

# A new method for developing safer drugs

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Amodiaquine was introduced as an antimalarial drug, but was withdrawn when serious adverse effects were observed. Scientists at the University of Gothenburg, Sweden, have now developed a method that can be used to develop safer drugs.

A pharmaceutical in the body is, in the optimal case, broken down into harmless products ([metabolites](#)) that leave the body, for example via the urine. Some pharmaceuticals, however, can be converted into toxic products, which may result in serious adverse effects. A research collaboration between the University of Gothenburg and AstraZeneca has resulted in a method that can facilitate the process of developing safe drugs.

Scientist Tove Johansson Mali'n presents in her thesis a method in which various chemical systems are used to simulate the metabolism of pharmaceuticals in the body. She has been able to use the method to identify and characterise several potentially toxic products that arise as the metabolites of drugs.

One example is the drug amodiaquine. This was introduced as an [antimalarial drug](#), but was withdrawn from the market when it became clear that the drug caused serious adverse effects in the form of [liver damage](#) and impaired immune system. Amodiaquine today is mainly used in the acute phase of malaria, mainly in Africa, where resistance to other antimalarial drugs is widespread. Tove Johansson Mali'n has now managed to identify, with the aid of the method, previously unknown metabolites that may have caused, or contributed to, the adverse effects

of amodiaquine.

Tove Johansson Mali'n describes the results in her doctoral thesis. The work has been performed in collaboration with the pharmaceuticals company [AstraZeneca](#) and is already attracting international attention. Tove Johansson Mali'n has been invited to Salt Lake City, USA at the end of May in order to present her results at an international conference arranged by the American Society for Mass Spectrometry, with 7,000 participants.

"We hope that the method can simplify the work of identifying potentially toxic metabolites at an early stage, and thus facilitate the development of safe drugs", says Tove Johansson Mali'n.

Provided by University of Gothenburg

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