MedicalXpress

'Type case' makes sparing use of laboratory animals

May 16 2013

Researchers at the University of Twente's MIRA research institute have developed a system which may drastically reduce the use of laboratory animals in science. The system, which is designed to be implanted in laboratory animals, contains a series of tiny "compartments". A single specific condition can be investigated in each separate compartment, so the system can significantly reduce the number of laboratory animals needed for a study. Details of the study in which these scientists first demonstrated the use of this system are being published today in the scientific journal *Integrative Biology*. The system is being marketed by Screvo, a University of Twente spin-off company.

Large numbers of laboratory animals are still being used in science, in the testing of new drugs, for example, or to determine whether certain biological or chemical substances are safe for humans. Researchers at the University of Twente's MIRA research institute have now developed a system which could drastically reduce the use of laboratory animals.

Built from a biomaterial, this system looks just like an old-fashioned type case, but many times smaller. It is subdivided into several small compartments with capacities of a few cubic millimetres, whose size can be tailored to each specific application. A single specific condition can be tested in each separate compartment (e.g. a specific concentration of a new drug that is under development). When all of the compartments have been filled, the entire system is implanted under the skin of a laboratory animal. As a single condition is tested per compartment – rather than per animal – this system could potentially deliver major

reductions in the use of laboratory animals.

1000 compartments

The system tested in the study, which contained nine compartments, was implanted into a mouse. The researchers now plan to explore the suitability of this system for use in larger laboratory animals. The idea is that the larger the laboratory animal, the greater the number of compartments that will fit into it. For instance, a system designed for use in rabbits could contain around 500 compartments. Systems for use in goats would involve about 1000 compartments.

In theory, these systems can be made in a range of sizes and from various materials. This allows researchers to adapt the material used to the specific type of research involved. The system is being marketed by Screvo, a University of Twente spin-off company.

The article is titled "Screening in vivo of extracellular matrix components produced by multiple experimental conditions implanted in one animal."

Provided by University of Twente