DNA for ME

Pharmacogenetics

Max Mustermann
DEMO_ML

COVER LETTER

Dear Mr. Mustermann,

Your sample for the analysis arrived on 25/11/2020 in the laboratory and was evaluated according to the highest laboratory quality standards. The results were evaluated and released by two independent geneticists and molecular biologists. After obtaining the results, your personal report was compiled. We hereby convey the results to you in the format of your choice.

We would like to thank you for your trust and hope that you are satisfied with our service. We are always open to questions and suggestions. Please do not hesitate to contact us. We value your feedback. This is the only way we can continuously improve our services.

We hope the analysis meets your expectations.

Kind regards,

Dr. Daniel Wallerstorfer BSc.
Laboratory Director
Novogenia GmbH

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Laboratory Manager
Novogenia GmbH

Dr. Manfred Althammer
CEO
DNA4me GmbH

Pharmacogenetics

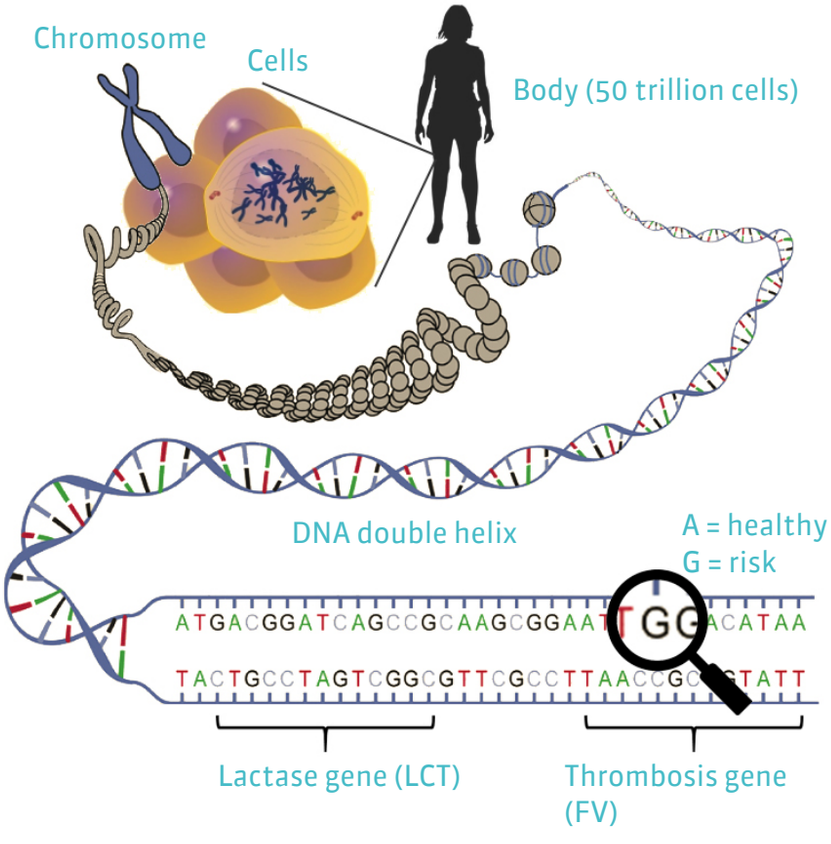
Personal analysis results for:
Max Mustermann | Date of birth: 01/01/1990

Order number:
DEMO_ML

This report contains personal medical information that is highly confidential. Data protection must be ensured.

How genes influence our health

The human body consists of about 50 trillion individual cells. Most of these cells have a nucleus, which contains 46 chromosomes. A chromosome consists of a very closely wound thread, the DNA "double helix."



DNA, the genetic code, is the blueprint of the human body. This genetic code consists of approximately 3.1 billion molecules, which are each represented by a letter. About 1% of this code makes up the genes. Each gene is an instruction for the body, usually with a single function. For example, some genes tell the body how to colour the iris and differences in these genes produce different eye colors. Every function of the body is controlled by one or more genes, including the way we break down food or medication.

Our genes are not completely error-free. The genes of each person are altered slightly by environmental effects. Most of these changes have no effect but a small number have a harmful effect. An even tinier number can produce a beneficial effect. Parents pass these changes, including defects, to their children. Thus most of our genetic defects are inherited from our parents.

In addition, our genes evolved to help us live in a completely different world, and some of our genetic traits can interact with our modern environment to create negative effects on the body. For example, the genetic predisposition to store dietary fat quickly and lose it slowly is beneficial for people who go through times when food is scarce: they have a better chance of surviving because their bodies use fat efficiently and store it for later. However, in the modern world, this trait is harmful because it programs the body to gain weight quickly and lose weight

slowly. Genes increase our risk of heart attacks, trigger asthma and allergies, cause lactose intolerance, and many other disorders.

Genetic traits can affect our health. While some genetic defects cause disease in all cases, most genetic traits just increase our risk of developing a disease. For example, a person may have genes that increase their risk for diabetes. However, not everyone at risk for diabetes actually develops the disease. Furthermore, even people with a high risk of diabetes can lower their risk with the right diet and exercise plan. Other genetic traits only cause illness when they are triggered by a specific environmental feature. For example, lactose intolerance is a genetic condition that causes a person who drinks milk to have digestive issues. A lactose-intolerant person who never drinks milk will not have any symptoms.

Thanks to the latest technologies, it is now possible to test specific genes to determine if you have genetic traits that are linked to various diseases. Based on the results of the analysis, we can develop a prevention program that significantly reduces your personal disease risk and helps you stay healthy.

A healthy lifestyle will decrease your risk of many diseases whether or not you have specific information about your genetic traits. However, we provide you with additional information that may point out other changes to your lifestyle that are not part of the standard medical advice. There are many examples, but one of the traits we test for is a gene that increases your body's ability to absorb iron. If you have this trait, you must not take iron supplements as the iron would accumulate and cause a life-threatening disease called haemochromatosis.

Experts estimate that every person carries about 2,000 genetic defects, which may affect their health, and in some cases, cause illnesses. A variety of factors can cause changes in our genes (also called mutations). In a few cases, these mutations can benefit us. However, the vast majority either have no effect or have a negative impact on our health. The best-known cause of mutations is radioactivity. Radioactive rays and particles actually impact the DNA in our cells and physically alter our genes. They mostly go unnoticed or cause deadly diseases, such as cancer, or congenital abnormality in newborns. Mutations are also caused by substances in burned food. The substances enter the cells and damage our genes, which can lead to colon cancer, among other forms of cancer. UV radiation from the sun can also damage our genes and cause diseases, such as skin cancer.

External influences can affect individual genes and disrupt their function, but the majority of our defective genes are inherited from our parents. Each embryo receives half of its genes from the father and half from the mother, resulting in a new human being with some characteristics of each parent. Whether a genetic defect is passed on, is determined randomly, and it may be that some of the children carry the defective gene and others do not.

Each person is the unique product of generations of accumulation and combination of different genetic traits. Some of those traits have negative effects on our health. With the latest technology, it is now finally possible to examine genes and determine personal health risks and strengths. In many cases, taking advantage of this knowledge, and following some precautionary measures, the diseases may be prevented. This is the next step in preventive medicine and a new generation of health care.

Action index

Discuss risks marked in orange or red with your doctor. All other results do not require any further attention assuming there are no current medical conditions.

Pharmacogenetics

PHARMACO GENETICS

ONCOLOGY
Not ordered

CARDIOVASCULAR SYSTEM
Not ordered

NEUROLOGY
Not ordered

METABOLISM
Not ordered

MOVEMENT
Not ordered

DIGESTION
Not ordered

OPHTHALMOLOGY
Not ordered

ODONTOLOGY
Not ordered

OTHERS
Not ordered

SCIENCE

ADDITIONAL INFORMATION

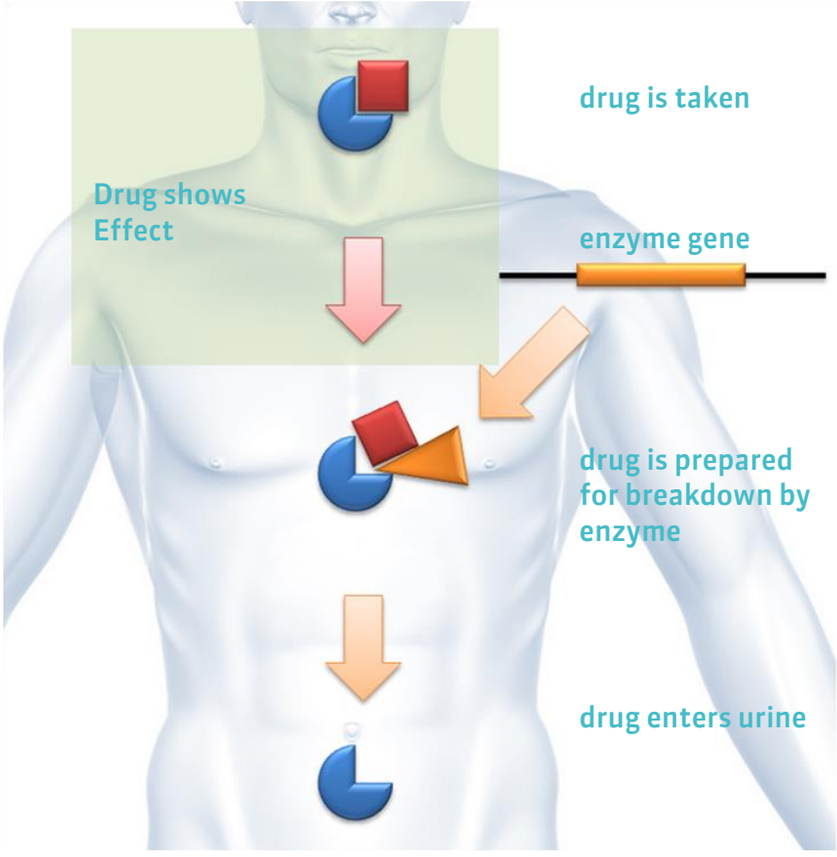
Pharmacogenetics

Avoiding side effects from medication and improving the outcome

How drugs work in the human body

Every person reacts differently to drugs/medications. Some people benefit significantly from a particular medication, while others experience adverse effects with symptoms that can range from mild to fatal. According to estimates, approximately 7% of patients suffer from severe adverse reactions and about 0.4% suffer fatal consequences. Adverse reactions to drugs are the fifth most frequent cause of death in the developed world. In most cases, these reactions are determined by inherited genetic variations or certain drug interactions.

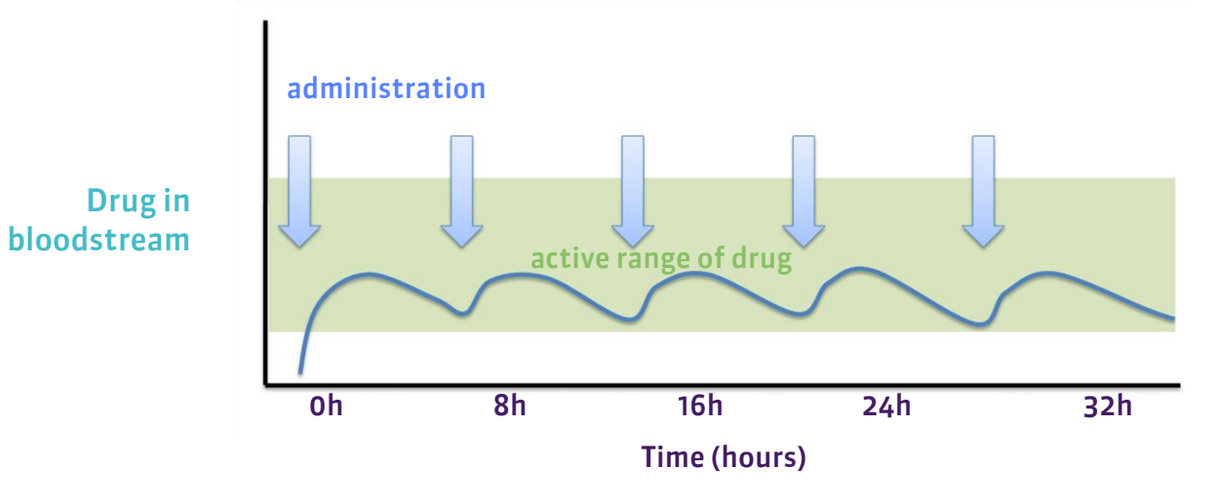
The drug pathways in the body



When a drug is administered- whether orally, intravenously or via any other route- it first enters the bloodstream. The blood transports the drug to the target organ where it will elicit the required response. However, the drug is recognised as foreign by certain enzymes which proceed to break it down and remove it from the bloodstream. This causes most drugs to lose their effect. The deactivated drug is then filtered out of the bloodstream with the help of the kidneys and finally excreted in the urine.

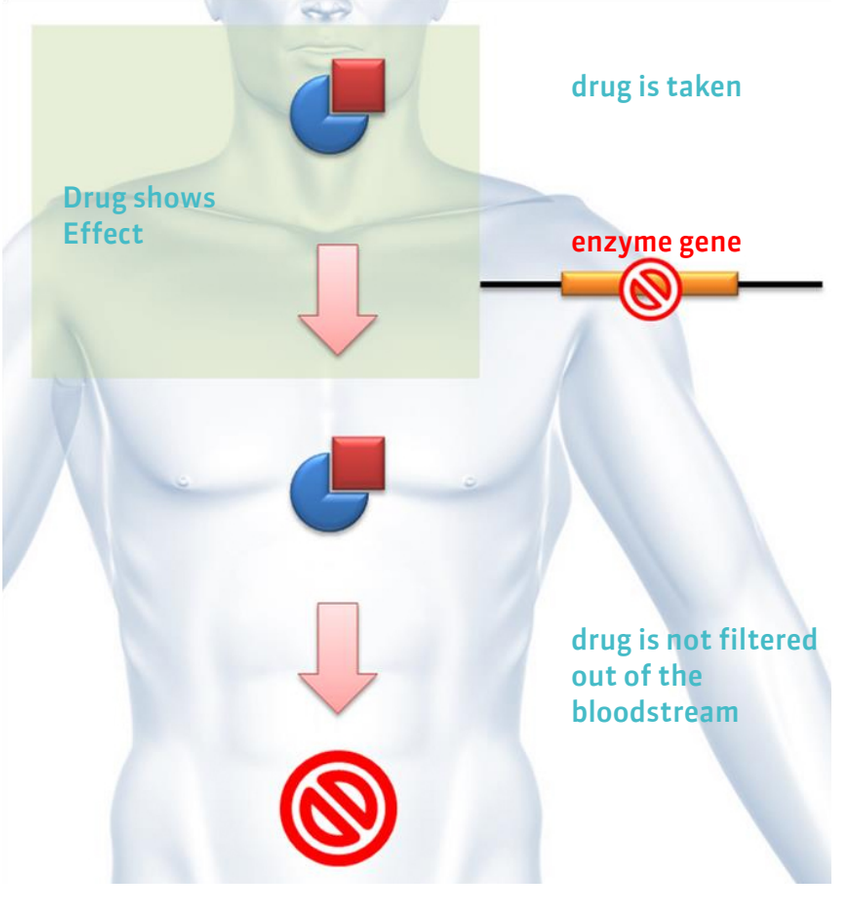
Long-term Drug Treatment

Due to the fact that many drugs work over an extended period, they need to be taken at regular intervals to ensure that the concentration of the drug in the bloodstream is maintained in the correct range.



This is how the drug always remains at the right concentration and shows its intended effect.

Genetic defects inhibit the breakdown of the drug

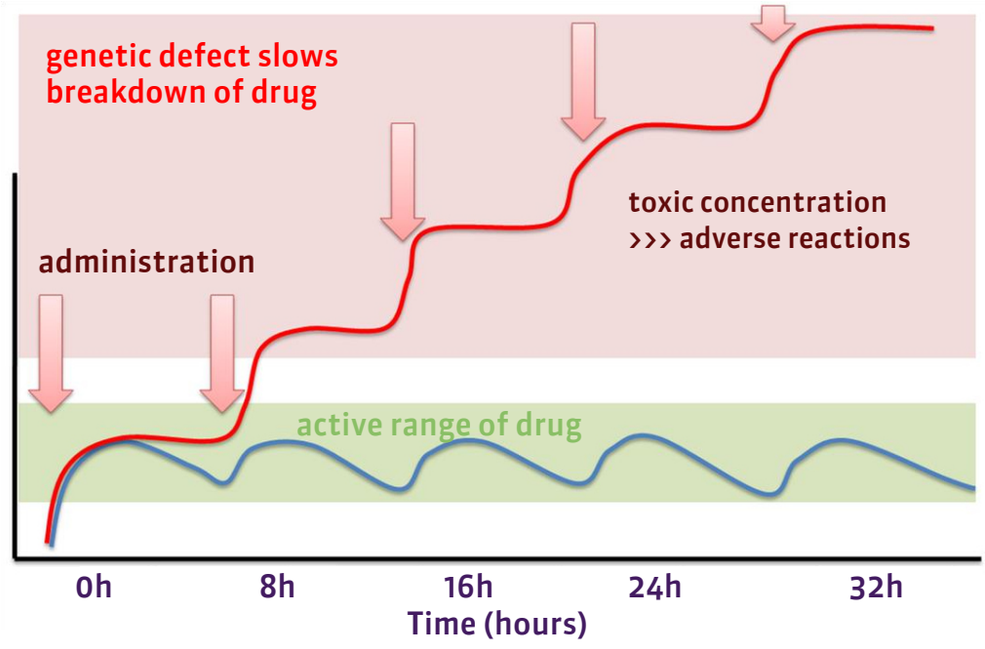


Unfortunately, many people carry a defect in one of the enzyme-producing genes that are crucial in this process.

The drug still enters the blood circulation and has its effect, but the specific enzymes do not break it down and the drug remains in the body for a significantly longer time. This is only a minor problem after a single dose, but when a person takes warfarin three times a day, for example, the level of warfarin in the blood gradually increases until it causes toxic side effects.

The complications of regular administration of a drug when there is a genetic defect

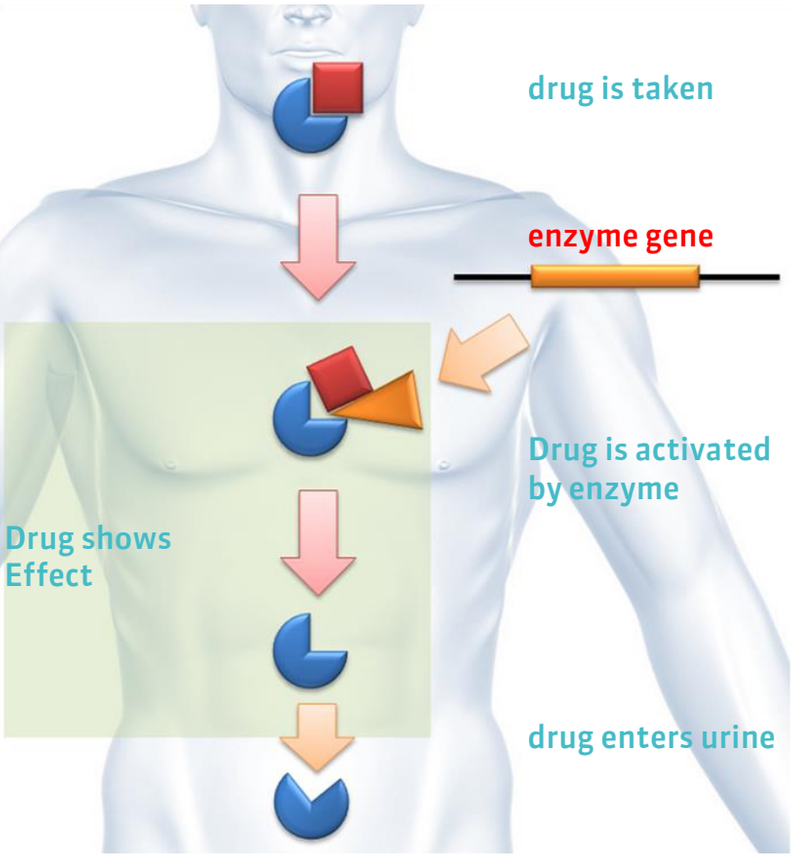
In the case of blood thinners, drug action is at the optimum level at the beginning of therapy but the drug concentration increases subsequently with every dose until it reaches the point of causing uncontrolled bleeding.

