van paclitaxel stijgt	Geen actie	1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. SPC Taxol. 4. Schwartz JD ea. Potential interaction of antiretroviral therapy with paclitaxel in patients with AIDS-related Kaposi's sarcoma. <i>AIDS</i> 1999;13:283-4. 5. Bundow D ea. Potential drug interaction with paclitaxel and highly active antiretroviral therapy in two patients with AIDS-associated Kaposi sarcoma. <i>Am J Clin Oncol</i> 2004;27:81-4. 6. Nannan Panday VR ea. Paclitaxel in the treatment of human immunodeficiency virus 1-associated Kaposi's sarcoma - drug-drug interactions with protease inhibitors and a nonnucleoside reverse transcriptase inhibitor: a case report study. <i>Cancer Chemother Pharmacol</i> 1999;43:516-9.

VERVOLG TABEL 3B. Niet-klinisch relevant, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Paclitaxel	Clopidogrel	Extra (snelle) afname van het aantal neutrofielen is gezien bij combinatie van paclitaxel met clopidogrel Bij gebruik van paclitaxel wordt het aantal neutrofielen standaard gemonitord	Geen actie, bij gebruik van paclitaxel wordt het aantal neutrofielen standaard gemonitord	1. Stockley IH. Drug interactions. 2. Shinoda Y ea. Potential drug interaction between paclitaxel and clopidogrel. Biomed Rep 2016;5:141-5. 3. Bergmann TK ea. Neurotoxicity and low paclitaxel clearance associated with concomitant clopidogrel therapy in a 60-year-old Caucasian woman with ovarian carcinoma. Br J Clin Pharmacol 2016;81:313-5. 4. SPC Plavix.
Palbociclib	Modafinil	De palbociclibspiegel daalt	Geen actie	1. SPC Ibrance.
Palbociclib	Antacida/secretieremmers/H2-antagonisten	Bij inname na het eten zorgt gelijktijdig gebruik van antacida, H2-antagonisten en secretieremmers voor een afname van de palbociclibspiegel	Geen actie, palbociclib moet worden ingenomen tijdens het eten In dat geval is het effect van de interactie klinisch niet relevant	1. Sun W ea. Impact of acid-reducing agents on the pharmacokinetics of palbociclib, a weak base with pH-dependent solubility, with different food intake conditions. Clin Pharmacol Drug Dev 2017;6:614-6. 2. SPC Ibrance.
Panobinostat	Dextromethorfan	De spiegels van beide geneesmiddelen stijgen	Geen actie	1. Feld R ea. A clinical investigation of inhibitory effect of panobinostat on CYP2D6 substrate in patients with advanced cancer. Cancer Chemother Pharmacol 2013;72:747-55. 2. SPC + EPAR Farydak
Pazopanib	Dextromethorfan/midazolam	De midazolamspiegel stijgt en de dextromethorfan/dextromethorfan-urineratio stijgt	Geen actie	1. Goh BC ea. An evaluation of the drug interaction potential of pazopanib, an oral vascular endothelial growth factor receptor tyrosine kinase inhibitor, using a modified Cooperstown 5+1 cocktail in patients with advanced solid tumors. Clin Pharmacol Ther 2010;88:652-9. 2. SPC + EPAR Votrient.
Pemetrexed	Ibuprofen	De pemetrexedklaring daalt	Geen actie	1. Stockley IH. Drug interactions. 2. SPC Alimta.
Pomalidomide	Fluvoxamine, ketoconazol	De spiegels van beide geneesmiddelen stijgen	Geen actie	1. Kasserra C ea. Pomalidomide: evaluation of cytochrome P450 and transporter-mediated drug-drug interaction potential in vitro and in healthy subjects. J Clin Pharmacol 2015;55:168-78. 2. Li Y ea. In vivo assessment of the effect of CYP1A2 inhibition and induction on pomalidomide pharmacokinetics in healthy subjects. J Clin Pharmacol 2018;58:1295-1304. 3. SPC + EPAR Imnovid + Procedural steps taken and scientific information after the authorisation 24-6-16. www.ema.europa.eu Geraadpleegd 15-9-2016.

VERVOLG TABEL 3B. Niet-klinisch relevant, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Pomalidomide	Carbamazepine	De pomalidomide-spiegel daalt	Geen actie	<ol style="list-style-type: none"> 1. Kasserra C ea. Pomalidomide: evaluation of cytochrome P450 and transporter-mediated drug-drug interaction potential in vitro and in healthy subjects. <i>J Clin Pharmacol</i> 2015;55:168-78. 2. SPC + EPAR Imnovid + Procedural steps taken and scientific information after the authorisation. www.ema.europa.eu/docs/en_GB/document_library/EPAR_-_Procedural_steps_taken_and_scientific_information_after_authorisation/human/002_682/WC500151934.pdf. Geraadpleegd 20-11-2014.
Praziquantel	CYP3A4-inductoren (carbamazepine, dexamethason, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	De praziquantel-spiegel daalt, de klinische relevantie is onbekend	Geen actie	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. Hansten PhD ea. Drug interactions analysis and management. 3. Riditid W ea. Rifampin markedly decreases plasma concentrations of praziquantel in healthy volunteers. <i>Clin Pharmacol Ther</i> 2002;72:505-13. 4. Bittencourt PR ea. Phenytoin and carbamazepine decrease oral bioavailability of praziquantel. <i>Neurology</i> 1992;42:492-6. 5. Na-Bangchang K ea. Plasma concentrations of praziquantel during the therapy of neurocysticercosis with praziquantel, in the presence of antiepileptics and dexamethasone. <i>Southeast Asian J Trop Med Public Health</i> 1995;26:120-3. 6. Vazquez ML ea. Plasma levels of praziquantel decrease when dexamethasone is given simultaneously. <i>Neurology</i> 1987;37:1561-2. 7. Yee T ea. High-dose praziquantel with cimetidine for refractory neurocysticercosis: a case report with clinical and MRI follow-up. <i>West J Med</i> 1999;170:112-5. 8. Bittencourt PR ea. High-dose praziquantel for neurocysticercosis: serum and CSF concentrations. <i>Acta Neurol Scand</i> 1990;82:28-33.
QT-verlengers	Propofol, sevofluraan, terlipressine	Mogelijke QT-verlenging	Propofol, sevofluraan en terlipressine worden in de praktijk gebruikt in een bewaakte setting	<ol style="list-style-type: none"> 1. Woosley RL ea. www.CredibleMeds.org, QTdrugs list - Known risk of TdP [12 januari 2018], AZCERT, Inc. 1822 Innovation Park Dr., Oro Valley, AZ 85755. Geraadpleegd maart 2020. 2. Note for guidance on the clinical evaluation of QT/QTc interval prolongation and proarrhythmic potential for non-antiarrhythmic drugs (CHMP/ICH/2/04). www.ema.europa.eu/docs/en_GB/document_library/Scientific_guideline/2009/09/WC500002879.pdf. Geraadpleegd februari 2018. 3. Werkgroep QT-interacties. Afhandeling van QT-interacties: wijzigingen per 1 juni 2019. Adviezen bij QTc-verlenging aangepast na evaluatie. <i>Pharm Weekbl</i> 31 mei 2019;154:14. 4. Werkgroep QT-interacties. Drie categorieën en nieuwe adviezen bij QTc-verlenging. Afhandeling van QT-interacties: praktische leidraad bij medicatiebewaking. <i>Pharm Weekbl</i> 30 maart 2018;153:16-7. 5. Bindraban AN ea. Development of a risk model for predicting QTc interval prolongation in patients using QTc-prolonging drugs. <i>Int J Clin Pharm</i> 2018;40:1372-9. 6. Van den Bemt PMea. Eindrapport project: Ontwikkeling en implementatie van een clinical rule ter ondersteuning van afhandeling van QT-verlengende interacties. 31 maart 2017. 7. Tisdale JE ea. Effectiveness of a clinical decision support system for reducing the risk of QT interval prolongation in hospitalized patients. <i>Circ Cardiovasc Qual Outcomes</i> 2014;7:381-90. 8. Haugaa KH ea. Institution-wide QT alert system identifies patients with a high risk of mortality. <i>Mayo Clin Proc</i> 2013;88:315-25.

