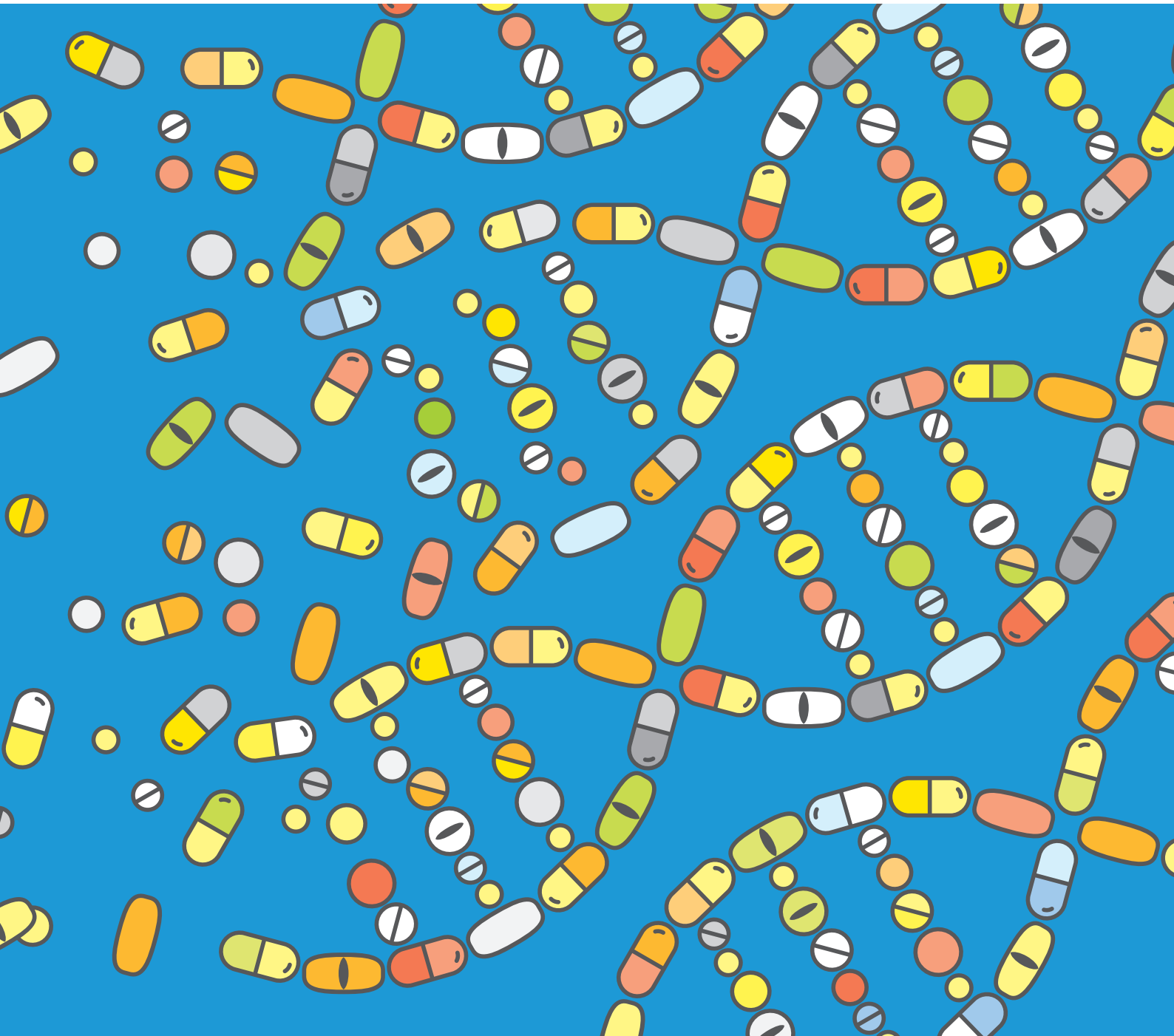
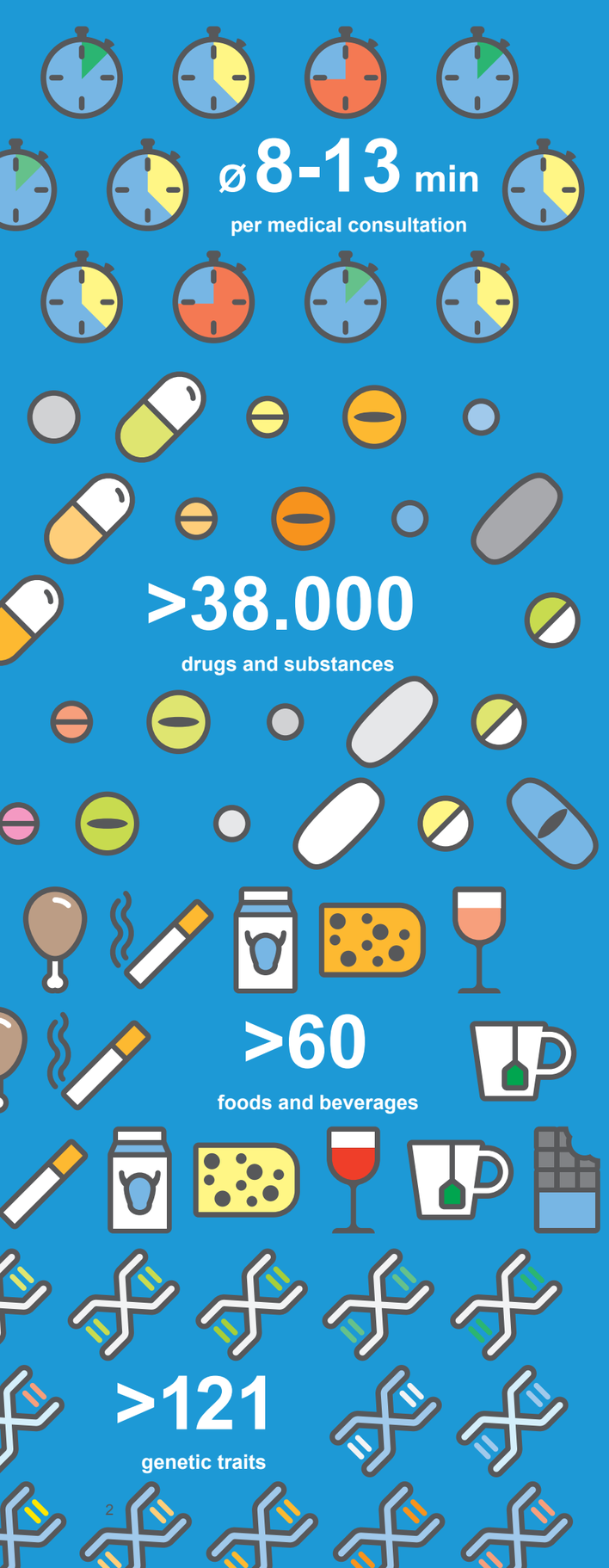
PGXperts®
Enabling Personalized Medication