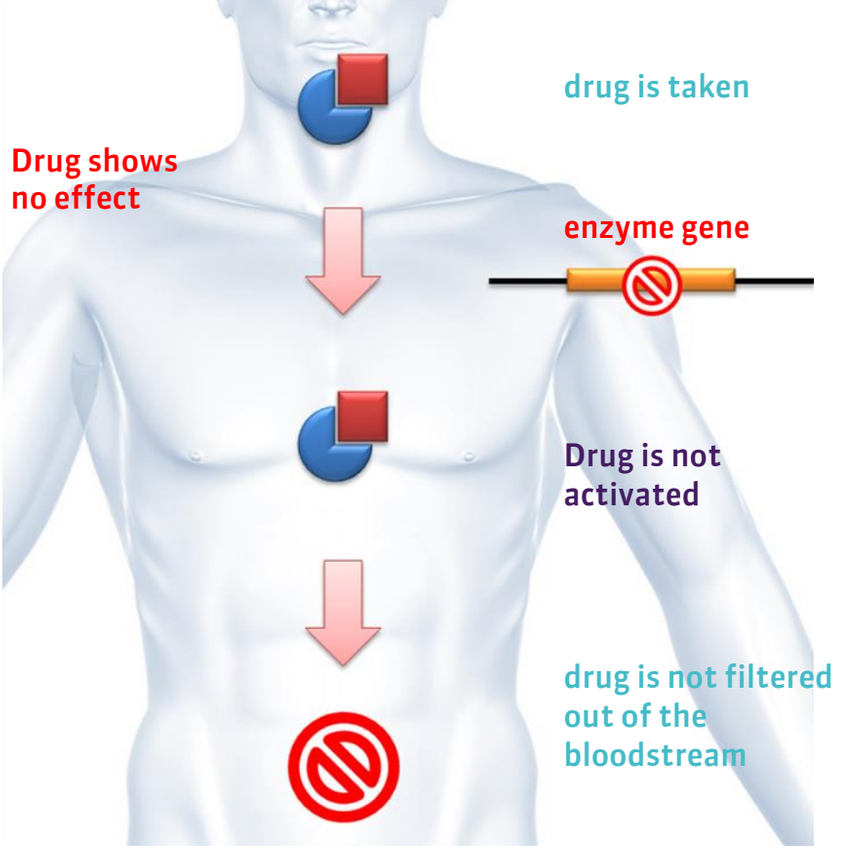


This means that the 20% of the population that carry a genetic defect need a significantly lower dose of warfarin because the usual dose could lead to serious adverse reactions.

Prodrugs: the precursors of active drugs

Some drugs are taken in an inactive form and are only activated by the enzymes of the body.These are called prodrugs. Examples for this kind of drugs include the cancer-prevention drug tamoxifen and the painkiller codeine.
A prodrug enters the bloodstream in its inactive form. Enzymes in the blood transform it into its active form, and then it takes effect. For example, the painkiller codeine (prodrug) is transformed into morphine (active form), which then relieves pain.





In some people, the enzyme that converts a specific prodrug into active drug does not function, so that the drug never has an effect on the body, other than potential side effects.
In the case of codeine, there is no pain relief after administration and an alternative drug needs to be chosen.
In case of tamoxifen, a drug that prevents breast cancer, the drug's inefficacy will only be discovered if cancer develops.

Pharmacogenetic genes

The following genes and polymorphisms have an impact on the breakdown and effect of various drugs. Your genetic analysis found the following:

CYP1A2

rs NCBI	POLYMORPH	GENOTYPE
rs2069514	-3860G>A	G/G
rs762551	-163C>A	C/C
GENOTYPE	**METABOLIZER**	**ACTIVITY**
***1/*1**	**EXTENSIVE**	**NORMAL**

CYP2B6

rs NCBI	POLYMORPH	GENOTYPE
rs28399499	983T>C	T/T
rs34223104	-82T>C	T/T
rs3745274	516G>T	G/G
GENOTYPE	**METABOLIZER**	**ACTIVITY**
***1/*1**	**EXTENSIVE**	**NORMAL**

CYP2C19

rs NCBI	POLYMORPH	GENOTYPE
rs4244285	681G>A	G/G
rs4986893	636G>A	G/G
rs28399504	1A>G	A/A
rs56337013	1297C>T	C/C
rs72552267	395G>A	G/G
rs72558186	19294T>A	T/T
rs41291556	358T>C	T/T
rs17884712	431G>A	G/G
rs12248560	-806C>T	C/C
rs6413438	19153C>T	C/C
GENOTYPE	**METABOLIZER**	**ACTIVITY**
***1/*1**	**EXTENSIVE**	**NORMAL**

CYP2C9

rs NCBI	POLYMORPH	GENOTYPE
rs1799853	430C>T	C/C
rs1057910	1075A>C	A/A
rs28371686	1080C>G	C/C
rs9332131	818delA	A/A
rs7900194	449G>A	G/G
rs7900194	449G>T	G/G
rs28371685	1003C>T	T/T
rs56165452	1076T>C	T/T
GENOTYPE	**METABOLIZER**	**ACTIVITY**
***11/*11**	**POOR**	**NONE**

CYP2D6

rs NCBI	POLYMORPH	GENOTYPE
Dup/Del	xN	x2
rs1080985	-1584C>G	C/C
rs1065852	100C>T	C/C
rs774671100	del>A	del/del
rs201377835	883G>C	C/C
rs28371706	1023C>T	C/C
rs5030655	1707delT	T/T
rs5030865	1758G>T	C/C
rs5030865	1758G>A	C/C
rs3892097	1846G>A	G/G
rs35742686	2549delA	A/A
rs5030656	2615_2617delAAG	T/T
rs16947	2850C>T	G/G
rs5030867	2935A>C	A/A
rs28371725	2988G>A	G/G
rs59421388	3183G>A	C/C
rs1135840	4180G>C	G/G
rs5030862	124G>A	C/C
GENOTYPE	**METABOLIZER**	**ACTIVITY**
***1/*1**	**EXTENSIVE**	**NORMAL**

CYP2E1

rs NCBI	POLYMORPH	GENOTYPE
rs72559710	1132G>A	G/G
GENOTYPE	**METABOLIZER**	**ACTIVITY**
***1/*1**	**EXTENSIVE**	**NORMAL**

CYP3A4

rs NCBI	POLYMORPH	GENOTYPE
rs2740574	A>G	A/A
rs55785340	A>G	A/A
rs4986910	T>C	T/T
rs55951658	T>C	T/T
rs55901263	G>C	G/G
rs4646438	del>A	del/del
rs4986908	C>G	C/C
rs67784355	G>A	G/G
rs4987161	T>C	T/T
rs28371759	T>C	T/T
rs67666821	del>T	del/del
rs35599367	C>T	C/C
GENOTYPE	**METABOLIZER**	**ACTIVITY**
***1/*1**	**EXTENSIVE**	**NORMAL**

CYP3A5

rs NCBI	POLYMORPH	GENOTYPE
rs776746	6986A>G	A/A
rs10264272	14690G>A	C/C
rs55817950	3699C>T	G/G
rs28383479	19386G>A	G/G
rs41303343	27131_27132insT	del/del
GENOTYPE	**METABOLIZER**	**ACTIVITY**
***1/*1**	**EXTENSIVE**	**NORMAL**

DPYD

rs NCBI	POLYMORPH	GENOTYPE
rs3918290	1905+1G>A	A/A
GENOTYPE	**METABOLIZER**	**ACTIVITY**
***2A/*2A**	**POOR**	**NONE**

NAT2

rs NCBI	POLYMORPH	GENOTYPE
rs1801279	G191A	G/G
rs1041983	C282T	C/C
rs1801280	T341C	T/C
rs1799929	C481T	C/T
rs1799930	G590A	G/G
rs1208	A803G	G/A
rs1799931	G857A	G/G
GENOTYPE	**METABOLIZER**	**ACTIVITY**
N/A	**INTERMEDIATE**	**SLOW**

TPMT

rs NCBI	POLYMORPH	GENOTYPE
rs1800460	G>A	G/G
rs1142345	A>G	A/A
rs1800462	G>C	G/G
GENOTYPE	**METABOLIZER**	**ACTIVITY**
***1/*1**	**EXTENSIVE**	**NORMAL**

SLCO1B1

rs NCBI	POLYMORPH	GENOTYPE
rs4149056	521T>C	C/T
rs2306283	388A>G	T/T
GENOTYPE	**METABOLIZER**	**ACTIVITY**
***1A/*5**	**INTERMEDIATE**	**SLOW**

VKORC1

rs NCBI	POLYMORPH	GENOTYPE
rs9923231	-1639G>A	C/C
GENOTYPE	**RISK**	
C/C	**NO**	

UGT1A1

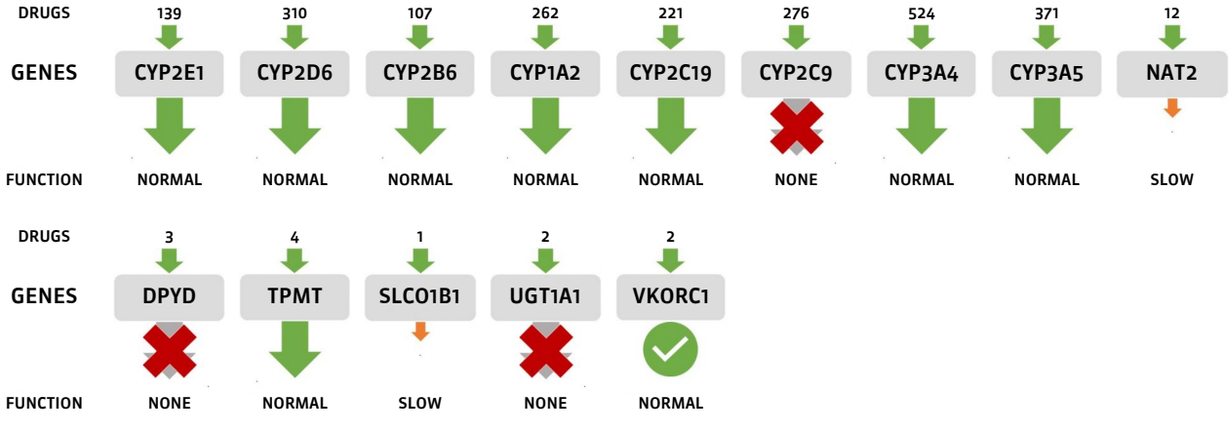
rs NCBI	POLYMORPH	GENOTYPE
rs887829	C>T	T/T
GENOTYPE	**METABOLIZER**	**ACTIVITY**
***80/*80**	**POOR**	**NONE**

LEGEND: rsNCBI = name of examined genetic variation, POLYMORPHISM = pattern of genetic variation, GENOTYPE = personal test result, METABOLIZER = personal metabolism profile, ACTIVITY = enzymatic activity

Please note: We examined a selection of the most common genetic variations affecting your drug metabolism. There are other variations, though only very rarely occurring, which we did not test thoroughly that may affect your drug metabolism, as well. Additionally you have to consider drug interactions, inhibitors, inductors, life style and existing medical conditions prior choosing a treatment or medication.

Summary of the relevant genes

Here, you can view your status of examined genes relevant to the breakdown and activation of various types of medication.



Legend

EXTENSIVE METABOLIZER

The breakdown and/or activation of drugs via this gene work normally.

(ULTRA-)RAPID METABOLIZER

The breakdown and/or activation of drugs via this gene is faster than usual.

INTERMEDIATE METABOLIZER

The breakdown and/or activation of drugs via this gene is slower than usual.

POOR METABOLIZER

The breakdown and/or activation of drugs via this gene is insufficient.

RISK ALLELE CARRIER

This genetic variation increases the risk of side effects of certain drugs.

NO RISK ALLELE CARRIER

This genetic variation does not increase the risk of side effects.

Evaluation of medications

Since the status of your medication-metabolizing genetics is now known, we can assess how the breakdown and activation of various drugs are impaired in your body. Based on this information, we've evaluated individual medications and active ingredients for you in 3 categories (effect, breakdown, dose). This information will help your doctor determine the correct selection and dosage for your medication.

Please note: The right choice and dose of medication is always the responsibility of the doctor. Never make your own decision on whether to stop taking a medication or changing its dose!

Here is an explanation of each symbol used in the results table:

Effect

Considering your genetic map, this medication has a normal effect. A dosage adjustment is not necessary from a genetic point of view.

Your body activates this medication too quickly (over 30% faster). This can lead to an overdose of the active ingredient. A lower dose is recommended from a genetic point of view.

Your body activates this medication too slowly (between 30%-70% of normal activation). This can lead to an under-dosing of the active ingredient. A higher dose will be necessary to achieve its optimal effect, but the breakdown speed must also be taken into account here.

Your body is unable to sufficiently activate the drug (less than 30% of normal activation). This may render the drug ineffective. An alternative to this medication is recommended from a genetic point of view.

Breakdown

Your body is able to break down this drug with sufficient speed. An adjustment of the dosage is not necessary based on genetics.

The medication is broken down by your body too quickly (more than 30% faster than normal). This may result in a drug concentration that is too low. Genetically speaking, a higher dose would be necessary to achieve the desired effect.

Your body is too slow in breaking down this medication (between 30%-70% of the normal breakdown rate). If you are taking this medication regularly, it may lead to a constantly increasing concentration of the drug in your body. A lower dose is recommended from a genetic point of view.

Your body is unable to sufficiently break down the drug (less than 30% of normal breakdown). If taken regularly, it can lead to a very high drug concentration in the body resulting in severe side effects. An alternative to this medication is recommended from a genetic point of view.

Dose

Neither the effect nor the breaking down of the medication is impaired. A dosage adjustment is not necessary from a genetic point of view.

Due to the faster breakdown, a dose increase of about 130%-200% is recommended from a genetic point of view. Start with the standard dose. In the absence of therapeutic success, a slow increase in dose under medical supervision is advised.

Due to a stronger effect or slower breakdown, a reduction of the dose to between 30% and 70% of the standard dose is recommended from a genetic point of view. It would be advisable to start with a small dose and only slowly increase the dose to the normal dose under medical supervision, if the therapeutic result is not reached.

Due to no effect or no breakdown, an alternative drug is recommended from a genetic point of view. If this is not possible, it is recommended to start with a small dose (3%- 70% of the standard dose) and slowly increase the dose to the normal dose under medical supervision, if the therapeutic result is not reached.

Effect on medication

The following list contains drug delivery guidelines that were published from organizations such as the CPIC (Clinical Pharmacogenetics Implementation Consortium), the Royal Dutch Association for the Advancement of Pharmacy (DPWG), the CPNDS (Canadian Pharmacogenomics Network for Drug Safety), and other professional societies. These results should always be considered by the treating physician.

Drug status	Recommendation for you
Abacavir	Abacavir is not recommended. High risk of hypersensitivity (~6% of patients) due to the presence of at least one HLA-B*57:01 allele.
Acenocoumarol	Check INR more frequently.
Amitriptyline	There is no dose recommendation for this drug.
Aripiprazole	There is no dose recommendation for this drug.
Atazanavir	Consider an alternative agent particularly where jaundice is of concern to the patient.
Atomoxetine	There is no dose recommendation for this drug.
Azathioprine	There is no dose recommendation for this drug.
Capecitabine	Select alternative drug. Tegafur is not a suitable alternative because this drug is also metabolized by DPD.
Citalopram	There is no dose recommendation for this drug.
Clomipramine	There is no dose recommendation for this drug.
Clopidogrel	There is no dose recommendation for this drug.
Codeine	There is no dose recommendation for this drug.
Desipramine	There is no dose recommendation for this drug.

Escitalopram	There is no dose recommendation for this drug.
Esomeprazole	There is no dose recommendation for this drug.
Flecainide	There is no dose recommendation for this drug.
Fluorouracil	Select alternative drug. Tegafur is not a suitable alternative because this drug is also metabolized by DPD.
Fluvoxamine	There is no dose recommendation for this drug.
Haloperidol	There is no dose recommendation for this drug.
Imipramine	There is no dose recommendation for this drug.
Irinotecan	Reduce initial dose by 30% for patients receiving more than 250 mg/m2. Increase dose in response to neutrophil count.
Lansoprazole	There is no dose recommendation for this drug.
Mercaptopurine	There is no dose recommendation for this drug.
Metoprolol	There is no dose recommendation for this drug.
Nortriptyline	There is no dose recommendation for this drug.
Ondansetron	There is no dose recommendation for this drug.
Oxycodone	There is no dose recommendation for this drug.
Pantoprazole	There is no dose recommendation for this drug.
Paroxetine	There is no dose recommendation for this drug.
Phenprocoumon	Check INR more frequently.
Phenytoin	Use standard loading dose and reduce maintenance dose by 50%. Evaluate response and serum concentration after 7-10 days. Be alert to ADEs (e.g. ataxia, nystagmus, dysarthria, sedation).
Propafenone	There is no dose recommendation for this drug.
Risperidone	There is no dose recommendation for this drug.
Sertraline	There is no dose recommendation for this drug.

Simvastatin	Prescribe a lower dose or consider an alternative statin (e.g. pravastatin or rosuvastatin); consider routine CK surveillance.
Tacrolimus	Increase starting dose 1.5-2 times recommended starting dose. Total starting dose should not exceed 0.3mg/kg/day. Use therapeutic drug monitoring to guide dose adjustments.
Tamoxifen	Avoid moderate and strong CYP2D6 inhibitors. Initiate therapy with recommended standard of care dosing.
Tegafur	Select alternative drug. Fluorouracil or capecitabine are not suitable alternatives because both are also metabolized by DPD.
Thioguanine	There is no dose recommendation for this drug.
Tramadol	There is no dose recommendation for this drug.
Tropisetron	There is no dose recommendation for this drug.
Venlafaxine	There is no dose recommendation for this drug.
Voriconazole	There is no dose recommendation for this drug.
Warfarin	Use www.warfarindosing.org to calculate exact warfarin dosing recommendation.
Zuclopenthixol	There is no dose recommendation for this drug.

Source: https://www.pharmgkb.org/page/citingPharmgkb

Effect on medication

The following list contains medications that have been evaluated by their degradation and activation pathways. This information will help your doctor to choose and dose your medication properly.

