Pharmacogenetic profile - PGxProfile

The pharmacogenetic profile (PGxProfile) contains the effects of gene variants that influence both current and possible future medication. As part of the pharmacogenetic study, the genetic characteristics of your patient were analysed. In particular, genetic characteristics with relevance for drug therapy safety were analysed. Depending on the genetic characteristics, some active ingredients can be metabolised or excreted more quickly or more slowly and thus have a weaker or stronger effect. Accordingly, these active ingredients could show side effects, hypersensitivity reactions or a lack of effect. In order to ensure better readability, the term patient is used below to refer to the person under investigation, irrespective of the gender and indication of the pharmacogenetic report.

Order information

Sample ID:	Patient ID:	Surname, first name:	Date of birth:
DE18PGXDEMD100044	**No entry**	**Kreuzer, Simon**	**06.01.1956**
Order ID:	Order date:	Ordered by:	Report creation date:
DE59PGXDEMI100044	**07.04.2025**	**No entry**	**07.04.2025**

Specimen details:

Sample type: **EDTA blood** Sample arrival: **07.04.2025 12:12**

Requirements for pharmacogenetic testing:

1. A bone marrow, liver or kidney transplant has been performed in the past:	**No**
2. A blood transfusion has taken place in the last four weeks:	**No**
3. Signed declarations of consent (genetic diagnostics, data protection) are available:	**Yes**
4. Statistical use of pseudonymised data was approved:	**No**

Content of the report

1. Pharmacogenetic profile with clinical consequences
2. Phenotype profile
3. Laboratory test results

A copy of the pharmacogenetic profile for the patient can also be found as a handout at the end of this report.

Report approver:

This report was approved in accordance with the enclosed cover letter in accordance with the guidelines of the German Medical Association for the quality assurance of laboratory medical examinations (Rili-BÄK).

1. Pharmacogenetic profile with clinical consequences

Note: A copy of the pharmacogenetic profile for the patient can be found as a handout at the end of this report.

Warning
The contents of PGXperts are aimed exclusively at healthcare professionals within the meaning of Section 2 of the Therapeutic Products Advertising Act, including persons in training for healthcare professions. The correct use of the services requires sound medical knowledge. The content provided is not a substitute for medical advice. Changes to individual treatment without a doctor's consent can lead to serious adverse drug reactions or treatment failure.

If your patient is taking one of the active ingredients listed in the table below, we recommend that you also carry out an InteractionsCheck at www.pgxperts.com when changing medication. Consideration of the pharmacogenetic profile is advantageous for future prescriptions.

Description of the degrees of severity

Pharmacogenetic effects are classified into categories based on their severity. The symbols are used to quickly determine the severity of the effect.

Severe pharmacogenetic effect

Absolute contraindication. Change of medication indicated.

Moderately severe pharmacogenetic effect

Consider adjusting the dose, therapeutic drug monitoring or changing the medication.

Mild pharmacogenetic effect

Generally no measures required. Consider dose adjustment.

PGxProfile and its effect on medication

Molecular genetic testing revealed variants in the following genes: *CYP2C19, CYP2C9, G6PD, IFNL3, SLCO1B1*. Therefore, clinical consequences may occur or measures may be indicated when taking the following active ingredients.