PGXperts
takes drug therapy safety
into the genomics era!





Time pressure and the increasing complexity of prescribing significantly complicate everyday medical practice: Every person responds differently to medications and not every combination of active substances is compatible. Adverse drug reactions (ADRs) have always posed a major challenge for physicians and repeatedly require therapy adjustments. Drug interactions increase disproportionately with the number of drugs taken, as well as with certain foods and beverages - raising the overall risk of pharmacotherapy.

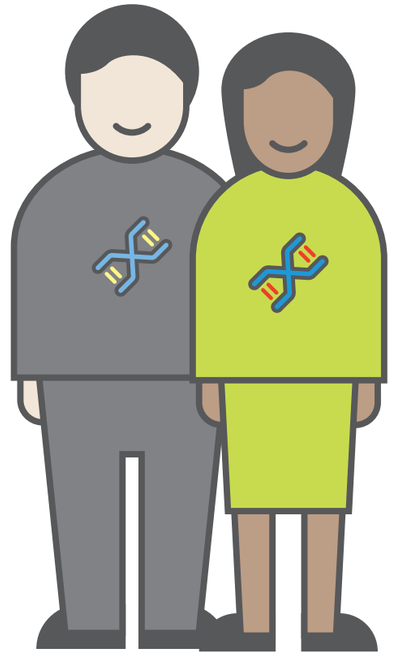
There are currently more than 38,000 different drugs with over 2,000 active ingredients available in Germany, each of which can potentially influence the effect of other drugs. In addition, it is becoming increasingly difficult for doctors to keep track of the rapidly growing knowledge about the individual effects of drugs and to implement this knowledge in everyday practice.

However, interactions exist not only between the individual active ingredients, but also between drugs, food and beverages. For example, caffeine, grapefruit or certain dietary supplements can significantly alter the absorption, effect and breakdown of drugs.

In addition, individual genetic predisposition plays a decisive role in the efficacy and tolerability of drug therapy. According to current scientific knowledge, 121 genetic markers have been identified that influence the metabolism of specific active substances and can therefore significantly affect efficacy and risk of side effects.

Pharmacogenetics

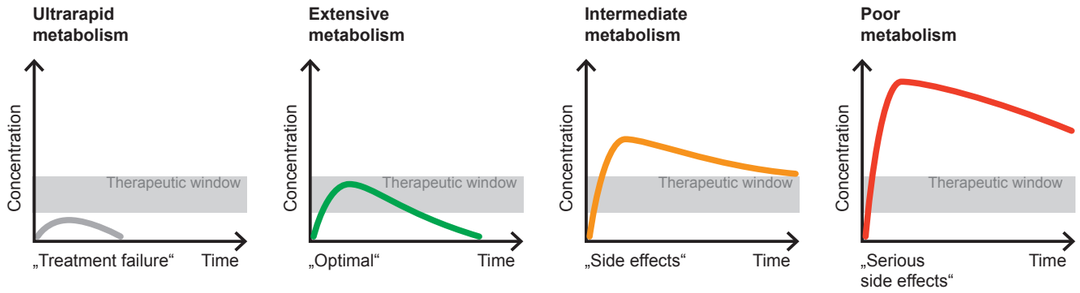
Effect of drugs taking genetic traits into account



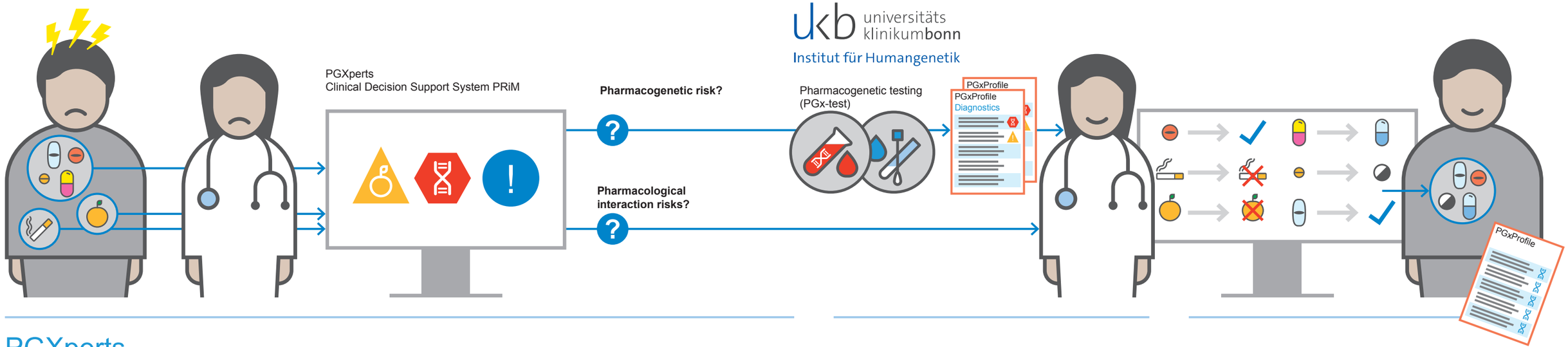
Metabolism is individual. In the human body, a complex system of enzymes controls the absorption of an active substance, its distribution throughout the body, its biochemical transformation and breakdown, as well as its excretion. The genetic characteristics of a person determine the individual enzyme profile and thus the processing of active substances.