	Effect	Breakdown	Dose
[32P]Natriumphosphat	✓	✓	✓
Abarelix	✓	✓	✓
Acadesine	✓	✓	✓
Acebutolol	✓	✓	✓
Acefylline Piperazine	✓	✓	✓
Acepromazine	✓	✓	✓
Acetohexamide	✓	✓	✓
Acetoxolone	✓	✓	✓
Acetylcysteine	✓	✓	✓
Acetylglycinamide Chloral Hydrate	✓	✓	✓
Acipimox	✓	✓	✓
Acriflavinium Chloride	✓	✓	✓
Adefovir Dipivoxil	✓	✓	✓
Adinazolam	✓	✓	✓
Afatinib	✓	✓	✓
Ajmaline	✓	✓	✓
Albendazole	↑	↑	↓
Alcuronium	✓	✓	✓
Alemtuzumab	✓	✓	✓
Alfentanil	✓	↑	↑
Alginic Acid	✓	✓	✓

	Effect	Breakdown	Dose
4-dimethylaminophenol	✓	✓	✓
Abciximab	✓	✓	✓
Acamprosate	✓	✓	✓
Aceclidine	✓	✓	✓
Acemetacin	✓	✓	✓
Acetarsol	✓	✓	✓
Acetohydroxamic Acid	✓	✓	✓
Acetylcarnitine	✓	✓	✓
Acetyldigitoxin	✓	✓	✓
Acetylleucine	✓	✓	✓
Acitretin	✓	✓	✓
Acrivastine	✓	✓	✓
Ademetionine	✓	✓	✓
Adrafinil	✓	✓	✓
Afelimomab	✓	✓	✓
Alanyl Glutamine	✓	✓	✓
Alclofenac	✓	✓	✓
Aldesulfone Sodium	✓	✓	✓
Alendronic Acid	✓	✓	✓
Alfuzosin	✓	↑	↑
Alimemazine	✓	✓	✓

	Effect	Breakdown	Dose
Abacavir	✓	✓	✗
Abiraterone	✓	✓	✓
Acarbose	✓	✓	✓
Aceclofenac	✓	✗	✗
Acenocoumarol	✓	↓	✓
Acetazolamide	✓	✓	✓
Acetophenazine	✓	✓	✓
Acetylcholin	✓	✓	✓
Acetyldigoxin	✓	✓	✓
Acetylsalicylic Acid	✓	✗	✗
Aclarubicin	✓	✓	✓
Adalimumab	✓	✓	✓
Adenosine	✓	✓	✓
Adrenalone	✓	✓	✓
Agomelatine	✓	✓	✓
Alaproclate	✓	✓	✓
Alclometasone	✓	✓	✓
Aldosterone	✓	✓	✓
Alfaxalone	✓	✓	✓
Algeldrate	✓	✓	✓
Aliskiren	✓	↑	↑

DNA for ME

	Effect	Breakdown	Dose
Alitretinoin	✓	✓	✓
Allopurinol	✓	✓	✓
Almasilate	✓	✓	✓
Almotriptan	✓	↑	↑
Alprazolam	✓	↑	↑
Alsactide	✓	✓	✓
Aluminium Acetoacetate	✓	✓	✓
Aluminium Glycinate	✓	✓	✓
Aluminium Phosphate	✓	✓	✓
Amantadin	✓	✓	✓
Ambrisentan	✓	✓	✓
Amezinium Metilsulfate	✓	✓	✓
Amiloride	✓	✓	✓
Aminobutyric Acid	✓	✓	✓
Aminohippuric Acid	✓	✓	✓
Aminophenazone	✓	✓	✓
Amiodarone	✓	↓	↓
Amlexanox	✓	✓	✓
Amobarbital	✓	✓	✓
Amoxicillin	✓	✓	✓
Amprenavir	✓	↑	↑
Amsacrine	✓	✓	✓
Anakinra	✓	✓	✓
Anecortave	✓	✓	✓
Anidulafungin	✓	✓	✓
Antimony Pentasulfide	✓	✓	✓
Aprepitant	✓	↑	↑
Apronal	✓	✓	✓
Arbutamine	✓	✓	✓

	Effect	Breakdown	Dose
Alizapride	✓	✓	✓
Allylestrenol	✓	✓	✓
Alminoprofen	✓	✓	✓
Alogliptin	✓	✓	✓
Alprenolol	✓	✓	✓
Altretamine	✓	✓	✓
Aluminium Acetotartrate	✓	✓	✓
Aluminium Hydroxide	✓	✓	✓
Alverine	✓	✓	✓
Ambazone	✓	✓	✓
Ambroxol	✓	✓	✓
Amfepramone	✓	✓	✓
Amineptine	✓	✓	✓
Aminocaproic Acid	✓	✓	✓
Aminolevulinic Acid	✓	✓	✓
Aminophylline	✓	✓	✓
Amisulpride	✓	✓	✓
Amlodipine	✓	↑	↑
Amodiaquine	✓	✓	✓
Amphotericin B	✓	✓	✓
Amrinone	✓	✓	✓
Amyl Nitrite	✓	✓	✓
Anastrozole	✓	✓	✓
Anethole Trithione	✓	✓	✓
Anileridine	✓	✓	✓
Apomorphine	✓	✓	✓
Aprindine	✓	✓	✓
Aprotinin	✓	✓	✓
Argatroban	✓	↑	↑

	Effect	Breakdown	Dose
Allobarbital	✓	✓	✓
Almagate	✓	✓	✓
Almitrine	✓	✓	✓
Alosetron	✓	✓	✓
Alprostadil	✓	✓	✓
Alum	✓	✓	✓
Aluminium Clofibrate	✓	✓	✓
Aluminium Nicotinate	✓	✓	✓
Alvimopan	✓	✓	✓
Ambenonium	✓	✓	✓
Amcinonide	✓	✓	✓
Amifostine	✓	✓	✓
Amino(Diphenylhydantoin) Valeric Acid	✓	✓	✓
Aminogluthetimide	✓	✓	✓
Aminomethylbenzoic Acid	✓	✓	✓
Aminosalicylic Acid	✓	✓	✓
Amitriptyline	✓	✓	✓
Ammonium Chloride	✓	✓	✓
Amoxapine	✓	✓	✓
Ampicillin	✓	✓	✓
Amrubicin	✓	✓	✓
Anagrelide	✓	✓	✓
Androstanolone	✓	✓	✓
Angiotensinamide	✓	✓	✓
Aniracetam	✓	✓	✓
Apraclonidine	✓	✓	✓
Aprobarbital	✓	✓	✓
Arbekacin	✓	✓	✓
Arginine Glutamate	✓	✓	✓

	Effect	Breakdown	Dose
Arginine Hydrochloride	✓	✓	✓
Arsenic Trioxide	✓	✓	✓
Artemisinin	✓	✓	✓
Artesunate	✓	✓	✓
Asparaginase	✓	✓	✓
Atazanavir	✓	↑	✗
Atorvastatin	✓	↑	↑
Atracurium	✓	✓	✓
Aurothioglucose	✓	✓	✓
Azacitidine	✓	✓	✓
Azapropazone	✓	✓	✓
Azidamfenicol	✓	✓	✓
Azlocillin	✓	✓	✓
Baclofen	✓	✓	✓
Bamethan	✓	✓	✓
Barbital	✓	✓	✓
Beclamide	✓	✓	✓
Bekanamycin	✓	✓	✓
Benazepril	✓	✓	✓
Bendroflumethiazide	✓	✓	✓
Benorilate	✓	✓	✓
Benproperine	✓	✓	✓
Benzathine Phenoxymethylpenicillin	✓	✓	✓
Benzethonium	✓	✓	✓
Benznidazole	✓	✓	✓
Benzonatate	✓	✓	✓
Benzyl Benzoate	✓	✓	✓
Bephenium	✓	✓	✓
Bergapten	✓	✓	✓

	Effect	Breakdown	Dose
Argipressin	✓	✓	✓
Arsthinol	✓	✓	✓
Artemotil	✓	✓	✓
Articaine	✓	✓	✓
Aspoxicillin	✓	✓	✓
Atenolol	✓	✓	✓
Atosiban	✓	✓	✓
Atropine	✓	✓	✓
Aurotioprol	✓	✓	✓
Azanidazole	✓	✓	✓
Azatadine	✓	✓	✓
Azidocillin	✓	✓	✓
Aztreonam	✓	✓	✓
Balsalazide	✓	✓	✓
Bamifylline	✓	✓	✓
Barnidipine	✓	✓	✓
Beclometasone	✓	✓	✓
Bemegride	✓	✓	✓
Bencyclane	✓	✓	✓
Benfluorex	✓	✓	✓
Benoxaprofen	✓	✓	✓
Bentiromide	✓	✓	✓
Benzatropine	✓	✓	✓
Benzilone	✓	✓	✓
Benzocaine	✓	✓	✓
Benzoxonium Chloride	✓	✓	✓
Benzylpenicillin	✓	✓	✓
Bepridil	✓	✓	✓
Betahistine	✓	✓	✓

	Effect	Breakdown	Dose
Aripiprazole	✓	↑	✓
Artemether	✓	↑	↑
Artenimol	✓	✓	✓
Asenapine	✓	✓	✓
Astemizole	✓	↑	↑
Atomoxetine	✓	✓	✓
Atovaquone	✓	✓	✓
Auranofin	✓	✓	✓
Axitinib	✓	✓	✓
Azapetine	✓	✓	✓
Azathioprine	✓	✓	✓
Azithromycin	✓	↑	↑
Bacampicillin	✓	✓	✓
Bambuterol	✓	✓	✓
Barbexaclone	✓	✓	✓
Bazedoxifene	✓	✓	✓
Befunolol	✓	✓	✓
Bemiparin	✓	✓	✓
Bendamustine	✓	✓	✓
Benidipine	✓	✓	✓
Benperidol	✓	✓	✓
Benzathine Benzylpenicillin	✓	✓	✓
Benzbromarone	✓	✓	✓
Benziodarone	✓	✓	✓
Benzoctamine	✓	✓	✓
Benzydamine	✓	✓	✓
Benzylthiouracil	✓	✓	✓
Beraprost	✓	✓	✓
Betaine	✓	✓	✓

	Effect	Breakdown	Dose
Betaine Hydrochloride	✓	✓	✓
Betaxolol	✓	✓	✓
Bevacizumab	✓	✓	✓
Bexarotene	✓	✓	✓
Biapenem	✓	✓	✓
Bicalutamide	✓	↑	↑
Bilastine	✓	✓	✓
Biperiden	✓	✓	✓
Bismuth Subnitrate	✓	✓	✓
Bitolterol	✓	✓	✓
Boric Acid	✓	✓	✓
Bosentan	✓	↓	↓
Brimonidine	✓	✓	✓
Brodimoprim	✓	✓	✓
Bromfenac	✓	✓	✓
Bromisoval	✓	✓	✓
Bromperidol	✓	✓	✓
Broxyquinoline	✓	✓	✓
Bucladesine	✓	✓	✓
Budipine	✓	✓	✓
Buformin	✓	✓	✓
Bumetanide	✓	✓	✓
Bupivacaine	✓	✓	✓
Bupropion	✓	✓	✓
Busulfan	✓	↑	↑
Butanilicaine	✓	✓	✓
Butoconazole	✓	✓	✓
Butylscopolamine	✓	✓	✓
Cadralazine	✓	✓	✓

	Effect	Breakdown	Dose
Betamethason	✓	✓	✓
Betazole	✓	✓	✓
Bevantolol	✓	✓	✓
Bezafibrate	✓	✓	✓
Bibenzonium Bromide	✓	✓	✓
Bietaserpine	✓	✓	✓
Bimatoprost	✓	✓	✓
Bisacodyl	✓	✓	✓
Bisoprolol	✓	↑	↑
Bleomycin	✓	✓	✓
Bornaprine	✓	✓	✓
Bosutinib	✓	✓	✓
Brinzolamide	✓	↑	↑
Bromazepam	✓	↑	↑
Bromhexine	✓	✓	✓
Bromocriptine	✓	↑	↑
Brompheniramine	✓	✓	✓
Bucetin	✓	✓	✓
Buclizine	✓	✓	✓
Bufexamac	✓	✓	✓
Bufylline	✓	✓	✓
Bunaftine	✓	✓	✓
Bupranolol	✓	✓	✓
Buserelin	✓	✓	✓
Butalamine	✓	✓	✓
Butaperazine	✓	✓	✓
Butorphanol	✓	✓	✓
Cabazitaxel	✓	↑	↑
Cafedrine	✓	✓	✓

	Effect	Breakdown	Dose
Betanidine	✓	✓	✓
Bethanechol	✓	✓	✓
Bevonium	✓	✓	✓
Bezitramide	✓	✓	✓
Bibrocathol	✓	✓	✓
Bifemelane	✓	✓	✓
Bioallethrin	✓	✓	✓
Bismuth Subcitrate	✓	✓	✓
Bisoxatin	✓	✓	✓
Bopindolol	✓	✓	✓
Bortezomib	✓	↑	↑
Bretylium Tosilate	✓	✓	✓
Brivudine	✓	✓	✓
Bromazine	✓	✓	✓
Bromides	✓	✓	✓
Bromopride	✓	✓	✓
Brotizolam	✓	✓	✓
Bucillamine	✓	✓	✓
Budesonide	✓	✓	✓
Buflomedil	✓	✓	✓
Bumadizone	✓	✓	✓
Buphenine	✓	✓	✓
Buprenorphine	✓	↑	↑
Buspirone	✓	↑	↑
Butamirate	✓	✓	✓
Butobarbital	✓	✓	✓
Butriptyline	✓	✓	✓
Cabergoline	✓	↑	↑
Calcium Aminosalicylate	✓	✓	✓

	Effect	Breakdown	Dose
Calcium Carbimide	✓	✓	✓
Calcium Dobesilate	✓	✓	✓
Calcium Silicate	✓	✓	✓
Camphora	✓	✓	✓
Candicidin	✓	✓	✓
Capreomycin	✓	✓	✓
Carbachol	✓	✓	✓
Carbasalate Calcium	✓	✓	✓
Carbenoxolon	✓	✓	✓
Carbimazole	✓	✓	✓
Carbocromen	✓	✓	✓
Carboquone	✓	✓	✓
Carbuterol	✓	✓	✓
Carindacillin	✓	✓	✓
Carmofur	✓	✓	✓
Carteolol	✓	✓	✓
Casopitant	✓	✓	✓
Cefacetrile	✓	✓	✓
Cefalexin	✓	✓	✓
Cefamandole	✓	✓	✓
Cefazedone	✓	✓	✓
Cefcapene	✓	✓	✓
Cefepime	✓	✓	✓
Cefmenoxime	✓	✓	✓
Cefodizime	✓	✓	✓
Ceforanide	✓	✓	✓
Cefotiam	✓	✓	✓
Cefpiramide	✓	✓	✓
Cefprozil	✓	✓	✓

	Effect	Breakdown	Dose
Calcium Carbonate	✓	✓	✓
Calcium Folinate	✓	✓	✓
Camazepam	✓	✓	✓
Camylofin	✓	✓	✓
Canrenone	✓	✓	✓
Captodiame	✓	✓	✓
Carbamazepine	↑	↑	↓
Carbazochrome	✓	✓	✓
Carbetocin	✓	✓	✓
Carbinoxamine	✓	✓	✓
Carboplatin	✓	✓	✓
Carbromal	✓	✓	✓
Carfecillin	✓	✓	✓
Carisbamate	✓	✓	✓
Carmustine	✓	✓	✓
Carumonam	✓	✓	✓
Caspofungin	✓	✓	✓
Cefaclor	✓	✓	✓
Cefaloridine	✓	✓	✓
Cefapirin	✓	✓	✓
Cefazolin	✓	✓	✓
Cefdinir	✓	✓	✓
Cefetamet	✓	✓	✓
Cefmetazole	✓	✓	✓
Cefonicide	✓	✓	✓
Cefotaxime	✓	✓	✓
Cefoxitin	✓	✓	✓
Cefpirome	✓	✓	✓
Cefradine	✓	✓	✓

	Effect	Breakdown	Dose
Calcium Compounds	✓	✓	✓
Calcium Levofolinate	✓	✓	✓
Camostat	✓	✓	✓
Candesartan	✓	↓	↓
Capecitabine	✓	✗	✗
Captopril	✓	✓	✓
Carbamide	✓	✓	✓
Carbenicillin	✓	✓	✓
Carbidopa	✓	✓	✓
Carbocisteine	✓	✓	✓
Carboprost	✓	✓	✓
Carbutamide	✓	✓	✓
Carglumic Acid	✓	✓	✓
Carisoprodol	✓	✓	✓
Caroverine	✓	✓	✓
Carvedilol	✓	✗	✗
Cathine	✓	✓	✓
Cefadroxil	✓	✓	✓
Cefalotin	✓	✓	✓
Cefatrizine	✓	✓	✓
Cefbuperazone	✓	✓	✓
Cefditoren	✓	✓	✓
Cefixime	✓	✓	✓
Cefminox	✓	✓	✓
Cefoperazone	✓	✓	✓
Cefotetan	✓	✓	✓
Cefozopran	✓	✓	✓
Cefpodoxime	✓	✓	✓
Cefroxadine	✓	✓	✓

	Effect	Breakdown	Dose
Cefsulodin	✓	✓	✓
Ceftezole	✓	✓	✓
Ceftobiprole Medocaril	✓	✓	✓
Celecoxib	✓	✗	✗
Cerivastatin	✓	↑	↑
Cetirizine	✓	↑	↑
Cetylpyridinium	✓	✓	✓
Chinin	✓	↑	↑
Chloralodol	✓	✓	✓
Chlorcyclizine	✓	✓	✓
Chlormadinone	✓	✓	✓
Chlorobutanol	✓	✓	✓
Chlorothiazide	✓	✓	✓
Chlorproethazine	✓	✓	✓
Chlorprothixene	✓	✓	✓
Chlorzoxazone	✓	✓	✓
Choline Fenofibrate	✓	✓	✓
Chondroitin Sulfate	✓	✓	✓
Ciclesonide	✓	↑	↑
Ciclonicate	✓	✓	✓
Cilansetron	✓	✓	✓
Cilostazol	✓	↑	↑
Cinacalcet	✓	↑	↑
Cinepazet	✓	✓	✓
Cinolazepam	✓	✓	✓
Ciprofloxacin	✓	✓	✓
Cisplatin	✓	✓	✓
Citiolone	✓	✓	✓
Clavulans□Ure	✓	✓	✓

	Effect	Breakdown	Dose
Ceftaroline Fosamil	✓	✓	✓
Ceftibuten	✓	✓	✓
Ceftriaxone	✓	✓	✓
Celiprolol	✓	✓	✓
Ceruletide	✓	✓	✓
Cetrorelix	✓	✓	✓
Cevimeline	✓	↑	↑
Chiniofon	✓	✓	✓
Chlorambucil	✓	✓	✓
Chlordiazepoxide	✓	↑	↑
Chlormethine	✓	✓	✓
Chloroprocaine	✓	✓	✓
Chlorotrianisene	✓	✓	✓
Chlorpromazine	✓	✓	✓
Chlortalidone	✓	✓	✓
Cholic Acid	✓	✓	✓
Choline Salicylate	✓	✓	✓
Chromium (51Cr) Edetate	✓	✓	✓
Cicletanine	✓	✓	✓
Ciclosporin	✓	↑	↑
Cilazapril	✓	✓	✓
Cimetidine	✓	✓	✓
Cinchocaine	✓	✓	✓
Cinepazide	✓	✓	✓
Cinoxacin	✓	✓	✓
Cisapride	✓	↑	↑
Citalopram	✓	↑	✓
Cladribine	✓	✓	✓
Clebopride	✓	✓	✓

	Effect	Breakdown	Dose
Ceftazidime	✓	✓	✓
Ceftizoxime	✓	✓	✓
Cefuroxime	✓	✓	✓
Cerium Oxalate	✓	✓	✓
Cetiedil	✓	✓	✓
Cetuximab	✓	✓	✓
Chenodeoxycholic Acid	✓	✓	✓
Chloral Hydrate	✓	✓	✓
Chlorbenzoxamine	✓	✓	✓
Chlorhexidine	✓	✓	✓
Chlormezanone	✓	✓	✓
Chloroquine	↑	✓	↓
Chlorphenamine	✓	✓	✓
Chlorpropamide	✓	↓	↓
Chlortetracycline	✓	✓	✓
Choline Alfoscerate	✓	✓	✓
Choline Theophyllinate	✓	✓	✓
Cibenzoline	✓	✓	✓
Ciclobendazole	✓	✓	✓
Cidofovir	✓	✓	✓
Cilnidipine	✓	✓	✓
Cimetropium Bromide	✓	✓	✓
Cinchophen	✓	✓	✓
Cinnarizin	✓	✓	✓
Ciprofibrate	✓	✓	✓
Cisatracurium	✓	✓	✓
Citicoline	✓	✓	✓
Clarithromycin	✓	↑	↑
Clefamide	✓	✓	✓