VERVOLG TABEL 3B. Niet-klinisch relevant, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				9. Vandael E ea. A smart algorithm for the prevention and risk management of QTc prolongation based on the optimized RISQ-PATH model. <i>Br J Clin Pharmacol</i> 2018;84:2824-35.
Regorafenib	Neomycine (oraal)	De beschikbaarheid van de actieve metabolieten M-2 en M-5 van regorafenib stijgt	Geen actie	1. Bayer HealthCare. Clinical study synopsis. Single-center, open-label, non-randomized, two-period sequential treatment study to assess the effect of neomycin on the pharmacokinetics of regorafenib in healthy male subjects. NCT02001909. 18 maart 2015. http://trialfinder.bayerscheeringpharma.de/html/pdf/16675_Study_Synopsis_CTP.pdf . 2. SPC + EPAR Stivarga.
Ribociclib, rucaparib	Coffeine	De coffeïnespiegel stijgt	Geen actie	1. SPC Kisqali, SPC Rubraca. 2. Xiao JJ ea. Evaluation of drug-drug interactions of rucaparib and CYP1A2, CYP2C9, CYP2C19, CYP3A, and P-gp substrates in patients with an advanced solid tumor. <i>Clin Transl Sci</i> 2019;12:58-65.
Rolapitant	Dextromethorfan	De dextromethorfan-spiegel stijgt	Geen actie	1. SPC + EPAR Varuby. 2. Yu J ea. What can be learned from recent new drug applications? A systematic review of drug interaction data for drugs approved by the US FDA in 2015. <i>Drug Metab Dispos</i> 2017;45:86-108.
Rolapitant	CYP3A4-remmers (claritromycine, cobicistat, erytromycine, itraconazol, ketocozazol, posaconazol, voriconazol, ritonavir, lopinavir/rtv)	De rolapitant-spiegel stijgt	Geen actie	1. SPC + EPAR Varuby.
Rolapitant	Digoxine, sulfasalazine	De spiegels van digoxine en sulfasalazine stijgen	Geen actie	1. Wang X ea. Effects of rolapitant administered intravenously or orally on the pharmacokinetics of digoxin (P-glycoprotein substrate) and sulfasalazine (breast cancer resistance protein substrate) in healthy volunteers. <i>J Clin Pharmacol</i> 2018;58:202-11. 2. SPC + EPAR Varuby.
Rucaparib	Omeprazol, esomeprazol	De (es) omeprazol-spiegel stijgt	Geen actie	1. Xiao JJ ea. Evaluation of drug-drug interactions of rucaparib and CYP1A2, CYP2C9, CYP2C19, CYP3A, and P-gp substrates in patients with an advanced solid tumor. <i>Clin Transl Sci</i> 2019;12:58-65. 2. SPC/EPAR Rubraca.
Sirolimus	Mirabegron	De C _{min} van sirolimus stijgt	Geen actie	1. Engle JA ea. Sirolimus and mirabegron interaction in a hematopoietic cell transplant patient. <i>J Oncol Pharm Pract</i> 2018;24:627-31.
Talazoparib	Rifampicine	Lichte stijging van de talazoparib C _{max} en daling van de T _{1/2}	Geen actie	1. Elmeliyeg M ea. Evaluation of the effect of P-glycoprotein inhibition and induction on talazoparib disposition in patients with advanced solid tumours. <i>Br J Clin Pharmacol</i> 2019. 2. SPC Talzenna.
Tamoxifen	Medroxyprogesteron	De spiegel van de desmethylmetabolieten van tamoxifen dalen na 1,5-3 maanden	Geen actie	1. Stockley IH. Drug interactions.
Tamoxifen	(Es)citalopram	De spiegels van endoxifen en 4-hydroxytamoxifen stijgen	Geen actie	1. Binkhorst L ea. Augmentation of endoxifen exposure in tamoxifen-treated women following SSRI-switch. <i>Clin Pharmacokinet</i> 2016;55:249-55. 2. Borges S ea. Quantitative effect of CYP2D6 genotype and inhibitors on tamoxifen metabolism: Implication for optimization of breast cancer treatment. <i>Clin Pharmacol Ther</i> 2006;80:61-74.

VERVOLG TABEL 3B. Niet-klinisch relevant, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Tamoxifen	Ribociclib	De beschikbaarheid van tamoxifen stijgt en mogelijk verlenging van het QT-interval	Geen actie	<ol style="list-style-type: none"> 1. SPC Kisqali. 2. Tripathy D ea. Ribociclib plus endocrine therapy for premenopausal women with hormone-receptor-positive, advanced breast cancer (MONALEESA-7): a randomised phase 3 trial. <i>Lancet Oncol</i> 2018;19:904-15. 3. Woosley RL ea. www.CredibleMeds.org, QTdrugs list - Possible risk of TdP, AZCERT, Inc. 1822 Innovation Park Dr., Oro Valley, AZ 85755. Geraadpleegd maart 2019.
Topotecan	Fenytoïne	De klaring van topotecan stijgt	Geen actie	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions.
Tretinoïne	Fluconazole, ketoconazol	De klaring van tretinoïne daalt	Geen actie	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. Lee JS ea. Phase I evaluation of all-trans retinoic acid with and without ketoconazole in adults with solid tumors. <i>J Clin Oncol</i> 1995;13:1501-8. 3. SPC Vesanoid.
Tyrosinekinaseremmers (crizotinib, entrectinib, lapatinib, nilotinib, palbociclib, rucaparib)	Midazolam	De midazolamspiegel stijgt	Geen actie	<ol style="list-style-type: none"> 1. SPC Xalkori, SPC Tasigna, SPC + EPAR Tyverb, SPC Ibrance, SPC Rubraca, SPC/EPAR Rozlytrek. 2. Amerikaanse productinformatie Xalkori. http://labeling.pfizer.com/showlabeling.aspx?id=676. Geraadpleegd 23-10-2012. 3. Stockley IH. Drug interactions. 4. Studie EGF10015 (lapatinib). download.gsk-clinicalstudyregister.com/files/20663.pdf - 2010-07-17. Geraadpleegd 15-11-2013. 5. Zhang H ea. Inhibitory effect of single and repeated doses of nilotinib on the pharmacokinetics of CYP3A substrate midazolam. <i>J Clin Pharmacol</i> 2015;55:401-8. 6. Hoffman JT ea. Abstract CT419: A phase 1 randomized, open-label, 2-sequence, 2-period crossover study of the effect of multiple doses of palbociclib (PD-0332991) on midazolam pharmacokinetics in healthy women of non-childbearing potential. <i>Cancer Res</i> 2014;74(19 Suppl):CT419. http://cancerres.aacrjournals.org.proxy.library.uu.nl/content/74/19_Supplement/CT419. 7. Xiao JJ ea. Evaluation of drug-drug interactions of rucaparib and CYP1A2, CYP2C9, CYP2C19, CYP3A, and P-gp substrates in patients with an advanced solid tumor. <i>Clin Transl Sci</i> 2019;12:58-65.
Tyrosinekinaseremmers, idelalisib	CYP3A4-remmers	De spiegels van tyrosinekinaseremmers en idelalisib dalen	Geen actie	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. SPC Glivec, SPC + EPAR Iclusig, SPC Cometriq, SPC Tagrisso. 3. Dutreix C ea. Pharmacokinetic interaction between ketoconazole and imatinib mesylate (Glivec) in healthy subjects. <i>Cancer Chemother Pharmacol</i> 2004;54:290-4. 4. Narasimhan NI ea. Effects of ketoconazole on the pharmacokinetics of ponatinib in healthy subjects. <i>J Clin Pharmacol</i> 2013;53:974-81. 5. Amerikaanse productinformatie Iclusig. http://clusig.com/pi/pdfs/Iclusig-Prescribing-Information.pdf. Geraadpleegd oktober 2013. 6. SPC Zydelig + Amerikaanse productinformatie Zydelig. http://www.accessdata.fda.gov/drugsatfda_docs/label/2014/206545lbl.pdf. Geraadpleegd 17-10-2014. 7. Vishwanathan K ea. The effect of itraconazole and rifampicin on the pharmacokinetics of osimertinib. <i>Br J Clin Pharmacol</i> 2018;84:1156-69.
Vandetanib	CYP3A4-remmers (behalve claritromycine, erytromycine)	De vandetanibspiegel stijgt	Geen actie	<ol style="list-style-type: none"> 1. SPC Caprelsa. 2. Martin P ea. Pharmacokinetic drug interactions with vandetanib during coadministration with rifampicin or itraconazole. <i>Drugs RD</i> 2011;11:37-51.
Vemurafenib	Dextromethorfan/midazolam/coffeïne	De spiegels van dextromethorfan en coffeïne stijgen, de midazolamspiegel daalt	Geen actie	<ol style="list-style-type: none"> 1. SPC + EPAR Zelboraf.

