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News Release

UNDER STRICT EMBARGO UNTIL: 11.00 BST WEDNESDAY 01 JULY 2015

Wound healing process linked to skin cancer, study finds

Skin cancer could be made worse by inflammation that occurs following surgery to remove tumours, new research suggests.

The study in zebrafish reveals how cells of the immune system that are important for wound healing can drive skin cancer progression.

Researchers stress that surgery remains the preferred treatment for skin cancer. They suggest that therapies to dampen inflammation after surgery could help to improve patient outcomes.

The team used live imaging techniques to watch how cells of the immune system are recruited to help heal a wound in living zebrafish.

They tagged the cells with fluorescence so that they could easily track them in the fish, which are translucent, in real time.

Using high powered microscopes, they saw how immune cells called neutrophils are quickly diverted from the wound towards nearby cells that are on the cusp of becoming cancerous.

The team also detected high levels of neutrophils in human tissue samples of skin cancers from people whose tumours had open ulcers.

The presence of neutrophils in tissue samples was linked to poor survival of these patients, suggesting that inflammation may also play a part in driving human skin cancer progression.

One of the chemical signals released by neutrophils, which drives the cancer cells to divide repeatedly, is called prostaglandin E2 (PGE2). Anti-inflammation drugs such as ibuprofen can block PGE2 production.

Further studies will be needed to determine whether taking ibuprofen after surgery for skin cancer can help to improve patient outcomes.

The study was conducted by researchers at the Universities of Bristol, Cardiff and Edinburgh in the UK, in collaboration with Aarhus University in Denmark. The research is published in *The EMBO Journal*.

Ranked among the top universities in the world

Dr Yi Feng, a Chancellor's Fellow in the MRC Centre for Inflammation Research at the University of Edinburgh and one of the study's lead authors, said: "Our studies suggest that controlling damage induced inflammation after cancer surgery might improve the outcome of patients.

"An important next step will be to better understand how these immune cells are interacting with cancer cells. This will help us to devise therapies to reduce the risk of cancer cells that are left behind after surgery from forming new tumours and spreading."

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