Active ingredient and gene	Clinical consequence	Measures	
All other therapeutic products			
Rasburicase[1] *G6PD*	Low risk of acute haemolytic anaemia.	Enzyme activity test to confirm G6PD status due to limitations in genotyping of rare variants.	
Anti-acne preparations for topical use			
Dapsone *G6PD*	Low risk of acute haemolytic anaemia.	Enzyme test to confirm G6PD status due to limitations in genotyping of rare variants.	
Antibacterials			
Nitrofurantoin *G6PD*	Low risk of acute haemolytic anaemia.	Enzyme activity test to confirm G6PD status due to limitations in genotyping of rare variants.	
Antidepressants			
Amitriptyline *CYP2C19*	Increased risk of treatment failure.	Change to an alternative medication which is not metabolised primarily by CYP2C19 (e.g. nortriptyline). If treatment with a TCA is warranted, a dosage adjustment should be made based on the drug level.	
Citalopram *CYP2C19*	Reduced clinical benefit.	Switch to an appropriate antidepressant not predominantly metabolised by CYP2C19. If citalopram is necessary, dose according to drug monitoring.	
Clomipramine *CYP2C19*	Increased risk of treatment failure.	Change to an alternative medication which is not metabolised primarily by CYP2C19 (e.g. nortriptyline). If treatment with a TCA is warranted, a dosage adjustment should be made based on the drug level.	
Doxepin *CYP2C19*	Increased risk of treatment failure.	Change to an alternative medication which is not metabolised primarily by CYP2C19 (e.g. nortriptyline). If treatment with a TCA is necessary, a dosage adjustment should be made based on the drug level.	
Escitalopram *CYP2C19*	Reduced clinical benefit.	Switch to an appropriate antidepressant not predominantly metabolised by CYP2C19. If citalopram is necessary, dose according to drug monitoring.	

Active ingredient and gene	Clinical consequence	Measures	
Imipramine *CYP2C19*	Increased risk of treatment failure.	Change to an alternative medication which is not metabolised primarily by CYP2C19 (e.g. nortriptyline). If treatment with a TCA is necessary, a dosage adjustment should be made based on the drug level.	
Trimipramine *CYP2C19*	There is an increased risk of treatment failure.	Change to an alternative medication which is not metabolised primarily by CYP2C19 (e.g. nortriptyline). If treatment with a TCA is necessary, a dosage adjustment should be made based on the drug level.	
Antidotes			
Methylene blue *G6PD*	Low risk of acute haemolytic anaemia.	Enzyme activity test to confirm G6PD status due to limitations in genotyping of rare variants.	
Toluidine blue *G6PD*	Low risk of acute haemolytic anaemia.	Enzyme activity test to confirm G6PD status due to limitations in genotyping of rare variants.	
Antigout preparations			
Pegloticase[1] *G6PD*	Low risk of acute haemolytic anaemia.	Enzyme activity test to confirm G6PD status due to limitations in genotyping of rare variants.	
Antiinflammatory and antirheumatic products, non-steroids			
Meloxicam *CYP2C9*	Increased risk of ADRs.	Dosage according to the product information.	
Piroxicam *CYP2C9*	Increased risk of ADRs.	Dosage according to the product information.	
Tenoxicam *CYP2C9*	Increased risk of ADRs.	Dosage according to the product information.	
Antimalarials			
Primaquine[1] *G6PD*	Low risk of acute haemolytic anaemia.	Enzyme test to confirm G6PD status due to limitations in genotyping of rare variants.	
Tafenoquine[1] *G6PD*	Low risk of acute haemolytic anaemia. Safety of tafenoquine established for G6PD enzyme activity of ≥ 70%.	Enzyme activity test to confirm G6PD status due to limitations in genotyping of rare variants. Application at a G6PD enzyme activity of ≥70%.	

Active ingredient and gene	Clinical consequence	Measures	
Antimycotics for systemic use			
Voriconazole *CYP2C19*	Increased risk for therapy failure.	Change of medication indicated.	
Antithrombotic agents			
Clopidogrel *CYP2C19*	Increased inhibition of platelet aggregation.	Dosage according to the product information.	
Blood glucose lowering drugs, excl. Insulins			
Glibenclamide *CYP2C9*	Increased effectiveness.	Dosage according to the product information.	
Gliclazide *CYP2C9*	Increased effectiveness.	Dosage according to the product information.	
Glimepiride *CYP2C9*	Increased effectiveness.	Dosage according to the product information.	
Direct acting antivirals			
Ribavirin *IFNL3*	With ribavirin and peginterferon alfa therapy 70% probability of sustained virologic response after 48 weeks. When combined with protease inhibitors there is an increase to 90% probability.	Dosage according to the product information.	
Drugs for peptic ulcer and gastro-oesophageal reflux disease (GORD)			
Dexlansoprazole *CYP2C19*	There is an increased risk of treatment failure.	Dose increase indicated. Details see footnote 2.	
Lansoprazole *CYP2C19*	There is an increased risk of treatment failure.	Dose increase indicated. Details see footnote 3.	
Omeprazole *CYP2C19*	There is an increased risk of treatment failure.	Dose increase indicated. Details see footnote 4.	
Pantoprazole *CYP2C19*	There is an increased risk of treatment failure.	Dose increase indicated. Details see footnote 5.	
Drugs for treatment of lepra			
Dapsone *G6PD*	Low risk of acute haemolytic anaemia.	Enzyme test to confirm G6PD status due to limitations in genotyping of rare variants.	

