



Advancing the development and application of non-animal technologies

COMPETITION FOR FEASIBILITY STUDY FUNDING

FEBRUARY 2014

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Summary

The Technology Strategy Board, the National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3Rs), the Biotechnology and Biological Sciences Research Council (BBSRC), the Engineering and Physical Sciences Research Council (EPSRC) and the Defence Science and Technology Laboratory (DSTL) are to invest up to £4m in feasibility studies into how non-animal technologies can be further developed and applied to improve product development across a range of industries.

These technologies could revolutionise the way in which new drugs and chemicals are assured for effectiveness and safety. The funding will allow companies, such as pharmaceutical, chemical and personal care businesses, and contract research organisations, to collaborate with each other and with researchers to explore better ways of predicting the effects of new drugs and chemicals on humans, animals and the environment. A key aim of this competition is to harness recent advances in non-animal technologies to generate new technologies with improved predictive capacity, or to extend existing technologies to new application areas.

Projects must be collaborative and business-led. We expect to fund feasibility studies (mainly pre-industrial research projects) in which a business partner will attract up to 65% public funding of their project costs (75% for SMEs).

We expect projects to last from 12 to 18 months, and to range in size up to £250k.

This competition opens on **3 February 2014**. The deadline for registration is at noon on **19 March 2014** and the deadline for applications is at noon on **26 March 2014**.

A briefing event for potential applicants will be held on **11 February 2014**, and networking events to highlight the main features of the competition and facilitate consortia-building will be held in Manchester, Cardiff, London, and Edinburgh.

Background

The development and launch of new products in areas such as human and veterinary medicine, agrochemicals, personal care products, and food additives require evaluation of the safety and efficacy of the substances used in them. Currently, with the exception of personal care products, this is mostly determined by testing in animal models prior to potential exposure or use in humans. Studies in animals are used, for example, to determine whether a new pesticide will have an adverse impact on the environment, and to select new candidate drugs for clinical trials. In the UK alone, four million scientific procedures involving the use of animals were carried out in 2012.

Animal models are not always accurate predictors of the effects of a new substance in humans, animal species and the environment. For example, a high percentage of drug candidates are removed from development when tested in humans because of a lack of efficacy or safety that was not predicted in pre-clinical animal testing. Attrition, the failure of drug candidates to progress through to market, is a major financial burden for the industry. Reducing attrition by even a small amount can lead to huge financial savings and increased business growth.

The use of non-animal technologies in a limited number of areas has already significantly reduced attrition and improved human safety (for instance, helping to predict cardiovascular adverse events or

skin sensitisation). Recent advances in relevant fields in the biosciences (including induced pluripotent stem cells, tissue engineering technologies, high-throughput platforms, computational methods and modelling) offer many more opportunities for these systems to transform drug and chemical development. We aim to help business to harness advanced technologies emerging from the research base and assess their potential to better predict the impact on humans and the environment of new molecular and chemical entities. The UK leads the science in these technologies, and this competition will build upon these strengths to further their commercial potential.

Successful projects will benefit various industries and sectors including but not limited to the pharmaceutical, chemical, contract research, agrichemical, and personal care sectors.

Scope

The aim of this competition is to enable project participants to explore the commercial feasibility of developing non-animal technologies and testing systems that better predict human and animal responses to, and the environmental effects of, chemicals and new molecular entities. It covers technologies that could be used in early drug, chemical and consumer product development, and suites of technologies intended to replace regulatory toxicology studies.

Our aim is not purely to replace animal models with equivalent *in vitro* models; it is to produce better tests and systems that more accurately predict efficacy, safety and environmental effects.

The range of technologies that might need to be developed or integrated to meet this challenge could include, but is not limited to, the following.



Biological, tissue engineering and imaging-related

- stem cell technologies/tissue engineering
- cell-line technologies
- cell culture – single-cell-type/3D/mixed-cell type/dynamic
- organ-on-a-chip/whole-organ models/connected-cell-type technologies
- next-generation sequencing and ‘omics’ – genomics, epigenomics, proteomics
- technologies for identifying and measuring *in vitro* biomarkers
- cell/molecule-level imaging and sensing – positron emission tomography, magnetic resonance imaging, optical, *in vitro/ex vivo*, high-contrast
- stratified (personalised) medicine approaches
- use of lower organisms or plants.

