

Basis created for directing and filming blood vessels

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A new method of filming blood-vessel cells that move in accordance with targeted signals has been developed by researchers at Uppsala University in collaboration with researchers at the University of California. The method can also be used to study how migration of cancer cells and nerves can be controlled. These interesting findings have now been published in the Journal of Biological Chemistry.

Formation of new blood cells and lymph vessels takes place with a number of different diseases. Formation of new cells is sometimes desirable, e.g. in the event of wound healing, when new tissue must be formed. Undesirable vessel formation takes place in the event of tumour growth. The tumour receives nutrition from the new blood vessels and can also spread via newly formed lymph vessels, thus prevention of vessel growth is desirable in this situation.

A major challenge in the field of medicine is understanding the signals governing the way vessels are formed. It has been proposed that targeted signals – so-called gradients – from growth factors instruct the vessels as to the direction in which they are to grow.

"Our study shows that a simple gradient from a signal protein is sufficient to tell the blood vessel cell in which direction it is to move. We have also been able to show that the form of the gradient governs the way in which the cell moves," says Irmeli Barkefors, a postgraduate student at Uppsala University.

The research group is now going to develop the method further. The aim is to be able to study targeted migration in complicated organ culture systems, whereby interaction between different cell types can be studied.

"The method can basically be adapted to facilitate study of all types of cells. It is particularly important to study the mechanisms that determine whether or not cancer cells spread," says researchers Johan Kreuger, who has been heading the project.

Source: Uppsala University

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