Active ingredient and gene	Clinical consequence	Measures	
Immunostimulants			
Peginterferon alfa-2a *IFNL3*	With ribavirin and peginterferon alfa therapy 70% probability of sustained virologic response after 48 weeks. When combined with protease inhibitors there is an increase to 90% probability.	Dosage according to the product information.	
Peginterferon alfa-2b *IFNL3*	With ribavirin and peginterferon alfa therapy 70% probability of sustained virologic response after 48 weeks. When combined with protease inhibitors there is an increase to 90% probability.	Dosage according to the product information.	
Lipid modifying agents			
Atorvastatin *SLCO1B1*	Increased risk of myopathy.	Starting dose ≤20 mg/day or alternative statin or combination therapy.	
Fluvastatin *CYP2C9*	Increased risk of statin-associated myopathy.	Starting daily dose ≤40 mg or alternative statin or combination therapy.	
Fluvastatin *SLCO1B1*	Increased risk of myopathy at daily doses >40 mg.	Initial daily dose ≤40 mg or consider alternative statin or combination therapy.	
Lovastatin *SLCO1B1*	Increased risk of myopathy.	Alternative statin indicated.	
Pitavastatin *SLCO1B1*	Increased risk of myopathy.	Starting dose ≤1 mg/day or alternative statin or combination therapy indicated.	
Pravastatin *SLCO1B1*	Increased risk of myopathy at daily dose >40 mg.	Starting dose ≤40 mg/day or consider an alternative statin or combination therapy.	
Rosuvastatin *SLCO1B1*	Increased risk of myopathy at daily doses >20 mg.	Starting dose ≤20 mg or alternative statin or combination therapy.	
Simvastatin[1] *SLCO1B1*	Greatly increased risk of myopathy.	Alternative statin indicated.	

[1]At least one of the following organisations recommends or requires genetic testing before taking the active ingredient: EMA, FDA, Swissmedic.

[2]Increase the dose by 100%. The increased daily dose may be administered in divided doses.

[3]Increase the dose by 100%. The increased daily dose may be administered in divided doses.

[4]Increase the dose by 100%. The increased daily dose may be administered in divided doses.

[5]Increase the dose by 100%. The increased daily dose may be administered in divided doses.

2. Phenotype profile

Below you will find the assignments of the genetic test to the expected phenotype as a table and in the form of a QR code.

Phenotype profile

23 genes/gene combinations were analysed for single nucleotide variants (SNV). The following table shows the expected phenotype (effect of the gene variant) of the analysed genes/gene combinations.

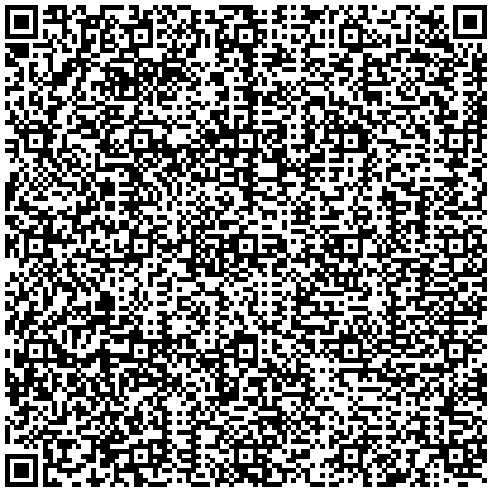
	Gene or gene combination	Diplotype[1]	Activity Score	Expected phenotype[2]
1	*ABCG2*	No variant detected	Not applicable	Normal function
2	*CYP2B6*	No variant detected	Not applicable	Normal metaboliser
3	*CYP2C19*	*17/*17	Not applicable	Ultrarapid metaboliser
4	*CYP2C9-VKORC1*	*1/*2, *1/*1	Not applicable	Normal warfarin sensitivity
5	*CYP2C9*	*1/*2	1,5	Intermediate metaboliser
6	*CYP2D6*	No variant detected	2	Normal metaboliser
7	*CYP3A4*	No variant detected	Not applicable	Normal metaboliser
8	*CYP3A5*	*3/*3	Not applicable	Poor metaboliser (CYP3A5 Non-expresser)
9	*DPYD*	No variant detected	2	Normal metaboliser
10	*G6PD*	No variant detected	Not applicable	Normal function
11	*GSTP1*	No variant detected	Not applicable	Normal metaboliser
12	*HCP5*	No variant detected	Not applicable	HLA-B*57:01-negative
13	*HLA-A*31:01*	No variant detected	Not applicable	HLA-A*31:01-negative (for persons of European descent)
14	*IFNL3*	No variant detected	Not applicable	Favourable response genotype

