

# Metabolomics as a basis for gender-specific drugs

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Analyses of the metabolic profile of blood serum have revealed significant differences in metabolites between men and women. In a study to be published on August 11 in the open-access journal *PLoS Genetics*, scientists at the Helmholtz Zentrum München have concluded that there is a need for gender-specific therapies.

Gender-specific therapies may be required for some diseases as there are significant differences between male and female metabolism. Such differences were shown to exist for 101 of the 131 metabolites – above all in lipid and amino acid species – in the sera of more than 3,000 volunteers who took part in the population-based KORA study. Professor Thomas Illig and Dr. Kirstin Mittelstrass see this as proof that "in terms of molecular profiles, men and women have to be assigned to two completely different categories. That means that we also need gender-specific approaches to the treatment of diseases."

The researchers combined genetic data with metabolic profiles, which indicate the metabolic paths that are active given the specific conditions. The combination of genetics and metabolomics provides insight into the causes and progression of specific diseases. This could allow new therapeutic approaches and drugs to be developed, and enable markers to be found for the early recognition of diseases such as diabetes.

In the next phase, the scientists will increase the number of [metabolites](#) and evaluate further studies from a gender-specific point of view. "Through the combination of gender-specific evaluation, genetic

association studies and metabolomics we will gain a detailed understanding of how major widespread diseases such as diabetes mellitus develop," Professor Illig says.

**More information:** Mittelstrass K, Ried JS, Yu Z, Krumsiek J, Gieger C, et al. (2011) Discovery of Sexual Dimorphisms in Metabolic and Genetic Biomarkers. *PLoS Genet* 7(8): e1002215.

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