ABOMICS
GeneRx

GeneRx

Pharmacogenomic decision support database

Information on the human genome is rapidly changing the way patients are diagnosed and treated. Personalized medicine becomes truly available when a person's individual genome is known and taken into account when prescribing medical treatment to a patient. Understanding and translating pharmacogenomic information into practice requires a highly sophisticated database. GeneRx is a one-of-a-kind solution that integrates with the electronic health record system (EHR) that the physician already uses on a daily basis.

It is widely known that a lot of a patient's response to drugs vary due to individual genetic differences. Liver enzymes control the metabolism of many frequently used pharmaceuticals. The variations in metabolic rate can often be tested using pharmacogenomics. For example the genetic polymorphism of CYP2D6 and CYP2C19 enzymes cause variance in the metabolic rates of several drugs. Patients with a rapid metabolic rate may metabolize a drug many times faster than those with a slow rate. Often fast metabolism is related to poor effect of the drug and slow metabolism can cause unnecessary adverse drug reactions. Through pharmacogenetic testing it becomes easier to prescribe the right drug with the right dose to the right patient. Physicians need the best tools available in order to interpret and utilise the complex genetic data. GeneRx is a state-of-the-art pharmacogenomic decision support database for medical professionals.

GeneRx database contents:

- **Generic drug name, ATC code(s)**
- **Genetic variations related to the drug**
- **Information about the phenotype affected, e.g. metabolic rate**
- **Recommendation texts, e.g. dosing recommendations**
- **Article references**
- **Available genetic tests and their indications**
- **Genetic test providers and contact information**

Abomics GeneRx can be integrated as a part of EHR drug database. The database update is available as an automated scheduled service.

Benefits for the treating physician

- Right patient, right medicine, right dose
- Gives out an alarm whenever genetic variance is involved
- Drug safety and effectiviness increases
- Correct dosage can be determined before starting treatment
- Clear, built-in instructions for individualised drug dosage and treatment plan

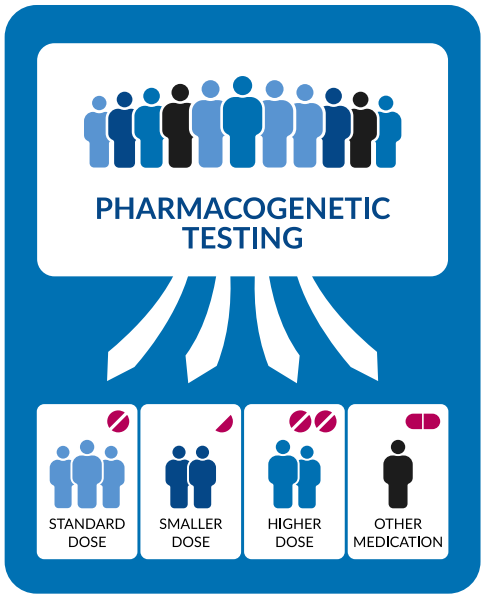
Benefits for the healthcare provider

- Patient safety increases
- Personalized medicine becomes reality
- Correct treatment can be predetermined based on the patient's individual genome
- No need for trial and error -> more effective treatment
- Significant cost savings

In 2014 of all drugs prescribed in Finland, 20,8% had variation in drug response that can be explained through pharmacogenomics.

11,3% had significant variance in drug safety or effectiveness. In these cases, prescribing drug without prior genetic testing can lead to unpredictable and even harmful results.

Only through pharmacogenetic testing and an integrated decision support database can these cases be identified and treated properly.



EXAMPLE:
Dosing recommendations for codeine (genetic test CYP2D6)

UM Ultra rapid metaboliser	EM Extensive metaboliser	IM Intermediate metaboliser	PM Poor metaboliser	Unknown phenotype
Avoid codein use due to potential for toxicity. Consider alternative analgesics such as morphine or a non-opidoid. Consider avoiding tramadol.	Label-recommended dosing and administration.	Begin with 15-60 mg every 4h as needed for pain. If no response, consider alternative analgesics such as morphine or a non-opidoid. Monitor tramadol use for response.	Avoid codeine use due to lack of efficacy. Consider alternative analgesics such as morphine or a non-opidoid. Consider avoiding tramadol.	Genetic test CYP2D6 recommended.
D4	A4	B3	D4	D4

Recommendations for codeine based on metabolic rates using GeneRx data. Letter/digit coding presents the clinical significance and level of evidence.

Abomics Ltd – Genomic Medicine Expertise

Abomics is a health technology firm that provides healthcare professionals with new approaches to personalized medicine. The company was founded in 2013 in Turku, Finland and comprises of admitted specialists in several fields of science. Abomics designs cutting-edge integrated decision support tools in collaboration with providers of EHR systems and laboratory IT systems. All Abomics' products have been designed to meet the extensive requirements of healthcare professionals.

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