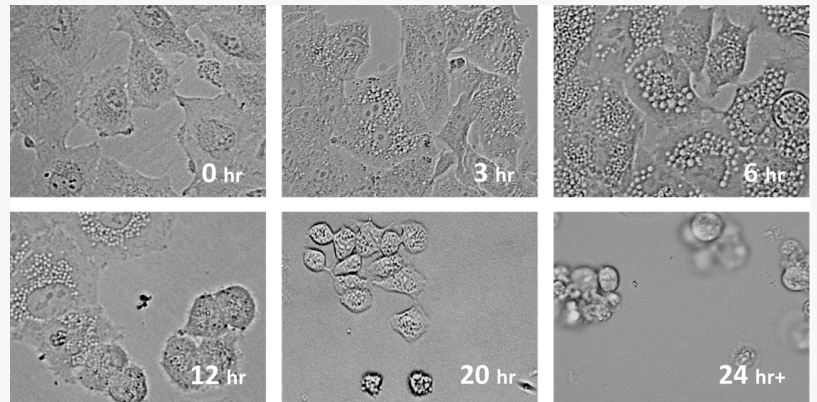


# Breakthrough Cancer Drug Makes Cancer Cells Collapse from Within — No Harm to Healthy Tissue

*New drug triggers cancer cell self-destruction from the inside—obliterates tumors while leaving healthy tissue completely untouched.*

CAMBRIDGE, MA, UNITED STATES, May 27, 2025 /EINPresswire.com/ -- In a revolutionary leap for cancer treatment, Boston-based biotech company MicroQuin has unveiled a therapy that selectively destroys cancer cells by exploiting their intracellular environment—with no harm to healthy cells. Published in *Oncogene*, the study introduces a first-in-class compound that flips an internal “kill switch” inside cancer cells, causing them to rapidly self-destruct — without damaging healthy ones.



Photographs of Lung Cancer Treated with MicroQuin's Drug and monitored over 24 hr

The key lies in a natural protein called TMBIM6, which is only activated by severe stress signals within cells. MicroQuin's drug activates TMBIM6, unleashing a chain reaction inside the cancer cell that leads to paraptosis—a form of non-immunogenic cell death that destroys the organs of the cell.

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Cancer cells live in chaotic internal environments—our drug turns that chaos against them”

*Dr Keith S Robinson*

“Cancer cells live in chaotic internal environments—our drug turns that chaos against them,” said Dr. Keith S. Robinson, lead scientist on the study. “The inherent nature

of cancer - its high energy need, unregulated growth, and spread - creates highly toxic byproducts that cancer must remove to survive. We stop it removing these byproducts which trigger its collapse from within — without touching healthy cells.”

Targeting Cancer's Internal Weakness

MicroQuin have developed drugs that work by increasing the levels of calcium and oxidative

stress only inside cancer cells—two key signals in the intracellular environment. This activates lysosomes and disrupts critical pathways that cancer cells use to survive under pressure, effectively pushing them into self-destruction.

Unlike chemotherapy, immunotherapies or targeted drugs, MicroQuin's approach does not rely on mutations or immune activation. It simply exploits a universal vulnerability: the stressed internal conditions that cancer cells create by being cancer.

In preclinical in vivo models, MicroQuin's drugs shrank breast and ovarian tumors significantly, with no toxicity observed—even at doses over 450 mg/kg. The results point to a new kind of therapy that works across all cancer types, regardless of genetic profile.

### Implications Beyond Cancer

Because the intracellular environment plays a role in many diseases, including neurodegeneration and viral infections, researchers believe this mechanism could unlock new treatment avenues far beyond oncology.

The work was conducted in partnership with Viva Biotech, whose AI-driven discovery platform helped identify and refine MicroQuin's small molecules. This work was supported by technology in space awards UA-2019-007 and GA-2019-005 funded by the Center for the Advancement of Science in Space (CASIS) and Boeing. In addition, this work was supported by the Office of the Assistant Secretary of Defense for Health Affairs endorsed by the Department of Defense, through their Lung Cancer and Ovarian cancer research programs under Award No.s W81XWH-22-1-0472 and HT9425-23-1-0397. Opinions, interpretations, conclusions and recommendations are those of the author and are not necessarily endorsed by the Department of Defense, CASIS or Boeing.

### About MicroQuin

MicroQuin is a Boston-based biopharmaceutical company pioneering therapies that manipulate the intracellular environment to combat cancer and other complex diseases. By targeting the root conditions within diseased cells, MicroQuin aims to deliver safer, smarter, and more universal treatments.

Read Full Article: <https://www.nature.com/articles/s41388-024-03222-x>

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