	Effect	Breakdown	Dose
Clenbuterol	✓	✓	✓
Clindamycin	✓	✓	✓
Clobetasol	✓	✓	✓
Clocortolone	✓	✓	✓
Clofarabine	✓	✓	✓
Clofenamide	✓	✓	✓
Clofibrate	✓	↑	↑
Clomethiazole	✓	↑	↑
Clomipramine	↑	✓	✓
Clonidine	✓	✓	✓
Cloperastine	✓	✓	✓
Cloranolol	✓	✓	✓
Cloridarol	✓	✓	✓
Clotiazepam	✓	✓	✓
Cloxazolam	✓	✓	✓
Codeine	✓	✓	✓
Colestipol	✓	✓	✓
Colistin	✓	✓	✓
Copper Oleinate	✓	✓	✓
Corticotropin	✓	✓	✓
Creatinolfosfate	✓	✓	✓
Cyamemazine	✓	↓	↓
Cyclobarbital	✓	✓	✓
Cyclofenil	✓	✓	✓
Cyclopentolate	✓	✓	✓
Cyclothiazide	✓	✓	✓
Cypermethrin	✓	✓	✓
Cytarabine	✓	✓	✓
Daclizumab	✓	✓	✓

	Effect	Breakdown	Dose
Clevidipine	✓	✓	✓
Clobazam	✓	↑	↑
Clobetasone	✓	✓	✓
Clodantoin	✓	✓	✓
Clofazimine	✓	✓	✓
Clofenotane	✓	✓	✓
Clofibride	✓	✓	✓
Clometocillin	✓	✓	✓
Clomocycline	✓	✓	✓
Clopamide	✓	✓	✓
Clopidogrel	✓	↑	✓
Clorexolone	✓	✓	✓
Clorindione	✓	✓	✓
Clotrimazole	✓	✓	✓
Clozapine	✓	✓	✓
Colchicine	✓	↑	↑
Colestyramine	✓	✓	✓
Conivaptan	✓	✓	✓
Copper Usnate	✓	✓	✓
Cortisone	✓	↑	↑
Cromoglicic Acid	✓	✓	✓
Cyclandelate	✓	✓	✓
Cyclobenzaprine	✓	✓	✓
Cycloguanil Embonate	✓	✓	✓
Cyclophosphamide	✓	↑	↑
Cyfluthrin	✓	✓	✓
Cyproheptadin	✓	✓	✓
Dabigatran Etexilate	✓	✓	✓
Dactinomycin	✓	✓	✓

	Effect	Breakdown	Dose
Clevudine	✓	✓	✓
Clobenzorex	✓	✓	✓
Clobutinol	✓	✓	✓
Clodronic Acid	✓	✓	✓
Clofedanol	✓	✓	✓
Clofezone	✓	✓	✓
Clofoctol	✓	✓	✓
Clomifene	✓	✓	✓
Clonazepam	✓	↑	↑
Clopenthixol	✓	✓	✓
Cloprednol	✓	✓	✓
Cloricromen	✓	✓	✓
Clotiapine	✓	✓	✓
Cloxacillin	✓	✓	✓
Cobalt (58Co) Cyanocobalamine	✓	✓	✓
Colesevelam	✓	✓	✓
Colfosceril Palmitate	✓	✓	✓
Conjugated Estrogens	✓	✓	✓
Corticorelin	✓	✓	✓
Cortivazol	✓	✓	✓
Crospovidone	✓	✓	✓
Cyclizine	✓	✓	✓
Cyclobutyrol	✓	✓	✓
Cyclopenthiazide	✓	✓	✓
Cycloserine	✓	✓	✓
Cymarin	✓	✓	✓
Cyproterone	✓	✓	✓
Dacarbazine	✓	✓	✓
Dalbavancin	✓	✓	✓

	Effect	Breakdown	Dose
Danaparoid	✓	✓	✓
Dantron	✓	✓	✓
Daptomycin	✓	✓	✓
Daunorubicin	✓	✓	✓
Decamethrin	✓	✓	✓
Deferiprone	✓	✓	✓
Degarelix	✓	✓	✓
Demecarium	✓	✓	✓
Demoxytocin	✓	✓	✓
Desaspidin	✓	✓	✓
Desipramine	✓	✓	✓
Desloratadine	✓	↑	↑
Desonide	✓	✓	✓
Desvenlafaxine	✓	✓	✓
Dexchlorpheniramine	✓	✓	✓
Dexibuprofen	✓	✓	✓
Dexmedetomidine	✓	✓	✓
Dextran	✓	✓	✓
Dextropropoxyphene	✓	✓	✓
Diacerein	✓	✓	✓
Diazoxide	✓	✓	✓
Dibromotyrosine	✓	✓	✓
Dibutylsuccinate	✓	✓	✓
Dichlorophen	✓	✓	✓
Dicloxacillin	✓	✓	✓
Didanosine	✓	✓	✓
Diethyl Ether	✓	✓	✓
Diethyltoluamide	✓	✓	✓
Difenpiramide	✓	✓	✓

	Effect	Breakdown	Dose
Danazol	✓	✓	✓
Dapagliflozin	✓	✓	✓
Darunavir	✓	↑	↑
Deanol	✓	✓	✓
Decitabine	✓	✓	✓
Deferoxamine	✓	✓	✓
Delapril	✓	✓	✓
Demecolcine	✓	✓	✓
Deptropine	✓	✓	✓
Deserpidine	✓	✓	✓
Desirudin	✓	✓	✓
Desmopressin	✓	✓	✓
Desoximetasone	✓	✓	✓
Dexamethasone	✓	↑	↑
Dexetimide	✓	✓	✓
Dexketoprofen	✓	✓	✓
Dexpanthenol	✓	✓	✓
Dextromethorphan	✓	✓	✓
Dextrothyroxine	✓	✓	✓
Diamorphine	✓	✓	✓
Dibekacin	✓	✓	✓
Dibunate	✓	✓	✓
Dichloralphenazone	✓	✓	✓
Diclofenac	✓	✗	✗
Dicoumarol	✓	✗	✗
Dienestrol	✓	✓	✓
Diethylcarbamazine	✓	✓	✓
Difemerine	✓	✓	✓
Difetarsone	✓	✓	✓

	Effect	Breakdown	Dose
Dantrolene	✓	↑	↑
Dapiprazole	✓	✓	✓
Dasatinib	✓	↑	↑
Debrisoquine	✓	✓	✓
Deferasirox	✓	✓	✓
Deflazacort	✓	✓	✓
Delavirdine	✓	↑	↑
Demegestone	✓	✓	✓
Dermatan Sulfate	✓	✓	✓
Desflurane	✓	✓	✓
Deslanoside	✓	✓	✓
Desogestrel	✓	↓	↓
Desoxycortone	✓	✓	✓
Dexbrompheniramine	✓	✓	✓
Dexfenfluramine	✓	✓	✓
Dexlansoprazole	✓	✓	✓
Dexrazoxane	✓	✓	✓
Dextromoramide	✓	✓	✓
Dezocine	✓	✓	✓
Diazepam	✓	↑	↑
Dibenzepin	✓	✓	✓
Dibutylphthalate	✓	✓	✓
Dichlorobenzyl Alcohol	✓	✓	✓
Diclofenamide	✓	✓	✓
Dicycloverine	✓	✓	✓
Dienogest	✓	✓	✓
Diethylstilbestrol	✓	✓	✓
Difenoxin	✓	✓	✓
Diflorasone	✓	✓	✓

	Effect	Breakdown	Dose
Diflucortolone	✓	✓	✓
Digitoxin	✓	↑	↑
Dihydralazine	✓	✓	✓
Dihydroergocristine	✓	✓	✓
Dihydrostreptomycin	✓	✓	✓
Diiodotyrosine	✓	✓	✓
Diloxanide	✓	✓	✓
Dimemorfan	✓	✓	✓
Dimethoxanate	✓	✓	✓
Dimethylcarbate	✓	✓	✓
Dimeticone	✓	✓	✓
Dinoprost	✓	✓	✓
Diosmin	✓	✓	✓
Diphenhydramin	✓	✓	✓
Diprophylline	✓	✓	✓
Dirithromycin	✓	↑	↑
Disulfiram	✓	✓	✓
Dixyrazine	✓	✓	✓
Docusate Sodium	✓	✓	✓
Domiodol	✓	✓	✓
Donepezil	✓	↑	↑
Dorzolamide	✓	✓	✓
Doxapram	✓	✓	✓
Doxepin	✓	✓	✓
Doxorubicin	✓	↑	↑
Dronabinol	✓	↓	↓
Dropropizine	✓	✓	✓
Droxypropine	✓	✓	✓
Dyclonine	✓	✓	✓

	Effect	Breakdown	Dose
Diflunisal	✓	✓	✓
Digoxin	✓	✓	✓
Dihydrocodeine	✓	✓	✓
Dihydroergocryptine Mesylate	✓	✓	✓
Dihydroxialumini Sodium Carbonate	✓	✓	✓
Diisopromine	✓	✓	✓
Diltiazem	✓	↑	↑
Dimercaprol	✓	✓	✓
Dimethyl Sulfoxide	✓	✓	✓
Dimethylphthalate	✓	✓	✓
Dimetofrine	✓	✓	✓
Dinoprostone	✓	✓	✓
Diphemanil	✓	✓	✓
Diphenoxylate	✓	✓	✓
Dipyridamole	✓	✓	✓
Disopyramide	✓	↑	↑
Ditazole	✓	✓	✓
Dobutamine	✓	✓	✓
Dofetilide	✓	↑	↑
Domiphen	✓	✓	✓
Dopexamine	✓	✓	✓
Dosulepin	✓	✓	✓
Doxazosin	✓	✓	✓
Doxercalciferol	✓	✓	✓
Doxycycline	✓	↑	↑
Dronedarone	✓	✓	✓
Drotaverine	✓	✓	✓
Duloxetine	✓	✓	✓
Dydrogesterone	✓	✓	✓

	Effect	Breakdown	Dose
Difluprednate	✓	✓	✓
Dihexyverine	✓	✓	✓
Dihydroemetine	✓	✓	✓
Dihydroergotamine	✓	↑	↑
Diiodohydroxyquinoline	✓	✓	✓
Dilazep	✓	✓	✓
Dimefline	✓	✓	✓
Dimetacrine	✓	✓	✓
Dimethylaminopropionylphenothiazine	✓	✓	✓
Dimethyltubocurarine	✓	✓	✓
Dimetotiazine	✓	✓	✓
Diosmectite	✓	✓	✓
Diphenadione	✓	✓	✓
Dipivefrine	✓	✓	✓
Dipyrocetyl	✓	✓	✓
Distigmine	✓	✓	✓
Dixanthogen	✓	✓	✓
Docetaxel	✓	↑	↑
Dolasetron	✓	✓	✓
Domperidone	✓	✓	✓
Doripenem	✓	✓	✓
Doxacurium Chloride	✓	✓	✓
Doxefazepam	✓	✓	✓
Doxofylline	✓	✓	✓
Doxylamin	✓	✓	✓
Droperidol	✓	↑	↑
Droxicam	✓	✓	✓
Dutasteride	✓	↑	↑
Ebastine	✓	✓	✓

	Effect	Breakdown	Dose
Ecallantide	✓	✓	✓
Efaproxiral	✓	✓	✓
Efloxate	✓	✓	✓
Eltrombopag	✓	✓	✓
Emetine	✓	✓	✓
Enalapril	✓	✓	✓
Enflurane	✓	✓	✓
Enoxaparin	✓	✓	✓
Entacapone	✓	✓	✓
Eperisone	✓	✓	✓
Epimestrol	✓	✓	✓
Epirubicin	✓	✓	✓
Epoprostenol	✓	✗	✗
Eprozinol	✓	✓	✓
Ergoloid Mesylates	✓	✓	✓
Erityl Tetranitrate	✓	✓	✓
Escitalopram	✓	↑	✓
Esomeprazole	✓	✓	✓
Estramustine	✓	✓	✓
Eszopiclone	✓	↑	↑
Etallobarbital	✓	✓	✓
Etamsylate	✓	✓	✓
Ethadione	✓	✓	✓
Ethenzamide	✓	✓	✓
Ethisterone	✓	✓	✓
Ethyl Biscoumacetate	✓	✓	✓
Ethylestrenol	✓	✓	✓
Etidronic Acid	✓	✓	✓
Etizolam	✓	✓	✓

	Effect	Breakdown	Dose
Ecothiopate	✓	✓	✓
Efavirenz	✓	↑	↑
Elcatonin	✓	✓	✓
Emedastine	✓	✓	✓
Emtricitabine	✓	✓	✓
Encainide	✓	✓	✓
Enfuvirtide	✓	✓	✓
Enoximone	✓	✓	✓
Entecavir	✓	✓	✓
Ephedrin	✓	✓	✓
Epinastine	✓	✓	✓
Eplerenone	✓	↑	↑
Eprazinone	✓	✓	✓
Eptifibatide	✓	✓	✓
Ergometrine	✓	✓	✓
Erlotinib	✓	↑	↑
Eslicarbazepine	✓	✓	✓
Estazolam	✓	↑	↑
Estriol	✓	✓	✓
Etacrynic Acid	✓	✓	✓
Etamiphylline	✓	✓	✓
Etanercept	✓	✓	✓
Ethambutol	✓	✓	✓
Ethinylestradiol	✓	↑	↑
Ethosuximide	✓	↑	↑
Ethyl Chloride	✓	✓	✓
Ethylmorphine	✓	✓	✓
Etifoxine	✓	✓	✓
Etodolac	✓	✗	✗

	Effect	Breakdown	Dose
Edetates	✓	✓	✓
Eflornithine	✓	✓	✓
Eletriptan	✓	↑	↑
Emepronium	✓	✓	✓
Emylcamate	✓	✓	✓
Endralazine	✓	✓	✓
Enoxacin	✓	✓	✓
Enprostil	✓	✓	✓
Epanolol	✓	✓	✓
Epicillin	✓	✓	✓
Epinephrine	✓	✓	✓
Epomediol	✓	✓	✓
Eprosartan	✓	✓	✓
Erdosteine	✓	✓	✓
Ergotamine	✓	↑	↑
Ertapenem	✓	✓	✓
Esmolol	✓	✓	✓
Estradiol	✓	↑	↑
Estrone	✓	✓	✓
Etafenone	✓	✓	✓
Etamivan	✓	✓	✓
Ethacridinlactat	✓	✓	✓
Ethchlorvynol	✓	✓	✓
Ethionamide	✓	✓	✓
Ethotoin	✓	✓	✓
Ethyl Loflazepate	✓	✓	✓
Etidocaine	✓	✓	✓
Etilefrine	✓	✓	✓
Etofamide	✓	✓	✓

	Effect	Breakdown	Dose
Etofenamat	✓	✓	✓
Etoglucid	✓	✓	✓
Etonogestrel	✓	✓	✓
Etoricoxib	✓	✓	✓
Etretinate	✓	✓	✓
Everolimus	✓	↑	↑
Ezetimibe	✓	✓	✓
Fampridine	✓	✓	✓
Febarbamate	✓	✓	✓
Felbamate	✓	↑	↑
Fenbufen	✓	✓	✓
Fenetylline	✓	✓	✓
Fenoldopam	✓	✓	✓
Fenoverine	✓	✓	✓
Fenpiverinium	✓	✓	✓
Fentanyl	✓	↑	↑
Fenyramidol	✓	✓	✓
Fesoterodine	✓	✓	✓
Fingolimod	✓	✓	✓
Flecainide	✓	✓	✓
Flomoxef	✓	✓	✓
Flubendazole	✓	✓	✓
Fludarabine	✓	✓	✓
Fludroxycortide	✓	✓	✓
Flumazenil	✓	✓	✓
Flumetasone	✓	✓	✓
Flunoxaprofen	✓	✓	✓
Fluocortin	✓	✓	✓
Fluorometholone	✓	✓	✓

	Effect	Breakdown	Dose
Etofibrate	✓	✓	✓
Etohexadiol	✓	✓	✓
Etoperidone	✓	✓	✓
Etozolin	✓	✓	✓
Etybenzatropine	✓	✓	✓
Exemestane	✓	↑	↑
Famciclovir	✓	✓	✓
Fasudil	✓	✓	✓
Febuxostat	✓	✓	✓
Felodipine	✓	↑	↑
Fencamfamin	✓	✓	✓
Fenfluramine	✓	✓	✓
Fenoprofen	✓	✓	✓
Fenozolone	✓	✓	✓
Fenquizone	✓	✓	✓
Fentiazac	✓	✓	✓
Feprazone	✓	✓	✓
Fexofenadine	✓	↑	↑
Fipexide	✓	✓	✓
Fleroxacin	✓	✓	✓
Flosequinan	✓	✓	✓
Fluclorolone	✓	✓	✓
Fludiazepam	✓	✓	✓
Flufenamic Acid	✓	✓	✓
Flumedroxone	✓	✓	✓
Flunarizine	✓	↓	↓
Fluocinolone Acetonide	✓	✓	✓
Fluocortolone	✓	✓	✓
Fluorouracil	✓	✗	✗

	Effect	Breakdown	Dose
Etofylline Nicotinate	✓	✓	✓
Etomidate	✓	✓	✓
Etoposide	✓	↑	↑
Etravirine	✓	✓	✓
Etynodiol	✓	✓	✓
Exenatide	✓	✓	✓
Famotidine	✓	✓	✓
Fazadinium Bromide	✓	✓	✓
Fedrilate	✓	✓	✓
Fenbendazole	✓	✓	✓
Fendiline	✓	✓	✓
Fenofibrate	✓	✓	✓
Fenoterol	✓	✓	✓
Fenpiprane	✓	✓	✓
Fenspiride	✓	✓	✓
Fentonium	✓	✓	✓
Ferric Citrate	✓	✓	✓
Finasteride	✓	↑	↑
Flavoxate	✓	✓	✓
Floctafenine	✓	✓	✓
Fluanisone	✓	✓	✓
Flucloxacillin	✓	✓	✓
Fludrocortisone	✓	✓	✓
Fluindione	✓	✓	✓
Flumequine	✓	✓	✓
Flunitrazepam	✓	↑	↑
Fluocinonide	✓	✓	✓
Fluorescein	✓	✓	✓
Fluostigmine	✓	✓	✓

	Effect	Breakdown	Dose
Fluoxetine	✓	✗	✗
Fluperolone	✓	✓	✓
Fluprednidene	✓	✓	✓
Flurithromycin	✓	✓	✓
Fluticasone	✓	↑	↑
Fomepizole	✓	✓	✓
Formestane	✓	✓	✓
Fosamprenavir	✓	↑	↑
Fosfomycin	✓	✓	✓
Fosphenytoin	✓	✗	✗
Fulvestrant	✓	↑	↑
Furosemide	✓	✓	✓
Gallamine	✓	✓	✓
Gamolenic Acid	✓	✓	✓
Garenoxacin	✓	✓	✓
Gefarnate	✓	✓	✓
Gemeprost	✓	✓	✓
Gepefrine	✓	✓	✓
Gestrinone	✓	✓	✓
Glatiramer Acetate	✓	✓	✓
Gliclazide	✓	✗	✗
Gliquidone	✓	✓	✓
Glutamic Acid Hydrochloride	✓	✓	✓
Glyceryl Trinitrate	✓	✓	✓
Glycopyrronium	✓	✓	✓
Gonadorelin	✓	✓	✓
Granisetron	✓	✓	✓
Guacetisal	✓	✓	✓
Guajazulen	✓	✓	✓

	Effect	Breakdown	Dose
Fluoxymesterone	✓	✓	✓
Fluphenazine	✓	✓	✓
Flurazepam	✓	↑	↑
Fluspirilene	✓	✓	✓
Fluvastatin	✓	✓	✓
Fomivirsen	✓	✓	✓
Formocortal	✓	✓	✓
Fosfestrol	✓	✓	✓
Fosfonet	✓	✓	✓
Fotemustine	✓	✓	✓
Fumagillin	✓	✓	✓
Gabapentin	✓	✓	✓
Gallium (67Ga) Citrate	✓	✓	✓
Ganciclovir	✓	✓	✓
Gatifloxacin	✓	✓	✓
Gefitinib	✓	↑	↑
Gemfibrozil	✓	↑	↑
Gepirone	✓	✓	✓
Gitoformate	✓	✓	✓
Glibenclamide	✓	↓	↓
Glimepiride	↓	✗	✗
Glisoxepide	✓	✓	✓
Glutathione	✓	✓	✓
Glycine	✓	✓	✓
Glycyrrhizic Acid	✓	↑	↑
Goserelin	✓	✓	✓
Grepafloxacin	✓	✓	✓
Guaiacolsulfonate	✓	✓	✓
Guanazodine	✓	✓	✓