VERVOLG TABEL 3B. Niet-klinisch relevant, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Vemurafenib, venetoclax	Vitamine K-antagonisten	De spiegels van vitamine K-antagonisten stijgen	Geen actie	1. SPC/EPAR Zelboraf, Venclyxto. 2. Salem AH ea. Evaluation of the pharmacokinetic interaction between venetoclax, a selective BCL-2 inhibitor, and warfarin in healthy volunteers. Clin Drug Investig 2017;37:303-9.
Vincristine	Nifedipine	De klaring van vincristine daalt	Geen actie	1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. Fedeli L ea. Pharmacokinetics of vincristine in cancer patients treated with nifedipine. Cancer 1989;64:1805-11. 4. Sathiapalan RK ea. Enhanced vincristine neurotoxicity from drug interactions: case report and review of literature. Pediatr Hematol Oncol 2001;18:543-6.
Vincristine, vinblastine	CYP3A4-inductoren (efavirenz, enzalutamide, fenobarbital, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	De spiegels van vincristine en vinblastine dalen	Geen actie	1. Villikka K ea. Cytochrome P450-inducing antiepileptics increase the clearance of vincristine in patients with brain tumors. Clin Pharmacol Ther 1999;66:589-93. 2 Stockley IH. Drug interactions.
Vinflunine	CYP3A4-remmers (claritromycine, cobicistat, erytromycine, itraconazol, ketocozazol, posaconazol, voriconazol, ritonavir)	De spiegels van vinflunine en de actieve metaboliet stijgen	Geen actie	1. SPC Javlor.
Vismodegib	Vitamine K-antagonisten	De INR stijgt mogelijk	Geen actie	1. Lim S ea. Elevated International Normalized Ratio in a patient concurrently using warfarin and vismodegib. Am J Health Syst Pharm 2014;71:200-3.
Vismodegib	Fluconazol	De vismodegibspiegel stijgt	Geen actie	1. SPC Erivedge. 2. Malhi V ea. A clinical drug-drug interaction study to evaluate the effect of a proton-pump inhibitor, a combined P-glycoprotein/cytochrome 450 enzyme (CYP)3A4 inhibitor, and a CYP2C9 inhibitor on the pharmacokinetics of vismodegib. Cancer Chemother Pharmacol 2016;78:41-9.

TABEL 3C. Geen GIA vastgesteld, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Abirateron	Theofylline	Abirateron heeft geen invloed op de kinetiek van theofylline	Geen actie	1. SPC Zytiga. 2. Chi KN ea. Effect of abiraterone acetate plus prednisone on the pharmacokinetics of dextromethorphan and theophylline in patients with metastatic castration-resistant prostate cancer. <i>Cancer Chemother Pharmacol</i> 2013;71:237-44. 3. Stockley IH. Drug interactions.
Abirateron, enzalutamide, apalutamide	Spiroonolacton	Er is geen onderbouwing voor een interactie		1. Flynn T ea. Case report: Spiroonolactone withdrawal associated with a dramatic response in a patient with metastatic castrate-resistant prostate cancer. <i>Clin Genitourin Cancer</i> 2017;15:e95-7. 2. Dhondt B ea. Abiraterone and spiroonolactone in prostate cancer: a combination to avoid. 2019;74:439-44. 3. SPC Zytiga. 4. Sundar S ea. Spiroonolactone, a possible selective androgen receptor modulator, should be used with caution in patients with metastatic carcinoma of the prostate. <i>BMJ Case Rep</i> 2012;2012:bcr1120115238.
Anastrozol	Diverse stoffen (cimetidine, quinapril)	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. SPC Arimidex.
Anti-androgenen (abirateron, bicalutamide, darolutamide, flutamide, nilutamide)	Vitamine K-antagonisten	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. SPC Flutamide Mylan, Casodex, Anandron, Zytiga, Nubeqa.
Aromataseremmers (anastrozol, exemestaan, letrozol)	Vitamine K-antagonisten	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions.
Azathioprine, mercaptopurine	Adalimumab, certolimumab, golimumab	Er bestaat een gering risico op hepatosplenisch T-celmyeloom (HSTCL) bij gebruik van azathioprine of mercaptopurine in combinatie met een TNF- α -antagonist Er is geen onderbouwing voor een interactie	Geen actie	1. SPC Purinethol, Imuran, Humira, Cimzia, Simponi. 2. Handleiding behandeling IBD - 2014-2015. Moderniseren van de Richtlijn IBD 2009. Gemandateerd door de Nederlandse Vereniging van Maag-, Darm- en Leverartsen, oktober 2015. www.mdl.nl/uploads/240/1774/Document_volledig_Handleiding_met_literatuur_def.pdf 3. Deepak P ea. T-cell non-Hodgkin's lymphomas reported to the FDA AERS with tumor necrosis factor-alpha (TNF- α) inhibitors: results of the REFURBISH study. <i>Am J Gastroenterol.</i> 2013;108:99-105. 4. Thai A ea. Hepatosplenic T-cell lymphoma and inflammatory bowel disease. <i>J Crohns Colitis</i> 2010;4:511-22. 5. Wong DR ea. The pharmacokinetic effect of adalimumab on thiopurine metabolism in Crohn's disease patients. <i>J Crohns Colitis</i> 2014;8:120-8.
Azathioprine, mercaptopurine, tioguanine	Cotrimoxazol, trimethoprim	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. Rees CA ea. Disturbance of 6-mercaptopurine metabolism by cotrimoxazole in childhood lymphoblastic leukaemia. <i>Cancer Chemother Pharmacol</i> 1984;12:87-9. 3. Bradley PP ea. Neutropenia and thrombocytopenia in renal allograft recipients treated with trimethoprim-sulfamethoxazole. <i>Ann Intern Med</i> 1980;93:560-2. 4. Olsen SL ea. Prevention of <i>Pneumocystis carinii</i> pneumonia in cardiac transplant recipients by trimethoprim sulfamethoxazole. <i>Transplantation</i> 1993;56:359-62. 5. Peters C ea. Continuous sulfa prophylaxis for urinary tract infection in renal transplant recipients. <i>Am J Surg</i> 1983;146:589-93.

