

Skin color studies on tadpoles lead to cancer advance

January 29 2009

The humble tadpole could provide the key to developing effective anti-skin cancer drugs, thanks to a groundbreaking discovery by researchers at the University of East Anglia (UEA).

The scientists have identified a compound which, when introduced into *Xenopus Laevis* tadpoles, blocks the movement of the pigment cells that give the tadpoles their distinctive markings and which develop into the familiar greenish-brown of the adult frog.

It is the uncontrolled movement and growth of pigment cells (melanophore) in both tadpoles and humans that causes a particularly dangerous form of skin cancer. By blocking the migration of these cells, the development and spread of cancerous tumours can potentially be prevented.

Published today in the Cell Press journal '*Chemistry & Biology*', the findings are the culmination of several years' work by the UEA team. This unconventional study, which was initiated with funding from the UK Medical Research Council, identifies for the first time an effective new man-made MMP (metalloproteinase) inhibitor, known as 'NSC 84093'.

The work was led by the University of East Anglia, in partnership with the John Innes Centre (JIC) and Pfizer.

"This is an exciting advance with implications in the fight against

cancer," said lead author Dr Grant Wheeler of UEA's School of Biological Sciences.

"The next step is to test the compound in other species and, in the longer term, embark on the development of new drugs to fight skin cancer in humans."

The species *Xenopus Laevis* (South African clawed frog) is more closely related to humans than one might expect. It only diverged from man 360 million years ago and has the same organs, molecules and physiology. This means that the same mechanisms are involved in causing cancer in both *Xenopus* tadpoles and humans.

Until the 1960s, *Xenopus Laevis* frogs were used as the main human pregnancy test. A woman's urine sample was injected into a live frog. If the urine contained the hCG (human chorionic gonadotropin) hormone, the frog would lay eggs within 24 hours, indicating that the woman was pregnant.

Source: University of East Anglia

Citation: Skin color studies on tadpoles lead to cancer advance (2009, January 29) retrieved 28 April 2024 from <https://medicalxpress.com/news/2009-01-skin-tadpoles-cancer-advance.html>

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