



The Murdoch Childrens Research Institute is located within the Royal Children's Hospital in Melbourne Australia.

## Monitoring Hepatitis B & C infection with Toll-like receptors.

...an opportunity to develop a rapid, non-invasive method of monitoring Hepatitis B and C infection and the effects of therapy and likely therapeutic outcomes.

### Summary of the opportunity

The MCRI in collaboration with the Victorian Infectious Disease Reference Laboratory (VIDRL) have identified markers of the innate immune system that serve as diagnostic tools for evaluating a patient's response to Hepatitis C or B viral infection and their response and likely outcome of therapy.

### Background

Worldwide over 2 billion people are infected with Hepatitis B (HBV) and an estimated over 170 million are infected with Hepatitis C (HCV). Traditionally hepatitis infections are monitored by liver biopsy. This is a painful invasive procedure with risk of serious complications. There are no effective treatments for HCV and treatments of HBV are only 30% successful. This technology allows for HBV and HCV monitoring through a simple blood test allowing doctors and patients to identify the progress of therapy and predict the likely outcomes within the first 12 weeks, of what is often a 2 year treatment program.

### Data

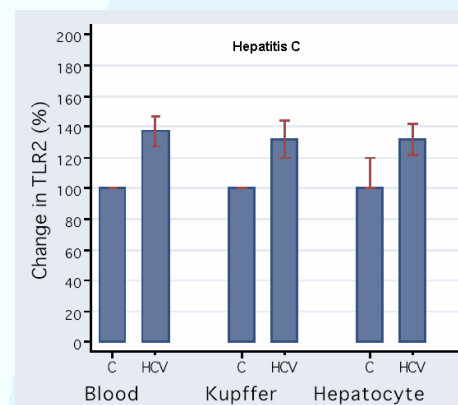
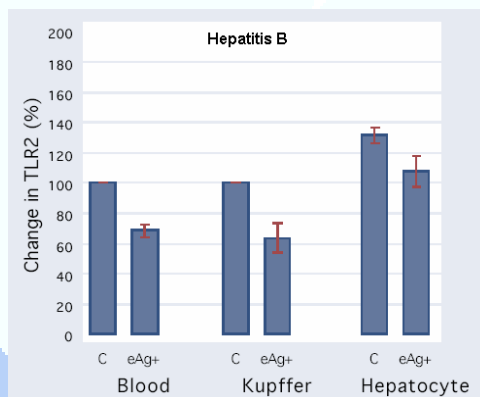
The level of Toll Like Receptor-2 (TLR2) expression on peripheral blood mononuclear cells, Kupffer cells and liver Hepatocytes exhibits a distinctive pattern of expression (see below). Monitoring the expression of both TLR2 and TLR4 using the blood of patients with Hepatitis B and/or C provides a previously unavailable means of identifying the patient's natural reaction to viral infection, their response to therapy and a early indication for treatment success. Furthermore, because the test is a flow cytometry based assay and is familiar to most diagnostic laboratories, it provides a rapid, non-labour intensive, reliable and reproducible means of analysis.

#### Recent Publications :

• Riordan SM, Skinner N, Nagree, A, McCallum H, McIver CJ, Hamilton JA, Williams R and Visvanathan K. (2003) Peripheral blood mononuclear cell expression of toll-like receptors and relation to cytokine levels in cirrhosis *Hepatology* 37: 1154

• Visvanathan K, Skinner N, Kurtovic J, Nagree A, McIver CJ, Williams R, Riordan SM (2003) Up-regulation of toll-like receptor expression in chronic hepatitis C: Correlation with circulating pro-inflammatory cytokine levels and hepatic necro-inflammatory activity *GUT* 52: 130

• Visvanathan K, Skinner N, Locamini S., Williams R, Riordan SM. (2003) Impaired Toll-like receptor expression in chronic hepatitis B. *Hepatology* 38: 204



# ... monitoring and therapy with Toll-like receptors



## Key Investigators :

• **Dr. Kumar Visvanathan** MB BS PHD FRACP, is an Infectious Diseases physician and researcher (NHMRC Practitioner Fellow). He is the author of over 30 refereed scientific papers. He has extensive experience in the host (human) response to various infections.

• **A/Prof. Stephen Loccarini** is the associate director of the Victorian Infectious Diseases Research Laboratory and is a world authority on the hepatitis viruses. He is the author of more than 100 scientific publications and is an editor of a number of Hepatitis related journals. He speaks frequently at international conferences and director of the WHO regional virology centre.

• **A/Prof Stephen Riordan** MB BS MD FRACP is a Clinical Hepatologist and medical researcher. He has published more than 560 publications in peer reviewed journals. He has a large hepatitis clinic and regularly treats patients with this disease

## Murdoch Childrens Research Institute (MCRI)

The MCRI is an independent non-profit research institute based at the Royal Children's Hospital and affiliated with the University of Melbourne in Australia. The Institute has 600 staff and 100 postgraduate students and is the third largest research Institute in Australia.

## Victorian Infectious Diseases Reference Laboratory (VIDRL)

The Victorian Infectious Diseases Reference Laboratory (VIDRL) is Victoria's largest public health reference laboratory. It was formed in 1993 through the amalgamation of the Fairfield Hospital Virology and Clinical Pathology Laboratories.

## Intellectual Property Protection

### The MCRI and VIDRL hold the following intellectual property in this opportunity:

The technology is described in

Patent Application number 2003901325 submitted March 2003

PCT/AU2004/000349 submitted 19th February 2004.

Patent Application number 2004902676 submitted May 2004

## Nature of the Deal

**We are** looking to identify and secure a licensing partner in the pharmaceutical or biotechnology industry to contribute to the development of the technology. This would include the commercialisation of the monitoring technology and a commitment towards the continued research investigating potential therapeutics. We are seeking an up-front licence fee and an annual royalty for the use of the technology by the licensee. Royalties would also be payable in the event the licensee wishes to sub-licence the use of the technology for an agreed purpose.

To explore this unique opportunity further please contact the MCRI Business Development Manager.

## For Further Information On this Unique Opportunity Contact

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