VERVOLG TABEL 3C. Geen GIA vastgesteld, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				6. Bailey RR. Leukopenia due to a trimethoprim-azathioprine interaction. N Z Med J 1984;97:739. 7. Hall CL. Co-trimoxazole and azathioprine: a safe combination. BMJ 1974;4:15-6. 8. SPC Imuran. 9. Therrien R. Possible trimethoprim/sulfamethoxazole-induced aseptic meningitis. Ann Pharmacother 2004;38:1863-7.
Azathioprine, mercaptopurine, tioguanine	Protonpompremmers	Er is geen onderbouwing voor een interactie	Geen actie	1. Van der Schaft J ea. Increased liver enzyme levels during azathioprine treatment: beware of concomitant use of proton pump inhibitors. Br J Dermatol 2015;173:1338-9. 2. SPC Purinethol, Imuran.
Bendamustine	CYP1A2-remmers (fluvoxamine, ciprofloxacin, aciclovir, cimetidine), omeprazol	Er is geen onderbouwing voor een interactie	Geen actie	1. Darwish M ea. Population pharmacokinetics and pharmacokinetic/ pharmacodynamics of bendamustine in pediatric patients with relapsed/refractory acute leukemia. Curr Med Res Opin 2014;30:2305-15. 2. Darwish M ea. Pharmacokinetic and pharmacodynamic profile of bendamustine and its metabolites. Cancer Chemother Pharmacol 2015;75:1143-54. 3. SPC Levact. 4. Bendeka FDA label. https://www.accessdata.fda.gov/drugsatfda.../label/.../208194s0051... Geraadpleegd november 2018.
Bexaroteen	Diverse stoffen: anticonceptiepil, claritromycine, dexamethason, erytromycine, gemfibrozil, itraconazol, ketoconazol, HIV-proteaseremmers, orale bloedglucoseverlagende middelen en CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. SPC Targretin.
Bortezomib	Diverse stoffen: claritromycine, cobicistat, erytromycine, fluoxetine, itraconazol, (es)omeprazol, posaconazol, voriconazol, ritonavir en CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	Er is geen onderbouwing voor een interactie	Geen actie	1. SPC Trisporal, Erythrocin, Velcade. 2. Iwamoto T ea. Drug interaction between itraconazole and bortezomib: exacerbation of peripheral neuropathy and thrombocytopenia induced by bortezomib. Pharmacotherapy 2010;30:661-5. 3. Hunfeld N ea. Nierfalen na bortezomib en erytromycine: een nieuwe interactie? Pharm Weekbl Wetenschappelijk Platform 2010;4:162-3.
Busulfan	Amfotericine, paracetamol	Er is geen onderbouwing voor een interactie	Geen actie	1. SPC Busilvex, Myleran.

VERVOLG TABEL 3C. Geen GIA vastgesteld, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Cabazitaxel, vandetanib, carfilzomib	Midazolam	Dit is geen interactie	Geen actie	<ol style="list-style-type: none"> 1. SPC + EPAR Jevtana, SPC Kyprolis. 2. Rixe O ea. Absence of interaction of cabazitaxel on the pharmacokinetics of midazolam: results of a drug-drug interaction study in patients with advanced solid tumors. #126 Presented at: American Society of Clinical Oncology Genitourinary Cancers Symposium Orlando, FL, USA, February 14-16 2013. 3. Johansson S ea. Pharmacokinetic evaluations of the co-administrations of vandetanib and metformin, digoxin, midazolam, omeprazole or ranitidine. Clin Pharmacokinet 2014;53:837-47. 4. SPC + EPAR Caprelsa + Procedural steps taken and scientific information after the authorisation. www.ema.europa.eu/docs/en_GB/document_library/EPAR_-_Procedural_steps_taken_and_scientific_information_after_authorisation/human/002_315/WC500139404.pdf. Geraadpleegd 24-11-2014. 5. Wang Z ea. Clinical pharmacokinetics, metabolism, and drug-drug interaction of carfilzomib. Drug Metab Dispos 2013;41:230-7.
Capecitabine, abirateron, talazoparib	Antacida, secretieremmers	Er is geen onderbouwing voor een interactie	Geen actie	<ol style="list-style-type: none"> 1. Sun J ea. Concomitant administration of proton pump inhibitors and capecitabine is associated with increased recurrence risk in early stage colorectal cancer patients. Clin Colorectal Cancer 2016;15:257-63. 2. Chu MP ea. Association of proton pump inhibitors and capecitabine efficacy in advanced gastroesophageal cancer secondary analysis of the TRIO-013/LOGiC randomized clinical trial. JAMA Oncol 2017;3:767-73. 3. Reigner B ea. Influence of the antacid Maalox on the pharmacokinetics of capecitabine in cancer patients. Cancer Chemother Pharmacol 1999;43:309-315. 4. SPC Xeloda, Talzena. 5. Stockley IH. Drug interactions. 6. Bethlehem C ea. Het effect van maagzuurremmende geneesmiddelen op de behandeluitkomst met abirateronacetaat in patiënten met gemetastaseerde castratieresistente prostaatkanker. Nederlands Platform voor Farmaceutisch Onderzoek 2018;3:A1673.
Capecitabine, fluorouracil	Allopurinol	Er is geen onderbouwing voor een interactie	Geen actie	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. Anoniem. Allopurinol and cytotoxic drugs. Interaction in relation to bone marrow depression. Boston Collaborative Drug Surveillance Program. JAMA 1974;227:1036-40. 3. Garewal H ea. Failure of allopurinol to provide clinically significant protection against the hematologic toxicity of a bolus 5-FU schedule. Oncology 1986;43:216-8. 4. Garewal H ea. Allopurinol and bolus fluorouracil. NEJM 1985;312:587. 5. Howell SB ea. Modulation of 5-fluorouracil toxicity by allopurinol in man. Cancer 1981;48:1281-9. 6. Fox RM ea. Allopurinol modulation of fluorouracil toxicity. Cancer Chemother Pharmacol 1981;5:151-5. 7. Woolley PV ea. A controlled trial of the effect of 4-hydroxypyrazolopyrimidine (allopurinol) on the toxicity of a single bolus dose of 5-fluorouracil. J Clin Oncol 1985;3:103-9.
Capecitabine, fluorouracil	Foliumzuur	De combinatie wordt bewust toegepast	Geen actie	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. SPC Xeloda, Fluracedyl, Fluorouracil-TEVA, Rescuvolin, Teysuno. 3. Cassidy J ea. A Phase I study of capecitabine in combination with oral leucovorin in patients with intractable solid tumors. Clin Cancer Res 1998;4:2755-61.

VERVOLG TABEL 3C. Geen GIA vastgesteld, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Carboplatine	Aminoglycosiden	Geen onderbouwing voor een toegenomen toxiciteit	Geen actie	1. Hansten PhD ea. Drug interactions analysis and management. 2. SPC Carbosin, Obracin, Gentamicine.
Oncologische middelen (cytostatisch: cisplatine, cyclofosfamide, doxorubicine, etoposide, vincristine)	Megestrol	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. Rowland KM ea. Randomized double-blind placebo-controlled trial of cisplatin and etoposide plus megestrol acetate/placebo in extensive-stage small-cell lung cancer: a North Central Cancer Treatment Group study. J Clin Oncol 1996;14:135-41. 3. Wood L ea. Results of a phase III, double-blind, placebo-controlled trial of megestrol acetate modulation of P-glycoprotein-mediated drug resistance in the first-line management of small-cell lung carcinoma. Br J Cancer 1998;77:627-31.
Chloorambucil	Amfotericine, ciclosporine, fenylbutazon	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. SPC Leukeran. 3. Schiffman FJ ea. Potentiation of chlorambucil activity by phenylbutazone. Cancer Lett 1978;4:211-6.
Cisplatine	H2-antagonisten	Dit is geen interactie	Geen actie	1. Stockley IH. Drug interactions.
Cisplatine	Lithium	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions.
Cisplatine	Probenecide	Dit is geen interactie	Geen actie	1. Stockley IH. Drug interactions.
Cyclofosfamide	Diverse stoffen (amiodaron, benzodiazepinen, bupropion, captopril, ceftriaxon, chloorpromazine, chloroquine, dapson, indometacine, insuline, metronidazol, morfine, nifedipine, sulfonyleureumderivaten)	Er is geen onderbouwing voor een interactie	Geen actie	1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. SPC Endoxan. 4. Bhagat R ea. Amiodarone and cyclophosphamide: potential for enhanced lung toxicity. Bone Marrow Transplant 2001;27:1109-11. 5. Webberley MJ ea. Life-threatening acute hyponatraemia induced by low dose cyclophosphamide and indomethacin. Postgrad Med J 1989;65:950-2. 6. McCarron M ea. Water intoxication after low dose cyclophosphamide. BMJ 1995 29;311:292. 7. Yule SM ea. Cyclophosphamide pharmacokinetics in children. Br J Clin Pharmacol 1996;41:13-9. 8. Williams ML ea. Enantioselective induction of cyclophosphamide metabolism by phenytoin. Chirality 1999;11:569-74. 9. Davison AR et al. Effect of cyclophosphamide on leprosy. Competitive action of cyclophosphamide and dapsone. Lancet 1964;14:1138-41. 10. Krüger HU. [The blood sugar depressing action of cyclophosphamide in diabetics]. Med Klin 1966;61:1462-3. [Article in German] 11. Pengelly CR. Diabetes mellitus and cyclophosphamide. Br Med J 1965;1:1312-3.
Cyclofosfamide	G-CSF (filgrastim, lenograstim, lipegfilgrastim, legfilgrastim)	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. Van Woensel JB ea. Acute respiratory insufficiency during doxorubicin, cyclophosphamide, and G-CSF therapy. Lancet 1994;344:759-60. 3. Yokose N ea. Pulmonary toxicity after granulocyte colony-stimulating factor-combined chemotherapy for non-Hodgkin's lymphoma. Br J Cancer 1998; 77:2286-90. 4. Hasegawa Y ea. Interstitial pneumonitis related to granulocyte colony-stimulating factor administration

