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## **Making 3D possible: Large scale organoid expansion using bioprocess design**

**Mark Treherne**

Life Sciences Organisation of UK Trade & Investment, UK

Organoids are three-dimensional ‘mini-organs’, which can be grown in culture and which recapitulate all the key features of the tissue from which they were derived. Organoids grown in 3D are widely accepted as being superior to traditional 2D cell culture systems, because they better represent the structure and function of their original tissue. This means they serve as better models and therefore have improved predictive ability in the drug discovery process. They can also be effectively deployed as a replacement for the use of animals in early preclinical studies.

A significant barrier to widespread adoption of organoids in drug discovery is that organoid production is a costly and highly labour-intensive process. Moreover, organoid culture is a skilled manual process, and thus there can be significant variability between operators.

Cellestec are currently developing bioprocessing systems for the efficient and standardised expansion of organoids in significant volumes, with the long-term goal of making organoid models more widely accessible to the drug discovery community. In doing so, organoid technology has significant potential to improve the predictive potential of efficacy and toxicity assays, and therefore rationalise the drug discovery process, reduce waste and replace the use of animal models.

[mark.treherne@cellestec.com](mailto:mark.treherne@cellestec.com)