	Gene or gene combination	Diplotype[1]	Activity Score	Expected phenotype[2]
15	*NUDT15-TPMT*	*1/*1, *1/*1	Not applicable	Normal metaboliser / Normal metaboliser
16	*NUDT15*	No variant detected	Not applicable	Normal metaboliser
17	*SLC22A1*	No variant detected	Not applicable	Normal function
18	*SLC22A2*	No variant detected	Not applicable	Normal function
19	*SLC47A1*	No variant detected	Not applicable	Normal function
20	*SLCO1B1*	*15/*15	Not applicable	Poor function
21	*TPMT*	No variant detected	Not applicable	Normal metaboliser
22	*UGT1A1*	No variant detected	Not applicable	Normal metaboliser
23	*VKORC1*	No variant detected	Not applicable	-1639GG

*[1] Diplotypes are described by the combination of two star alleles. This nomenclature, which is commonly used in pharmacogenetics, characterises a combination of variants. The star allele *1 generally denotes the absence of variants.*
[2] The expected phenotype is a standardised term for the effect of an existing gene variant. The designations are based on the information provided by the Clinical Pharmacogenetics Implementation Consortium (CPIC).

QR code with phenotype profile data

The PGXperts phenotype profile can be easily transferred and used in other applications of the PGXperts system. To do this, scan the following QR code in the respective application.



3. Laboratory test results

Table 1: Genotyping

Molecular genetic analyses were carried out on 109 variants. The variants detected are listed below.

	Gene symbol	HGVS[1] name	Genotype	Zygosity
1	*CYP2C19*	NC_000010.11:g.94761900C>T	T/T	Homozygous
2	*CYP2C9*	NC_000010.11:g.94942290C>T	C/T	Heterozygous
3	*CYP3A5*	NC_000007.14:g.99672916T>C	C/C	Homozygous
4	*SLCO1B1*	NC_000012.12:g.21176804A>G	G/G	Homozygous
5	*SLCO1B1*	NC_000012.12:g.21178615T>C	C/C	Homozygous

[1]Human Genome Variation Society nomenclature

Table 2: Copy Number Variation

In general, 2 copies of the same gene are present. In individual cases, the loss of a single gene copy or a gene multiplication (more than 2 gene copies) can occur.

