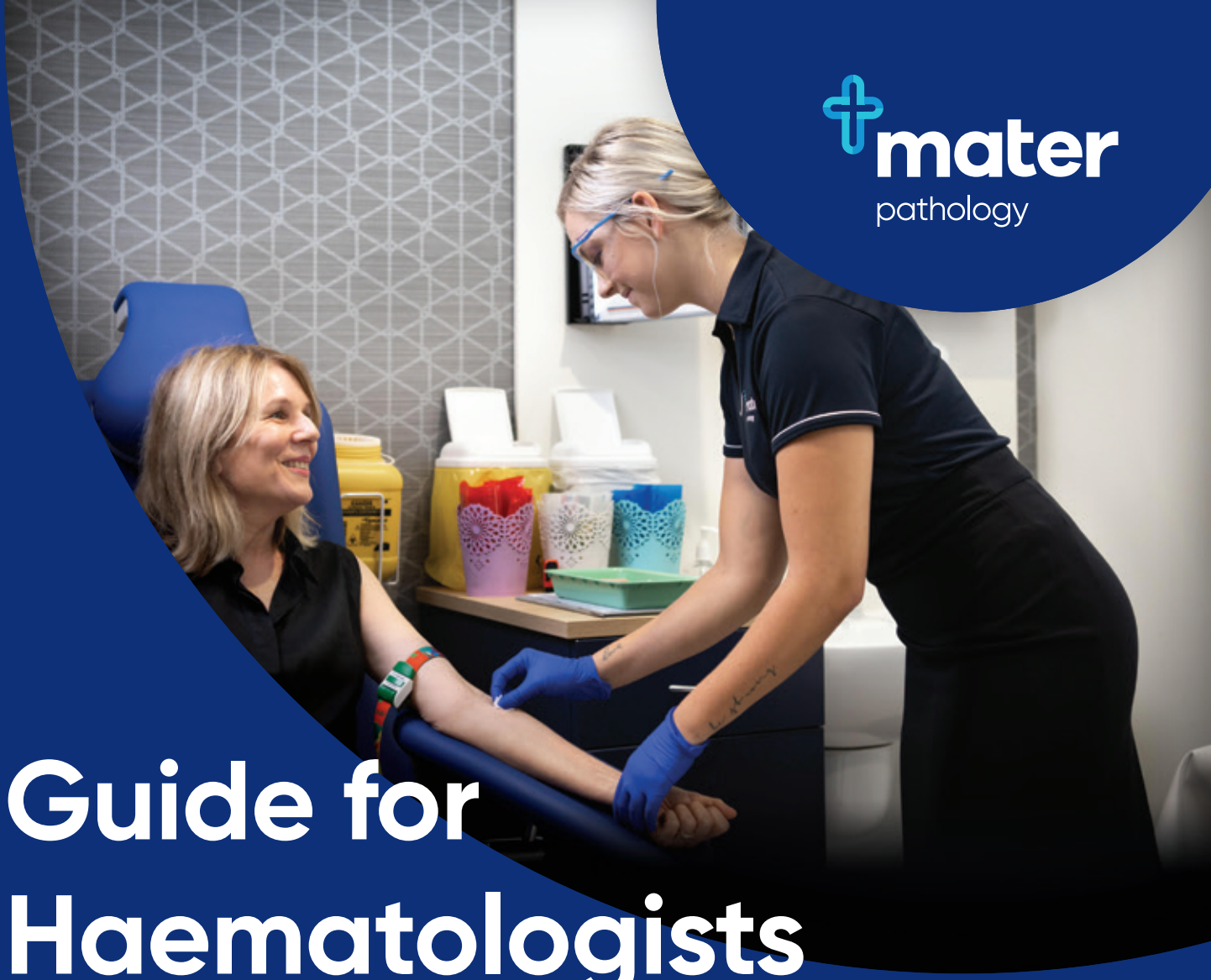
mater pathology



Guide for Haematologists

Mater Pathology proudly supports Haematologists in the Queensland community to ensure accurate detection and diagnosis of blood disorders and diseases.

pathology.mater.org.au

How does Mater Pathology support Haematologists?

We provide comprehensive testing in all areas of pathology to ensure Haematologists are extensively serviced.

