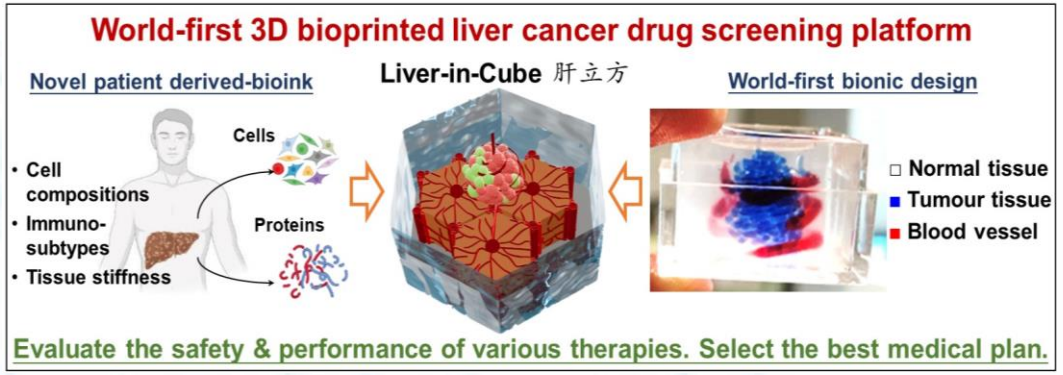
Bionic Liver-in-Cube: Comprehensive Precise Theranostics for Liver Cancer and Diseases

Principal Investigator: Professor Kwan Man

Technology

The innovation addresses the low efficacy and side effects caused by individual differences in patients with two core unique technologies: **1)** With our newly developed new technique, patient's tumor, immune cells and matrix proteins are extracted simultaneously, combined with their own parameters, such as tissue hardness and immune subtype, tailor-making patient specific ex-vivo models for personalized drug screening; **2)** Through 3D bioprinting technologies in fabricating tissue-like architecture including normal, disease tissue and vascular structure concurrently, which is more bio-mimical comprehensively portraying the patients specific tumor microenvironment compared to other currently available products in the market.



Key Advantages

- Rapidly and precisely select drugs with best efficacy for patients by increasing survival rate and reducing recurrence rate.
- With multiple patient derived cell types and proteins for accurately evaluate individual performance and side effects of different therapies.
- Improve the new drugs development process, greatly reduce costs and time.

Opportunities

- Growing demand yet limited competition in the current personized medicine markets
- Continuous increased of cancer and liver diseases new cases with high failure rate for empirically-based treatment

Intellectual Property

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