	Effect	Breakdown	Dose
Flupenthixol	✓	✓	✓
Flupirtine	✓	✓	✓
Flurbiprofen	✓	✗	✗
Flutamide	✓	↑	↑
Fluvoxamine	✓	✓	✓
Fondaparinux	✓	✓	✓
Formoterol	✓	↓	↓
Fosfocreatine	✓	✓	✓
Fosinopril	✓	✓	✓
Frovatriptan	✓	✓	✓
Furazolidon	✓	✓	✓
Galantamine	✓	↑	↑
Gallopamil	✓	✓	✓
Ganirelix	✓	✓	✓
Gedocarnil	✓	✓	✓
Gemcitabine	✓	✓	✓
Gemifloxacin	✓	✓	✓
Gestonorone	✓	✓	✓
Glafenine	✓	✓	✓
Glibornuride	✓	✗	✗
Glipizide	✓	✗	✗
Glucosamine	✓	✓	✓
Glutethimide	✓	✓	✓
Glycobiarsol	✓	✓	✓
Glymidine	✓	✓	✓
Gramicidin	✓	✓	✓
G-Strophanthin	✓	✓	✓
Guaifenesin	✓	✓	✓
Guanethidine	✓	✓	✓

	Effect	Breakdown	Dose
Guanfacine	✓	✓	✓
Guanoxan	✓	✓	✓
Halcinonide	✓	✓	✓
Haloperidol	✓	↑	✓
Heptabarbital	✓	✓	✓
Hexafluronium	✓	✓	✓
Hexobarbital	✓	✓	✓
Hexoprenaline	✓	✓	✓
Histapyrrodine	✓	✓	✓
Hyaluronidase	✓	✓	✓
Hydrocodone	✓	✓	✓
Hydrocortisone Buteprate	✓	✓	✓
Hydromorphone	✓	↓	↓
Hydrotalcite	✓	✓	✓
Hydroxychloroquine	✓	✓	✓
Hydroxyzine	✓	✓	✓
Hypromellose	✓	✓	✓
Ibritumomab-Tiuxetan	✓	✓	✓
Ibuproxam	✓	✓	✓
Iclaprim	✓	✓	✓
Idebenone	✓	✓	✓
Ifosfamide	↑	↑	↓
Imatinib	↑	↑	↓
Imipenem	✓	✓	✓
Indacaterol	✓	✓	✓
Indinavir	✓	↑	↑
Indometacin	✓	↓	↓
Infliximab	✓	✓	✓
Insulin Aspart	✓	✓	✓

	Effect	Breakdown	Dose
Guanoclor	✓	✓	✓
Gusperimus	✓	✓	✓
Halofantrine	✓	↑	↑
Halothane	✓	✓	✓
Heptaminol	✓	✓	✓
Hexapropymate	✓	✓	✓
Hexobendine	✓	✓	✓
Hexylresorcinol	✓	✓	✓
Histrelin	✓	✓	✓
Hydralazine	✓	✓	✓
Hydrocortisone	✓	↑	↑
Hydrocortisone Butyrate	✓	✓	✓
Hydroquinine	✓	✓	✓
Hydroxybutyric Acid	✓	✓	✓
Hydroxyethylpromethazine	✓	✓	✓
Hymecromone	✓	✓	✓
Ibandronic Acid	✓	✓	✓
Ibudilast	✓	✓	✓
Ibutilide	✓	✓	✓
Idanpramine	✓	✓	✓
Ifenprodil	✓	✓	✓
Iloperidone	✓	✓	✓
Imidapril	✓	✓	✓
Imipramine	✓	✓	✓
Indapamide	✓	✓	✓
Indium (111In) Pentetic Acid	✓	✓	✓
Indoprofen	✓	✓	✓
Inosine Pranobex	✓	✓	✓
Insulin Glargine	✓	✓	✓

	Effect	Breakdown	Dose
Guanoxabenz	✓	✓	✓
Halazepam	✓	✓	✓
Halometasone	✓	✓	✓
Hematin	✓	✓	✓
Hetacillin	✓	✓	✓
Hexetidine	✓	✓	✓
Hexocyclium	✓	✓	✓
Hidrosmin	✓	✓	✓
Homatropine	✓	✓	✓
Hydrochlorothiazide	✓	✓	✓
Hydrocortisone Aceponate	✓	✓	✓
Hydroflumethiazide	✓	✓	✓
Hydroquinone	✓	✓	✓
Hydroxycarbamide	✓	✓	✓
Hydroxyprogesterone	✓	✓	✓
Hyoscyamine	✓	✓	✓
Ibopamine	✓	✓	✓
Ibuprofen	✓	✗	✗
Icatibant	✓	✓	✓
Idarubicin	✓	↓	↓
Ifn-A2A/B	✓	✓	✓
Iloprost	✓	✓	✓
Imidazole Salicylate	✓	✓	✓
Imolamine	✓	✓	✓
Indigo Carmine	✓	✓	✓
Indobufen	✓	✓	✓
Indoramin	✓	✓	✓
Inositol Nicotinate	✓	✓	✓
Insulin Lispro	✓	✓	✓

	Effect	Breakdown	Dose
Insulindetemir	✓	✓	✓
Iodine Iofetamine (123I)	✓	✓	✓
Iodocholesterol (131I)	✓	✓	✓
Ipriflavone	✓	✓	✓
Iproniazide	✓	✓	✓
Isepamicin	✓	✓	✓
Isocarboxazid	✓	✓	✓
Isometheptene	✓	✓	✓
Isopropamide	✓	✓	✓
Isoxsuprine	✓	✓	✓
Itramin Tosilate	✓	✓	✓
Ixabepilone	✓	✓	✓
Kaolin	✓	✓	✓
Ketanserin	✓	✓	✓
Ketoprofen	✓	✓	✓
Krypton (81Mkr) Gas	✓	✓	✓
Lacosamide	✓	✓	✓
Lafutidine	✓	✓	✓
Lanatoside C	✓	✓	✓
Lanthanum Carbonate	✓	✓	✓
Latamoxef	✓	✓	✓
Lenalidomide	✓	✓	✓
Lercanidipine	✓	↑	↑
Leuprorelin	✓	✓	✓
Levetiracetam	✓	✓	✓
Levocarnitine	✓	✓	✓
Levodropropizine	✓	✓	✓
Levomepromazine	✓	✓	✓
Levosimendan	✓	✓	✓

	Effect	Breakdown	Dose
Insulinglulisin	✓	✓	✓
Iodine Ioflupane (123I)	✓	✓	✓
Ipratropiumbromid	✓	✓	✓
Iprindole	✓	✓	✓
Irbesartan	✓	✗	✗
Isoaminile	✓	✓	✓
Isoetarine	✓	✓	✓
Isoniazid	✓	✗	✗
Isosorbide Dinitrate	✓	✓	✓
Isradipine	✓	↑	↑
Ivabradine	✓	↑	↑
Josamycin	✓	✓	✓
Kebuzone	✓	✓	✓
Ketazolam	✓	✓	✓
Ketorolac	✓	✓	✓
Labetalol	✓	✓	✓
Lactitol	✓	✓	✓
Lamivudine	✓	✓	✓
Lanreotide	✓	✓	✓
Lapatinib	✓	↑	↑
Latanoprost	✓	✓	✓
Lentinan	✓	✓	✓
Letosteine	✓	✓	✓
Levacetylmethadol	✓	↑	↑
Levobunolol	✓	✓	✓
Levocetirizine	✓	✓	✓
Levofloxacin	✓	✓	✓
Levomethadone	✓	✓	✓
Levosulpiride	✓	✓	✓

	Effect	Breakdown	Dose
Iodine (131I) Norcholesterol	✓	✓	✓
Iodine Iolopride (123I)	✓	✓	✓
Iprazochrome	✓	✓	✓
Iproclozide	✓	✓	✓
Irinotecan	✓	↑	↓
Isobromindione	✓	✓	✓
Isoflurane	✓	✓	✓
Isoprenaline	✓	✓	✓
Isosorbide Mononitrate	✓	✓	✓
Itraconazole	✓	↑	↑
Ivermectin	✓	↑	↑
Kanamycin	✓	✓	✓
Ketamine	✓	↓	↓
Ketobemidone	✓	↓	↓
Ketotifen	✓	✓	✓
Lacidipine	✓	↑	↑
Lactulose	✓	✓	✓
Lamotrigine	✓	✓	✓
Lansoprazole	✓	↑	✓
Lasofoxifene	✓	✓	✓
Leflunomide	✓	✗	✗
Lepirudin	✓	✓	✓
Letrozole	✓	↑	↑
Levamisole	✓	✓	✓
Levobupivacaine	✓	↑	↑
Levodopa	✓	✓	✓
Levoglutamide	✓	✓	✓
Levonorgestrel	✓	↑	↑
Levothyroxine Sodium	✓	✓	✓

	Effect	Breakdown	Dose
Levoverbenone	✓	✓	✓
Linagliptin	✓	✓	✓
Linezolid	✓	✓	✓
Liothyronine Sodium	✓	✓	✓
Lisinopril	✓	✓	✓
Lodoxamide	✓	✓	✓
Lomefloxacin	✓	✓	✓
Lonidamine	✓	✓	✓
Lopinavir	✓	↑	↑
Lorajmine	✓	✓	✓
Lorcainide	✓	✓	✓
Losartan	✗	↓	✗
Loxapine	✓	✓	✓
Lymecycline	✓	✓	✓
Macrogol	✓	✓	✓
Magnesium Peroxide	✓	✓	✓
Malathion	✓	✓	✓
Mannosulfan	✓	✓	✓
Maribavir	✓	✓	✓
Mazindol	✓	✓	✓
Mebhydrolin	✓	✓	✓
Mecamylamine	✓	✓	✓
Meclofenoxate	✓	✓	✓
Medifoxamine	✓	✓	✓
Medrysone	✓	✓	✓
Mefloquine	✓	↑	↑
Meglumine Antimonate	✓	✓	✓
Melagatran	✓	✓	✓
Melevodopa	✓	✓	✓

	Effect	Breakdown	Dose
Lidocain	✓	✓	✓
Lincomycin	✓	✓	✓
Linopirdine	✓	↑	↑
Liraglutide	✓	✓	✓
Lisuride	✓	↑	↑
Lofepramine	✓	✓	✓
Lomustine	✓	✓	✓
Loperamide	✓	✓	✓
Loprazolam	✓	✓	✓
Loratadine	✓	↑	↑
Lormetazepam	✓	✓	✓
Loteprednol	✓	✓	✓
Lubiprostone	✓	✓	✓
Lynestrenol	✓	✓	✓
Magaldrate	✓	✓	✓
Magnesium Phosphate	✓	✓	✓
Mandelic Acid	✓	✓	✓
Maprotiline	✓	✓	✓
Masoprocol	✓	✓	✓
Mebendazole	✓	✓	✓
Mebutamate	✓	✓	✓
Mecillinam	✓	✓	✓
Meclozin	✓	✓	✓
Medrogestone	✓	✓	✓
Mefenamic Acid	✓	✗	✗
Mefruside	✓	✓	✓
Meglutol	✓	✓	✓
Melarsoprol	✓	✓	✓
Melitracen	✓	✓	✓

	Effect	Breakdown	Dose
Lidoflazine	✓	✓	✓
Lindane	✓	✓	✓
Linsidomine	✓	✓	✓
Lisdexamfetamine	✓	✓	✓
Lithium Succinate	✓	✓	✓
Lofexidine	✓	✓	✓
Lonazolac	✓	✓	✓
Loperamide Oxide	✓	✓	✓
Loracarbef	✓	✓	✓
Lorazepam	✓	✓	✓
Lornoxicam	✓	✗	✗
Lovastatin	✓	↑	↑
Lumiracoxib	✓	↓	↓
Lypressin	✓	✓	✓
Magnesium Oxide	✓	✓	✓
Magnesiumsilicate	✓	✓	✓
Manidipine	✓	✓	✓
Maraviroc	✓	✓	✓
Mazaticol	✓	✓	✓
Mebeverine	✓	✓	✓
Mebutizide	✓	✓	✓
Meclofenamic Acid	✓	✓	✓
Medazepam	✓	✓	✓
Medroxyprogesterone	✓	↑	↑
Mefenorex	✓	✓	✓
Megestrol	✓	✓	✓
Meladrazine	✓	✓	✓
Melatonin	✓	✓	✓
Meloxicam	✓	✗	✗

	Effect	Breakdown	Dose
Melperone	✓	✓	✓
Mepacrine	✓	↑	↑
Mephenesin	✓	✓	✓
Mephenytoin	✓	✓	✓
Mepixanox	✓	✓	✓
Meprobamate	✓	✓	✓
Mequinol	✓	✓	✓
Mercaptopurine	✓	✓	✓
Mesalazine	✓	✓	✓
Mesterolone	✓	✓	✓
Metacycline	✓	✓	✓
Metampicillin	✓	✓	✓
Metenolone	✓	✓	✓
Methadone	✓	↑	↑
Methapyrilene	✓	✓	✓
Methazolamide	✓	✓	✓
Methionine	✓	✓	✓
Methohexital	✓	✓	✓
Methoxamine	✓	✓	✓
Methyclothiazide	✓	✓	✓
Methylcellulose	✓	✓	✓
Methylestrenolone	✓	✓	✓
Methylphenidate	✓	✓	✓
Methylprednisolone Aceponate	✓	✓	✓
Methyltestosterone	✓	✓	✓
Methyprylon	✓	✓	✓
Meticrane	✓	✓	✓
Metirosine	✓	✓	✓
Metoclopramide	✓	✓	✓

	Effect	Breakdown	Dose
Melphalan	✓	✓	✓
Mepartricin	✓	✓	✓
Mephenoxalone	✓	✓	✓
Mepindolol	✓	✓	✓
Mepolizumab	✓	✓	✓
Meprotixol	✓	✓	✓
Mequitazine	✓	✓	✓
Meropenem	✓	✓	✓
Mesna	✓	✓	✓
Mesuximide	✓	✓	✓
Metahexamide	✓	✓	✓
Metandienone	✓	✓	✓
Metergoline	✓	✓	✓
Methallenestril	✓	✓	✓
Methaqualone	✓	✓	✓
Methdilazine	✓	✓	✓
Methiosulfonium Chloride	✓	✓	✓
Methoserpidine	✓	✓	✓
Methoxyflurane	✓	✓	✓
Methyl Aminolevulinate	✓	✓	✓
Methyldopa (Levorotatory)	✓	✓	✓
Methylnaltrexone Bromide	✓	✓	✓
Methylphenobarbital	✓	✓	✓
Methylpropylpropanediol Dinitrate	✓	✓	✓
Methylthioninium Chloride	✓	✓	✓
Methysergide	✓	✓	✓
Metildigoxin	✓	✓	✓
Metisazone	✓	✓	✓
Metolazone	✓	✓	✓

	Effect	Breakdown	Dose
Memantine	✓	✓	✓
Mepenzolate	✓	✓	✓
Mephentermine	✓	✓	✓
Mepivacaine	✓	✓	✓
Meprednisone	✓	✓	✓
Meptazinol	✓	✓	✓
Mercaptamine	✓	✓	✓
Mersalyl	✓	✓	✓
Mesoridazine	✓	✓	✓
Metabutethamine	✓	✓	✓
Metamizole Sodium	✓	✓	✓
Metaraminol	✓	✓	✓
Metformin	↓	✓	✓
Methantheline	✓	✓	✓
Metharbital	✓	✓	✓
Methenamine	✓	✓	✓
Methocarbamol	✓	✓	✓
Methotrexate	✓	✓	✓
Methoxyphenamine	✓	✓	✓
Methylatropine	✓	✓	✓
Methylergometrine	✓	↑	↑
Methylpentynol	✓	✓	✓
Methylprednisolone	✓	↑	↑
Methylscopolamine	✓	✓	✓
Methylthiouracil	✓	✓	✓
Meticillin	✓	✓	✓
Metipranolol	✓	✓	✓
Metixene	✓	✓	✓
Metopimazine	✓	✓	✓

	Effect	Breakdown	Dose
Metoprolol	✓	✓	✓
Metyrapone	✓	✓	✓
Mianserin	✓	✓	✓
Miconazole	✓	↑	↑
Midecamycin	✓	✓	✓
Mifepristone	✓	↑	↑
Milnacipran	✓	✓	✓
Minaprine	✓	✓	✓
Miocamycin	✓	✓	✓
Misoprostol	✓	✓	✓
Mitoguazone	✓	✓	✓
Mitoxantrone	✓	✓	✓
Moclobemide	✓	✓	✓
Mofebutazone	✓	✓	✓
Mometasone	✓	↑	↑
Monoxerutin	✓	✓	✓
Moracizine	✓	✓	✓
Morniflumate	✓	✓	✓
Morpholine Salicylate	✓	✓	✓
Moxestrol	✓	✓	✓
Moxonidine	✓	✓	✓
Mycophenolic Acid	✓	↑	↑
Nabumetone	✓	✓	✓
Naftazone	✓	✓	✓
Nalfurafine	✓	✓	✓
Naloxone	✓	✓	✓
Naproxcinod	✓	✓	✓
Narcobarbital	✓	✓	✓
Natriumhypochlorit	✓	✓	✓

	Effect	Breakdown	Dose
Metrifonate	✓	✓	✓
Mexiletine	✓	✓	✓
Mibefradil	✓	✓	✓
Micronomicin	✓	✓	✓
Midodrine	✓	✓	✓
Miglitol	✓	✓	✓
Milrinone	✓	✓	✓
Minocycline	✓	✓	✓
Mipomersen	✓	✓	✓
Mitiglinide	✓	✓	✓
Mitomycin	✓	✓	✓
Mivacurium Chloride	✓	✓	✓
Modafinil	✓	↑	↑
Molindone	✓	✓	✓
Monobenzone	✓	✓	✓
Montelukast	✓	↓	↓
Morclofone	✓	✓	✓
Moroxydine	✓	✓	✓
Mosapramine	✓	✓	✓
Moxifloxacin	✓	✓	✓
Muronomab	✓	✓	✓
Myristyl-Benzalkonium	✓	✓	✓
Nadolol	✓	✓	✓
Naftidrofuryl	✓	✓	✓
Nalidixic Acid	✓	✓	✓
Naltrexone	✓	✓	✓
Naproxen	✓	✗	✗
Natamycin	✓	✓	✓
Natriumpentosanpolysulfat	✓	✓	✓

	Effect	Breakdown	Dose
Metronidazole	✓	✓	✓
Mezlocillin	✓	✓	✓
Micafungin	✓	✓	✓
Midazolam	↑	↑	↓
Mifamurtide	✓	✓	✓
Miglustat	✓	✓	✓
Miltefosine	✓	✓	✓
Minoxidil	✓	✓	✓
Mirtazapine	✓	✓	✓
Mitobronitol	✓	✓	✓
Mitotane	✓	✓	✓
Mizolastine	✓	↑	↑
Moexipril	✓	✓	✓
Molsidomine	✓	✓	✓
Monoethanolamine Oleate	✓	✓	✓
Moperone	✓	✓	✓
Morinamide	✓	✓	✓
Morphine	✓	✓	✓
Moxaverine	✓	✓	✓
Moxisylyte	✓	✓	✓
Muzolimine	✓	✓	✓
Nabilone	✓	✓	✓
Nafarelin	✓	✓	✓
Nalbuphine	✓	✓	✓
Nalorphine	✓	✓	✓
Nandrolone	✓	✓	✓
Naratriptan	✓	✓	✓
Nateglinide	✓	↓	↓
Nebivolol	✓	✓	✓