The **Haematology** laboratory provides expert analysis and interpretation across FBC/blood film morphology, bone marrow investigations, coagulation studies (bleeding disorders and hypercoagulability), haemoglobin electrophoresis, flow cytometry and blood banking/ transfusion medicine. Mater Haematology offers this extensive range of specialised testing 'under one roof', resulting in remarkable turn-around times for clinical haematologists. Additionally, we now employ a new state of the art Sysmex XN FBC analyser enabling the use of the following novel parameters: PLT-F (fluorescence platelets), automated IPF (immature platelet fraction), IRF (immature reticulocyte fraction) and RET-He (reticulocyte haemoglobin equivalent).

Our **Haematology Molecular Genetics** department provides a wide range of DNA and RNA based tests for the investigation of haematological malignancy, haemoglobinopathies and coagulation disorders. The laboratory provides diagnostic and minimal residual disease testing for BCR-ABL and PML-RARA as well as testing for JAK2 mutations. Factor V Leiden and *Prothrombin* genotyping is available for the investigation of thrombophilia and the laboratory also provides an extensive screening service for alphathalassaemia.

Our **Blood Bank** can also crucially assist in the identification of atypical antibodies and the timely issuing of blood and blood products. Our massive transfusion protocol is well-established and has been successfully utilised in many cases of post-partum haemorrhage.

The **Immunology** department performs multi-colour *flow cytometry*, which may assist in the diagnosis and monitoring of numerous haematological disorders including leukaemia, lymphoma and paroxysmal nocturnal hemoglobinuria (PNH). The laboratory can monitor T cell subsets for HIV patients and absolute B cell numbers for patients undergoing B cell therapy.

The TGA accredited laboratory also routinely performs CD34 enumeration for stem cell transplantation. In addition, the Immunology laboratory also performs serologic testing for infectious diseases such as hepatitis, HIV, CMV and EBV, which may require monitoring pre and post chemotherapy or stem cell transplantation.

Our **Chemical Pathology** laboratory supports the haematologist through a comprehensive routine service including *general biochemistry*, *iron studies*, *folate* and *B12* testing including methylmalonate by mass spectrometry. Our protein laboratory performs daily serum and urine protein electrophoresis and immunofixation, cryoglobulin testing and quantitation of immunoglobulins and haptoglobin. Our endocrine laboratory monitors the endocrine status of iron overload patients, including serum testosterone by mass spectrometry.

Microbiology provides support to Haematology through microscopy, culture, antibiotic susceptibility testing and PCR for the diagnosis and investigation of infectious agents in haematology patients. A unique offering from our Microbiology department is the use of MALDI-TOF MS identification technology directly on positive blood cultures bottles which provides a more rapid turnaround time (average 24 hour reduction in turnaround time) for the investigation of sepsis in haematology patients compared to standard blood culture testing. Additionally, a Blood PCR panel which tests for *Listeria monocytogenes*, *Streptococcus pneumoniae* and *Neisseria meningitidis* is available and Microbiology routinely screen haematology patients for multi-resistant organisms.

The diagnosis of many haematolymphoid malignancies are made in the **Anatomical Pathology** laboratory. Our anatomical pathologists are skilled in the evaluation of lymph node biopsies, fine needle aspirations, and ancillary investigations. Interaction between (laboratory) haematologists and anatomical pathologists is a daily occurrence and ensures diagnostic accuracy and improved turn-around times, especially in difficult cases.

The **Cytogenetics** laboratory performs conventional and molecular cytogenetic testing on Bone marrow and tissue samples for the investigation of Leukaemia, Lymphoma and other Haematological malignancies. The laboratory has an extensive repertoire of FISH probes which can test for rearrangements and abnormalities of prognostic and clinical significance to assist with diagnosis as well as disease monitoring. FISH testing can be performed on both fresh and *formalin fixed paraffin embedded (FFPE) tissues* using probes specific to the clinical indication.

