

Method to generate human bone organoid

A method for generating ex vivo models of the bone and bone marrow, which involves the use of a fragmented gel as a 3D scaffold to drive vascularisation and differentiation.

Applications: Modelling cell-cell interactions, testing/validating pharmacological agents, personalised medicine approaches, cytotoxicity screens, modelling mechanisms of bone marrow metastasis, drug discovery, generation of cells for autologous/allogenic cell transpla



Features	Benefits
This method uses a microgel (or a fragmented/granular hydrogel)	A complex 3D environment including a lumen forming vasculature, haemopoietic cells and mineral depositing bone progenitors can be formed
Can generate bone marrow organoids at high scale	Can supply academic and commercial researchers in a cost-effective manner
A more complex cellular milieu can be formed, which includes bone progenitors/bone depositing cells, as well as haematopoietic (lymphoid and myeloid) cells and a functioning vasculature	This allows reproducibility of the biology of the bone and bone marrow, allowing modelling of a broader range of diseases

Features	Benefits
The structures generated with a fragmented microgel are more cellular, with fewer non-cellular gel-rich gaps form between vessels	This increases cell-cell interactions to yield a more mature, physiologically relevant culture
Allows discovery and testing of new therapeutics on patient samples in a 3D microenvironment	Allows evaluation of selectivity of targeted therapies and impact of specific tissue environments on efficacy of therapeutic agents; Can lead to personalised medicine approaches

Patented and Available for

- Co-development
- Licensing

To find out more, contact enquiries@innovation.ox.ac.uk and quote the project number.

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