

## Overzicht gen-medicijn combinaties

In dit overzicht zijn de gen-medicijn combinaties opgenomen waarbij een relatie bestaat tussen genetische variatie in het gen en de werking van de medicatie. Voor de vet gedrukte medicijnen zijn doserings of monitor richtlijnen opgesteld door de DPWG en/of het CPIC (uitgebreide informatie is te vinden op de website van pharmGKB<sup>1</sup>).

### ADRB2

inhalatie-  
corticosteroïden en  
langwerkende bèta-  
agonisten<sup>2,3</sup>

### DPYD

capecitabine  
fluorouracil  
tegafur

### ITPA

azathioprine<sup>4,5,6</sup>  
mercaptopurine<sup>4,5,6</sup>  
thioguanine<sup>4,5,6</sup>

### TPMT

azathioprine  
mercaptopurine  
thioguanine

### OPRM1

naltrexon<sup>7</sup>

### POLG

valproïne zuur<sup>8</sup>

### G6PD<sup>9</sup>

acetylsalicylzuur  
aminobenzoëzuur  
ascorbinezuur (vitamine C)  
chlooramfenicol (antibiotica)  
chlooramfenicol (oogdruppels)  
chloroquine  
colchicine  
dapson  
difenhydramine  
dabrafenib<sup>10</sup>  
fenazon  
fenylbutazon  
fentyoïne  
fytomenadion  
glibenclamide  
henna  
hydrochloroquine  
hydrokinine  
isoniazide  
isosorbidenitraat  
kinidine  
levodopa  
methyleen blauw  
naftaleen (o.a. in mottenballen)

nitrofurantoïne  
p-aminosalicylzuur  
paracetamol  
pipemidinezuur  
primaquine  
procaïnamide  
proguanil  
pyrimethamine  
rasburicase  
succimer  
sulfadiazine  
sulfamethizol  
sulfamethoxazol  
sulfametrol  
sulfasalazine  
sulfisoxazole  
tiaprofeenzuur  
trihexyfenidyl  
trimethoprim  
tuinbonen  
vitamine K  
wonderolie  
zilversulfadiazine

### CYP2D6

amitriptyline  
aripiprazol  
atomoxetine  
carvedilol  
cevimeline<sup>10</sup>  
clomipramine  
codeïne  
dextromethorfan<sup>10</sup>  
diazepam<sup>10</sup>  
doxepine  
efavirenz  
flecainide  
fluoxetine<sup>10</sup>  
fluvoxamine<sup>10</sup>  
haloperidol  
imipramine

metoprolol  
mirtazapine  
modafinil<sup>10</sup>  
nortriptyline  
oxycodon  
paracetamol<sup>10</sup>  
paroxetine  
pimozide  
propafenon  
risperidon  
tamoxifen  
tolterodine<sup>10</sup>  
tramadol  
venlafaxine  
zuclopentixol

### CYP2C9

acenocoumarol  
celecoxib<sup>10</sup>  
fenprocoumon  
fentyoïne  
flurbiprofen<sup>10</sup>  
glibenclamide  
gliclazide  
glimepiride  
tolbutamide  
warfarine

### CYP2C19

amitriptyline  
carisoprodol<sup>10</sup>  
citalopram  
clobazam<sup>10</sup>  
clomipramine  
clopidogrel  
diazepam<sup>10</sup>  
doxepine  
drospirenon<sup>10</sup>  
escitalopram  
esomeprazol  
ethinylestradiol<sup>10</sup>  
fluvoxamine<sup>10</sup>  
imipramine  
lansoprazol  
omeprazol  
pantoprazol  
prasugrel<sup>10</sup>  
sertraline  
ticagrelor<sup>10</sup>  
voriconazol

### CYP1A2

clozapine  
olanzapine<sup>11,12</sup>

### CYP3A4

cyclosporin<sup>14</sup>  
haloperidol<sup>15</sup>  
tacrolimus<sup>13,14</sup>

### CYP3A5

tacrolimus<sup>13,14</sup>

### VKORC1

acenocoumarol  
fenprocoumon  
warfarine

## Referenties

- 1: <https://www.pharmgkb.org/view/dosing-guidelines.do>
- 2: Turner et al. Childhood asthma exacerbations and the Arg16 β2-receptor polymorphism: A meta-analysis stratified by treatment. J Allergy Clin Immunol. 2016. Online first PMID: 26774659.
- 3: Bleecker et al. Effect of ADRB2 polymorphisms on response to longacting beta2-agonist therapy: a pharmacogenetic analysis of two randomised studies. Lancet. 2007;370:2118-25.
- 4: Sahasranaman S, et al. Clinical pharmacology and pharmacogenetics of thiopurines. Eur J Clin Pharmacol. 2008;64:753-67.
- 5: Bakker JA, et al. The effect of ITPA polymorphisms on the enzyme kinetic properties of human erythrocyte inosine triphosphatase toward its substrates ITP and 6-Thio-ITP. Nucleosides Nucleotides Nucleic Acids. 2011;30:839-49.
- 6: Stocco G, et al. Genetic polymorphism of inosine triphosphate pyrophosphatase is a determinant of mercaptopurine metabolism and toxicity during treatment for acute lymphoblastic leukemia. Clin Pharmacol Ther. 2009;85:164-72.
- 7: Chamorro AJ, et al. Association of μ-opioid receptor (OPRM1) gene polymorphism with response to naltrexone in alcohol dependence: a systematic review and meta-analysis. Addict Biol. 2012;17:505-12.
- 8: Stewart JD, et al. Polymerase γ Gene POLG Determines the Risk of Sodium Valproate-Induced Liver Toxicity. Hepatology. 2010;52:1791-6.
- 9: Contraïndicatie op basis van de KNMP richtlijnen.
- 10: Gen - medicijn combinaties waarvoor informatie met betrekking tot het genotype van invloed kan zijn op de behandeling volgens CDC Office of Public Health Genomics (<http://www.cdc.gov/genomics/gtesting/tier.htm>).
- 11: Laika B, et al. Pharmacogenetics and olanzapine treatment: CYP1A2\*1F and serotonergic polymorphisms influence therapeutic outcome. Pharmacogenomics J. 2010;10:20-9.
- 12: Faber MS, et al. Assessment of CYP1A2 Activity in Clinical Practice: Why, How, and When? Basic Clin Pharmacol Toxicol 2005;97:125–34.
- 13: Bruckmueller H, et al. Which genetic determinants should be considered for tacrolimus dose optimization in kidney transplantation? A combined analysis of genes affecting the CYP3A locus. Ther Drug Monit. 2015;37:288-95.
- 14: Barbarino JM, et al. PharmGKB summary: cyclosporine and tacrolimus pathways. Pharmacogenet Genomics. 2013;23:563-85.
- 15: Kudo S, et al. Pharmacokinetics of haloperidol: an update. Clinical pharmacokinetics. 1999;37: 435-456.