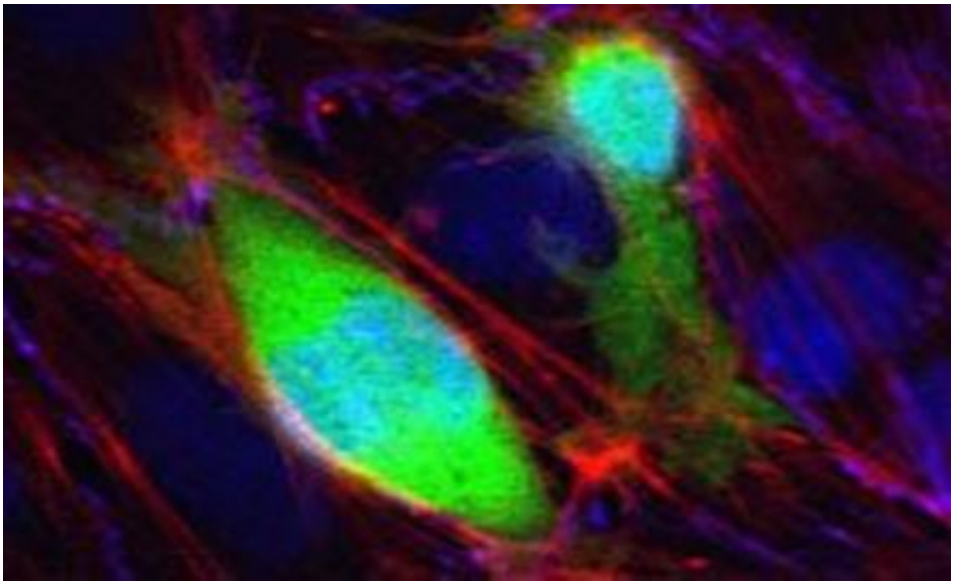
# Targeting protein could prevent metastasis of cancer cells

November 14 2012



(Medical Xpress)—Researchers at King's College London have uncovered a protein required by cancer cells to spread to other parts of the body, highlighting it as a potential target for future treatments to prevent secondary cancers (metastases).

Funded by Cancer Research UK, and published in the Journal of Cell Biology, the study looked at how cancer cells form new tumours in other parts of the body. Most cancer deaths are due to cancer metastasis which develops most commonly in the lungs, bones or liver, yet there are very

few treatments designed to prevent this from happening.

The team have shown for the first time that a protein found inside cancer cells, called Cdc42, plays a role in enabling cells to physically attach themselves to blood vessel walls so they can spread to other parts of the body through the blood.

Looking at human prostate and breast cancer cells, as well as cancer cells in mice, the team found that Cdc42 affects the amount of another protein on the surface of cancer cells called β1 integrin. By inhibiting Cdc42 or β1 integrin, the cells could not attach themselves to endothelial cells, which line blood vessels.

Professor Anne Ridley from King's College London, who led the study, said: 'This finding adds to our understanding of how cancer spreads from one part of the body to another.

'Now we have identified a key protein involved in how cells attach themselves to blood vessels, it could lead to the design of new treatments in the future to reduce cancer metastasis (secondary cancers). It's a long way off, but in theory it could one day be possible to deliver an inhibitor directly into the blood to block cancer cells from attaching to cell walls, or to help detach those already attached, reducing the chance of tumours developing elsewhere.

'Most people who die of cancer die from metastases, as unfortunately they can be treated but not cured. This could be a very significant development in the fight against cancer.'

Dr Julie Sharp, Cancer Research UK's senior science information manager, said: 'Cancer spread is one of the biggest challenges our scientists are trying to tackle – understanding more about the molecules that allow cancer to move around the body will help researchers to find

new ways to tackle this problem with the aim of saving many more lives in the future.'

Provided by King's College London