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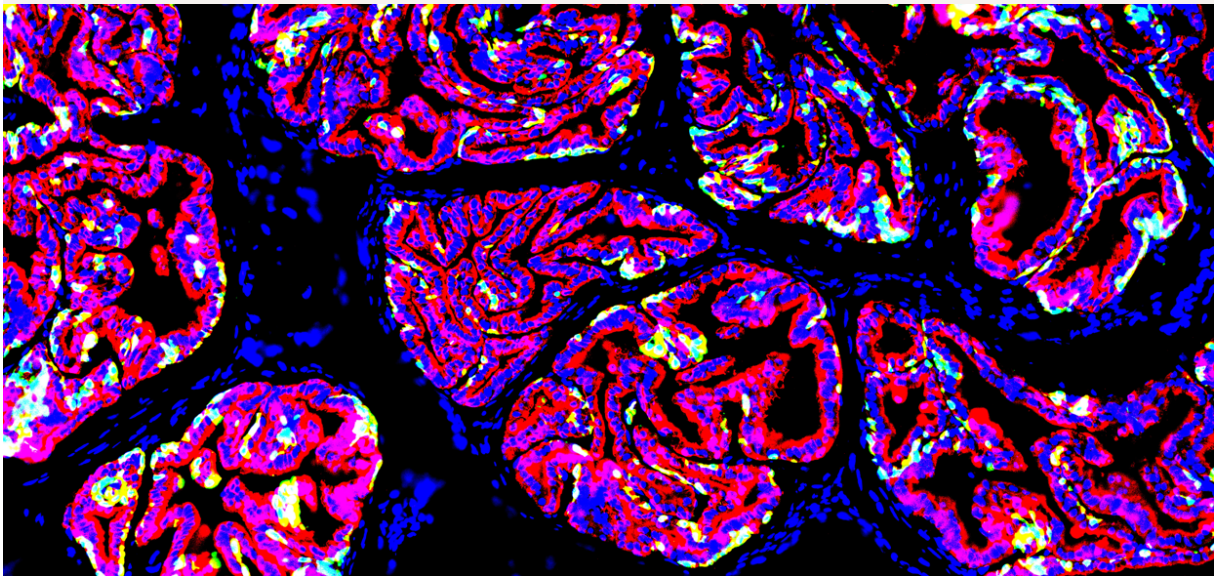

Brussels June 17 2025

EMBARGO UNTIL JUNE 23 11AM (Brussels time) /5AM (US EASTERN TIME)

Cancer: Discovery of the mechanisms promoting prostate tumor formation

Publication in ***Nature Cancer***: researchers from the Université Libre de Bruxelles (ULB) have discovered the cellular reprograming leading to prostate cancer initiation

Prostate cancer is one of the most common cancers and the second leading cause of cancer-related death in men worldwide. However, the mechanisms controlling the early stages of prostate cancer formation are poorly understood.

In a study published in the prestigious journal Nature Cancer, researchers led by Professor Cédric Blanpain, MD/PhD, WELBIO researcher, director of the Stem Cells and Cancer Laboratory, and professor at the Université Libre de Bruxelles, discovered that inflammation induced by cancer-associated mutations leads to the reprogramming of mutated cells into cell states essential for tumor initiation.

Chen Jiang and colleagues studied the molecular mechanisms regulating the early stages of prostate cancer initiation. They discovered that cellular reprogramming events leading to cancer formation occur differently in different regions of the prostate. The ULB researchers discovered that cellular reprogramming mediated by inflammatory activation was associated with the most severe cases of prostate cancer in human. "It is exciting to see that the cellular reprogramming identified in the mouse model correlates with more aggressive prostate cancers in men, suggesting that the

reprogramming markers we identified could serve as a predictive biomarker for aggressive prostate cancer," says Dr. Chen Jiang, first author of the article.

Using molecular profiling during prostate tumor initiation, the researchers identified that inflammatory activation is a key regulator of cellular reprogramming and tumor initiation. Pharmacologically blocking inflammation prevents cellular reprogramming and prostate tumor initiation. "By identifying the molecular mechanisms regulating cellular reprogramming required for prostate tumor formation, our results pave the way for new therapeutic approaches targeting inflammation-induced reprogramming, which could prevent the formation of prostate cancers and potentially other cancers," comments Professor Cédric Blanpain, the director of this study.

This work is a collaborative effort between the team of Pr Blanpain (ULB) and Pr Sifrim (KUL).

This work was made possible thanks to the support of the FNRS, TELEVIE, the WEL Research Institute, the Fondation Contre le Cancer, the Julie and Françoise Drion Fund, the André Vésale Association, the ULB Foundation, the Yvonne Boël Fund, and the European Research Council (ERC).

Journalists should credit Nature Cancer as the source of the covered story.

Innate immunity and the Nfkb pathway control prostate stem cell plasticity, reprogramming and tumor initiation
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