	Gene symbol	Target	Gene copies
1	*CYP2D6*	*CYP2D6* Exon 9	2

Laboratory configuration

Technology	Array
Thermo Fisher TaqMan PCR	202311002

List of all genetic variants analysed

Gene symbol	Variants
ABCG2	NC_000004.12:g.88131171G>T
CYP2B6	NC_000019.10:g.40991224T>C, NC_000019.10:g.41004015T>A, NC_000019.10:g.41004377A>G, NC_000019.10:g.41006919C>G, NC_000019.10:g.41006923C>T, NC_000019.10:g.41006936G>T, NC_000019.10:g.41006968T>G, NC_000019.10:g.41009358A>G, NC_000019.10:g.41010006G>C, NC_000019.10:g.41012316T>C, NC_000019.10:g.41012339C>T, NC_000019.10:g.41016810C>T
CYP2C19	NC_000010.11:g.94761900C>T, NC_000010.11:g.94762706A>G, NC_000010.11:g.94775367A>G, NC_000010.11:g.94775416T>C, NC_000010.11:g.94775453G>A, NC_000010.11:g.94775489G>A, NC_000010.11:g.94780653G>A, NC_000010.11:g.94781858C>T, NC_000010.11:g.94781859G>A, NC_000010.11:g.94781999T>A, NC_000010.11:g.94852738C>T, NC_000010.11:g.94852765C>T
CYP2C9	NC_000010.11:g.94941958T>C, NC_000010.11:g.94942290C>T, NC_000010.11:g.94942309G>A, NC_000010.11:g.94942309G>T, NC_000010.11:g.94947782C>A, NC_000010.11:g.94949283del, NC_000010.11:g.94981224C>T, NC_000010.11:g.94981296A>C, NC_000010.11:g.94981297T>C, NC_000010.11:g.94981301C>G
CYP2D6	NC_000022.11:g.42126611C>G, NC_000022.11:g.42126658_42126666dup, NC_000022.11:g.42126749C>T, NC_000022.11:g.42127532_42127533dup, NC_000022.11:g.42127590G>A, NC_000022.11:g.42127608C>T, NC_000022.11:g.42127803C>T, NC_000022.11:g.42127841C>G, NC_000022.11:g.42127852C>T, NC_000022.11:g.42127856T>G, NC_000022.11:g.42127941G>A, NC_000022.11:g.42128176_42128178del, NC_000022.11:g.42128199_42128202TCAG[1], NC_000022.11:g.42128218dup, NC_000022.11:g.42128242del, NC_000022.11:g.42128251_42128254del, NC_000022.11:g.42128817dup, NC_000022.11:g.42128934AAAGGGGCG[3], NC_000022.11:g.42128945C>T, NC_000022.11:g.42129033C>A, NC_000022.11:g.42129033C>T, NC_000022.11:g.42129075C>T, NC_000022.11:g.42129084del, NC_000022.11:g.42129770G>A, NC_000022.11:g.42129910C>G, NC_000022.11:g.42130668C>T, NC_000022.11:g.42130692G>A
CYP3A4	NC_000007.14:g.99768693G>A
CYP3A5	NC_000007.14:g.99652771dup, NC_000007.14:g.99665212C>T, NC_000007.14:g.99672916T>C
DPYD	NC_000001.11:g.97082391T>A, NC_000001.11:g.97450058C>T, NC_000001.11:g.97515787A>C, NC_000001.11:g.97573863C>T, NC_000001.11:g.97699474T>C
G6PD	NC_000023.11:g.154532269C>A, NC_000023.11:g.154532269C>G, NC_000023.11:g.154533025A>G, NC_000023.11:g.154533044C>T, NC_000023.11:g.154533596C>A/G, NC_000023.11:g.154534125C>A, NC_000023.11:g.154534125C>T, NC_000023.11:g.154534419G>A, NC_000023.11:g.154534440T>A, NC_000023.11:g.154535277T>C, NC_000023.11:g.154535342C>T, NC_000023.11:g.154536002C>T, NC_000023.11:g.154536168G>C

Gene symbol	Variants
GSTP1	NC_000011.10:g.67585218A>G
HCP5	NC_000006.12:g.31464003T>G
*HLA-A*31:01*	NC_000006.12:g.29945521A>T
IFNL3	NC_000019.10:g.39248147C>T, NC_000019.10:g.39252525T>G
NUDT15	NC_000013.11:g.48037784GAGTCG[2], NC_000013.11:g.48045719C>T
SLC22A1	NC_000006.12:g.160139851_160139853del, NC_000006.12:g.160154805G>A
SLC22A2	NC_000006.12:g.160249250A>C
SLC47A1	NC_000017.11:g.19560030G>A
SLCO1B1	NC_000012.12:g.21176804A>G, NC_000012.12:g.21176879C>A, NC_000012.12:g.21178615T>C, NC_000012.12:g.21200544C>G, NC_000012.12:g.21205999G>C, NC_000012.12:g.21239042A>C
TPMT	NC_000006.12:g.18130687T>C, NC_000006.12:g.18130781C>T, NC_000006.12:g.18138997C>T, NC_000006.12:g.18143724C>G
UGT1A1	NC_000002.12:g.233759924C>T, NC_000002.12:g.233760498G>A, NC_000002.12:g.233760973C>A
VKORC1	NC_000016.10:g.31096368C>T

