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Non-animal models industry to generate over $1.5 B and 5,000 jobs for Australia by 2040: Study

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CSIRO charts new industry for 'non-animal models' to advance new medicines

An emerging capability that uses 'non-animal models' to evaluate novel medical products is estimated to generate over $1.5 billion in revenue and create over 5,000 jobs by 2040, a new report from the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia's national science agency, has found.

Non-animal models use human-derived or humanised cells, tissues or data. Examples include 'organoids' and 'organ-on-chip' technologies and they are a valuable alternative to traditional methods involving animals.

The report identifies four opportunities for applying non-animal models to medical product development that align Australia's strengths with global need.

These opportunities are:

- Complex in vitro models for drug discovery
- Organ-specific models for pre-clinical development
- Personalised models for trial participant and clinical treatment selection
- On-shore production of model components

The global organoids market in 2022 was $1.62 billion and is expected to reach $30.91 billion by 2040, with a CAGR of 17.4%. Under current research output trends, estimates of this market result in 4,200 jobs and $1.28 billion in revenue for Australia by 2040. By comparison, the organ-on-chip market is at an earlier phase of adoption. This has been valued at $110 million worldwide in 2022, projected at $11.48 billion by 2040 (29.4% CAGR). The potential share for Australia by 2040 is $310 million in revenue, with 1,000 jobs.

The report's recommendations could be applied to other fields beyond the medical product development process, such as veterinary and agricultural medicines, cosmetics testing, industrial chemicals, and eco-toxicology.

The report was developed in collaboration with industry, research and government partners including the National Health and Medical Research Council, Phenomics Australia, University of Melbourne, University of Newcastle, University of Sydney,

Australian Ethical, The Medical Advances Without Animals Trust, and University of South Australia.