VERVOLG TABEL 3C. Geen GIA vastgesteld, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				following chemotherapy for elderly patients with non-Hodgkin's lymphoma. Intern Med 1997;36:360-4. 5. Engert A ea. Pegfilgrastim support for full delivery of BEACOPP-14 chemotherapy for patients with high-risk Hodgkin's lymphoma: results of a phase II study. Leuk Lymphoma 2005;46:1523-6.
Cytarabine	Posaconazol, voriconazol	Er is geen onderbouwing voor een interactie	Geen actie	1. Alzghari SK ea. Severe palmar-plantar erythrodysesthesia and aplasia in an adult undergoing re-induction treatment with high-dose cytarabine for acute myelogenous leukemia: a possible drug interaction between posaconazole and cytarabine. J Oncol Pharm Pract 2017;23:476-80. 2. Maertens JA ea. European Conference on Infections in Leukaemia (ECIL); joint venture of the European Group for Blood and Marrow Transplantation (EBMT), the European Organization for Research and Treatment of Cancer (EORTC), the Immunocompromised Host Society (IHS) and the European LeukemiaNet (ELN). European guidelines for primary antifungal prophylaxis in adult haematology patients: summary of the updated recommendations from the European Conference on Infections in Leukaemia. J Antimicrob Chemother 2018;73:3221-30. 3. Osborne WL ea. Fatal peripheral neuropathy following FLA chemotherapy. Clin Lab Haematol 2004;26:295-6.
Oncologische middelen	Cannabis	Er is geen onderbouwing voor een interactie	Geen actie	1. Basistekst medicinale cannabis. 2. Hansten PhD ea. Drug interactions analysis and management. 3. Stockley IH. Drug interactions.
Dacarbazine	Levodopa	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions.
Darolutamide	Dabigatran	Er is geen onderbouwing voor een interactie	Geen actie	1. Zurth C ea. Drug-drug interaction potential of darolutamide: in vitro and clinical studies. Eur J Drug Metab Pharmacokinet 2019;44:747-59. 2. SPC Nubeqa.
Daunorubicine	Indinavir, ritonavir	Er is geen onderbouwing voor een interactie	Geen actie	1. Fumagalli L ea. The pharmacokinetics of liposomal encapsulated daunorubicin are not modified by HAART in patients with HIV-associated Kaposi's sarcoma. Cancer Chemother Pharmacol 2000;45:495-501. 2. SPC DaunoXome.
Docetaxel, cabazitaxel, vinorelbine, melfalan	(Fos)aprepitant	Dit is geen interactie	Geen actie	1. Stockley IH. Drug interactions. 2. SPC Ixemend, Emend, Jevtana. 3. Nygren P ea. Lack of effect of aprepitant on the pharmacokinetics of docetaxel in cancer patients. Cancer Chemother Pharmacol 2005;55:609-16. 4. Loos WJ ea. Aprepitant when added to a standard antiemetic regimen consisting of ondansetron and dexamethasone does not affect vinorelbine pharmacokinetics in cancer patients. Cancer Chemother Pharmacol 2007;59:407-12. 5. Egerer G ea. The NK ₁ receptor antagonist aprepitant does not alter the pharmacokinetics of high-dose melphalan chemotherapy in patients with multiple myeloma. Br J Clin Pharmacol 2010;70:903-7. 6. Schmitt T ea. Aprepitant, granisetron, and dexamethasone for prevention of chemotherapy-induced nausea and vomiting after high-dose melphalan in autologous transplantation for multiple myeloma: results of a randomized, placebo-controlled phase III trial. J Clin Oncol 2014;32:3413-20.

VERVOLG TABEL 3C. Geen GIA vastgesteld, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				7. Sarantopoulos J ea. Phase I study of cabazitaxel plus cisplatin in patients with advanced solid tumors: study to evaluate the impact of cytochrome P450 3A inhibitors (aprepitant, ketoconazole) or inducers (rifampin) on the pharmacokinetics of cabazitaxel. <i>Cancer Chemother Pharmacol</i> 2014;74:1113-24.
Doxorubicine	Barbituraten	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. Hansten PhD ea. Drug interactions analysis and management. 3. SPC Myocet, Doxorubicine, Farmorubicine.
Enzalutamide	Pioglitazon	Dit is geen interactie	Geen actie	1. SPC Xtandi + EPAR Xtandi. 2. Gibbons JA ea. Pharmacokinetic drug interaction studies with enzalutamide. <i>Clin Pharmacokinet</i> 2015;54:1057-69.
Eribuline	Diverse stoffen (rifampicine, carbamazepine, fenytoïne, hypericum en remmers van leverenzymen (ciclosporine, verapamil, claritromycine, quinine, quinidine, disopyramide)	Er is geen onderbouwing voor een interactie	Geen actie	1. SPC + EPAR Halaven. 2. Devriese LA ea. Eribulin mesylate pharmacokinetics in patients with solid tumors receiving repeated oral ketoconazole. <i>Invest New Drugs</i> 2013;31:381-9.
Estramustine	Diverse stoffen (calcium, aluminium, magnesium, ACE-remmers en tricyclische antidepressiva)	Er is geen onderbouwing voor een interactie	Geen actie	1. SPC Bonefos, Estracyt. 2. Hansten PhD ea. Drug interactions analysis and management. 3. Stockley IH. Drug interactions.
Etoposide	Diverse stoffen (fenybutazon, acetylsalicylzuur, natriumsulfaat, hypericum, ketoconazol, nifedipine, verapamil)	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. SPC Vepesid, Etoposide. 3. Yong WP ea. Pharmacokinetic modulation of oral etoposide by ketoconazole in patients with advanced cancer. <i>Cancer Chemother Pharmacol</i> 2007;60:811-9. 4. Van Renswouw DC ea. Incidentie en klinische relevantie van geneesmiddelinteracties bij parenterale chemotherapie. Het belang van lokale afhandeling. <i>Pharm Weekbl</i> 2016;1:A1612. + persoonlijke mededeling juni 2016. 5. Peebles KA ea. Catalytic inhibition of human DNA topoisomerase II α by hypericin, a naphthodianthrone from St. John's wort (<i>Hypericum perforatum</i>). <i>Biochem Pharmacol</i> 2001;62:1059-70. 6. Philip PA ea. A phase I study on the reversal of multi-drug resistance (MDR) in vivo: nifedipine plus etoposide. <i>Br J Cancer</i> 1992;65:267-70.
Fludarabine	Dipyridamol	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. SPC Fludara.
Fluorouracil	Dipyridamol	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. Bailey H ea. A phase I trial of 5-fluorouracil, leucovorin, and dipyridamole given by concurrent 120-h continuous infusions. <i>Cancer Chemother Pharmacol</i> 1992;30:297-302.
Fluorouracil (cutaan)	Methotrexaat	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions.

