

PerfusionPal: organ-on-a-chip platform for biopharmaceutical testing

Lena Biosciences is seeking collaborators to validate, manufacture and commercialise their 3D cell culture perfusion platform which enables testing of slow-clearing biologicals, small molecule drugs and antibody-drug conjugates.

What could the Solution be used for?

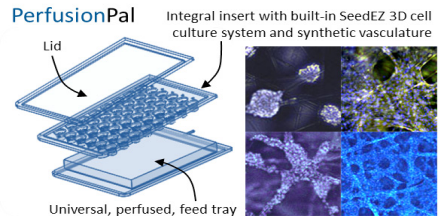
PerfusionPal micro-organ technology combines a patent-pending cell scaffold system and synthetic vasculature, with a novel perfusion platform that enables drug testing in 48 independent micro-organs within one standard multiwell plate. The use of a high-density liquid with high oxygen carrying ability enables each micro-organ to be perfused with a separate culture medium, and results in increased oxygenation of the culture.

In this system, signalling molecules and trophic factors are retained, drug consumption is minimised, and the secretome is concentrated allowing biomarker detection. This provides a suitable *in vitro* environment to carry out long-term drug studies and testing of slow-clearing monoclonal antibodies, biosimilars and antibody-drug-conjugates.

Need for collaboration

We are seeking collaborators in the pharmaceutical, chemical, biotechnology, CRO or academic sectors to:

- Test biopharmaceuticals or drug combination strategies in extended exposure
- Assess early drug efficacy, specificity, selectivity, off-target liabilities, cytokine release and repeat-dose toxicity in perfused micro-organ cultures
- Test personalised therapies in patient-derived micro-tumours
- Co-develop and validate normal and diseased tissue models
- Manufacture and commercialise PerfusionPal, including increasing throughput



3Rs impact assessment

Safety and efficacy testing of biopharmaceuticals uses large numbers of non-human primates (NHPs). Incorporating PerfusionPal into the standard testing regime for biopharmaceuticals will triage dangerous drug leads and prevent them from progressing into further testing in NHPs. Furthermore, thousands of immunocompromised mice are used in tumour xenograft models for testing of immunotherapeutics or other immunomodulatory drugs. PerfusionPal could be used to test the effects of these drugs on immune and inflammatory cells, or on patient-derived micro-tumours, saving time and reducing animal use.

To find out more or to connect with the technology developer contact crackitenquiries@nc3rs.org.uk

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