	Effect	Breakdown	Dose
Nefazodone	✓	↑	↑
Nelfinavir	✓	↑	↑
Neostigmine	✓	✓	✓
Nesiritide	✓	✓	✓
Nialamide	✓	✓	✓
Nicergoline	✓	✓	✓
Nicofetamide	✓	✓	✓
Nicorandil	✓	✓	✓
Nifedipine	✓	↑	↑
Nifuroxazide	✓	✓	✓
Nifurzide	✓	✓	✓
Nilutamide	✓	✓	✓
Nimodipine	✓	↑	↑
Niperotidine	✓	✓	✓
Nitazoxanide	✓	✓	✓
Nitrendipine	✓	↑	↑
Nitroprusside	✓	✓	✓
Nizofenone	✓	✓	✓
Nordazepam	✓	✓	✓
Norethisterone	✓	↑	↑
Norgestrienone	✓	✓	✓
Noscapine	✓	✓	✓
Obidoxime	✓	✓	✓
Ofloxacin	✓	✓	✓
Oleandomycin	✓	✓	✓
Olsalazine	✓	✓	✓
Omeprazole	✓	✓	✓
Orciprenalin	✓	✓	✓
Ornidazole	✓	↑	↑

	Effect	Breakdown	Dose
Nefopam	✓	✓	✓
Neltenexine	✓	✓	✓
Nepafenac	✓	✓	✓
Netilmicin	✓	✓	✓
Niaprazine	✓	✓	✓
Niceritrol	✓	✓	✓
Nicofuranose	✓	✓	✓
Nicotinic Acid	✓	✓	✓
Niflumic Acid	✓	✓	✓
Nifurtimox	✓	✓	✓
Nikethamide	✓	✓	✓
Nilvadipine	✓	✓	✓
Nimorazole	✓	✓	✓
Niridazole	✓	✓	✓
Nitisinone	✓	✓	✓
Nitrofural	✓	✓	✓
Nitroxoline	✓	✓	✓
Nomegestrol	✓	✓	✓
Norepinephrine	✓	✓	✓
Norfenefrine	✓	✓	✓
Normethadone	✓	✓	✓
Noxytiolin	✓	✓	✓
Octopamine	✓	↑	↑
Olaflur	✓	✓	✓
Olmesartan Medoxomil	✓	✓	✓
Omacetaxine Mepesuccinate	✓	✓	✓
Ondansetron	✓	↑	✓
Oritavancin	✓	✓	✓
Ornipressin	✓	✓	✓

	Effect	Breakdown	Dose
Nelarabine	✓	✓	✓
Neomycin	✓	✓	✓
Nepinalone	✓	✓	✓
Nevirapine	✓	↑	↑
Nicardipine	✓	↑	↑
Niclosamide	✓	✓	✓
Nicomorphine	✓	✓	✓
Nicotinyl Alcohol (Pyridylcarbinol)	✓	✓	✓
Nifuratel	✓	✓	✓
Nifurtoinol	✓	✓	✓
Nilotinib	✓	↑	↑
Nimesulide	✓	✗	✗
Nimustine	✓	✓	✓
Nisoldipine	✓	↑	↑
Nitrazepam	✓	✓	✓
Nitrofurantoin	✓	✓	✓
Nizatidine	✓	✓	✓
Nomifensine	✓	✓	✓
Norethandrolone	✓	✓	✓
Norfloxacin	✓	✓	✓
Nortriptyline	✓	✓	✓
Nystatin	✓	✓	✓
Octreotide	✓	✓	✓
Olanzapine	✓	✓	✓
Olopatadine	✓	✓	✓
Omalizumab	✓	✓	✓
Opipramol	✓	✓	✓
Orlistat	✓	✓	✓
Ornithine Oxoglurate	✓	✓	✓

	Effect	Breakdown	Dose
Orphenadrine (Citrate)	✓	✓	✓
Oxabolone Cipionate	✓	✓	✓
Oxaflozane	✓	✓	✓
Oxamniquine	✓	✓	✓
Oxaprozin	✓	✗	✗
Oxcarbazepine	✓	✓	✓
Oxetacaine	✓	✓	✓
Oxitriptan	✓	✓	✓
Oxolinic Acid	✓	✓	✓
Oxybutynin	✓	↑	↑
Oxyfedrine	✓	✓	✓
Oxyphenbutazone	✓	✓	✓
Oxyphenonium	✓	✓	✓
Paclitaxel	✓	✓	✓
Palonosetron	✓	✓	✓
Pancuronium	✓	✓	✓
Papaveretum	✓	✓	✓
Paraldehyde	✓	✓	✓
Paraoxon	✓	↑	↑
Pargyline	✓	✓	✓
Paroxetine	✓	✓	✓
Pefloxacin	✓	✓	✓
Penamecillin	✓	✓	✓
Pengitoxin	✓	✓	✓
Pentaerithrityl	✓	✓	✓
Pentamidine Isethionate	✓	✓	✓
Pentetrazol	✓	✓	✓
Pentobarbital	✓	✓	✓
Pentoxyverine	✓	✓	✓

	Effect	Breakdown	Dose
Oseltamivir	✓	✓	✓
Oxaceprol	✓	✓	✓
Oxaliplatin	✓	✓	✓
Oxandrolone	✓	✓	✓
Oxatomide	✓	✓	✓
Oxedrine	✓	✓	✓
Oxetorone	✓	✓	✓
Oxitropium Bromide	✓	✓	✓
Oxomemazine	✓	✓	✓
Oxycinchophen	✓	✓	✓
Oxymetholone	✓	✓	✓
Oxyphencyclimine	✓	✓	✓
Oxyquinoline	✓	✓	✓
Paclitaxel Poliglumex	✓	✓	✓
Pamidronic Acid	✓	✓	✓
Panobinostat	✓	✓	✓
Papaverine	✓	✓	✓
Paramethadione	✓	✓	✓
Parathyroid Hormone	✓	✓	✓
Paricalcitol	✓	✓	✓
Pazopanib	✓	✓	✓
Pemetrexed	✓	✓	✓
Penbutolol	✓	✓	✓
Penicillamine	✓	✓	✓
Pentaerithrityl Tetranitrate	✓	✓	✓
Pentamycin	✓	✓	✓
Penthienate	✓	✓	✓
Pentostatin	✓	✓	✓
Perampanel	✓	✓	✓

	Effect	Breakdown	Dose
Otilonium Bromide	✓	✓	✓
Oxacillin	✓	✓	✓
Oxametacin	✓	✓	✓
Oxantel	✓	✓	✓
Oxazepam	✓	↑	↑
Oxeladin	✓	✓	✓
Oxiracetam	✓	✓	✓
Oxolamine	✓	✓	✓
Oxprenolol	✓	✓	✓
Oxycodone	✓	↑	✓
Oxypertine	✓	✓	✓
Oxyphenisatine	✓	✓	✓
Oxytocin	✓	✓	✓
Paliperidone	✓	✓	✓
Pancreozymin (Cholecystokinin)	✓	✓	✓
Pantoprazole	✓	✓	✓
Paracetamol	✓	✓	✓
Paramethasone	✓	✓	✓
Parecoxib	✓	✓	✓
Paromomycin	✓	✓	✓
Pazufloxacin	✓	✓	✓
Pemoline	✓	✓	✓
Penfluridol	✓	✓	✓
Penimepicycline	✓	✓	✓
Pentagastrin	✓	✓	✓
Pentazocine	✓	✓	✓
Pentifylline	✓	✓	✓
Pentoxifylline	✓	✓	✓
Perazine	✓	✓	✓

	Effect	Breakdown	Dose
Pergolide	✓	↑	↑
Perindopril	✓	✓	✓
Peruvoside	✓	✓	✓
Phenacemide	✓	✓	✓
Phenazone	✓	✓	✓
Pheneticillin	✓	✓	✓
Phenglutarimide	✓	✓	✓
Phenobarbital	✓	✓	✓
Phenolsulfonphthalein	✓	✓	✓
Phenoxybenzamine	✓	✓	✓
Phenprocoumon	✓	↓	✓
Phentolamine	✓	✓	✓
Phenylephrine	✓	✓	✓
Pholcodine	✓	✓	✓
Picloxydine	✓	✓	✓
Pilocarpine	✓	✓	✓
Pimozide	✓	↑	↑
Pinazepam	✓	✓	✓
Pipamperone	✓	✓	✓
Pipemidic Acid	✓	✓	✓
Piperazine	✓	✓	✓
Pipobroman	✓	✓	✓
Piprozolin	✓	✓	✓
Pirbuterol	✓	✓	✓
Pirfenidone	✓	✓	✓
Piritramide	✓	✓	✓
Pirprofen	✓	✓	✓
Pivampicillin	✓	✓	✓
Pizotifen	✓	✓	✓

	Effect	Breakdown	Dose
Perhexiline	✓	✓	✓
Permethrin	✓	✓	✓
Pethidine	✓	✓	✓
Phenacetin	✓	✓	✓
Phenazopyridine	✓	✓	✓
Pheneturide	✓	✓	✓
Phenindamine	✓	✓	✓
Phenol	✓	✓	✓
Phenoperidine	✓	✓	✓
Phenoxymethylpenicillin	✓	✓	✓
Phensuximide	✓	✓	✓
Phenyl Salicylate	✓	✓	✓
Phenytoin	✓	✗	↓
Phthalylsulfathiazole	✓	✓	✓
Picotamide	✓	✓	✓
Pimecrolimus	✓	↑	↑
Pinacidil	✓	✓	✓
Pindolol	✓	✓	✓
Pipazetate	✓	✓	✓
Pipenzolate	✓	✓	✓
Piperidione	✓	✓	✓
Pipotiazine	✓	✓	✓
Piracetam	✓	✓	✓
Pirenzepine	✓	✓	✓
Piribedil	✓	✓	✓
Piromidic Acid	✓	✓	✓
Pitavastatin	✓	✓	✓
Pivmecillinam	✓	✓	✓
Pleconaril	✓	✓	✓

	Effect	Breakdown	Dose
Periciazine	✓	✓	✓
Perphenazine	✓	✓	✓
Phanquinone	✓	✓	✓
Phenazocine	✓	✓	✓
Phenelzine	✓	↑	↑
Phenformin	✓	✓	✓
Phenindione	✓	✓	✓
Phenolphthalein	✓	✓	✓
Phenothrin	✓	✓	✓
Phenprobamate	✓	✓	✓
Phentermine	✓	✓	✓
Phenylbutazone	✓	↑	↑
Phloroglucinol	✓	✓	✓
Physostigmine	✓	✓	✓
Pidotimod	✓	✓	✓
Pimethixene	✓	✓	✓
Pinaverium	✓	✓	✓
Pioglitazone	✓	↓	↓
Pipecuronium Bromide	✓	✓	✓
Piperacillin	✓	✓	✓
Piperidolate	✓	✓	✓
Pipradrol	✓	✓	✓
Pirarubicin	✓	✓	✓
Piretanide	✓	✓	✓
Pirisudanol	✓	✓	✓
Piroxicam	✓	✗	✗
Pivagabine	✓	✓	✓
Pixantrone	✓	✓	✓
Plerixafor	✓	✓	✓

	Effect	Breakdown	Dose
Plicamycin	✓	✓	✓
Poly I:C	✓	✓	✓
Polymyxin B	✓	✓	✓
Polythiazide	✓	✓	✓
Potassium Canrenoate	✓	✓	✓
Potassium Lactate	✓	✓	✓
Potassium Salicylate	✓	✓	✓
Pralatrexate	✓	✓	✓
Pramiracetam	✓	✓	✓
Pranoprofen	✓	✓	✓
Pravastatin	✓	✓	✓
Prazosin	✓	✓	✓
Prednisolone	✓	↑	↑
Pregabalin	✓	✓	✓
Prenylamine	✓	✓	✓
Prifinium Bromide	✓	✓	✓
Primidone	✓	✓	✓
Procainamide	✓	✓	✓
Procarbazine	✓	✓	✓
Procyclidine	✓	✓	✓
Progesterone	✓	↑	↑
Proguanil	✓	✓	✓
Promegestone	✓	✓	✓
Propafenone	✓	✓	✓
Propatylnitrate	✓	✓	✓
Propicillin	✓	✓	✓
Propofol	✓	✗	✗
Propyphenazone	✓	✓	✓
Prothipendyl	✓	✓	✓

	Effect	Breakdown	Dose
Poldine	✓	✓	✓
Poly Iclc	✓	✓	✓
Polynoxylin	✓	✓	✓
Porfimer Sodium	✓	✓	✓
Potassium Clorazepate	✓	✓	✓
Potassium Perchlorate	✓	✓	✓
Practolol	✓	✓	✓
Pralidoxime	✓	✓	✓
Pramocaine	✓	✓	✓
Prasterone	✓	✓	✓
Prazepam	✓	↑	↑
Prednicarbate	✓	✓	✓
Prednisone	✓	↑	↑
Prenalterol	✓	✓	✓
Prethcamide	✓	✓	✓
Prilocaine	✓	✓	✓
Probenecid	✓	✓	✓
Procaine	✓	✓	✓
Procaterol	✓	✓	✓
Profenamine	✓	✓	✓
Proglumetacin	✓	✓	✓
Prolintane	✓	✓	✓
Promestriene	✓	✓	✓
Propanidid	✓	✓	✓
Propenidazole	✓	✓	✓
Propiomazine	✓	✓	✓
Propranolol	✓	✓	✓
Proquazone	✓	✓	✓
Protiofate	✓	✓	✓

	Effect	Breakdown	Dose
Polidocanol	✓	✓	✓
Polyestradiol Phosphate	✓	✓	✓
Polystyrene Sulfonate	✓	✓	✓
Posaconazole	✓	✓	✓
Potassium Iodide	✓	✓	✓
Potassium Polysulfide	✓	✓	✓
Prajmaline	✓	✓	✓
Pramipexole	✓	✓	✓
Pranlukast	✓	✓	✓
Prasugrel	✓	✓	✓
Praziquantel	✓	↑	↑
Prednimustine	✓	✓	✓
Prednylidene	✓	✓	✓
Prenoxdiazine	✓	✓	✓
Pridinol	✓	✓	✓
Primaquine	✓	↑	↑
Probucol	✓	✓	✓
Procaine Benzylpenicillin	✓	✓	✓
Prochlorperazine	✓	✓	✓
Progabide	✓	✓	✓
Proglumide	✓	✓	✓
Promazine	✓	✓	✓
Propacetamol	✓	✓	✓
Propantheline	✓	✓	✓
Propentofylline	✓	✓	✓
Propiverine	✓	✓	✓
Propylthiouracil	✓	✓	✓
Proscillaridin	✓	✓	✓
Protionamide	✓	✓	✓

	Effect	Breakdown	Dose
Protirelin	✓	✓	✓
Proxibarbal	✓	✓	✓
Prucalopride	✓	✓	✓
Pyrantel	✓	✓	✓
Pyridostigmine	✓	✓	✓
Pyrithyldione	✓	✓	✓
Pyrvinium	✓	✓	✓
Quinagolide	✓	✓	✓
Quinethazone	✓	✓	✓
Quinupramine	✓	✓	✓
Racecadotril	✓	✓	✓
Raltitrexed	✓	✓	✓
Ranimustine	✓	✓	✓
Ranolazine	✓	✓	✓
Regadenoson	✓	✓	✓
Remoxipride	✓	✓	✓
Reproterol	✓	✓	✓
Reteplase	✓	✓	✓
Ribavirin	✓	✓	✓
Rifampicin	✓	↓	↓
Rifaximin	✓	✓	✓
Riluzole	✓	✓	✓
Rimexolone	✓	✓	✓
Risedronic Acid	✓	✓	✓
Ritonavir	✓	↑	↑
Rizatriptan	✓	✓	✓
Rofecoxib	✓	↓	↓
Rolitetracycline	✓	✓	✓
Ropinirole	✓	✓	✓

	Effect	Breakdown	Dose
Protriptyline	✓	✓	✓
Proxymetacaine	✓	✓	✓
Prulifloxacin	✓	✓	✓
Pyrazinamide	✓	✓	✓
Pyrimethamine	✓	✓	✓
Pyritinol	✓	✓	✓
Quazepam	✓	✓	✓
Quinapril	✓	✓	✓
Quingestanol	✓	✓	✓
Quinupristin/Dalfopristin	✓	✓	✓
Raloxifene	✓	✓	✓
Ramelteon	✓	✓	✓
Ranitidine	✓	✓	✓
Rasagiline	✓	✓	✓
Remifentanil	✓	✓	✓
Repaglinide	✓	↑	↑
Rescinnamine	✓	✓	✓
Retigabine	✓	✓	✓
Ribostamycin	✓	✓	✓
Rifamycin	✓	✓	✓
Rilmenidine	✓	✓	✓
Rimantadine	✓	✓	✓
Rimiterol	✓	✓	✓
Risperidone	✓	✓	✓
Rituximab	✓	✓	✓
Rociverine	✓	✓	✓
Roflumilast	✓	✓	✓
Romidepsin	✓	✓	✓
Ropivacaine	✓	✓	✓

	Effect	Breakdown	Dose
Proxazole	✓	✓	✓
Proxyphylline	✓	✓	✓
Prussian Blue	✓	✓	✓
Pyrethrum	✓	✓	✓
Pyrithione Zinc	✓	✓	✓
Pyrrobutamine	✓	✓	✓
Quetiapine	✓	↑	↑
Quinbolone	✓	✓	✓
Quinidine	✓	↑	↑
Rabeprazole	✓	↑	↑
Raltegravir	✓	✓	✓
Ramipril	✓	✓	✓
Ranitidine Bismuth Citrate	✓	✓	✓
Reboxetine	✓	↑	↑
Remikiren	✓	✓	✓
Reposal	✓	✓	✓
Reserpine	✓	✓	✓
Rhenium (186Re) Etidronic Acid	✓	✓	✓
Rifabutin	✓	↑	↑
Rifapentine	✓	✓	✓
Rilpivirine	✓	✓	✓
Rimazolium	✓	✓	✓
Rimonabant	✓	↑	↑
Ritodrine	✓	✓	✓
Rivastigmine	✓	✓	✓
Rocuronium Bromide	✓	✓	✓
Rokitamycin	✓	✓	✓
Ronifibrate	✓	✓	✓
Roquinimex	✓	✓	✓

	Effect	Breakdown	Dose
Rose Bengal Sodium	✓	✓	✓
Rosuvastatin	✓	✓	✓
Roxithromycin	✓	↑	↑
Rupatadine	✓	✓	✓
Sacrosidase	✓	✓	✓
Salmeterol	✓	↑	↑
Sapropterin	✓	✓	✓
Saxagliptin	✓	✓	✓
Secobarbital	✓	✓	✓
Selegiline	✓	✗	✗
Semustine	✓	✓	✓
Sermorelin	✓	✓	✓
Sevelamer	✓	✓	✓
Sildenafil	✓	↑	↑
Simfibrate	✓	✓	✓
Sirolimus	✓	↑	↑
Sitagliptin	✓	✓	✓
Sodium Acetate	✓	✓	✓
Sodium Aurotiosulfate	✓	✓	✓
Sodium Chloride, Hypertonic	✓	✓	✓
Sodium Feredetate	✓	✓	✓
Sodium Glycerophosphate	✓	✓	✓
Sodium Iothalamate (125I)	✓	✓	✓
Sodium Perborate	✓	✓	✓
Sodium Picosulfate	✓	✓	✓
Sodium Stibogluconate	✓	✓	✓
Sodium Tetradecyl Sulfate	✓	✓	✓
Sorafenib	✓	↑	↑
Sparfloxacin	✓	✓	✓

