

ELIZABETH MURCHISON WINS EPPENDORF YOUNG INVESTIGATOR AWARD 2012

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2012 winner Elizabeth Murchison, PhD (Wellcome Trust Sanger Institute, Cambridge, United Kingdom)

DEADLINE FOR ENTRIES!

We invite biological and biomedical researchers not older than 35 years, working in Europe, to apply for the 2013 Eppendorf Award. The deadline for entries is 15th January 2013. The prize ceremony will take place at the EMBL Advanced Training Centre (ATC) in Heidelberg, Germany. To find out more visit eppendorf.com/award.

The Eppendorf Award for Young European Investigators was established in 1995 to recognise outstanding work in biomedical science. It also provides the opportunity for young European researchers to showcase their work and communicate their research to a scientific audience. *Nature* is pleased to partner with Eppendorf to promote the award and celebrate the winner's work in print and online. *Nature* Podcast Editor Geoff Marsh talks to the 2012 winner Elizabeth Murchison about her work, and how it felt to win the award. To listen to the full interview, visit: nature.com/nature/awards/eppendorf.

Elizabeth Murchison: My research is on two very unusual cancers that are transmissible between individuals by the physical transplantation of cancer cells.

Geoff Marsh: So let's touch on one of those cancers, Tasmanian devil facial tumour disease (DFTD).

EM: Tasmanian devils are actually in danger of going extinct within the next 20-30 years, because of this transmissible cancer. It's transmitted by biting, and it causes these horrific facial tumours, which kill within months.

GM: Tell me about the cancer itself.

EM: It first arose in a single devil, which lived possibly 15-20 years ago. In sequencing the cancer's genome, we're actually sequencing the genome of the animal that first gave rise to the cancer, as well as all the somatic mutations that have occurred in the lineage as it spread through the devils' population.

GM: Did it look like a devil genome?

EM: It was clear that this cancer arose first in a single devil and by looking at the sex chromosomes, we were able to determine that this was a female animal.

GM: Does it act like a normal cancer?

EM: Yes, we think it originated as a Schwann cell tumour, and in some ways it looks just like a normal cancer, but then when you look at its DNA, it's unrelated to the host that it's living in.



Dirk Ehlers, CEO of Eppendorf AG congratulating Elizabeth Murchison

EPENDORF AND NATURE

Elizabeth Murchison is the seventeenth recipient of the Eppendorf Award for Young European Investigators, which recognizes talented young individuals working in the field of biomedical research in Europe. The Eppendorf Award is presented in partnership with *Nature*. The winner is selected by an independent jury of scientists under the chairmanship of Reinhard Jahn, Director of the Max Planck Institute for Biophysical Chemistry, Göttingen, Germany. *Nature* and Eppendorf do not influence the selection. For more information see: eppendorf.com/award.

GM: And there's another example of these clonally transmissible cancers — called canine transmissible venereal tumour (CTVT).

EM: Yes, it affects dogs almost everywhere. It's sexually transmissible during mating, and it's the oldest somatic lineage that we know of from a mammal — possibly thousands of years old.

GM: Why don't the dogs or devils reject these cells?

EM: In the case of dogs, it seems that the cancer cells are able to hide, as they have downregulated the expression of cell-surface markers that would identify their host origin. At the same time we think that the cancer cells are producing immunosuppressive cytokines, thus directly interacting with the host's immune system and preventing the cancer from being rejected.

GM: Is there a treatment?

EM: The dog cancer can be cured with very small doses of a chemotherapy, but the devil cancer cannot.

GM: So would you say that it was a new sort of life form that you've hit on?

EM: I would say so. In fact, somebody has suggested that the

dog cancer should be given a new species name, because it's not really a dog anymore, it's been separate from its host dog for possibly thousands of years.

GM: What is the forecast for the Tasmanian devils?

EM: It's thought that more than 60% of the entire population has gone owing to this disease. One of my goals is to try to develop vaccines or therapies. At the same time there are a number of very important efforts going on in Tasmania to keep the devils breeding and alive in captivity and physically away from the disease, so that if the disease really does wipe out the devils in the wild we'll be able to reintroduce them.

GM: Should humans be worried about transmissible cancers?

EM: Well there are many cases of cancers that have been transmitted between people. Occasionally when there are organ transplants, the recipient can receive a cancer along with the donated organ. There are also cases of cancers being spread from mother to fetus or fetus to mother. So it does happen, but in most cases it's very localized between two people, although I think this shows that there is the possibility that a transmissible cancer could take hold in the human population.



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