MedicalXpress

Researchers discover how 'wriggling' skin cells go on the move

June 26 2014

(Medical Xpress)—Scientists at the Cancer Research UK Manchester Institute, The University of Manchester and King's College London have discovered a new way that melanoma skin cancer cells can invade healthy tissue and spread round the body, according to research published in *Nature Communications*.

The work, funded by Cancer Research UK, the Royal Society and The Dunhill Medical Trust, reveals a potential new target for drugs to treat malignant melanoma – the deadliest form of skin cancer.

Melanoma cells can adopt different shapes to squeeze their way out of a tumour and spread through the body. The cells become rounded to travel through the bloodstream or invade soft tissues such as the brain. But they assume a long and thin (elongated) shape to travel through harder tissues like bone.

The scientists discovered that when melanoma cells adopt a rounded amoeba-like shape to 'wriggle' through the body and invade new areas, they produce molecules called matrix metalloproteinases (MMPs). These help break down surrounding tissue and keep them on the move.

While it was known that elongated skin cancer cells produce MMPs to break down surrounding tissue, this is the first time that the rounded amoeba-like cells have also been found to produce these molecules.

Study author, Dr Victoria Sanz-Moreno, a Cancer Research UK scientist

at King's College London, said: "Our work shows that MMPs are more important in aiding melanoma cells to spread than we previously thought, telling us more about how they move and invade different parts of the body. Developing drugs that block MMPs could be an exciting new avenue for treating malignant melanomas in the future."

Study author, Professor Richard Marais, director of the Cancer Research UK Manchester Institute, based at The University of Manchester, said: "Most cancer deaths are caused by the disease spreading round the body, so this kind of research is vital if we're to improve survival from advanced tumours.

"Melanoma is the most deadly form of skin cancer because it spreads quickly and aggressively. As well as finding more effective treatments for advanced melanoma, we also need to stress the importance of early diagnosis, detecting tumours before they have a chance to spread."

More information: Orgaz, JL et al. "Diverse matrix metalloproteinase functions regulate cancer amoeboid migration" (2014) *Nature Communications*. DOI: 10.1038/ncomms5255

Provided by University of Manchester