Test	Did you know?	How much does it cost the patient?
FBC investigations	• PLT-F (fluorescence platelets) shows improved accuracy in thrombocytopenia < 50 × 10^9/L optimising platelet transfusion therapy. • Automated IPF (immature platelet fraction) facilitates optimal platelet transfusion management by predicting platelet recovery after myelotoxic therapy. • IRF value (reticulocyte production) evaluates erythropoietic regeneration at an earlier stage thus predicting therapeutic response in erythropoietin or haematinic treatment and bone marrow recovery post-chemotherapy. • RET-He measures haemoglobin content of less mature reticulocytes enabling rapid detection of response to iron therapy.	Medicare rebatable when FBC Investigations is written on request form.
Flow cytometry: Malignant haematology (including myeloma), PNH, Lymphocyte subsets, CD34 enumeration, FMH	• All our haematologists are experienced in evaluating flow cytometry results. • Turn-around time is less than 24 hours.	Medicare rebatable
Bone marrow investigations	• Our turn-around time is within 2 days in uncomplicated cases and includes in-house ancillary testing (molecular, cytogenetics).	Medicare rebatable
Haemoglobinopathy testing	• A high-throughput high sensitivity capillary zone electrophoresis platform is used. • Care is taken to identify patients with possible 2-gene deletion/homozygous alpha-thalassaemia by including in-house molecular studies in the diagnostic algorithm. • Our scientists have extensive experience in thalassaemia testing at a major maternal and neonatal hospital.	Medicare rebatable
Coagulation tests	• We perform virtually all clinically relevant coagulation studies, from routine coagulation profiles to hyper-coagulability testing (including HIT assays), investigation of bleeding tendencies, individual coagulation factors and assessment of direct anticoagulants. • TEG analysis is becoming more relevant in optimising transfusion medicine. Our laboratory haematologists are assisting clinicians in the interpretation of TEG findings.	Price varies dependent on test.
Platelet function testing	• Our PFA screening tests are available 24 hours. • We also offer full platelet aggregation studies.	Medicare rebatable
Blood banking	• We run a well-established transfusion and massive transfusion service to both the Mater and external hospitals.	Medicare rebatable
Active vitamin B12	• One of the few laboratories to offer the sensitive and specific active B12 assay for patients with borderline serum B12 levels, thus improving diagnostic accuracy.	Medicare rebatable if Item 66839 requirements are satisfied.
Cytogenetics	• The laboratory has an extensive range of FISH probes to detect chromosome abnormalities of clinical significance in a wide range of haematological malignancies including multi-probe panels for the investigation of CLL and Multiple Myeloma. • FFPE FISH is also available.	Price varies dependent on test.
Molecular Haematology	• Our qualitative BCR-ABL assays have been designed to detect an extended range of BCR-ABL transcripts in both Acute Lymphoblastic Leukaemia and Chronic Myeloid Leukaemia including breakpoint types not readily identifiable by other methods. • We also provide quantitative BCR-ABL PCR for both p210 and p190 transcripts for MRD monitoring. • PML-RARA assay for is available for diagnosis and MRD monitoring. • Additionally, we offer Alpha thalassaemia genotyping.	BCR-ABL and PML-RARA testing is Medicare rebatable. Molecular thalassaemia testing – price varies dependent on test.

Meet our Pathologists with a special interest in Haematology

Dr Cyriac Abraham, *Consultant Haematologist*

07 3163 2856 Cyriac.Abraham@mater.org.au

While involved in all areas of general haematopathology, Dr Abraham has a developing interest in diagnostic malignant haematopathology and the underlying molecular basis of haematologic neoplasms.

Dr Cameron Snell, *Consultant Anatomical Pathologist*

07 3163 8016 Cameron.Snell@mater.org.au

Dr Snell completed his DPhil under the supervision of eminent haematopathologists Prof. Kevin Gatter and Prof. Francesco Pezzella and has published research subtyping diffuse large B-cell lymphoma.

Dr David Wong, *Consultant Anatomical Pathologist*

07 3163 8284 David.Wong@mater.org.au

Having been at the Mater since 2009, Dr Wong has been closely involved with Mater's haematology team in providing histologic diagnosis of lymphoma in surgical biopsies. Dr Wong also regularly attends lymphoma in-house multidisciplinary meetings.

Contact us

Our 24/7 laboratories are situated in the following convenient locations to ensure our community is thoroughly serviced:

- Main Laboratory situated at **Mater's South Brisbane campus**
- Stat Laboratory in **Mater Private Hospital Springfield**.

myResults

Electronic results are viewable at any time on any device via **myResults**. Visit **pathology.mater.org.au** to register for **myResults**, view a list of our collection centres and find the latest news about our service.

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SBDMREQS-587. Last edited March 2020.