Laboratory information

Laboratory	Address	Website and e-mail
UKB_customer		

Caveats

This report is based on the PGXperts database version valid at the time of preparation. It is updated quarterly based on the current state of scientific knowledge. Only evidence-based pharmacogenetic effects are shown. As soon as the patient undergoes a bone marrow, liver or kidney transplant, this report loses its applicability.

Disclaimer

The information contained in this report does not constitute medical advice. It does not predict the correct medication or whether a person will respond to a particular medication or whether adverse events will occur. The treating physician is responsible for all treatment decisions, including those made on the basis of a patient's pharmacogenetic tests.

At www.pgxperts.com you will find all relevant information on the methodology used and a list of selected references.

Pharmacogenetic profile for patients

How you metabolise medication also depends on your genes. Your pharmacogenetic profile provides an overview of which of your gene variants can influence a medication: depending on your genetic characteristics, some active ingredients may have a weaker or stronger effect. Accordingly, these active ingredients may show side effects, hypersensitivity reactions or a lack of effect. For future prescriptions, it is advantageous to consider the pharmacogenetic profile. If you have any questions, please consult your doctor.

Order information

Sample ID:	Patient ID:	Surname, first name:	Date of birth:
DE18PGXDEMD100044	**No entry**	**Kreuzer, Simon**	**06.01.1956**
Order ID:	Order date:	Ordered by:	Report creation date:
DE59PGXDEMI100044	**07.04.2025**	**No entry**	**07.04.2025**

Specimen details:

Sample type: **EDTA blood** Sample arrival: **07.04.2025 12:12**

Requirements for pharmacogenetic testing:

1. A bone marrow, liver or kidney transplant has been performed in the past:	**No**
2. A blood transfusion has taken place in the last four weeks:	**No**
3. Signed declarations of consent (genetic diagnostics, data protection) are available:	**Yes**
4. Statistical use of pseudonymised data was approved:	**No**

Pharmacogenetic profile for the patient

If you are taking one of the listed active ingredients, we recommend that you consult your doctor and provide your pharmacogenetic profile. If your new treating doctor does not have access to PGXperts products, please ask your doctor who ordered the pharmacogenetic test to forward the complete evaluation.

Warning
The contents of PGXperts are aimed exclusively at healthcare professionals within the meaning of Section 2 of the Therapeutic Products Advertising Act, including persons in training for healthcare professions. The correct use of the services requires sound medical knowledge. The content provided is not a substitute for medical advice. Changes to individual treatment without a doctor's consent can lead to serious adverse drug reactions or treatment failure.

Significance of pharmacogenetic characteristics

The symbols will help you to assess what significance a pharmacogenetic characteristic of yours may have for a named active ingredient and when you should contact your doctor.

Pharmacogenetic effect of very high importance

Contact your doctor timely. The use of this medicine is contraindicated and should be avoided.

Pharmacogenetic effect of high importance

It is advisable to have this checked by your doctor. You may experience adverse effects or a lack of efficacy of the medicine.

Pharmacogenetic effect of minor importance

If you suspect side effects, talk to your doctor about them at your next contact. You may experience mild adverse effects or a lack of efficacy of the medicine.

PGxProfile and its effect on medication

Molecular genetic testing revealed variants in the following genes: *CYP2C19, CYP2C9, G6PD, IFNL3, SLCO1B1*. Therefore, taking the following active ingredients may have clinical consequences with regard to pharmacogenetics, which you should have checked by your doctor.

