



## Kai Heib, Karl-Dietrich Hatz

INTLAB AG, Switzerland

### Clinical Relevance of a 16-Gene Pharmacogenetic Panel Test for Medication Management

There is a growing number of evidence-based indications for pharmacogenetic (PGx) testing. We aimed to evaluate clinical relevance of a 16-gene panel test for PGx-guided pharmacotherapy. In an observational cohort study, we included subjects tested with a PGx panel for variants of ABCB1, COMT, CYP1A2, CYP2B6, CYP3A4, CYP3A5, CYP 2C9, CYP2C19, CYP2D6, CYP4F2, DPYD, OPRM1, POR, SLCO1B1, TPMT and VKORC1. PGx-guided pharmacotherapy management was supported by the PGx expert system SONOGEN XP. The primary study outcome was PGx-based changes and recommendations regarding current and potential future medication. PGx-testing was triggered by specific drug- gene pairs in 102 subjects, and by screening in 33. Based on PharmGKB expert guidelines we identified at least one “actionable” variant in all 135 (100%) tested patients. Drugs that triggered PGx-testing were clopidogrel in 60, tamoxifen in 15, polypsychopharmacotherapy in 9, opioids in 7, and other in 11 patients. Among those, PGx variants resulted in clinical recommendations to change PGx-triggering drugs in 33 (32.4%), and other current pharmacotherapy in 23 (22.5%).

Additional costs of panel vs. single gene tests are moderate, and the efficiency of PGx panel testing challenges traditional cost-benefit calculations for single drug-gene pairs. However, PGx-guided pharmacotherapy requires specialized expert consultations with interdisciplinary collaborations.



Figure 1. Study pipeline and decision. \* Variant classified as “actionable” according to PharmGKB expert guidelines.

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## Biography

Dr. Kai Heib is a health scientist with focus on personalized precision medicine and health economics. He is founding partner of INTLAB AG, located in the canton Zurich in Switzerland, which provides services of the pharmacogenetic expert system SONOGEN XP ([www.sonogen.eu](http://www.sonogen.eu)). The above mentioned publication was published in the Journal of Clinical Medicine. The following partners were involved: [drugsafety.ch](http://drugsafety.ch), Swiss Federal Institute of Technology (ETHZ), Laboratory Dr. Risch and Hirslanden private hospital group. Karl-Dietrich Hatz is a CMOO of INTLAB AG Switzerland.