Paradigm shift – Developments in Germany and the EU

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Although animal experiments are still an integral part of research and regulatory testing, scientists are increasingly addressing the fact that experimental studies on animals have serious disadvantages. One of the main problems is the poor transferability of test results to humans on account of species-specific differences that cannot be disregarded. This is also one of the main reasons for the poor clinical development success rate. According to current analyses, a maximum of 10% of drugs that were found to be safe and effective in animal trials make it to market.[1] Despite extensive research involving animal experiments and massive financial support, we are still a long way from understanding the molecular causes of diseases such as cancer and Alzheimer's. And despite numerous success stories of mice being cured of cancer and Alzheimer's disease, we are still lacking effective drugs for specific therapy and cure.[2] These are all reasons why we need to bring about a paradigm shift, away from animal testing and towards human-based modern research and medicine.

Now is the time to do this as a number of excellent animal-free testing methods have become established, e.g. based on human cells or mathematical models, particularly in the last 10 years. Three-dimensional mini organs – so-called organoids – are being grown in laboratories from human stem cells and mirror the essential functions of the donor's native organ. Up to 10 different organoids can be interconnected on a multi-organ chip to form a simulated human organism. These methods are hugely promising for research into diseases and testing of pharmaceuticals and chemicals.[3] They make personalised cancer treatment possible as human tumour organoids can be generated from patient biopsies, on which cancer drugs can be pre-tested in order to determine the most effective for the patient (cf. Fig.1).[4]

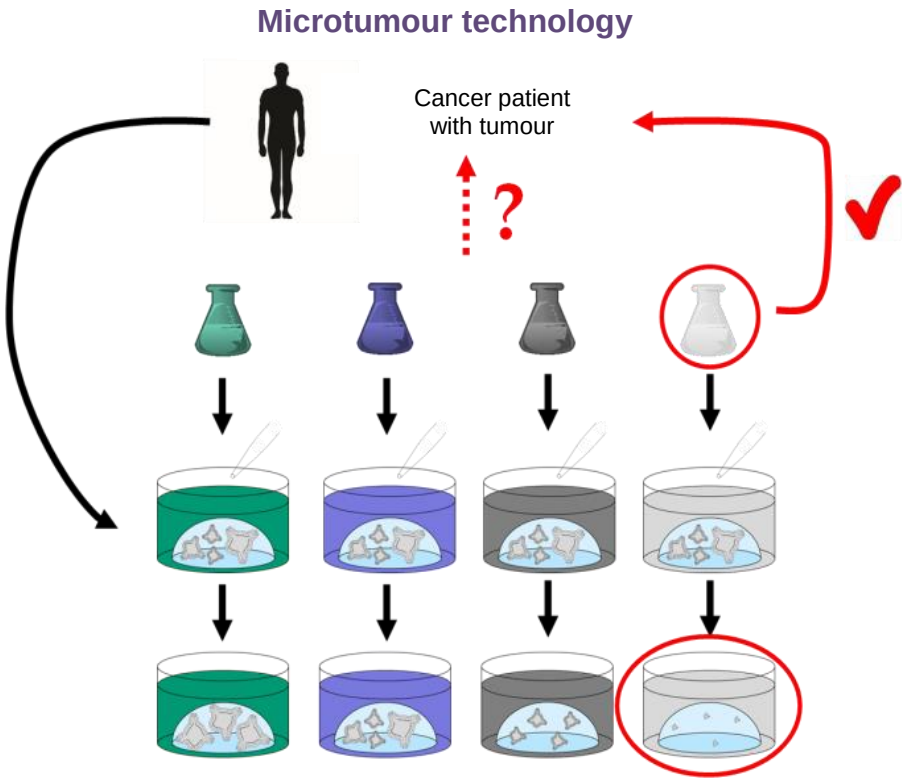

Figure 1: Personalised cancer treatment. Tumour biopsies from cancer patients are used to grow microtumours in a lab. These microtumours are then used to pre-test the efficacy of various cancer drugs. The drug that is the most effective in the microtumour assay is then administered to the patient.

While other countries, such as the Netherlands, Norway and the United States already have concrete plans in place to abolish animal testing that is required by law, the German government is taking no concrete steps to bring about this paradigm shift. More is being done at EU level, which is ultimately the crucial authority. The ECVAM (European Centre for the Validation of Alternative Methods) is an entire institute dedicated to validating alternative (animal-free) methods, and promoting their regulatory acceptance for safety testing.[5] The ECVAM is part of the European Commission‘s Joint Research Centre (JRC) and works with numerous bodies and committees that assess and evaluate animal-free methods.

Animal rights organisations are working continuously with researchers, EU delegates, the ECVAM and the European authorities to reduce animal testing and to promote animal-free methods with the aim of bringing about a paradigm shift as soon as possible.

Sources:

[1] Clinical Development Success Rates 2006-2015 - BIO, Biomedtracker, Amplion 2016
[2] Cummings J et al. Alzheimers Res Ther. 2014
[3] Park S et al. Science 2019
[4] Halfter K & Mayer B. Biotechnology Journal 2017
[5] https://ec.europa.eu/jrc/en/eurl/ecvam