

# Study finds breast and ovarian cancer may have similar origins

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While breast cancer is the most common cause of cancer death in women worldwide, ovarian cancer also is a significant source of mortality as the fifth leading cause of cancer death among women. These facts reflect the continued need for further understanding and innovation in cancer treatment.

A new study published in the *International Journal of Molecular Sciences*, describes a new concept of how these two cancers may evolve in a similar way and may eventually lead to more effective therapies for both.

"Though breast and ovarian cancer are distinctly clinically different, our analysis uncovered many overlaps, particularly with respect to genetic and epigenetic alterations," explained corresponding author Sibaji Sarkar, PhD, instructor of medicine at Boston University School of Medicine (BUSM). (Epigenetics is when genetically identical cells express their genes differently, causing different outcomes.)

BUSM researchers compared genetic, micro-environmental, stromal ([connective tissue cells](#) of any organ) and epigenetic changes common between breast and [ovarian cancer cells](#), as well as the clinical relevance of these changes. They observed that selected genes including some oncogenes and [tumor suppressor genes](#) are similarly altered in these two types of cancers.

The study also presents a new model that explains how growth promoting

genes could be epigenetically turned on and growth inhibiting genes could be epigenetically turned off in cancer cell formation.

"Both breast and [ovarian cancers](#) may have a similar origin. These similarities suggest that better understanding of this process will generate more effective chemotherapeutics, as well as strategies to circumvent drug resistance and cancer relapse," added Sarkar.

Provided by Boston University Medical Center

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