Manufacturing-related

- high-throughput technologies/combinatorial chemistry
- micro-structured surfaces and micro-fluidics
- automation and control.

Information and communication technology-related

- computer simulation and *in silico* modelling
- structure-activity relationships and computational chemistry
- data-mining and analysis of large complex (including historical) data sets.

Applicants are expected to demonstrate a clear commercial application of the technology, and a credible plan to develop it and put it to use.

Extensive regulatory validation studies and improved animal models are not within the scope of this competition.

Funding allocation and project details

We have allocated up to £4m to fund feasibility studies (or pre-industrial research) that address the technical challenges outlined in the scope above.

Projects must be business-led and collaborative. They can attract up to 65% public funding (75% for SMEs), and we expect total project costs to range up to £250k. Projects should last from 12 to 18 months.

Collaborations can be business-to-science or business-to-business: academics can apply as a partner in a consortium. Where academic partners are involved, their costs must be no greater than 50% of the total project costs.

We expect bids to be led by companies in the pharmaceutical, biotechnology, chemical, agrochemical, personal care and contract research industries, with support as appropriate from businesses in areas such as manufacturing, ICT and informatics. To find out whether your business fits the EU definition of an SME, see: http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index_en.htm.

Each partner in a project can receive funding towards their project costs – the funding is a percentage of the total eligible project costs and varies, depending on the type of organisation and the type of research. For general guidance on how projects are funded see: www.innovateuk.org/-/funding-rules

The Technology Strategy Board also runs regular Collaboration Nation events, which enable companies that have been successful in feasibility studies competitions to showcase the results of their projects to their peers and others, with a view to finding new partners to collaborate with and new sources of funding. For more information see the Feasibility Studies pages on www.innovateuk.org

Application process

This competition opens on **3 February 2014**. All applicants must first register via our website by noon on **19 March 2014**. The deadline for applications is noon **26 March 2014**.

Applications are assessed on individual merit by an independent panel of experts. We may apply a portfolio approach to projects supported under this competition, across the themes/areas, subject to applications meeting the required quality threshold.

A competition briefing event will be held on **11 February 2014** to highlight the main features of the competition and explain the application process.

Applicants are strongly recommended to attend this event.

A series of networking and partnering events to facilitate consortia-building will be held in Manchester (**10 December 2013**), London (**12 December 2013**), Edinburgh (**16 January 2014**) and Cardiff (**22 January 2014**).

Applicants are strongly recommended to attend one of these events.

Looking for partners to work on your project? Go to [_connect www.innovateuk.org/connect](http://www.innovateuk.org/connect) to find collaborators and networks.



More information

For more information and all the documents you need to read before you apply, including the *Guidance for Applicants*, go to the web page for this competition at www.innovateuk.org under Funding & Support > Funding competitions.

To apply you must first register with us through the competition page on the website. Registration opens when the competition opens and closes a week before the deadline for applications.

Competition helpline:
0300 321 4357

Email:
competitions@innovateuk.org

Key dates

Competition opens	3 February 2014
Briefing event	11 February 2014
Registration deadline	19 March 2014, noon
Deadline for receipt of applications	26 March 2014, noon

Publicity

As part of the application process all applicants are asked to submit a public description of the project. This should adequately describe the project but not disclose any information that may impact on intellectual property, is confidential or commercially sensitive. The titles of successful projects, names of organisations, amounts awarded and the public description will be published once the decision to offer an award has been communicated to applicants by email. Information about unsuccessful project applications will remain confidential and will not be made public. E-mail pressoffice@tsb.gov.uk with any queries.

The Technology Strategy Board is a business-led executive non-departmental public body, established by the Government. Its role is to promote and support research into, and development and exploitation of, technology and innovation for the benefit of UK business, in order to increase economic growth and improve quality of life.

Collaborative research and development is part of the Government's Solutions for Business portfolio.

The Technology Strategy Board
North Star House
North Star Avenue
Swindon
SN2 1UE

Telephone: 01793 442700

www.innovateuk.org