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Scientists at IISc link ageing of cells with ovarian cancer spread

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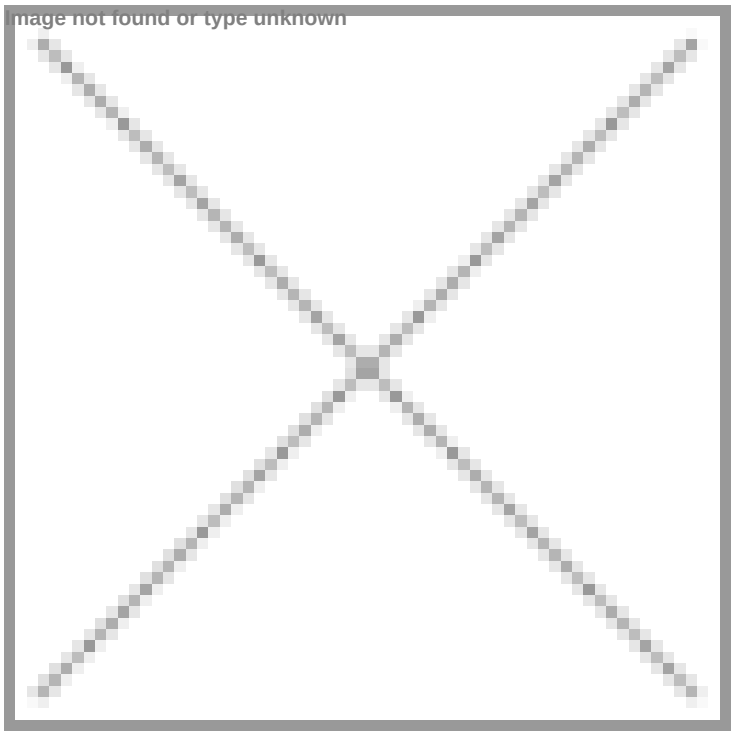
Aged populations typically tend to have worse outcomes in cancer than younger population



Researchers at the Indian Institute of Science (IISc) in Bengaluru have found that ovarian cancer cells can spread more easily in tissues that are senescent or aged because these tissues secrete a unique extracellular matrix that attracts the spreading cancer.

During the study, the researchers observed that the cancer cells chose to settle down more on the aged tissues; moreover, they settled closer to the aged normal cells in the cell sheets.

In particular, the researchers observed that it was proteins secreted by aged cells that settle down as the extracellular matrix (ECM) – the base on which the cells adhere and grow – that were calling the cancer cells.

The team carried out experiments on human cell lines to replicate the predictions of the computer simulations. They noticed that the cancer cells stuck strongly to the extracellular matrix around the aged cells, and eventually cleared the aged cells away. They also noticed that the aged ECM had higher levels of proteins such as fibronectin, laminin and hyaluronan compared to the young cells' ECM, which allowed the cancer cells to bind more strongly.

Researchers hope that future studies will build a strong case for using senolytics – drugs that kill senescent cells – as a combination therapy with chemotherapeutics to tackle cancer progression.