

## Under the Microscope

with Dr Archa Fox

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We may not be slimy and wriggly but humans and worms have a similarity- we both have the same number of genes.

Dr Archa Fox has been awarded a research grant from the RPH Medical Research Foundation to investigate why humans are so much more complex than worms when we actually have the same number of genes.

The Western Australian Institute for Medical Research researcher based at RPH will work with prominent researcher Professor John Mattick from the Institute for Molecular Bioscience at The University of Queensland to pave the way for an answer.

Dr Fox said the answer to this question could also hold the key to the development of therapies for brain-related diseases and cancers.

“By investigating particular genetic elements primarily found in the nervous system, it could help to explain why we are so complex – especially why our brains are so complex,” Dr Fox said.

“This work is an important first step towards opening the door to new brain cancer and disease therapies, and the aspect my team and I will be looking closely at are the structures similar to ‘paraspeckles’.”

In 2002, Dr Fox was the first to discover paraspeckles which are found in the nucleus of a cell and function like warehouses, storing the building materials for important proteins, so that when the cell places an order, the materials are released allowing proteins to be produced.

Paraspeckles provide a way for cells to more carefully control which proteins are created and therefore control cell development, and it’s believed they save cells 25 minutes in processing each time they need a protein.

Dr Fox said she was excited about the new collaboration, because it would fast-track both team’s work and had potential to help people suffering from incurable diseases.

“Professor Mattick is a very eminent scientist in the field so this is a very important collaboration for WAIMR and the joint project means we can combine our expertise to help find answers to a very complex but common question as well as devastating conditions,” she said.

The Royal Perth Hospital Medical Research Foundation Grant will allow the two teams to collaborate for around six months on this combined project and help fund research assistance as well as the group's experiments.