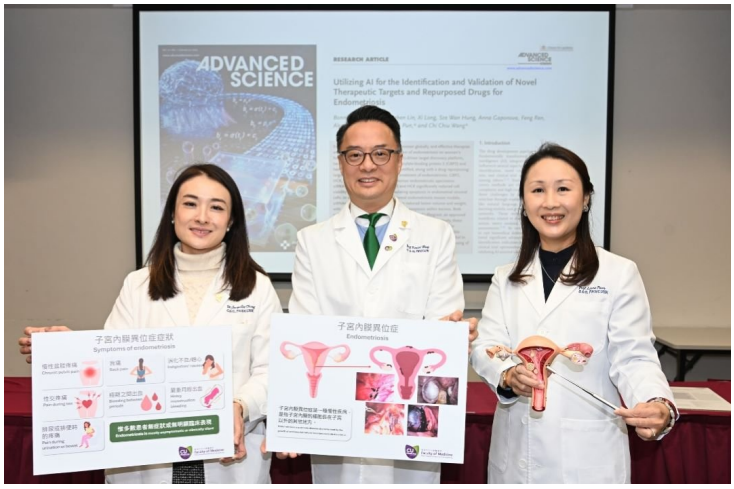
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ASIA EDITION

Hong Kong unveils novel therapeutic targets and drug repurposing opportunities for endometriosis

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CU Medicine collaborated with a local AI biotech company to investigate non-hormonal drugs for endometriosis using an AI-driven target discovery platform



The Chinese University of Hong Kong (CUHK)'s Faculty of Medicine (CU Medicine) used an artificial intelligence (AI)-driven platform to perform a meta-analysis of an endometriosis-associated dataset, successfully identifying two novel therapeutic targets for endometriosis, and discovering that an integrin antagonist, a non-steroidal anti-inflammatory drug approved for dry eye disease, can potentially suppress the growth of endometriotic lesions which could be a repurposed treatment option.

The researchers revealed for the first time that guanylate-binding protein 2 (GBP2), a protein that regulates immune and inflammatory processes, and hematopoietic cell kinase (HCK), which is involved in cell proliferation and survival signalling, are therapeutic protein targets in endometriosis. The study showed reducing the levels of GBP2 and HCK in mouse models of endometriosis led to smaller and lighter endometriotic lesions, less cell growth and more cell death.

Given that integrin beta 2 (ITGB2) has high expression level in the human endometriotic specimens, researchers tested an antagonist to inhibit ITGB2 as a potential drug that could be repurposed for endometriosis. The antagonist is a non-steroidal anti-inflammatory drug approved for dry eye disease. Results showed the drug effectively suppressed lesion growth when administered in an endometriosis mouse model, indicating that it could be a viable treatment option for endometriosis in clinical settings in future. Notably, the use of AI for target discovery helps shorten the time it takes to develop novel drugs.

Dr Jacqueline Chung Pui-wah, Clinical Associate Professor in the Department of Obstetrics and Gynaecology at CU Medicine, said: "Current therapeutic approaches to endometriosis often provide only temporary relief, with a high risk of recurrence. Besides, hormone therapies raise concerns about long-term side effects and dependence. Therefore, it is important to look for novel therapeutic approaches to endometriosis."