

The Cell Line That Helped Map Brain Cancer's Immune Landscape

How a 2025 Cell Reports study used the E0771 from CH3 Biosystems to make a major discovery.

Blog post by Pranitha Bhuthkuri

A landmark 2025 study published in Cell Reports used the [E0771](#) breast cancer cell line, sourced from CH3 Biosystems LLC in Amherst, New York, as the biological foundation for groundbreaking discoveries about brain cancer and the gut.

The research team, led by Dr. Siyuan Zhang at UT Southwestern Medical Center and the University of Notre Dame, set out to answer: does the health of your gut microbiome affect how aggressively breast cancer spreads to the brain? The answer they found was yes — profoundly so.

The Research Team and Their Mission

The team included lead author Dr. Samantha M. Golomb and collaborators Ian H. Guldner, Emilija Aleksandrovic, and others across both institutions. Their central question: how does the gut microbiome regulate the brain's immune response during breast cancer brain metastasis — and can disrupting that microbiome change how aggressively tumors grow?

Why This Question Matters

Brain metastasis occurs in a significant portion of breast cancer patients, particularly those with HER2-positive and triple-negative subtypes. Understanding what factors make the brain more or less hospitable to tumor growth is an urgent clinical priority. The gut microbiome — the vast community of microorganisms living in the digestive tract — had never been mapped in relation to brain metastasis immune dynamics at single-cell resolution. This team set out to change that.

Coming up in Part 2: The two-step modification that transformed standard [E0771](#) cells into a precision brain cancer research tool.

Series navigation: [Part 2: Engineering a Brain-Seeking Cell Line >>>](#)