The effect of a drug depends on the concentration of the active substance presented in the blood. Four types of metabolizers are distinguished:

- Ultrarapid metabolizers break down an active substance so quickly that the required concentration is never reached, leading to treatment failure.
- For normal metabolizers, the drug concentration remains within the “therapeutic window” for a significant period, allowing the desired effect to be achieved.
- In intermediate metabolizers, the duration of effect is prolonged and side effects are more likely to occur.
- Poor metabolism elevates drug concentrations, which can cause serious side effects.



Therapeutic success is determined by the drug concentration in the blood over a certain period of time. Depending on their genome, a person may exhibit all four metabolizer types across different drugs.



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PGXperts

Personalized Medication for every patient in three steps

PGXperts enables Personalized Medication at the point of prescription. In the context of patient consultations, physicians often have to make medication decisions in a short period of time and assess whether a planned therapy carries specific risks. This is a complex task that is difficult to manage without digital support. By taking genetic, clinical and demographic data into account, physicians can prescribe the right drug at the right dose for each individual patient.

This can contribute to increased drug therapy safety and improved therapeutic outcomes.

1 Identify interaction risks

PGXperts PRiM enables users to analyze medication risks within seconds. Interactions between active substances as well as between drugs and food or beverages can be identified. The results are linked with individual laboratory values and personal risk factors such as gender, age, weight and allergies. Identified medication risks are clearly displayed and categorized by severity.

In the same step, gene-drug interactions are also displayed that have been proven to influence the effects of the relevant medecations in question. The physician receives detailed information on potential consequences and their prevalence, allowing for the rapid identification of patients who may benefit from genetic testing.

2 Determine individual genetic characteristics

Once the potential pharmacogenetic risks for the current or planned medication have been identified, the next step is to determine the metabolizer type for the relevant drugs based on the individual's genetic makeup.

PGXperts PRiM enables physicians to order a PGx test easily and in full compliance with legal requirements. The molecular genetic analysis of the blood or saliva sample is carried out at the DAkkS-accredited laboratory of the Institute of Human Genetics at the University Hospital Bonn.

The PGxProfil provides information about the identified variants in the analyzed genes and is generated in two separate reports: one for the physician and one for the patient. These reports provide detailed descriptions of the relevant genetic variations identified and their impact on drug metabolism.

The PGxProfile intended for physicians is written in medical terminology and presented in a structured, practice-oriented format. In addition, the patient receives an easy-to-understand version of their PGx profile in layman's terms, serving as a valuable resource for future treatments.

3 Personalize medication

The results of the pharmacogenetic test are sent to the physician as a cover letter including the PGx profile or transmitted digitally via a secure channel. The PGx profile can also be imported into PGXperts PRiM as structured data. Its contents are linked to the relevant medications and provide decision support for accurately adjusting the patient's current medication according to their genetic metabolism.

PGXperts PRiM assists the physician with evidence-based information on dosing, clinical implications, and recommendations for potential interventions. This enables fast and precise medication adjustments, even in complex scenarios such as polypharmacy.

Thanks to an intuitive user interface and standardized interfaces to all common hospital information systems, PGXperts can be efficiently integrated into daily clinical practice. This allows physicians to quickly and easily access relevant information and incorporate it into their treatment decisions.

