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Media Statement

NEW DISCOVERY COULD SPEED UP LIVER REPAIR

West Australian scientists have discovered a way to double the speed of liver cell growth, which could herald the beginning of new regeneration treatment for patients with liver damage and make transplantations a thing of the past.

Recently published online in the prestigious journal *Hepatology*, a team from the Western Australian Institute for Medical Research (WAIMR) has discovered that a protein, known as TWEAK, significantly increases the growth rate of liver progenitor cells (LPCs) – crucial stem cells in liver repair.

Lead author Dr Janina Tirnitz-Parker said when the team set out to understand how TWEAK affected LPCs, they discovered it had a dramatic effect on cell growth.

"We had LPCs growing in culture and we put TWEAK on top of them to find out what effect it might have, and what we saw was very exciting – LPCs grew twice as fast as they normally would," she said.

"This means that there could be a potential to use TWEAK to help damaged livers repair themselves by growing new healthy cells at a much faster pace."

Head of WAIMR's Laboratory for Liver Disease and Carcinogenesis and study co-author Professor George Yeoh said this was a significant discovery in the field and to the evolution of treatments away from liver transplants.

"This is a key finding for liver disease, because we now know what tickles liver cell growth – it could have huge benefit for patients with liver conditions by helping to regenerate their existing liver faster and possibly ruling out the need for transplants," he said.

"If this phenomenon can be harnessed it might be possible to increase or inject TWEAK onto a patient's liver in order to help the organ repair itself naturally, and much faster."

Recent statistics indicate there were 182 Australians on the waiting list for liver transplant – as at January 4 2010.*

Dr Tirnitz-Parker is now working with WAIMR deputy director Professor John Olynyk, collaborating with international scientists to investigate the role of TWEAK in Hepatitis C patients, before and after liver transplantation, as well as liver regeneration in patients with hereditary haemochromatosis (iron overload) and non-alcoholic steatohepatitis.

Professor George Yeoh's team is one of the world-leaders in LPC research – in 2005 they developed an immortalized LPC cell line that allows for unlimited growth of cells, and is now used for research world-wide.

Professor Yeoh was also responsible for inventing a new cell tracing technique which means scientists can now more clearly see the success of transplantation experiments.

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*Source: Australian Organ and Tissue Authority
http://www.donatelife.gov.au/Media/docs/facts%20and%20stats_web%20version_040210-58a97935-87e4-4b7e-b03e-1f5177d2ce0b-2.PDF

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