	Effect	Breakdown	Dose
Rosiglitazone	✓	✗	✗
Rotigotine	✓	✓	✓
Rufinamide	✓	✓	✓
Rutoside	✓	✓	✓
Salbutamol	✓	↑	↑
Salsalate	✓	✓	✓
Saquinavir	✓	↑	↑
Scopolamine	✓	✓	✓
Secretin	✓	✓	✓
Selenium (75Se) Norcholesterol	✓	✓	✓
Senna Glycosides	✓	✓	✓
Sertindole	✓	↑	↑
Sevoflurane	✓	✓	✓
Silodosin	✓	✓	✓
Simvastatin	✓	↑	✗
Sisomicin	✓	✓	✓
Sitaxentan	✓	✓	✓
Sodium Aminosalicylate	✓	✓	✓
Sodium Bicarbonate	✓	✓	✓
Sodium Citrate	✓	✓	✓
Sodium Fluoride	✓	✓	✓
Sodium Iodide (123I)	✓	✓	✓
Sodium Monofluorophosphate	✓	✓	✓
Sodium Phenylbutyrate	✓	✓	✓
Sodium Propionate	✓	✓	✓
Sodium Sulfate	✓	✓	✓
Somatorelin	✓	✓	✓
Sorbitol	✓	✓	✓
Sparteine	✓	✓	✓

	Effect	Breakdown	Dose
Rosoxacin	✓	✓	✓
Roxatidine	✓	✓	✓
Rufloxacin	✓	✓	✓
Saccharated Iron Oxide	✓	✓	✓
Salicylamide	✓	✓	✓
Samarium (153Sm) Lexidronam	✓	✓	✓
Satraplatin	✓	✓	✓
Secnidazole	✓	✓	✓
Sedalipid	✓	✓	✓
Selenium (75Se) Tauroselcholic Acid	✓	✓	✓
Seratrodast	✓	↓	↓
Sertraline	✓	✓	✓
Sibutramine	✓	↑	↑
Silymarin	✓	✓	✓
Sincalide	✓	✓	✓
Sitafloxacin	✓	✓	✓
Sobrerol	✓	✓	✓
Sodium Aurothiomalate	✓	✓	✓
Sodium Borate	✓	✓	✓
Sodium Edetate	✓	✓	✓
Sodium Folinate	✓	✓	✓
Sodium Iodohippurate (123I)	✓	✓	✓
Sodium Nitrite	✓	✓	✓
Sodium Phosphate	✓	✓	✓
Sodium Salicylate	✓	✓	✓
Sodium Tartrate	✓	✓	✓
Somatostatin	✓	✓	✓
Sotalol	✓	✓	✓
Spectinomycin	✓	✓	✓

	Effect	Breakdown	Dose
Spiramycin	✓	↑	↑
Stannous Fluoride	✓	✓	✓
Stepronin	✓	✓	✓
Streptoduocin	✓	✓	✓
Streptozocin	✓	✓	✓
Styramate	✓	✓	✓
Sucralfate	✓	✓	✓
Sulbenicillin	✓	✓	✓
Sulfadicramide	✓	✓	✓
Sulfafurazole	✓	↓	↓
Sulfalene	✓	✓	✓
Sulfamethoxazole	✓	✗	✗
Sulfametoxydiazine	✓	✓	✓
Sulfaphenazole	✓	✓	✓
Sulfathiourea	✓	✓	✓
Sulfobromophthalein	✓	✓	✓
Sulpiride	✓	✓	✓
Sultiame	✓	✓	✓
Sunitinib	✓	↑	↑
Suxamethonium	✓	✓	✓
Tadalafil	✓	↑	↑
Talastine	✓	✓	✓
Tamoxifen	✗	✗	✓
Tasonermin	✓	✓	✓
Tazobactam	✓	✓	✓
Technetium (99Mtc) Disofenin	✓	✓	✓
Technetium (99Mtc) Furifosmin	✓	✓	✓
Technetium (99Mtc) Gluconate	✓	✓	✓
Technetium (99Mtc) Medronic Acid	✓	✓	✓

	Effect	Breakdown	Dose
Spirapril	✓	✓	✓
Stanozolol	✓	✓	✓
Stibophen	✓	✓	✓
Streptokinase	✓	✓	✓
Strontium (89Sr) Chloride	✓	✓	✓
Succinimide	✓	✓	✓
Sufentanil	✓	↑	↑
Sulfacetamide	✓	✓	✓
Sulfadimethoxine	✓	✓	✓
Sulfaguanidine	✓	✓	✓
Sulfamazone	✓	✓	✓
Sulfamethoxypyridazine	✓	✓	✓
Sulfamoxole	✓	✓	✓
Sulfapyridine	✓	✓	✓
Sulfatolamide	✓	✓	✓
Sulindac	✓	✓	✓
Sulprostone	✓	✓	✓
Sultopride	✓	✓	✓
Suprofen	✓	✗	✗
Tacrine	✓	✓	✓
Tafluprost	✓	✓	✓
Talbutal	✓	✓	✓
Tamsulosin	✓	↑	↑
Tasosartan	✓	✓	✓
Technetium (99Mtc) Bicisate	✓	✓	✓
Technetium (99Mtc) Etifenin	✓	✓	✓
Technetium (99Mtc) Galtifenin	✓	✓	✓
Technetium (99Mtc) Lidofenin	✓	✓	✓
Technetium (99Mtc) Mertiatide	✓	✓	✓

	Effect	Breakdown	Dose
Spironolactone	✓	✓	✓
Stavudine	✓	✓	✓
Stiripentol	✓	✓	✓
Streptomycin	✓	✓	✓
Strontium Ranelate	✓	✓	✓
Succinylsulfathiazole	✓	✓	✓
Sulbactam	✓	✓	✓
Sulfadiazine	✓	✗	✗
Sulfadimidine	✓	✓	✓
Sulfaisodimidine	✓	✓	✓
Sulfamethizole	✓	✓	✓
Sulfametomidine	✓	✓	✓
Sulfaperin	✓	✓	✓
Sulfasalazine	✓	✓	✓
Sulfinpyrazon	✓	✗	✗
Suloctidil	✓	✓	✓
Sultamicillin	✓	✓	✓
Sumatriptan	✓	✓	✓
Suramin Sodium	✓	✓	✓
Tacrolimus	✓	↑	↑
Talampicillin	✓	✓	✓
Talinolol	✓	✓	✓
Tapentadol	✓	✓	✓
Taurolidine	✓	✓	✓
Technetium (99Mtc) Butedronic Acid	✓	✓	✓
Technetium (99Mtc) Exametazime	✓	✓	✓
Technetium (99Mtc) Gluceptate	✓	✓	✓
Technetium (99Mtc) Mebrofenin	✓	✓	✓
Technetium (99Mtc) Oxidronic Acid	✓	✓	✓

	Effect	Breakdown	Dose
Technetium (99Mtc) Pertechnetate	✓	✓	✓
Technetium (99Mtc) Sestamibi	✓	✓	✓
Technetium (99Mtc) Tetrofosmin	✓	✓	✓
Teduglutide	✓	✓	✓
Teicoplanin	✓	✓	✓
Telbivudine	✓	✓	✓
Temafloxacin	✓	✓	✓
Temocillin	✓	✓	✓
Temsirolimus	✓	✓	✓
Tenitramine	✓	✓	✓
Tenoxicam	✓	✗	✗
Terconazole	✓	✓	✓
Teriparatide	✓	✓	✓
Terodiline	✓	✓	✓
Testosterone	✓	↑	↑
Tetracosactide	✓	✓	✓
Tetrazepam	✓	✓	✓
Thebacon	✓	✓	✓
Theophylline	✓	✓	✓
Thiazinam	✓	✓	✓
Thiopental	✓	✓	✓
Thioridazine	✓	✓	✓
Thiram	✓	✓	✓
Tiagabine	✓	↑	↑
Tiaprofenic Acid	✓	✓	✓
Tibolone	✓	✓	✓
Ticlopidine	✓	↑	↑
Tienilic Acid	✓	✗	✗
Tilidine	✓	✓	✓

	Effect	Breakdown	Dose
Technetium (99Mtc) Phytate	✓	✓	✓
Technetium (99Mtc) Succimer	✓	✓	✓
Teclozan	✓	✓	✓
Tegafur	✓	✗	✗
Telaprevir	✓	✓	✓
Telithromycin	✓	↑	↑
Temazepam	✓	✓	✓
Temoporfin	✓	✓	✓
Tenidap	✓	✓	✓
Tenofovir Disoproxil	✓	✓	✓
Terazosin	✓	✓	✓
Terfenadine	✓	↑	↑
Terizidone	✓	✓	✓
Tertatolol	✓	✓	✓
Tetrabenazine	✓	✓	✓
Tetracycline	✓	✓	✓
Thalidomide	✓	↓	↓
Theobromine	✓	✓	✓
Thiamazole	✓	✓	✓
Thiethylperazin	✓	✓	✓
Thiopropazate	✓	✓	✓
Thiosulfate	✓	✓	✓
Thymopentin	✓	✓	✓
Tianeptine	✓	✓	✓
Tiazofurine	✓	✓	✓
Ticagrelor	✓	✓	✓
Tidiacic Arginine	✓	✓	✓
Tigecycline	✓	✓	✓
Tiludronic Acid	✓	✓	✓

	Effect	Breakdown	Dose
Technetium (99Mtc) Pyrophosphate	✓	✓	✓
Technetium (99Mtc) Teboroxime	✓	✓	✓
Tedisamil	✓	✓	✓
Tegaserod	✓	✓	✓
Telavancin	✓	✓	✓
Telmisartan	✓	✓	✓
Temocapril	✓	✓	✓
Temozolomide	✓	✓	✓
Teniposide	✓	↑	↑
Tenonitrozole	✓	✓	✓
Terbutaline	✓	✓	✓
Terguride	✓	✓	✓
Terlipressin	✓	✓	✓
Tesamorelin	✓	✓	✓
Tetracaine	✓	✓	✓
Tetramethrin	✓	✓	✓
Thallium (201Tl) Chloride	✓	✓	✓
Theodrenaline	✓	✓	✓
Thiamphenicol	✓	✓	✓
Thiocolchicoside	✓	✓	✓
Thioproperazine	✓	✓	✓
Thiotepa	✓	✓	✓
Tiadenol	✓	✓	✓
Tiapride	✓	✓	✓
Tibezonium Iodide	✓	✓	✓
Ticarcillin	✓	✓	✓
Tiemonium Iodide	✓	✓	✓
Tilbroquinol	✓	✓	✓
Timepidium Bromide	✓	✓	✓

	Effect	Breakdown	Dose
Timolol	✓	✓	✓
Tioclomarol	✓	✓	✓
Tiopronin	✓	✓	✓
Tipepidine	✓	✓	✓
Tiratricol	✓	✓	✓
Tiropramide	✓	✓	✓
Tizanidine	✓	✓	✓
Tofisopam	✓	✓	✓
Tolbutamide	↓	✗	✗
Tolmetin	✓	✓	✓
Tolperisone	✓	✓	✓
Tolvaptan	✓	✓	✓
Torasemide	✓	✗	✗
Tramadol	✓	↑	✓
Tranylcypromine	✓	✓	✓
Travoprost	✓	✓	✓
Trepibutone	✓	✓	✓
Triamcinolone	✓	✓	✓
Triazolam	✓	↑	↑
Triclabendazole	✓	✓	✓
Trifluoperazine	✓	✓	✓
Trifluridine	✓	✓	✓
Trilostane	✓	✓	✓
Trimetaphan	✓	✓	✓
Trimethoprim	✓	✗	✗
Trimipramine	✓	✓	✓
Tritoqualine	✓	✓	✓
Troleandomycin	✓	↑	↑
Tropatepine	✓	✓	✓

	Effect	Breakdown	Dose
Tinidazole	✓	↑	↑
Tioctic Acid	✓	✓	✓
Tiotixene	✓	✓	✓
Tipranavir	✓	↑	↑
Tirilazad	✓	✓	✓
Tisopurine	✓	✓	✓
Tobramycin	✓	✓	✓
Tolazamide	✓	✓	✓
Tolcapone	✓	↑	↑
Tolonidine	✓	✓	✓
Tolrestat	✓	✓	✓
Topiramate	✓	✓	✓
Toremifene	✓	↑	↑
Trandolapril	✓	✓	✓
Trapidil	✓	✓	✓
Trazodone	✓	↑	↑
Treprostinil	✓	✓	✓
Triamterene	✓	✓	✓
Trichlormethiazide	✓	✓	✓
Triclofos	✓	✓	✓
Trifluperidol	✓	✓	✓
Triflusal	✓	✓	✓
Trimazosin	✓	✓	✓
Trimetazidine	✓	✓	✓
Trimethyldiphenylpropylamine	✓	✓	✓
Triprolidine	✓	✓	✓
Trofosfamide	✓	✓	✓
Trolnitrate	✓	✓	✓
Tropicamide	✓	✓	✓

	Effect	Breakdown	Dose
Tiocarlide	✓	✓	✓
Thioguanine	✓	✓	✓
Tiotropium Bromide	✓	✓	✓
Tiracizin	✓	✓	✓
Tirofiban	✓	✓	✓
Tixocortol	✓	✓	✓
Tocainide	✓	✓	✓
Tolazoline	✓	✓	✓
Tolfenamic Acid	✓	✓	✓
Toloxatone	✓	✓	✓
Tolterodine	✓	↑	↑
Topotecan	✓	✓	✓
Trabectedin	✓	✓	✓
Tranexamic Acid	✓	✓	✓
Trastuzumab	✓	✓	✓
Treosulfan	✓	✓	✓
Tretoquinol	✓	✓	✓
Triaziquone	✓	✓	✓
Trichloroethylene	✓	✓	✓
Tridihexethyl	✓	✓	✓
Triflupromazin	✓	✓	✓
Trihexyphenidyl	✓	✓	✓
Trimebutine	✓	✓	✓
Trimethadione	✓	✓	✓
Trimetrexate	✓	✓	✓
Triptorelin	✓	✓	✓
Troglitazone	✓	↓	↓
Trometamol	✓	✓	✓
Tropisetron	✓	✓	✓

	Effect	Breakdown	Dose
Trospium	✓	✓	✓
Troxipide	✓	✓	✓
Tulobuterol	✓	✓	✓
Ulobetasol	✓	✓	✓
Urate Oxidase	✓	✓	✓
Ursodeoxycholic Acid	✓	✓	✓
Valganciclovir	✓	✓	✓
Valpromide	✓	✓	✓
Vancomycin	✓	✓	✓
Vardenafil	✓	↑	↑
Vecuronium	✓	✓	✓
Veralipride	✓	✓	✓
Verteporfin	✓	✓	✓
Vildagliptin	✓	✓	✓
Vinbarbital	✓	✓	✓
Vincamine	✓	✓	✓
Vinflunine	✓	✓	✓
Vinyl Ether	✓	✓	✓
Voclosporin	✓	✓	✓
Vorinostat	✓	✓	✓
Xaliproden	✓	✓	✓
Xibornol	✓	✓	✓
Yohimbin	✓	✓	✓
Zaleplon	✓	↑	↑
Zidovudine	✓	✓	✓
Zinc Chloride	✓	✓	✓
Zofenopril	✓	✓	✓
Zolimidine	✓	✓	✓
Zomepirac	✓	✓	✓

	Effect	Breakdown	Dose
Trovafloxacin	✓	✓	✓
Tryptophan	✓	✓	✓
Tyloxapol	✓	✓	✓
Unoproston	✓	✓	✓
Urofollitropin	✓	✓	✓
Valaciclovir	✓	✓	✓
Valnoctamide	✓	✓	✓
Valrubicin	✓	✓	✓
Vandetanib	✓	✓	✓
Varenicline	✓	✓	✓
Vemurafenib	✓	✓	✓
Verapamil	✓	↑	↑
Vigabatrin	✓	✓	✓
Viloxazine	✓	✓	✓
Vinblastine	✓	↑	↑
Vincristine	✓	↑	↑
Vinorelbine	✓	↑	↑
Vinylbital	✓	✓	✓
Voglibose	✓	✓	✓
Vorozole	✓	✓	✓
Xamoterol	✓	✓	✓
Ximelagatran	✓	✗	✗
Zafirlukast	✓	✗	✗
Zanamivir	✓	✓	✓
Zimeldine	✓	✓	✓
Zipeprol	✓	✓	✓
Zoledronic Acid	✓	✓	✓
Zolmitriptan	✓	✓	✓
Zonisamide	✓	↑	↑

	Effect	Breakdown	Dose
Troxerutin	✓	✓	✓
Tubocurarine	✓	✓	✓
Ubidecarenone	✓	✓	✓
Urapidil	✓	✓	✓
Urokinase	✓	✓	✓
Valdecoxib	✓	✓	✓
Valproic Acid	✓	↓	↓
Valsartan	✓	✗	✗
Vapreotide	✓	✓	✓
Vasopressin	✓	✓	✓
Venlafaxine	✓	✓	✓
Vernakalant	✓	✓	✓
Vilazodone	✓	✓	✓
Viminol	✓	✓	✓
Vinburnine	✓	✓	✓
Vindesine	✓	↑	↑
Vinpocetine	✓	✓	✓
Visnadine	✓	✓	✓
Voriconazole	✓	✗	✓
Warfarin	✓	✗	✗
Xantinol Nicotinate	✓	✓	✓
Xipamide	✓	✓	✓
Zalcitabine	✓	✓	✓
Ziconotide	✓	✓	✓
Zinc Acetate	✓	✓	✓
Ziprasidone	✓	↑	↑
Zolendromat	✓	✓	✓
Zolpidem	✓	↑	↑
Zopiclone	✓	↑	↑


Effect
Breakdown
Dose
Zorubicin
Effect
Breakdown
Dose
Zotepine
Effect
Breakdown
Dose
Zuclopenthixol

PHARMACO GENETICS

ONCOLOGY
Not ordered

CARDIOVASCULAR SYSTEM
Not ordered

NEUROLOGY
Not ordered

METABOLISM
Not ordered

MOVEMENT
Not ordered

DIGESTION
Not ordered

OPHTHALMOLOGY
Not ordered

ODONTOLOGY
Not ordered

OTHERS
Not ordered

SCIENCE

ADDITIONAL INFORMATION

SCIENCE

This chapter shows the science behind the test.

Pharmacogenetics

CYP2D6 - cytochrome P450, family 2, subfamily D, polypeptide 6

Cytochrome P450 2D6 (CYP2D6) is an enzyme that is involved in the metabolism of drugs through oxidation or hydrolysis of various substrates. This process is strongly influenced by the genetic variant of the CYP2D6 gene or allele.

RES	Genotype	POP	Possible results
	UM	9%	Drugs metabolized by this enzyme are degraded too quickly Prodrugs metabolized by this enzyme are activated too quickly
X	EM	70%	Drugs are metabolized by this enzyme as normal Prodrugs are activated by this enzyme as normal
	IM	16%	Drugs are metabolized by this enzyme at a slow rate Prodrugs can barely be activated by this enzyme
	PM	5%	Drugs are metabolized by this enzyme at a very slow rate Prodrugs are not activated by this enzyme

References

Zhou SF. et al. Polymorphism of human cytochrome P450 2D6 and its clinical significance: Part I. Clin Pharmacokinet. 2009,48(11):689-723.

Stüven et al. Rapid detection of CYP2D6 null alleles by long distance- and multiplex-polymerase chain reaction. Pharmacogenetics. 1996 Oct,6(5):417-21.

Hicks JK et al. Clinical Pharmacogenetics Implementation Consortium (CPIC) Guideline for CYP2D6 and CYP2C19 Genotypes and Dosing of Selective Serotonin Reuptake Inhibitors. Clin Pharmacol Ther. 2015 Aug,98(2):127-34.

CYP2B6 - cytochrome P450, family 2, subfamily B, polypeptide 6

CYP2B6 is metabolizing a variety of drugs similar to other Cytochrome P450 enzymes.

RES	Genotype	POP	Possible results
	UM	1%	Drugs metabolized by this enzyme are degraded too quickly Prodrugs metabolized by this enzyme are activated too quickly
	RM	1%	Drugs metabolized by this enzyme are degraded too quickly Prodrugs metabolized by this enzyme are activated too quickly
X	EM	96%	Drugs are metabolized by this enzyme as normal Prodrugs are activated by this enzyme as normal
	IM	1%	Drugs are metabolized by this enzyme at a slow rate Prodrugs can barely be activated by this enzyme
	PM	1%	Drugs are metabolized by this enzyme at a very slow rate Prodrugs are not activated by this enzyme

References

Zanger UM et al. Pharmacogenetics of cytochrome P450 2B6 (CYP2B6): advances on polymorphisms, mechanisms, and clinical relevance. Front Genet. 2013 Mar 5,4:24.

