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Asia's first bladder cancer organoid biobank pioneering new era in precision medicine

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Offering great promise for the advancement of innovative therapies for bladder cancer



The Chinese University of Hong Kong's (CUHK) Faculty of Medicine (CU Medicine) has created the first Asian population-based bladder cancer patient-derived organoid biobank, which not only offers new hope for precision treatment to bladder cancer patients in Hong Kong but also marks a significant milestone in oncology research in Asia.

Bladder cancer is a major urological disease and among the top 10 most common cancers in the world. It is mainly divided into non-muscle invasive bladder cancer (NMIBC) and muscle invasive bladder cancer (MIBC), which have different molecular features. The disease is prone to metastasis and recurrence, posing challenges to clinical treatment.

Surgery and chemotherapy are first-line treatments, but surgery can easily cause various complications; while chemotherapy, the first-line treatment at advanced stages, may induce drug resistance.

Dr Zhao Hong-da,a postdoctoral fellow from the Division of Urology in the Department of Surgery at CU Medicine, said: "Asian and Western populations vary significantly in genetic mutation profiles, treatment responses and survival rates. The Asian-based biobank, which is validated by xenograft animal studies and patient clinical treatment outcomes, helps local doctors provide more precise prognoses and treatments. Bespoke treatments increase the success rate of clinical trials and benefit more patients in Hong Kong and other regions in Asia."

Organoid technology bridges fundamental research and clinical applications, deepening insights into tumour microenvironments and the potential mechanisms of drug resistance. The achievement opens new avenues for new drug research and development, as well as precision medicine targeting the microenvironments of bladder tumours.