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## Simcyp advances 3Rs cause with virtual rat

29 October 2008

A virtual 'laboratory rat' for predicting drug kinetics *in silico* has been launched by Simcyp Limited, a spin-out company from the UK's University of Sheffield that specialises in virtual population-based pharmacokinetic modelling and simulation.

As Simcyp pointed out, rats have traditionally been used in pharmaceutical development to examine how compounds are absorbed, distributed, metabolised and excreted in the body. The creation of the Simcyp Rat 2008 Simulator responds to growing support within the pharmaceutical industry for alternative approaches that reduce, refine and replace (the 3Rs) animal testing while maintaining high standards of research, it added.

The new simulator is available under licence to members of the Simcyp Consortium, which includes nine of the top 10 pharmaceutical companies, such as Pfizer, Johnson & Johnson and AstraZeneca.

"We have a great understanding of rat physiology, which has allowed us to create algorithms and models which represent a virtual rat," explained Professor Amin Rostami-Hodjegan, Simcyp's director of research and development.

Researchers "can now use their drug development data in simulations to predict how their medicine will behave in virtual animals," he added. "The system can even mimic real-life experimental scenarios including whether rats are fed at the time of dosing and the amount of fluid that is administered with an oral dose."

The Simcyp Rat 2008 Simulator also incorporates databases of commonly used drugs, so that the properties of new medicines can be compared with those already available.

The UK company's platform technology is the Population-based ADME (absorption, metabolism, distribution, elimination) Simulator, which can mimic pharmacokinetics in representative virtual populations, based on the client's *in vitro* data.

By Peter Mansell

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