Active ingredient and gene	Significance of the pharmacogenetic characteristic	
All other therapeutic products		
Rasburicase[1] *G6PD*	You may experience adverse effects or a lack of efficacy of the medicine.	
Anti-acne preparations for topical use		
Dapsone *G6PD*	You may experience adverse effects or a lack of efficacy of the medicine.	
Antibacterials		
Nitrofurantoin *G6PD*	You may experience adverse effects or a lack of efficacy of the medicine.	
Antidepressants		
Amitriptyline *CYP2C19*	You may experience adverse effects or a lack of efficacy of the medicine.	
Citalopram *CYP2C19*	You may experience adverse effects or a lack of efficacy of the medicine.	
Clomipramine *CYP2C19*	You may experience adverse effects or a lack of efficacy of the medicine.	
Doxepin *CYP2C19*	You may experience adverse effects or a lack of efficacy of the medicine.	
Escitalopram *CYP2C19*	You may experience adverse effects or a lack of efficacy of the medicine.	
Imipramine *CYP2C19*	You may experience adverse effects or a lack of efficacy of the medicine.	
Trimipramine *CYP2C19*	You may experience adverse effects or a lack of efficacy of the medicine.	
Antidotes		
Methylene blue *G6PD*	You may experience adverse effects or a lack of efficacy of the medicine.	
Toluidine blue *G6PD*	You may experience adverse effects or a lack of efficacy of the medicine.	
Antigout preparations		
Pegloticase[1] *G6PD*	You may experience adverse effects or a lack of efficacy of the medicine.	

Active ingredient and gene	Significance of the pharmacogenetic characteristic	
Antiinflammatory and antirheumatic products, non-steroids		
Meloxicam *CYP2C9*	You may experience adverse effects or a lack of efficacy of the medicine.	
Piroxicam *CYP2C9*	You may experience adverse effects or a lack of efficacy of the medicine.	
Tenoxicam *CYP2C9*	You may experience adverse effects or a lack of efficacy of the medicine.	
Antimalarials		
Primaquine[1] *G6PD*	You may experience adverse effects or a lack of efficacy of the medicine.	
Tafenoquine[1] *G6PD*	You may experience adverse effects or a lack of efficacy of the medicine.	
Antimycotics for systemic use		
Voriconazole *CYP2C19*	The use of this medicine is contraindicated and should be avoided.	
Antithrombotic agents		
Clopidogrel *CYP2C19*	You may experience adverse effects or a lack of efficacy of the medicine.	
Blood glucose lowering drugs, excl. Insulins		
Glibenclamide *CYP2C9*	You may experience mild adverse effects or a lack of efficacy of the medicine.	
Gliclazide *CYP2C9*	You may experience mild adverse effects or a lack of efficacy of the medicine.	
Glimepiride *CYP2C9*	You may experience mild adverse effects or a lack of efficacy of the medicine.	
Direct acting antivirals		
Ribavirin *IFNL3*	You may experience mild adverse effects or a lack of efficacy of the medicine.	
Drugs for peptic ulcer and gastro-oesophageal reflux disease (GORD)		
Dexlansoprazole *CYP2C19*	You may experience adverse effects or a lack of efficacy of the medicine.	
Lansoprazole *CYP2C19*	You may experience adverse effects or a lack of efficacy of the medicine.	
Omeprazole *CYP2C19*	You may experience adverse effects or a lack of efficacy of the medicine.	
Pantoprazole *CYP2C19*	You may experience adverse effects or a lack of efficacy of the medicine.	

Active ingredient and gene	Significance of the pharmacogenetic characteristic	
Drugs for treatment of lepra		
Dapsone *G6PD*	You may experience adverse effects or a lack of efficacy of the medicine.	
Immunostimulants		
Peginterferon alfa-2a *IFNL3*	You may experience mild adverse effects or a lack of efficacy of the medicine.	
Peginterferon alfa-2b *IFNL3*	You may experience mild adverse effects or a lack of efficacy of the medicine.	
Lipid modifying agents		
Atorvastatin *SLCO1B1*	You may experience adverse effects or a lack of efficacy of the medicine.	
Fluvastatin *CYP2C9*	You may experience adverse effects or a lack of efficacy of the medicine.	
Fluvastatin *SLCO1B1*	You may experience adverse effects or a lack of efficacy of the medicine.	
Lovastatin *SLCO1B1*	The use of this medicine is contraindicated and should be avoided.	
Pitavastatin *SLCO1B1*	You may experience adverse effects or a lack of efficacy of the medicine.	
Pravastatin *SLCO1B1*	You may experience adverse effects or a lack of efficacy of the medicine.	
Rosuvastatin *SLCO1B1*	You may experience adverse effects or a lack of efficacy of the medicine.	
Simvastatin[1] *SLCO1B1*	The use of this medicine is contraindicated and should be avoided.	