Kharasch ED et al. Methadone Pharmacogenetics: CYP2B6 Polymorphisms Determine Plasma Concentrations, Clearance, and Metabolism. Anesthesiology. 2015 Nov,123(5):1142-53.

https://www.pharmgkb.org/gene/PA123

Gatanaga H et al. Successful efavirenz dose reduction in HIV type 1-infected individuals with cytochrome P450 2B6 *6 and *26. Clin Infect Dis. 2007 Nov 1,45(9):1230-7.

CYP1A2 - cytochrome P450, family 1, subfamily A, polypeptide 2

CYP1A2 (cytochrome P450 1A2) is a heme protein- enzyme involved in various metabolic processes. It metabolizes various xenobiotics such as caffeine, aflatoxin B1 and medications like paracetamol.

RES	Genotype	POP	Possible results
	UM	14%	Drugs metabolized by this enzyme are degraded too quickly Prodrugs metabolized by this enzyme are activated too quickly
X	EM	53%	Drugs are metabolized by this enzyme as normal Prodrugs are activated by this enzyme as normal
	IM	28%	Drugs are metabolized by this enzyme at a slow rate Prodrugs can barely be activated by this enzyme
	PM	5%	Drugs are metabolized by this enzyme at a very slow rate Prodrugs are not activated by this enzyme

References

Hubacek JA. et al. Drug metabolising enzyme polymorphisms in Middle- and Eastern-European Slavic populations. Drug Metabol Drug Interact. 2014,29(1):29-36.

Kuo HW et al. CYP1A2 genetic polymorphisms are associated with early antidepressant escitalopram metabolism and adverse reactions. Pharmacogenomics. 2013 Jul,14(10):1191-201.

Lin KM et al. CYP1A2 genetic polymorphisms are associated with treatment response to the antidepressant paroxetine. Pharmacogenomics. 2010 Nov,11(11):1535-43.

CYP2C19 - cytochrome P450, family 2, subfamily C, polypeptide 19

The cytochrome P450 2C19 (CYP2C19) enzyme is involved in the oxidative metabolism of various drugs, such as: antidepressants, antipsychotics, tranquilizers and proton pump inhibitors. CYP2C19 provides an alternative metabolic pathway for CPY2D6. Defects in the CYP2C19 gene can increase or decrease the enzymatic activity.

RES	Genotype	POP	Possible results
	UM	5%	Drugs metabolized by this enzyme are degraded too quickly Prodrugs metabolized by this enzyme are activated too quickly
	RM	27%	Drugs metabolized by this enzyme are degraded too quickly Prodrugs metabolized by this enzyme are activated too quickly
X	EM	39%	Drugs are metabolized by this enzyme as normal Prodrugs are activated by this enzyme as normal
	IM	27%	Drugs are metabolized by this enzyme at a slow rate Prodrugs can barely be activated by this enzyme
	PM	2%	Drugs are metabolized by this enzyme at a very slow rate Prodrugs are not activated by this enzyme

References

Sheffield L. J. et al. Clinical use of pharmacogenomic tests in 2009. Clin Biochem Rev. 2009 May,30(2):55-65.

Hodgson K. et al. Genetic differences in cytochrome P450 enzymes and antidepressant treatment response. J Psychopharmacol. 2014 Feb,28(2):133-41.

Hicks JK et al. Clinical Pharmacogenetics Implementation Consortium (CPIC) Guideline for CYP2D6 and CYP2C19 Genotypes and Dosing of Selective Serotonin Reuptake Inhibitors. Clin Pharmacol Ther. 2015 Aug,98(2):127-34.

CYP2C9 - cytochrome P450, family 2, subfamily C, polypeptide 9

Cytochrome P450 2C9 (CYP2C9) enzyme is expressed mainly in the liver, where it is involved in the oxidation of xenobiotic and endogenous substances. CYP2C9 plays an important role in the metabolism of various drugs. Defects in the CYP2C9 gene are associated with a reduced enzyme activity.

RES	Genotype	POP	Possible results
	EM	60%	Drugs are metabolized by this enzyme as normal Prodrugs are activated by this enzyme as normal
	IM	35%	Drugs are metabolized by this enzyme at a slow rate Prodrugs can barely be activated by this enzyme
X	PM	5%	Drugs are metabolized by this enzyme at a very slow rate Prodrugs are not activated by this enzyme

References

Van Booven D. et al. Cytochrome P450 2C9-CYP2C9 Pharmacogenetics and genomics (2010)

Lindh JD et al. Influence of CYP2C9 genotype on warfarin dose requirements--a systematic review and meta-analysis. Eur J Clin Pharmacol. 2009 Apr,65(4):365-75.

Johnson JA et al. Clinical Pharmacogenetics Implementation Consortium Guidelines for CYP2C9 and VKORC1 genotypes and warfarin dosing. Clin Pharmacol Ther. 2011 Oct,90(4):625-9.

CYP3A4 - cytochrome P450, family 3, subfamily A, polypeptide 4

The cytochrome P450 3A4 (CYP3A4) is expressed in the liver, and it is involved in the activation or hydroxylation of various drugs and endogenous substances.

RES	Genotype	POP	Possible results
X	EM	96%	Drugs are metabolized by this enzyme as normal Prodrugs are activated by this enzyme as normal
	IM	3%	Drugs are metabolized by this enzyme at a slow rate Prodrugs can barely be activated by this enzyme
	PM	1%	Drugs are metabolized by this enzyme at a very slow rate Prodrugs are not activated by this enzyme

References

Chiang TS et al. Enhancement of CYP3A4 Activity in Hep G2 Cells by Lentiviral Transfection of Hepatocyte Nuclear Factor-1 Alpha. PLoS One. 2014 Apr 14,9(4):e94885.

Lee JS et al. Screening of Genetic Polymorphisms of CYP3A4 and CYP3A5 Genes. Korean J Physiol Pharmacol. 2013 Dec,17(6):479-84.

Okubo M et al. CYP3A4 intron 6 C>T polymorphism (CYP3A4*22) is associated with reduced CYP3A4 protein level and function in human liver microsomes. J Toxicol Sci. 2013,38(3):349-54.

CYP3A5 - cytochrome P450, family 3, subfamily A, polypeptide 5

The cytochrome P450 3A5 (CYP3A5) is expressed in the liver, and it is involved in the activation or hydroxylation of various drugs and endogenous substances.

RES	Genotype	POP	Possible results
X	EM	1%	Drugs are metabolized by this enzyme as normal Prodrugs are activated by this enzyme as normal
	IM	30%	Drugs are metabolized by this enzyme at a slow rate Prodrugs can barely be activated by this enzyme
	PM	69%	Drugs are metabolized by this enzyme at a very slow rate Prodrugs are not activated by this enzyme

References

https://www.pharmgkb.org/gene/PA131

Lamba J et al. PharmGKB summary: very important pharmacogene information for CYP3A5. Pharmacogenet Genomics. 2012 Jul,22(7):555-8.

KA Birdwell et al. Clinical Pharmacogenetics Implementation Consortium (CPIC) Guidelines for CYP3A5 Genotype and Tacrolimus Dosing. Clin Pharmacol Ther. 2015 Jul, 98(1): 19–24.

CYP2E1 - cytochrome P450, family 2, subfamily E, polypeptide 1

The cytochrome P450 2E1 (CYP2E1) is expressed in the liver, and it is involved in the activation or hydroxylation of various drugs and endogenous substances.

RES	Genotype	POP	Possible results
X	EM	98%	Drugs are metabolized by this enzyme as normal Prodrugs are activated by this enzyme as normal
	IM	1%	Drugs are metabolized by this enzyme at a slow rate Prodrugs can barely be activated by this enzyme
	PM	1%	Drugs are metabolized by this enzyme at a very slow rate Prodrugs are not activated by this enzyme

References

Sheng YJ et al. The association between CYP2E1 polymorphisms and hepatotoxicity due to anti-tuberculosis drugs: A meta-analysis. Infect Genet Evol. 2014 Jun,24:34-40.

De Bock L. et al. Quantification of cytochrome 2E1 in human liver microsomes using a validated indirect ELISA. J Pharm Biomed Anal. 2014 Jan 25,88:536-41.

Wang FJ et al. Update meta-analysis of the CYP2E1 RsaI/PstI and DraI polymorphisms and risk of antituberculosis drug-induced hepatotoxicity: evidence from 26 studies. J Clin Pharm Ther. 2016 Jun,41(3):334-40.

NAT2 - N-acetyltransferase 2 (arylamine N-acetyltransferase)

The arylamine N-acetyltransferase 2 (NAT2) is involved in the detoxification of drugs and endogenous substances through acetylation. Toxic and carcinogenic substances are converted and can be eliminated. The polymorphisms can alter the enzymatic activity of the NAT2 protein.

RES	Genotype	POP	Possible results
	EM	45%	Drugs are metabolized by this enzyme as normal Prodrugs are activated by this enzyme as normal
X	IM	30%	Drugs are metabolized by this enzyme at a slow rate Prodrugs can barely be activated by this enzyme
	PM	25%	Drugs are metabolized by this enzyme at a very slow rate Prodrugs are not activated by this enzyme

References

Daly A. K. et al. Pharmacogenomics of adverse drug reactions. Genome Med. 2013 Jan 29,5(1):5.

Barbieri R. B. et al. Genes of detoxification are important modulators of hereditary medullary thyroid carcinoma risk. Clin Endocrinol (Oxf). 2013 Aug,79(2):288-93.

Int. braz j urol. vol.30 no.4 Rio de Janeiro Jul., Aug. 2004, Rama D. Mittal, Daya S.L. Srivastava, Anil Mandhani

VKORC - Vitamin K epoxide reductase complex (rs9923231)

The vitamin K epoxide reductase-(VKOR) is a membrane protein in the ER (endoplasmic reticulum), and it is involved in the formation of blood clotting factors. The anticoagulant warfarin inhibits the activity of the VKOR protein. This inhibition can be prevented by defects of the VKORC gene.

RES	Genotype	POP	Possible results
X	C/C	40%	No dose adjustments for various drugs
	C/T	40%	Dose adjustments for various drugs
	T/T	20%	Dose adjustments for various drugs

References

Swen JJ et al. Pharmacogenetics: from bench to byte--an update of guidelines. Clin Pharmacol Ther. 2011 May,89(5):662-73.

Pop TR et al. An acenocoumarol dose algorithm based on a South-Eastern European population.

Dean L. et al. Warfarin Therapy and the Genotypes CYP2C9 and VKORC1. 2012 Mar 8. Medical Genetics Summaries.

Anderson J. L. et al. Randomized trial of genotype-guided versus standard warfarin dosing in patients initiating oral anticoagulation. Circulation. 2007 Nov 27,116(22):2563-70

Flockhart D. A. et al. Pharmacogenetic testing of CYP2C9 and VKORC1 alleles for warfarin. Genet Med. 2008 Feb,10(2):139-50.

International Warfarin Pharmacogenetics Consortium Estimation of the warfarin dose with clinical and pharmacogenetic data. N Engl J Med. 2009 Feb 19,360(8):753-64.

DPYD- Dihydropyrimidine dehydrogenase (rs3918290)

The DPYD gene provides instructions for making an enzyme called dihydropyrimidine dehydrogenase, which is involved in the breakdown of uracil and thymine. Genetic variations in this gene result in an error in pyrimidine metabolism and an increased risk of toxicity in patients receiving special chemotherapy.

RES	Genotype	POP	Possible results
	EM	98%	Drugs are metabolized by this enzyme as normal Prodrugs are activated by this enzyme as normal
	IM	1%	Drugs are metabolized by this enzyme at a slow rate Prodrugs can barely be activated by this enzyme
X	PM	1%	Drugs are metabolized by this enzyme at a very slow rate Prodrugs are not activated by this enzyme

References

Amstutz U et al. Clinical Pharmacogenetics Implementation Consortium (CPIC) Guideline for Dihydropyrimidine Dehydrogenase Genotype and Fluoropyrimidine Dosing: 2017 Update. Clin Pharmacol Ther. 2018 Feb103(2):210-216.

Swen JJ et al. Pharmacogenetics: from bench to byte--an update of guidelines. Clin Pharmacol Ther. 2011 May,89(5):662-73.

Caudle KE et al. Clinical Pharmacogenetics Implementation Consortium guidelines for dihydropyrimidine dehydrogenase genotype and fluoropyrimidine dosing. Clin Pharmacol Ther. 2013 Dec,94(6):640-5.

Mattison LK et al. Implications of dihydropyrimidine dehydrogenase on 5-fluorouracil pharmacogenetics and pharmacogenomics. Pharmacogenomics. 2002 Jul,3(4):485-92.

NOS1AP - Nitric oxide synthase 1 (neuronal) adaptor protein (rs10494366)

The nitric oxide synthase 1 adaptor protein (NOS1AP) is an adapter protein which binds the signal molecule nNOS (neuronal nitric oxide synthase) with other molecules, facilitating their interaction. This NOS1AP polymorphism decreases the glucose-reducing effect of different drugs and is associated with an increased mortality rate.

RES	Genotype	POP	Possible results
X	T/T	30%	The drug Glibenclamide is effective The drug Tolbutamide is less effective/mortality rate is increased when using this drug The drug Glimepiride less effective/mortality rate is increased when using this drug
	G/T	44%	The drug Glibenclamide is less effective/mortality rate is increased when using this drug The drug Tolbutamide is effective The drug Glimepiride is effective
	G/G	26%	The drug Glibenclamide is less effective/mortality rate is increased when using this drug The drug Tolbutamide is effective The drug Glimepiride is effective

References

Tomás M et al. Polymorphisms in the NOS1AP gene modulate QT interval duration and risk of arrhythmias in the long QT syndrome. JACC. 2010 Jun 15,55(24):2745-52.

Treuer AV et al. NOS1AP modulates intracellular Ca(2+) in cardiac myocytes and is up-regulated in dystrophic cardiomyopathy. Int J Physiol Pathophysiol Pharmacol. 2014 Mar 13,6(1):37-46. eCollection 2014.

Becker et al. Common variation in the NOS1AP gene is associated with reduced glucose-lowering effect and with increased mortality in users of sulfonylurea. Pharmacogenet Genomics. 2008 Jul,18(7):591-7.

SLCO1B1 - Solute carrier organic anion transporter family member 1B1 (rs4149056)

The SLCO1B1 gene provides instructions for making a protein called organic anion transporting polypeptide 1B1, or OATP1B1. OATP1B1 is found in the liver and involved in the removal of drug compounds such as statins.

RES	Genotype	POP	Possible results
	EM	84%	Drugs are metabolized by this enzyme as normal Prodrugs are activated by this enzyme as normal
X	IM	15%	Drugs are metabolized by this enzyme at a slow rate Prodrugs can barely be activated by this enzyme
	PM	1%	Drugs are metabolized by this enzyme at a very slow rate Prodrugs are not activated by this enzyme

References

Wilke RA et al. The clinical pharmacogenomics implementation consortium: CPIC guideline for SLCO1B1 and simvastatin-induced myopathy. Clin Pharmacol Ther. 2012 Jul,92(1):112-7.

SEARCH Collaborative Group et al. SLCO1B1 variants and statin-induced myopathy--a genomewide study. N Engl J Med. 2008 Aug 21,359(8):789-99.

Ramsey LB et al. The clinical pharmacogenetics implementation consortium guideline for SLCO1B1 and simvastatin-induced myopathy: 2014 update. Clin Pharmacol Ther. 2014 Oct,96(4):423-8.

UGT1A1 - UDP glucuronosyltransferase family 1 member A1 (rs3064744)

UDP-Glucuronosyltransferase is an enzyme that takes part in bilirubin glucuronidation and metabolism, and degrading a variety of drugs.

RES	Genotype	POP	Possible results
	EM	91%	Drugs are metabolized by this enzyme as normal Prodrugs are activated by this enzyme as normal
	IM	5%	Drugs are metabolized by this enzyme at a slow rate Prodrugs can barely be activated by this enzyme
X	PM	4%	Drugs are metabolized by this enzyme at a very slow rate Prodrugs are not activated by this enzyme

References

Vardhanabhuti S et al. Screening for UGT1A1 Genotype in Study A5257 Would Have Markedly Reduced Premature Discontinuation of Atazanavir for Hyperbilirubinemia. Open Forum Infect Dis. 2015 Jul 1,2(3):ofv085.

Barbarino JM et al. PharmGKB summary: very important pharmacogene information for UGT1A1. Pharmacogenet Genomics. 2014 Mar,24(3):177-83.

Gammal RS et al. Clinical Pharmacogenetics Implementation Consortium (CPIC) Guideline for UGT1A1 and Atazanavir Prescribing. Clin Pharmacol Ther. 2016 Apr,99(4):363-9.

Swen JJ et al. Pharmacogenetics: from bench to byte--an update of guidelines. Clin Pharmacol Ther. 2011 May,89(5):662-73.

TPMT - Thiopurine S-methyltransferase

Thiopurine-methyltransferase is an enzyme that catalyzes the transformation of thiopurine. Genetical variations can alter the activity or the breakdown of certain immunosuppressive and chemotherapeutic drugs.

RES	Genotype	POP	Possible results
X	EM	86%	Drugs are metabolized by this enzyme as normal Prodrugs are activated by this enzyme as normal
	IM	13%	Drugs are metabolized by this enzyme at a slow rate Prodrugs can barely be activated by this enzyme
	PM	1%	Drugs are metabolized by this enzyme at a very slow rate Prodrugs are not activated by this enzyme

References

Swen JJ et al. Pharmacogenetics: from bench to byte--an update of guidelines. Clin Pharmacol Ther. 2011 May,89(5):662-73.

Relling MV et al. Clinical pharmacogenetics implementation consortium guidelines for thiopurine methyltransferase genotype and thiopurine dosing: 2013 update. Clin Pharmacol Ther. 2013 Apr,93(4):324-5.

Relling MV et al. Clinical Pharmacogenetics Implementation Consortium guidelines for thiopurine methyltransferase genotype and thiopurine dosing. Clin Pharmacol Ther. 2011 Mar,89(3):387-91.

LEGEND: RES = your personal analysis result (marked with an X), GENOTYPE = different variations of the gene (called alleles),
POP = percent of the general population that have this genetic result,
POSSIBLE RESULTS = influence of the genetic variation.

PHARMACO GENETICS

ONCOLOGY
Not ordered

CARDIOVASCULAR SYSTEM
Not ordered

NEUROLOGY
Not ordered

METABOLISM
Not ordered

MOVEMENT
Not ordered

DIGESTION
Not ordered

OPHTHALMOLOGY
Not ordered

ODONTOLOGY
Not ordered

OTHERS
Not ordered

SCIENCE

ADDITIONAL INFORMATION

ADDITIONAL INFORMATION

In this chapter you will receive useful information

Customer Service

Questions or comments about our service?

Our customer service team is happy to help with any enquiries or problems. You can contact us in the following ways:

- office@dnaforme.com
- www.dnaforme.com
- +43 662 251 900

Our team is looking forward to your call. Customer satisfaction is our first priority. If you are not fully satisfied with our service, please let us know. We will do our best to help find a satisfactory solution to your problem.

Contact | Impressum
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Technical details

Order number
DEMO_ML

Date of birth
01/01/1990

Established analysis methods
qRT-PCR, DNA sequencing, fragment length analysis, CNV assay, GC-MS, Immunocap ISAC, Cytolisa

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Product codes
M0PHA

Current version
V538

Ordering company
DNA4me GmbH
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5301 Eugendorf, Austria

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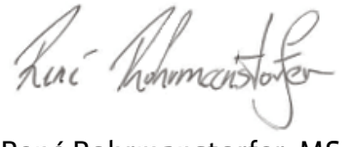
Laboratory Manager



René Rohrmanstorfer, MSc.

NOTES: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