

Table 2. Actionable drug-gene pairs implemented in routine care in the PREPARE Study as per the Dutch Pharmacogenomics Working Group guidelines.

Drug Class	Drug (n=43)	Clinically Relevant Genetic Interaction	Actionable Phenotype/Genotypes
Antiarrhythmic	Flecainide	<i>CYP2D6</i>	PM, IM, UM
	Propafenon	<i>CYP2D6</i>	PM, IM, UM
Analgesic	Codeine	<i>CYP2D6</i>	PM, IM, UM
	Oxycodone	<i>CYP2D6</i>	PM, IM, UM
	Tramadol	<i>CYP2D6</i>	PM, IM, UM
Anticancer	Capecitabine	<i>DPD</i>	Gene activity score 0, 0.5, 1, 1.5
	Fluorouracil	<i>DPD</i>	Gene activity score 0, 0.5, 1, 1.5
	Irinotecan	<i>UGT1A1</i>	PM, *28/*28
	Tamoxifen	<i>CYP2D6</i>	PM, IM
	Tegafur	<i>DPD</i>	Gene activity score 0, 0.5, 1, 1.5
Anticoagulation	Acenocoumarol	<i>VKORC1</i>	<i>VKORC1</i> TT
	Clopidrogel	<i>CYP2C19</i>	PM, IM
	Phenprocoumon	<i>VKORC1</i>	<i>VKORC1</i> TT
	Warfarin	<i>CYP2C9</i> <i>VKORC1</i>	*1/*3, *2/*2, *2/*3, *3/*3, IM, PM TT
Antidepressant	Citalopram	<i>CYP2C19</i>	PM, IM
	Escitalopram	<i>CYP2C19</i>	PM, IM
	Paroxetine	<i>CYP2D6</i>	UM
	Sertraline	<i>CYP2C19</i>	PM, IM
	Venlafaxine	<i>CYP2D6</i>	PM, IM, UM
Antidepressant (TCA)	Amitriptyline	<i>CYP2D6</i>	PM, IM, UM
	Clomipramine	<i>CYP2D6</i>	PM, IM, UM
	Doxepine	<i>CYP2D6</i>	PM, IM, UM
	Imipramine	<i>CYP2D6</i> <i>CYP2C19</i>	PM, IM, UM PM
	Nortryptiline	<i>CYP2D6</i>	PM, IM, UM
Antiepileptic	Carbamazepine	<i>HLA B*5701</i>	-
	Phenytoin	<i>CYP2C9</i>	IM, PM, *1/*2, *1/*3, *2/*2, *2/*3, *3/*3
Antihypertensive	Metoprolol	<i>CYP2D6</i>	PM, IM, UM
Anti-infective	Efavirenz	<i>CYP2B6</i>	PM, IM
	Flucloxacillin	<i>HLA B*5701</i>	-
	Voriconazole	<i>CYP2C19</i>	PM, IM
Antipsychotic	Aripiprazole	<i>CYP2D6</i>	PM
	Clozapine	<i>CYP1A2</i>	*1C heterozygote, *1C/*1C
	Haloperidol	<i>CYP2D6</i>	PM, UM
	Pimozide	<i>CYP2D6</i>	PM, IM
	Zuclopenthixol	<i>CYP2D6</i>	PM, IM, UM
Cholesterol-lowering	Atorvastatin	<i>SLCO1B1</i>	521TC, 521CC
	Simvastatin	<i>SLCO1B1</i>	521TC, 521CC
Immunosuppressive	Azathioprine	<i>TPMT</i>	PM, IM
	Mercaptopurine	<i>TPMT</i>	PM, IM
	Tacrolimus	<i>CYP3A5</i>	homozygote or heterozygote expressers
	Thioguanine	<i>TPMT</i>	PM, IM
Other	Atomoxetine	<i>CYP2D6</i>	PM, UM
	Oestrogen containing drugs*	<i>FVL</i>	homozygote expresser, heterozygote expresser

CYP: Cytochrome P450; DPD: Dihydropyrimidinedehydrogenase; UGT: UDP-glucuronosyltransferase; VKORC: Vitamin K epoxide Reductase Complex; HLA: Human Leucocyte Antigen; SLCO: Solute Carrier Organic Anion Transporter; TPMT: Thiopurine S-methyltransferase; FVL: Factor Five Leiden

*Only included for follow-up as a subsequent prescription, not for a drug of inclusion