[1]At least one of the following organisations recommends or requires genetic testing before taking the active ingredient: EMA, FDA, Swissmedic.

2. Phenotype profile

Below you will find the assignments of the genetic test to the expected phenotype as a table and in the form of a QR code.

Phenotype profile

23 genes/gene combinations were analysed for single nucleotide variants (SNV). The following table shows the expected phenotype (effect of the gene variant) of the analysed genes/gene combinations.

	Gene or gene combination	Diplotype[1]	Activity Score	Expected phenotype[2]
1	*ABCG2*	No variant detected	Not applicable	Normal function
2	*CYP2B6*	No variant detected	Not applicable	Normal metaboliser
3	*CYP2C19*	*17/*17	Not applicable	Ultrarapid metaboliser
4	*CYP2C9-VKORC1*	*1/*2, *1/*1	Not applicable	Normal warfarin sensitivity
5	*CYP2C9*	*1/*2	1,5	Intermediate metaboliser
6	*CYP2D6*	No variant detected	2	Normal metaboliser
7	*CYP3A4*	No variant detected	Not applicable	Normal metaboliser
8	*CYP3A5*	*3/*3	Not applicable	Poor metaboliser (CYP3A5 Non-expresser)
9	*DPYD*	No variant detected	2	Normal metaboliser
10	*G6PD*	No variant detected	Not applicable	Normal function
11	*GSTP1*	No variant detected	Not applicable	Normal metaboliser
12	*HCP5*	No variant detected	Not applicable	HLA-B*57:01-negative
13	*HLA-A*31:01*	No variant detected	Not applicable	HLA-A*31:01-negative (for persons of European descent)
14	*IFNL3*	No variant detected	Not applicable	Favourable response genotype
15	*NUDT15-TPMT*	*1/*1, *1/*1	Not applicable	Normal metaboliser / Normal metaboliser

	Gene or gene combination	Diplotype[1]	Activity Score	Expected phenotype[2]
16	*NUDT15*	No variant detected	Not applicable	Normal metaboliser
17	*SLC22A1*	No variant detected	Not applicable	Normal function
18	*SLC22A2*	No variant detected	Not applicable	Normal function
19	*SLC47A1*	No variant detected	Not applicable	Normal function
20	*SLCO1B1*	*15/*15	Not applicable	Poor function
21	*TPMT*	No variant detected	Not applicable	Normal metaboliser
22	*UGT1A1*	No variant detected	Not applicable	Normal metaboliser
23	*VKORC1*	No variant detected	Not applicable	-1639GG

*[1] Diplotypes are described by the combination of two star alleles. This nomenclature, which is commonly used in pharmacogenetics, characterises a combination of variants. The star allele *1 generally denotes the absence of variants.*
[2] The expected phenotype is a standardised term for the effect of an existing gene variant. The designations are based on the information provided by the Clinical Pharmacogenetics Implementation Consortium (CPIC).

QR code with phenotype profile data

The PGXperts phenotype profile can be easily transferred and used in other applications of the PGXperts system. To do this, scan the following QR code in the respective application.

Laboratory information

Laboratory	Address	Website and e-mail
UKB_customer		

Caveats

This report is based on the PGXperts database version valid at the time of preparation. It is updated quarterly based on the current state of scientific knowledge. Only evidence-based pharmacogenetic effects are shown. As soon as the patient undergoes a bone marrow, liver or kidney transplant, this report loses its applicability.

Disclaimer

The information contained in this report does not constitute medical advice. It does not predict the correct medication or whether a person will respond to a particular medication or whether adverse events will occur. The treating physician is responsible for all treatment decisions, including those made on the basis of a patient's pharmacogenetic tests.

At www.pgxperts.com you will find all relevant information on the methodology used and a list of selected references.