VERVOLG TABEL 3C. Geen GIA vastgesteld, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Fulvestrant	Diverse stoffen (ketoconazol, rifampicine)	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. SPC Faslodex.
Hydroxycarbamide	Uricosurica	Er is geen onderbouwing voor een interactie	Geen actie	1. SPC Hydrea.
Idelalisib	Rosuvastatine, digoxine	Dit is geen interactie	Geen actie	1. SPC Zydelig + Amerikaanse productinformatie Zydelig. www.accessdata.fda.gov/drugs-atfda_docs/label/2014/2065451bl.pdf . Geraadpleegd 17-10-2014.
Immunosuppressiva	Allergenen	Dit is geen interactie	Geen actie	1. SPC Grazax, Alutard SQ, Pollinex, Pharmedin, Soluprick.
Ifosfamide	Fenobarbital, fenytoïne	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions.
Ifosfamide	(Fos)aprepitant	Er is geen onderbouwing voor een interactie	Geen actie	1. Séjourné A ea. Two cases of fatal encephalopathy related to ifosfamide: an adverse role of aprepitant? <i>Case Rep Oncol</i> 2014;7:669-72. 2. Durand JP ea. Antiemetic neurokinin-1 antagonist aprepitant and ifosfamide-induced encephalopathy. <i>Ann Oncol</i> 2007;18:808-9. 3. Howell JE ea. Characterization of the occurrence of ifosfamide-induced neurotoxicity with concomitant aprepitant. <i>J Oncol Pharm Pract</i> 2008;14:157-62. 4. Hansen Ho ea. Aprepitant-associated ifosfamide neurotoxicity. <i>J Oncol Pharm Pract</i> 2010;16:137-8. Commentaar op Howell 2008. 5. Apro MS ea. Aprepitant: drug-drug interactions in perspective. <i>Ann Oncol</i> 2010;21:2316-23. 6. SPC Emend, Ivemend.
Irinotecan	Suxamethonium, mivacurium	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. SPC Suxamethonium, Mivacron, Campto.
Irinotecan	Valproïnezuur	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. De Jong FA ea. Irinotecan chemotherapy during valproic acid treatment: pharmacokinetic interaction and hepatotoxicity. <i>Cancer Biol Ther</i> 2007;6:1368-74. 3. Gupta E ea. Modulation of glucuronidation of SN-38, the active metabolite of irinotecan, by valproic acid and phenobarbital. <i>Cancer Chemother Pharmacol</i> 1997;39:440-4.
Ixazomib	Clarithromycine, ketoconazol	Er is geen onderbouwing voor een interactie	Geen actie	1. Gupta N ea. Effects of strong CYP3A inhibition and induction on the pharmacokinetics of ixazomib, an oral proteasome inhibitor: results of drug-drug interaction studies in patients with advanced solid tumors or lymphoma and a physiologically based pharmacokinetic analysis. <i>J Clin Pharmacol</i> 2018;58:180-92. 2. SPC Ninlaro.
Lenalidomide	Statines	Er is geen onderbouwing voor een interactie	Geen actie	1. Shahan JL ea. Rhabdomyolysis in a multiple myeloma patient secondary to concurrent treatment with lenalidomide and pravastatin and to lenalidomide alone. <i>Int J Hematol</i> 2012;96:818-9. 2. Urata C ea. Lenalidomide in combination with dexamethasone induced rhabdomyolysis in a multiple myeloma patient treated with pravastatin. <i>Int J Hematol</i> 2011;94:216-7. 3. Brown JR ea. A phase I study of lenalidomide in combinati-

VERVOLG TABEL 3C. Geen GIA vastgesteld, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				on with fludarabine and rituximab in previously untreated CLL/SLL. Leukemia 2010;24:1972-5. 4. SPC Revlimid.
Lenvatinib	Rifampicine	Er is geen onderbouwing voor een interactie	Geen actie	1. Shumaker RC ea. Effect of rifampicin on the pharmacokinetics of lenvatinib in healthy adults. Clin Drug Investig 2014;34:651-9. 2. SPC Kisplyx, Lenvima.
Letrozol	Diverse stoffen (benzodiazepinen, barbituraten, cimetidine, diclofenac, furosemide, ibuprofen, omeprazol, paracetamol)	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. SPC Femara.
Levonorgestrel IUD	CYP3A4-inductoren (carbamazepine, dexamethason, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. Bounds W ea. Observational series on women using the contraceptive Mirena concurrently with anti-epileptic and other enzyme-inducing drugs. J Fam Plann Reprod Health Care 2002;28:78-80. 3. SPC Mirena.
Lomustine	Diverse stoffen (cimetidine, fenobarbital, primidon, theofylline)	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. Hansten PhD ea. Drug interactions analysis and management.
Medroxy-progesteron (parenteraal)	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	Er is geen onderbouwing voor een interactie	Geen actie	1. Lundgren S ea. Influence of aminoglutethimide on the metabolism of medroxyprogesterone acetate and megestrol acetate in postmenopausal patients with advanced breast cancer. Cancer Chemother Pharmacol 1990;27:101-5. 2. SPC Sayana, Depo-Provera. 3. Stockley IH. Drug interactions. 4. World Health Organization. Medical eligibility for contraceptive use. 4th edition, 2010. www.who.int/reproductivehealth/publications/family_planning/9789241563888. Geraadpleegd mei 2014. 5. Brand AK ea. NHG-Standaard Anticonceptie. Huisarts Wet 2011;54:652-76.
Melfalan	Ciclosporine	Er is geen onderbouwing voor een interactie	Geen actie	1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. SPC Alkeran, Neoral, Sandimmune.
Methotrexaat	Acitretine	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. Hansten PhD ea. Drug interactions analysis and management. 3. SPC Ledertrexate, Neotigason.
Methotrexaat	Everolimus, sirolimus	Er is geen onderbouwing voor een interactie	Geen actie	
Methotrexaat	Amfotericine B	Er is geen onderbouwing voor een interactie	Geen actie	Stockley IH. Drug interactions.

