

Press Release

New Blood Test Successfully Predicts Risk of Infection in Transplant Recipients

Recently-published international guidelines support advances in immune monitoring

Melbourne, Australia, April 23, 2010 – New international guidelines published in the journal *Transplantation* reinforce the use of a new type of blood test to assess cytomegalovirus (CMV) risk in solid organ transplant recipients (i.e. transplant recipients). This blood test, QuantiFERON®-CMV (QF-CMV), is the first commercially-available blood test to allow physicians to monitor a person's risk of CMV disease. Most commonly used in the transplant setting, QF-CMV may predict which transplant recipients are at increased risk of CMV disease after transplant surgery.⁽¹⁾

The immune monitoring of a transplant recipient's CMV specific T-cell (immune system) response may be predictive of which transplant recipient is at increased risk of developing CMV disease.⁽¹⁻⁵⁾ By identifying who is at highest risk of developing CMV disease, QF-CMV may assist clinicians in the therapeutic management of these patients in a post-transplant setting.^(4, 6)

"For transplant recipients whose immune systems are already compromised by anti-rejection medications, the emergence of immune monitoring of CMV-specific T-cell responses in transplant medicine is an exciting development," said Assoc Prof Atul Humar, Director of Transplant Infectious Diseases, Department of Medicine, University of Alberta, Canada. "Immune monitoring may potentially allow physicians not only to gauge a patient's risk of developing post-transplant CMV disease, but also to assist in determining the most appropriate management pathway on an individual, patient-by-patient basis."

About Cytomegalovirus (CMV)

CMV is a herpes virus that infects between 50% and 85% of adults world-wide⁽⁷⁾ in all geographic and socioeconomic groups⁽⁸⁾ CMV is a member of the herpes virus family, which includes the viruses that cause chicken pox and infectious mononucleosis. Most CMV infections are asymptomatic (i.e. "silent"). However, CMV can progress to symptomatic disease in many people, especially newborn babies and those with weakened immune systems.⁽⁸⁾

CMV is the most important infectious cause of post-transplant illness and death,⁽⁹⁾ affecting approximately half of all transplant recipients. Ten to 50% of these patients can develop symptomatic CMV disease,⁽¹⁰⁾ which is usually a result of immunosuppressive therapies taken to prevent organ rejection.⁽¹¹⁻¹⁴⁾ The risk of CMV infection and disease is dependent on the CMV status of both donor and recipient. Not surprisingly, CMV leads to increased resource utilization and total transplantation program cost.⁽⁹⁾

About CMV Testing and Immune Monitoring in Transplant Recipients

Although preventative therapies are available for CMV and have been shown to be effective in preventing CMV disease, many transplant recipients still develop CMV disease in the months immediately after the end of their therapy.⁽¹⁵⁾ Current standard practice is to assess the CMV status of both donor and recipient prior to transplantation. A serology test is usually used for this pre-transplantation assessment. In a post-transplantation setting, where serology tests are limited because they cannot diagnose "active" CMV disease,⁽¹⁵⁾ CMV testing is most commonly completed using tests that detect the presence of the virus (i.e. viral load testing). Such tests are currently used to guide patient care and treatment.⁽¹⁶⁻²²⁾

Current guidelines indicate that *monitoring* transplant recipients' cellular immune responses to CMV can help a physician predict which transplant recipients are at increased risk of developing CMV

disease.⁽¹⁾ A physician's ability to monitor the CMV immune status of transplant recipients may be useful in guiding the prevention and treatment of CMV disease after transplantation.⁽²⁻⁶⁾

About the International Guidelines

The recently-published "International Consensus Guidelines on the Management of Cytomegalovirus in solid organ transplantation"⁽¹⁾, the first-ever such guidelines, suggest that an ideal immune monitoring assay should assess the quantity and function of a transplant recipient's CD-4⁺ and CD-8⁺ T cells and that such an assay should also:

- Be able to measure interferon-gamma (IFN- γ)
- Be simple to perform, cost-effective, and reproducible
- Have a rapid turnaround time,
- Allow for specimens to be easily shipped to specialized referral laboratories.

About the QuantiFERON-CMV test

QF-CMV, a simple blood test, meets virtually all the criteria specified by the guidelines. This new monitoring tool measures a person's CD-8⁺ T cell immune response to CMV. It is the only standardized, commercially-available immune monitoring assay, specific for CMV.⁽¹⁾

Studies now highlight that monitoring a patient's level of immunity to CMV using QF-CMV could help guide the optimal duration of costly CMV preventative therapy in high-risk patients.⁽²⁻⁵⁾

The QF-CMV test involves collecting three 1 mL venous blood samples in specialized collection tubes and sending them to the laboratory for a standard ELISA (Enzyme-linked immunosorbent assay)-based analysis. QF-CMV's blood collection tubes are coated with CMV-specific proteins (antigens) so that when the blood of an individual infected with CMV comes in contact with these proteins, a cytokine chemical messenger (IFN- γ) is released by the subject's CD-8⁺ T cells. IFN- γ is a marker of a person's ability to protect themselves against a viral infection like CMV.⁽²³⁾ The amount of IFN- γ that is produced in the blood collection tubes determines the QF-CMV result, which in turn demonstrates the capability of how well an individual may be able to protect themselves from CMV disease.

QF-CMV is a major advance in the management of CMV disease risk in transplant recipients. In this setting, QF-CMV is particularly useful for:

- Predicting the likelihood of CMV disease in high risk populations.⁽¹⁾
- Guiding the clinical and therapeutic management of high-risk patients.⁽⁴⁾
- Decreasing the incidence of late-onset CMV disease and associated healthcare costs.⁽⁶⁾

About QuantiFERON[®] Technology

The QuantiFERON-CMV test is built upon the QuantiFERON platform technology, a patented method for detecting cell-mediated immune (CMI) responses of T-cell lymphocytes using whole blood samples. In comparison to existing methods of measuring CMI, this unique technology provides accuracy and sensitivity along with major savings in operator time, labor and reagents.

In addition to the QF-CMV test, the QuantiFERON[®]-TB Gold (QFT[®]) tuberculosis test also utilizes QuantiFERON technology. The US Centers for Disease Control and Prevention state that QFT can be used as an alternative to the 110+-year-old tuberculin skin test, also known as the Mantoux, in many clinical settings like tuberculosis outbreak investigations, regular employee testing, and immigrant screening. The unmatched specificity, high sensitivity, and simplicity make QFT and QuantiFERON technology a modern alternative to the skin test.

About Cellestis Limited

Cellestis Limited, a listed Australian biotechnology company founded in 2000 in Melbourne, Australia, develops and manufactures the QuantiFERON-CMV test, a breakthrough blood test for monitoring cytomegalovirus infection and disease, and the QuantiFERON-TB Gold In-Tube (QFT) test for

tuberculosis infection. Using its patented QuantiFERON technology, Cellestis develops diagnostics tests that measure immune function for diseases with an unmet medical need.

QF-CMV is sold in Europe by Cellestis GmbH (Germany); and in Australia and Asia by Cellestis International Pty. Ltd. (Australia). QF-CMV may also be available through commercial partners in Japan, Europe, the Middle East and other countries worldwide. QuantiFERON-CMV is not US FDA-approved and is available for investigational use only in the US. QF-CMV is not a test for CMV infection.

Visit www.cellestis.com to view more information on [QuantiFERON-CMV](#).

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