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Spreading cancer cells must change their environment to grow

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Spreading cancer cells arriving in a new part of the body must be able to change their new environment to continue to grow, according to a study by Cancer Research UK scientists at the Francis Crick Institute, published in *Cell Reports*.

The team found that the faster their surroundings change, the faster the cancer cells will grow.

A cancer cell that has spread to another part of the body needs help from the tissue that surrounds it to become established and form a new tumour. When a cell has the environment it needs, it will start to grow.

The researchers showed in mice that cancer cells that are able to spread easily produce a protein called THSB2 which helps them to make their new environment more welcoming - allowing tumours to grow. THSB2 does this by activating cells called fibroblasts, which normally help to build tissue in the body but can also support cancer growth.

Lead investigator Dr Ilaria Malanchi, Cancer Research UK scientist and group leader at The Francis Crick Institute, said: "If we can find a way to block the ability of a cancer cell to adapt to a new environment then this could slow down the growth of cancer to other parts of the body.

"The more THSB2 protein the cell produces, the faster the new tissue environment will change to give the best conditions for cancer growth.

"This is an exciting first step and what we need now is to find drugs that could stop cancer cells producing this protein and see if this reduces their ability to spread to new part of the body."

Professor Nic Jones, Cancer Research UK's chief scientist, said: "One of the biggest challenges in successfully treating cancer is stopping it from spreading to other parts of the body. It's a complicated process and research like this brings us a small step closer to understanding how we might stop it from happening and so save more lives."

More information: del-Pozo-Martin Y. et al, 'Mesenchymal cancer cell-stromal crosstalk promotes niche activation, epithelial reversion and metastatic colonization'. *Cell Reports*, 2015.

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