VERVOLG TABEL 3C. Geen GIA vastgesteld, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Methotrexaat	Diverse stoffen (allopurinol, amiodaron, ascorbinezuur, furosemide, haloperidol, hydrocortison, prednison, tolbutamide, triamtereen)	Er is geen onderbouwing voor een interactie	Geen actie	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. SPC Emthrexate, Methotrexaat Teva. 3. Thami GP ea. Delayed reactivation of haloperidol induced photosensitive dermatitis by methotrexate. Postgrad Med J 2002;78:116-7. 4. Reynolds NJ ea. Methotrexate induced skin necrosis: a drug interaction with amiodarone? BMJ 1989;299:980-1. 5. Richmond R ea. Methotrexate and triamterene - a potentially fatal combination? Ann Rheum Dis 1997;56:209-10. 6. Kristensen LO ea. Renal function and the rate of disappearance of methotrexate from serum. Eur J Clin Pharmacol 1975;8:439-44. 7. Sketris IS ea. Effect of vitamin C on the excretion of methotrexate. Cancer Treat Rep 1984;68:446-7.
Methotrexaat	Diverse antibiotica (amoxicilline, ciprofloxacin, doxycycline, piperacilline, tetracycline, i.v. vancomycine)	Meldingen in de literatuur laten voornamelijk een verandering van methotrexatkinetiek (toename spiegels, afname klaring) zien bij combinatie van methotrexaat (MTX) met diverse antibiotica. Verder zijn er enkele gevallen beschreven waarbij de MTX-toxiciteit is verhoogd	Bij deze interactie is geen actie nodig. Bij oncologische patiënten is behandeling of profylaxe met antibiotica vaak noodzakelijk. Bovendien worden nierfunctie en MTX-spiegels bij deze patiënten standaard gemonitord	<ol style="list-style-type: none"> 1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. Zarychanski R ea. Pharmacokinetic interaction between methotrexate and piperacillin/tazobactam resulting in prolonged toxic concentrations of methotrexate. J Antimicrob Chemother 2006;58:228-30. 4. Dalle JH ea. Interaction between methotrexate and ciprofloxacin. J Pediatr Hematol Oncol 2002;24:321-2. 5. Yamamoto K ea. Delayed elimination of methotrexate associated with piperacillin administration. Ann Pharmacother 1997;31:1261-2. 6. Ronchera CL ea. Pharmacokinetic interaction between high-dose methotrexate and amoxicillin. Ther Drug Monit 1993;15:375-9. 7. Turck M. Successful psoriasis treatment then sudden 'cytotoxicity'. Hosp Pract 1984;19:175-6. 8. Tortajada-Ituren JJ ea. High-dose methotrexate-doxycycline interaction. Ann Pharmacother 1999;33:804-8. 9. Blum R ea. Significant impairment of high-dose methotrexate clearance following vancomycin administration in the absence of overt renal impairment. Ann Oncol 2002;13:327-30. 10. SPC Emthexate, Methotrexaat, Ciproxin, Tazocin.
Methotrexaat, fluorouracil, cyclofosfamide	Thiaziden	Er is geen onderbouwing voor een interactie	Geen actie	<ol style="list-style-type: none"> 1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. SPC Emthrexate, Methotrexaat Teva, Chloortalidon, Hydrochloorthiazide.
Mitomycine, allopurinol	Tamoxifen	Er is geen onderbouwing voor een interactie	Geen actie	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions.
Mitotaan	CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, nevirapine, primidon, rifabutine, rifampicine, griseofulvine)	Er is geen onderbouwing voor een interactie	Geen actie	<ol style="list-style-type: none"> 1. SPC Lysodren.
Monoklonale antilichamen (trastuzumab)	Vitamine K-antagonisten	Er is geen onderbouwing voor een interactie	Geen actie	<ol style="list-style-type: none"> 1. Stockley IH. Drug interactions. 2. Norden AD ea. Safety of concurrent bevacizumab therapy and anticoagulation in glioma patients. J Neurooncol 2012;106:121-5. 3. Nissenblatt MJ ea. Bleeding risk with trastuzumab (Herceptin) treatment. JAMA 1999;282:2299-30 + reactie Stewart SJ. JAMA 1999;282:2300-1.

VERVOLG TABEL 3C. Geen GIA vastgesteld, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				<p>4. Suzuki T ea. Probable interaction between warfarin and antitumor agents used in R-ESHAP chemotherapy. Clin Ther 2008;30:1155-9.</p> <p>5. SPC Marcoumar, Acenocoumarol Sandoz, diverse monoklonale antilichamen bij kanker.</p>
mTOR-remmers	ACE-remmers (everolimus, sirolimus, temsirolimus)	Er is geen onderbouwing voor een interactie	Geen actie	<p>1. Jung M ea. Angioedema in patients treated with sirolimus and ACE inhibitor post hematopoietic SCT. Bone Marrow Transplant 2014;49:1448-9. Letter to editor.</p> <p>2. Duerr M ea. Increased incidence of angioedema with ACE inhibitors in combination with mTOR inhibitors in kidney transplant recipients. Clin J Am Soc Nephrol 2010;5:703-8.</p> <p>3. Fuchs U ea. Immunosuppressive therapy with everolimus can be associated with potentially life-threatening lingual angioedema. Transplantation 2005;79:981-3.</p> <p>4. Rothermundt C ea. Angioedema in a patient with renal cell cancer treated with everolimus in combination with an angiotensin-converting enzyme inhibitor. J Clin Oncol 2013;31:e57-8.</p> <p>5. Stallone G ea. Sirolimus and angiotensin-converting enzyme inhibitors together induce tongue oedema in renal transplant recipients. Nephrol Dial Transplant 2004;19:2906-8.</p> <p>6. Burdese M ea. Sirolimus and ACE-inhibitors: a note of caution. Transplantation 2005;79:251-2.</p> <p>7. SPC Afinitor, Rapamune, Torisel, Renitec, Ramipril.</p> <p>8. Pascual J ea. Everolimus with reduced calcineurin inhibitor exposure in renal transplantation. J Am Soc Nephrol 2018;29:1979-91.</p> <p>9. Berger SP ea. Two-year outcomes in de novo renal transplant recipients receiving everolimus-facilitated calcineurin inhibitor reduction regimen from the TRANSFORM study. Am J Transplant 2019;19:3018-34.</p>
Osimertinib	Simvastatine	Er is geen onderbouwing voor een interactie	Geen actie	<p>1. SPC + EPAR Tagrisso.</p>
Paclitaxel	Diverse stoffen (ketoconazol, cotrimoxazol, gemfibrozil)	Er is geen onderbouwing voor een interactie	Geen actie	<p>1. Stockley IH. Drug interactions.</p> <p>2. SPC Abraxane.</p> <p>3. Jamis-Dow CA ea. Predicting drug interactions in vivo from experiments in vitro. Human studies with paclitaxel and ketoconazole. Am J Clin Oncol 1997;20:592-9.</p> <p>4. Bun SS ea. Effect of several compounds on biliary excretion of paclitaxel and its metabolites in guinea-pigs. Anticancer Drugs 2005;16:675-82 (abstract, artikel niet in bezit GIC).</p>
Pemetrexed	Diverse stoffen (aminoglycosiden, amfotericine B, lisdiuretica, penicilline, probenecide)	Er is geen onderbouwing voor een interactie	Geen actie	<p>1. Stockley IH. Drug interactions.</p> <p>2. SPC Alimta.</p>
Pixantron	Diverse stoffen (theofylline, amitriptyline, haloperidol, clozapine, ondansetron, propranolol, repaglinide, ciclosporine, tacrolimus, rifampicine, carbamazepine, glucocorticoiden)	Er is geen onderbouwing voor een interactie	Geen actie	<p>1. SPC + EPAR Pixuvri.</p>

VERVOLG TABEL 3C. Geen GIA vastgesteld, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Procarbazine	Diverse stoffen (barbituraten, fenothiazine, tricyclische antidepressiva, MAO-remmers, efedrine, fenylefedrine, dopamine,	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. SPC Natulan.
Sildenafil	CYP3A4-inductoren	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. SPC Revatio, Viagra.
Sorafenib	CYP3A4-remmers (claritromycine, cobicistat, erytromycine, itraconazol, ketocozazol, posaconazol, voriconazol, ritonavir)	Er is geen onderbouwing voor een interactie	Geen actie	1. SPC Nexavar.
Tacrolimus	Imatinib	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. Anderlini P ea. Imatinib mesylate administration in the first 100 days after stem cell transplantation. Biol Blood Marrow Transplant 2004;10:883-4. Letter to editor. 3. Sheth SR ea. Safety, tolerability, and drug interactions of adjuvant imatinib mesylate (Gleevec) within the first 100 days following stem cell transplantation (SCT) in patients with Ph+ CML and PH+ ALL at high risk for recurrence. Blood 2002 100, Abstract #2500 Poster Board #-Session: 784-II.
Tamoxifen	CMF (cyclofosfamide, methotrexaat, fluorouracil)	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. SPC Nolvadex. 3. Saphner T ea. Venous and arterial thrombosis in patients who received adjuvant therapy for breast cancer. J Clin Oncol 1991;9:286-94. 4. Pritchard KI ea. Increased thromboembolic complications with concurrent tamoxifen and chemotherapy in a randomized trial of adjuvant therapy for women with breast cancer. National Cancer Institute of Canada Clinical Trials Group Breast Cancer Site Group. J Clin Oncol. 1996;14:2731-7. 5. Levine MN ea. The thrombogenic effect of anticancer drug therapy in women with stage II breast cancer. N Engl J Med 1988;318:404-7.
Tegafur	CYP2A6-remmers (clozapine, cimetidine, foliumzuur)	Er is geen onderbouwing voor een interactie	Geen actie	1. SPC TEYSUNO.
Temozolomide	Valproïnezuur	Dit is geen interactie	Geen actie	Stockley IH. Drug interactions. SPC Temodal.
Thalidomide	Zolendroninezuur, pamidroninezuur	Er is geen onderbouwing voor een interactie	Geen actie	1. SPC Zometa, Pamipro. 2. Jones SG ea. Severe increase in creatinine with hypocalcaemia in thalidomide-treated myeloma patients receiving zoledronic acid infusions. Br J Haematol 2002;119:576-7. 3. Spencer A ea. Renal safety of zoledronic acid with thalidomide in patients with myeloma: a pharmacokinetic and safety sub-study. BMC Clin Pharmacol 2008;8:2. 4. Tosi P ea. Osteonecrosis of the jaws in newly diagnosed multiple myeloma patients treated with zoledronic acid and thalidomide-dexamethasone. Blood 2006;108:3951-2. 5. Zervas K ea. Incidence, risk factors and management of osteonecrosis of the jaw in patients with multiple myeloma: a single-centre experience in 303 patients. Br J Haematol 2006;134:620-3. 6. Pozzi S ea. Bisphosphonate-associated osteonecrosis of the jaw: a review of 35 cases and an evaluation of its frequency in multiple myeloma patients. Leuk Lymphoma 2007;48:56-64.

