



EMBARGOED: 9:00 GMT TUESDAY 22 DECEMBER 2015

2014 CRACK IT Challenges winners awarded £1 million

The NC3Rs open innovation platform CRACK IT has awarded £1 million in its annual competition run in collaboration with the UK's innovation agency, Innovate UK, using the Small Business Research Initiative (SBRI).

CRACK IT Challenges is a funding competition designed to accelerate the development, application and commercialisation of technologies with 3Rs potential. The challenge-led competition is aimed particularly at collaborations between industry, academics and SMEs to solve problems related to the 3Rs, leading to new products or improved business processes. Large industries, typically from chemical, pharmaceutical or consumer product sector, take the role of 'Sponsors'. The Sponsors define relevant Challenges together with the NC3Rs, and provide in-kind contributions including access to data, compounds or equipment to the innovators.

The competition is conducted in two phases: in Phase 1, chosen projects are awarded up to £100,000 for research and costs of proof-of-concept validation. After six months, candidates are invited to apply to Phase 2 to compete in a 'Dragons' Den' style interview before a Challenge Panel. The winning team is awarded a contract for up to £1m over three years to deliver the full Challenge.

After recent 'Dragons' Den' interviews, today we announce that the winning team proceeding to Phase 2 for the Neuratect Challenge is led by Jos Joore, MIMETAS, the organ-on-a-chip company. No contracts were awarded for Phase 2 of Targeting off-targets. AbbVie, BASF, GSK and Sanofi will support the project as Sponsors in cooperation with NC3Rs.

The Challenges address a range of problems in science and in business across different bioscience areas, each with significant potential to replace, refine or reduce the use of animals in research.

The Neuratect Challenge is to create a physiologically-relevant platform from human induced pluripotent stem cells (iPSCs) for assessing neurotoxicity *in vitro*. The central nervous system is complex, and so the model will integrate morphological and structural endpoints with electrophysiological parameters to evaluate neurotoxicity (neuronal viability and functional impairment), as well as seizure liability. The platform aims to improve on the currently used *ex vivo* hippocampal slice assay as well as support the basis for the future reduction and potentially replacement of *in vivo* tests in the regulatory context.

Phase 2 winner for the Neuratect Challenge, Jos Joore from MIMETAS BV, said: "Mimetas and its expert partners are delighted to collaborate with leading pharmaceutical and chemical companies, as well as NC3Rs. We are looking forward to improving current neuronal models



as well as helping to reduce animal experimentation, applying our state-of-the-art microfluidic 3D tissue culture technology in this exciting field.”

The Targeting off-targets Challenge was to develop a novel system to evaluate the potential human safety issues resulting from chemicals interacting with ‘off-target’ receptors. No Phase 2 contract was assigned for this Challenge.

Notes for Editors:

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1. Background to CRACK IT

CRACK IT was launched by the National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3Rs) as the first open innovation platform designed to bring together industry, academia and SMEs to support the development of marketable products and improved business processes with 3Rs benefits.

CRACK IT has two parts:

- CRACK IT Challenges: A two-phase competition that funds collaborations between industry, academics and SMEs to solve business challenges involving animals.
- CRACK IT Solutions: A technology partnering hub designed to accelerate the translation of technologies with potential 3Rs impacts (referred to as 'Solutions') out of the science base and into application to maximise the scientific and commercial benefits.

Through CRACK IT we work with the pharmaceutical, chemical and consumer product industries, SMEs and academia to bring together bioscience, chemistry, mathematics and engineering communities in defining and solving the challenges of research involving animals. Register with the CRACK IT website to join our expanding CRACK IT community and have an impact on science, business and the 3Rs.

For information on CRACK IT, visit the website www.crackit.org.uk.

2. Phase 2 Challenge winners:

- Neuratect, Jos Joore, MIMETAS BV., £999,902

3. About MIMETAS BV

MIMETAS BV (Leiden, The Netherlands) develops organ-on-a-chip tissue models for evaluating drugs, chemicals and food components. Its unique microfluidic technology, designated OrganoPlate™, enables testing of compounds in high-throughput on miniaturized organ models. These models show better predictivity as compared to laboratory animals and conventional cell culture models. The OrganoPlate™ platform supports 3D cell culture under continuous perfusion and membrane-free co-culture, including epithelial and endothelial boundary tissues. MIMETAS offers OrganoPlates™, develops and validates customised disease, toxicology and transport models and will ultimately make its technology available for personalised therapy selection.

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4. About Innovate UK

Innovate UK is the UK's innovation agency. We work with people, companies and partner organisations to find and drive the science and technology innovations that will grow the UK economy - delivering productivity, new jobs and exports and keeping the UK globally competitive in the race for future prosperity. For further information visit www.gov.uk/innovateuk

5. About Small Business Research Initiative (SBRI)

The SBRI programme uses the power of government procurement to drive innovation. It provides opportunities for innovative companies to engage with the public sector to solve specific problems. Competitions for new technologies and ideas are run on specific topics and aim to engage a broad range of organisations. SBRI enables the public sector to engage with industry during the early stages of development, supporting projects through the stages of feasibility and prototyping.

For further information visit our website at <https://www.gov.uk/government/collections/sbri-the-small-business-research-initiative>