

Frogs may buy time for organ transplants

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A tiny frog that freezes itself during winter and thaws back to life months later could provide the vital key to keeping human organs alive for life-saving transplants.

Canadian researcher Ken Storey first investigated the amazing ability of the Canadian wood frog in the 1980s and has now turned his attention to enthusing other scientists about the medical possibilities the amphibian can offer.

"What these little creatures do is just incredible, literally living with ice in their veins," Prof Storey told AAP.

"If we could just find out how they do it and replicate it, then that's a lot of lives saved."

Prof Storey discovered the frog could survive sub-zero temperatures using complex molecular interaction.

This involves different genes and proteins which releases glucose into the animals cells, forming a slushy sugar solution that prevents the cells from shrinking beyond repair.

Other mechanisms trigger and guide ice growth throughout the blood and body cavities so that about 65 per cent of the frog's total body water is turned to ice.

In this state the heart and kidneys stop, the brain waves are halted and the animal is suspended in biological time all winter.

But on melting, the animal's vital functions resume within minutes, the Carleton University researcher will tell the **International Congress of Human Genetics in Brisbane on Tuesday**.

Humans obviously have no such ability, but Prof Storey says it's only a matter of time before scientists figure out how to "switch off" human organs in a similar way.

The organs could then be used to transplant into the ever increasing number of recipient hopefuls, most of whom die on waiting lists.

"At the moment we have to take the organ out, chuck it on ice, put it on a plane and zoom it somewhere super fast or the transplant's not a success," he said.

"Now imagine if we could extend that time, even just for a few months, you'd have plenty of time and no problem at all.

"You'd tissue type every organ, you'd blood type them, test them for viruses and Bob's your uncle, everything would be just fine."

Prof Storey said too many people thought of the process as "crazy science fiction, but there's no evil humans hanging from the ceiling in big bags," he said.

"All you need is donors, of which there are a lot, organs surviving for a longer period of time, which will happen, and recipients who are already lined up."

He said it was only a matter of time before this was a reality but it would take enthusiasm from a new generation of scientists to develop the technology.

"I work with animals so it's not really for me but I can't see any barrier except time," Prof Storey said.

He believed that, once perfected, the technology could also be used to heal the injured organs of accident victims.

"You just need to work out how to keep it in suspension until you can fix it and put it back."



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(<http://www.news.ninemsn.com.au/article.aspx?id=120457>)

Also in the Sydney Morning Herald, Australia, August 7, 2006

(<http://www.smh.com.au/news/National/Frogs-may-buy-time-for-organ-transplants/2006/08/07/1154802813681.html>)