VERVOLG TABEL 3C. Geen GIA vastgesteld, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
				7. Aragon-Ching JB ea. Higher incidence of osteonecrosis of the jaw (ONJ) in patients with metastatic castration resistant prostate cancer treated with anti-angiogenic agents. <i>Cancer Invest</i> 2009;27:221-6.
Tivozanib	Ketoconazol	Dit is geen interactie	Geen actie	1. SPC Fotivda. 2. Cotreau MM ea. Effects of ketoconazole or rifampin on the pharmacokinetics of tivozanib hydrochloride, a vascular endothelial growth factor receptor tyrosine kinase inhibitor. <i>Clin Pharmacol Drug Dev</i> 2015;4:37-42.
Tretinoïne	Tranexaminezuur, aprotinine	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. SPC Vesanoid.
Tyrosinekinaseremmers (alectinib, binimetinib, cabozantinib, cobimetinib, crizotinib, dabrafenib, encorafenib, lorlatinib, nilotinib, osimertinib, ponatinib, sorafenib, vandetanib)	Secretieremmers/antacida	Er is geen onderbouwing voor een interactie	Geen actie	1. Yin OQ ea. Effects of famotidine or an antacid preparation on the pharmacokinetics of nilotinib in healthy volunteers. <i>Cancer Chemother Pharmacol</i> 2013;71:219-26. 2. Yin OQ ea. Effect of proton pump inhibitor esomeprazole on the oral absorption and pharmacokinetics of nilotinib. <i>J Clin Pharmacol</i> 2010;50:960-7. 3. SPC Tasigna, Nexavar, Xalkori, SPC+ EPAR Cometriq, SPC Caprelsa, EPAR Cotellic, SPC/EPAR Alesanca, SPC Tagrisso, SPC+ EPAR Braftovi, SPC/EPAR Mektovi, SPC Tafinlar, SPC Lorviqua. 4. ClinicalTrials.gov. Drug drug interaction study of crizotinib with esomeprazole. http://clinicaltrials.gov/ct2/show/study/NCT01549574?term=crizotinib+and+antacids&rank=1 record. Geraadpleegd 12 november 2013. 5. Johansson S. ea. Pharmacokinetic evaluations of the co-administrations of vandetanib and metformin, digoxin, midazolam, omeprazole or ranitidine. <i>Clin Pharmacokinet</i> 2014;53:837-47. 6. Laberge M-K ea. Evaluation of the effect of food or administration of a proton pump inhibitor on the single-dose plasma pharmacokinetics of cabozantinib in healthy adult subjects (poster). http://celeron.com/wordpress/wp-content/uploads/2014/11/Celerion_2014-AAAPS-Annual_Evaluation-of-the-Effect-of-Food-or-Administration-of-a-Proton-Pump-Inhibitor-on-the-Single-Dose-Plasma-Pharmacokinetics-of-Cabozantinib-in-Healthy-Adult-Subjects.pdf . Geraadpleegd november 2014. 7. Narasimhan NI ea. Evaluation of the effect of multiple doses of lansoprazole on the pharmacokinetics and safety of ponatinib in healthy subjects. <i>Clin Drug Investig</i> 2014;34:723-9. 8. SPC Iclusig + Procedural steps taken and scientific information after the authorisation. 05-10-2015. www.ema.europa.eu/ema/index.jsp?curl=pages/medicines/human/medicines/002695/human_med_001656.jsp&mid=WC0b01ac058001d124 . Geraadpleegd 5-1-2016. 9. Musib L ea. Absolute bioavailability and effect of formulation change, food, or elevated pH with rabeprazole on cobimetinib absorption in healthy subjects. <i>Mol Pharm</i> 2013;10:4046-54. 10. Amerikaanse productinformatie Cotellic. www.gene.com/download/pdf/cotellic_prescribing.pdf . Geraadpleegd 11-12-2015. 11. Morcos PN ea. Clinical drug-drug interactions through cytochrome P450 3A (CYP3A) for the selective ALK inhibitor alectinib. <i>Clin Pharmacol Drug Dev</i> 2017;6:280-91. 12. Vishwanathan K ea. The effect of food or omeprazole on the pharmacokinetics of osimertinib in patients with non-small-cell lung cancer and in healthy volunteers. <i>J Clin Pharmacol</i> 2018;58:474-84.

VERVOLG TABEL 3C. Geen GIa vastgesteld, geen interventie vereist.

Oncologisch geneesmiddel	Interacterend geneesmiddel	Effect	Actie	Literatuur
Vinblastine	CYP3A4-remmers (diltiazem, isoniazide, nifedipine, verapamil)	Er is geen onderbouwing voor een interactie	Geen actie	1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. SPC Blastivin.
Vincristine, vinblastine	Ciclosporine, tamoxifen	Er is geen onderbouwing voor een interactie	Geen actie	1. Stockley IH. Drug interactions. 2. Samuels BL ea. Modulation of vinblastine resistance in metastatic renal cell carcinoma with cyclosporine A or tamoxifen: a cancer and leukemia group B study. Clin Cancer Res 1997;3:1977-84. 3. Sonneveld P ea. Modulation of multidrug-resistant multiple myeloma by cyclosporin. The Leukemia Group of the EORTC and the HOVON. Lancet 1992;340:255-9.
Vinflunine	Opioiden/CYP3A4-inductoren (carbamazepine, efavirenz, enzalutamide, fenobarbital, fenytoïne, hypericum, mitotaan, nevirapine, primidon, rifabutine, rifampicine)	Er is geen onderbouwing voor een interactie	Geen actie	1. SPC Javlor.
Vinorelbine	CYP3A4-remmers (claritromycine, cobicistat, diltiazem, erytromycine, itraconazol, ketoconazol, posaconazol, ritonavir, verapamil, voriconazol, isoniazide, nifedipine)	Er is geen onderbouwing voor een interactie	Geen actie	1. Hansten PhD ea. Drug interactions analysis and management. 2. Stockley IH. Drug interactions. 3. SPC Vinorelbine Eurosept, Nizoral, Vfend. 4. Yano R ea. Evaluation of potential interaction between vinorelbine and clarithromycin. Ann Pharmacother 2009;43:453-8. 5. Torresin A ea. Vinca alkaloids and macrolides in human immunodeficiency virus-related malignancies: a safe association. Cancer Chemother Pharmacol 1996;39:176-7.
Vismodegib	Itraconazol	Dit is geen interactie	Geen actie	1. SPC Erivedge. 2. Malhi V ea. A clinical drug-drug interaction study to evaluate the effect of a proton-pump inhibitor, a combined P-glycoprotein/cytochrome 450 enzyme (CYP)3A4 inhibitor, and a CYP2C9 inhibitor on the pharmacokinetics of vismodegib. Cancer Chemother Pharmacol 2016;78:41-9.