

## Pharmacogenetic Tests as Tools in Risk Management Strategies

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Pharmacogenetics is a relatively new field in clinical pharmacology devoted to the study of genetic variants that affect individual responses to drugs, modifying drug bioavailability, therapeutic effect as well as adverse effects.

After more than 10 years of intense investigations now pharmacogenetics has entered in the clinical practice and several analyses have been defined and made available to clinicians.

To date, the drug labels of more than 130 medications include pharmacogenetics -related information (<http://www.fda.gov/drugs/scienceresearch/researchareas/pharmacogenetics/ucm083378.htm>).

Pharmacogenetics-guided choice of the drug or optimisation of the dosing regimes is necessary to improve patient adherence to remove side effects and enhance drug effectiveness. Here we review the established knowledge on pharmacogenetics with an overview on which genetic variants are relevant and for which drugs, particularly in the field of oncology, infectious diseases, central nervous system and cardiovascular disorders.

Future challenges and perspectives will also be put forwards. These include the need of developing strategies to inform clinicians on the utility of pharmacogenetics, of providing reliable results in a very short time and finally of ensuring a full pharmacological support in terms of appropriate counselling into medication therapy management