PGXperts

Digital support for prescribing Personalized Medication

In the era of genomics, Personalized Medication means individualized drug therapy. Genetic traits, active substances and nutrition play a crucial role in determining the safety and success of treatment.

This diversity of influencing factors and their complexity make digital support essential for prescribing Personalized Medication.

With the PGXperts system, a unique ecosystem has been created that is tailored to the various stakeholders in the healthcare sector: patients, physicians, hospitals and laboratories.

To meet diverse customer needs, the PGXperts system was developed using a platform-based approach. The system is fully digital, modular in design, flexibly expandable and can be seamlessly integrated into existing healthcare IT systems via standardized interfaces.

„The results were compelling. In 30.3% of cases, we had to adjust the medication for various reasons, which allowed us to improve patients‘ quality of life. In only 5.6% of cases did the analysis provide no new insights regarding drug tolerability.“

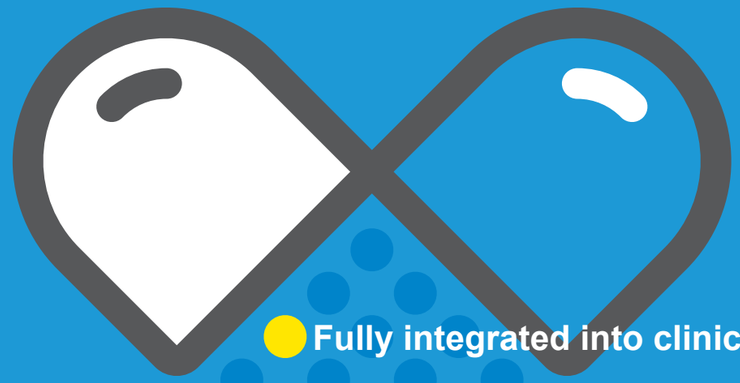
Dr. med. Michael Bangemann
Specialist in General Medicine,
Chairman of Praxisnetz Nürnberg Süd e.V.

„The collaboration enables us to use the innovative software and database developed by PGXperts, allowing us to perform high level pharmacogenetic diagnostics. Our goal is to ensure that patients at our hospital benefit from the latest scientific advances in genetic medicine “

Prof. Dr. Markus Nöthen
Director, Institute of Human Genetics,
University Hospital Bonn

„The software is highly effective at identifying important drug interactions and highlighting them using color coding. This makes medication use in our facility safer, providing direct benefits for both patients and staff. “

Dr. med. Martin Gauer
Medical Director,
St. Anna District Hospital, Höchstadt an der Aisch



- **Fully integrated into clinical routine**
- **Interoperable via HL7 and FHIR interfaces**
- **Based on 38,000 medications from ABDATA**
- **Up to date with the latest scientific knowledge**
- **Evidence-based, proprietary curated PGx database**
- **No PGx-specific knowledge required**
- **Lifelong value of a PGxProfile for patients**

PGXperts provides tailored solutions for **physicians**, **hospitals**, **patients** and **laboratories** to support Personalized Medication prescribing through pharmacogenetics.

For more information, feel free to contact us or visit our webseite: **www.pgxperts.com/en**

PGXPERTS®
Enabling Personalized Medication

Medical device manufacturer and MDR-certified
Certified quality management system (EN ISO 13485 – MDR)

Patented all-in-one platform for Personalized Medication
Comprehensive medication management

PGXperts analyst database
Proprietary pharmacogenetic database curated from over 9 global sources

Easy integration into existing clinical workflows
Interfaces: HL7, FHIR and API

About PGXperts

PGXperts is revolutionizing healthcare by enabling Personalized Medication at the point of prescription. By incorporating genetic, clinical and demographic data, physicians can prescribe the right drug at the right dose for each individual patient transforming the way medications are prescribed.

Our mission is to make Personalized Medication, powered by pharmacogenetics, available anytime, anywhere and tailored to each patient's unique genetic profile.

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European Patent Office
Office européen des brevets

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