INHERITED BONE MARROW DISORDERS PANEL

Peter Mac
Peter MacCallum Cancer Centre
Victoria Australia

The Molecular Haematology Laboratory at Peter MacCallum Cancer Centre utilises a range of conventional and next generation sequencing-based technologies to improve outcomes of patients with haematological malignancies. This medically-led and clinically-focussed service aims to support clinical teams with clinical and scientific guidance around molecular test options and result interpretation.

What is the 'Inherited Bone Marrow Disorders Panel?

The Inherited Bone Marrow Disorders Panel is a NATA-accredited germline panel for the identification of inherited bone marrow disorders. Analysis includes full curation of 37 genes associated with the following conditions:

- Fanconi anaemia
- Dyskeratosis congenita
- Diamond-Blackfan anaemia
- Severe congenital neutropenia
- Congenital amegakaryocytic thrombocytopenia
- GATA2 haploinsufficiency syndrome
- Inherited predisposition to haematological malignancy.

The Gene list*

ACD, CSF3R, CTC1, DDX41, DKC1, ELANE, ERCC6L2, ETV6, FANCA, FANCC, FANCG, FANCM, G6PC3, GATA1, GATA2, HAX1, JAGN1, MPL, NHP2, PARN, RPL5, RPL11, RPL15, RPL26, RPL35A, RPS7, RPS10, RPS19, RPS24, RPS26, RPS29, RTEL1, RUNX1, TERT, TINF2, VPS45, WAS

**Curation of genes related to inherited bone marrow disorders not listed above may also be available on request.*

Which patients is this panel most suitable for?

It is most suitable for patients:

- undergoing clinical work up for haematological malignancy for one of the above indications.
- with a family history of haematological malignancy (typically at least one first degree family member or two second degree family members).
- diagnosed with haematological malignancy at a younger age at onset than expected.
- undergoing clinical work up for sibling donor allogeneic stem cell transplant.
- requiring exclusion of a genetic cause for a suspected acquired cause of hypocellular bone marrow failure (e.g. aplastic anaemia).

JUNE 2020

Possible Results from Genetic Testing	What this may mean
"Pathogenic" or "likely pathogenic" variant identified	An underlying germline cause for the patient's condition has been identified, which may guide management. Testing is available to other family members to determine their donor eligibility, personal health risk and surveillance options. Reproductive options are available for family planning.
Variant of "uncertain significance" identified.	A variant has been identified, which may or may not be causative for the patient's presentation. We may contact you to obtain more information or request family member testing to determine the significance of this finding.
"No variants" identified.	No cause for the patient's presentation has been identified. If a genetic cause is strongly suspected, other genetic testing options may be available. If an acquired cause is strongly suspected, this result significantly reduces the likelihood of an underlying genetic cause.

To arrange testing, please complete the attached, detachable form with as much detail as possible. Send this form with patient reports to: ibmdenquiries@petermac.org

Please email this form and patient reports to: ibmdenquiries@petermac.org

Please ensure the **patient is aware** the result may confirm a germline cause for their presentation with potential implications for other family members. A patient fact sheet is available. The patient or their family may also contact Anna Jarmolowicz, Genetic Counsellor, with questions on: **ibmdenquiries@petermac.org**	
Surname: ❑ M ❑ F First name: DOB: Address:	Name: Hospital/Lab: Provider no: Report to (fax or email): Signature: Date: ___ /___ /____

Clinical notes:	
Clinical details of diagnosis including physical exam abnormalities if applicable.	
Family history of haematological malignancy, solid cancers, physical abnormalities, blood count abnormalities or other significant health issues.	
Ethnicity?	
Any known consanguinity?	❑ N ❑ Y Specify degree: _____

Please attach most recent FBE report plus any available chromosome fragility, PNH testing or BMAT reports.

Please ensure the patient has provided consent to the potential identification of a germline finding that may have implications for family members.

Sample Requirements

The following samples are accepted:

- **1-2ml peripheral blood (EDTA)**
- **1-2ml bone marrow aspirate (EDTA)**
- **Extracted DNA (min. 10µL at >50ng/µL)**
- **Cultured skin fibroblasts**

Please send samples to:

Pathology – Specimen Reception (Level 4)
Peter MacCallum Cancer Centre
305 Grattan Street
MELBOURNE VIC 3000
Ph: (03) 8559 8402

Please note:

- Alternate samples (i.e. cultured skin fibroblasts) may be requested to confirm germline origin of variants identified.
- Providing samples containing haematological malignancy is not recommended, however may be accepted if other alternative samples are not available. Please contact us to discuss prior to sending the sample.
- Blood and bone marrow samples cannot be used if the patient has received an allogeneic stem cell transplant.

NGS panels for the detection of acquired changes in haematological malignancy (myeloid & lymphoid NGS) are also available.