Specialist Integrated Haematological Malignancy Diagnostic Service (SIHMDS)

User guide

Contact Information

Key Contacts		
Clinical Lead	Dr Andrew Stewart	Andrew.Stewart@nhs.net
Diagnostic Lead	Dr Joya Pawade	Joya.Pawade@nbt.nhs.uk
Operational Lead	Dr Ulrika Johansson	Ulrika.Johansson@UHBristol.nhs.uk
HMDS Office	0117 342 0779	UHB_HMDS@UHBristol.nhs.uk
Quality Manager	Mr Mark Nicholas	Mark.Nicholas@UHBristol.nhs.uk
Laboratory Head of Sections		
Reception	Dr Ulrika Johansson	Ulrika.Johansson@UHBristol.nhs.uk
Flow Cytometry (FC)	Dr Ulrika Johansson	Ulrika.Johansson@UHBristol.nhs.uk
FC Operational lead	Mrs Michelle Crawford	Michelle.Crawford@UHBristol.nhs.uk
Molecular Genetics	Mr Tim Clench	Tim.Clench@UHBristol.nhs.uk
Cytogenetics	Dr Chris Wragg	Chris.Wragg@nbt.nhs.uk
Haematopathology	Dr Joya Pawade	Joya.Pawade@nbt.nhs.uk
Laboratories		
HMDS specimen reception	0117 342 2596	
Flow Cytometry	0117 342 2596	
Molecular Genetics	0117 342 2596	
Cytogenetics	0117 4146141	DutyScientistHaemato-Oncology@nbt.nhs.uk
Histopathology	0117 4149875	
Urgent referrals		
Urgent clinical queries	**Bleep 2455** (Laboratory Duty SpR)	
Urgent samples	Alert reception on 0117 34**2 2596** or Message the Duty Scientist on **careflow: BRI HMDS.** This is an open group: Join, message us, attach patient ID and blood count results if available	
Unexpected urgent samples	**Haematology on call service on bleep**	

Postal and Visiting Address	**Laboratory hours:**
UHB SI-HMDS Level 8, Queen's Building Bristol Royal Infirmary Upper Maudlin Street Bristol BS2 8HW	**Monday - Friday, 09.00 - 17.30** Out of hours service may be pre-arranged for urgent samples. Contact the office on 0117 342 0779, UHB_HMDS@UHBristol.nhs.uk, or message **BRI HMDS** via careflow

Specimen Requirements

Request samples on Ice or Medway. Alternatively use print version of request form (last page of this document). All specimens must be labelled with patient name, date of birth and hospital or NHS number.

Send samples for urgent attention to HMDS reception, Department of Haematology, Level 8, Queen's Building, Bristol Royal Infirmary, Upper Maudlin Street, Bristol BS2 8HW.

Blood and bone marrow samples must be received within 24 hours of sampling.

Cerebrospinal must arrive within hours and absolutely on the same day. If this is not possible:
Place CSF for flow analysis in transfix. Cell count and cytospin samples must not be placed in transfix**.**

Investigation	Sample type	Samples required (volumes for pediatric samples may be reduced)
Leukaemia, Lymhoma	FNA / core biopsy (non-marrow tissue)	**FNA for Cytology**: Place the FNA in a 20ml universal tube **FNA for flow cytometry and genetics:** Place the FNA in tissue transport media***** **Core:** Place in formalin
	Open biopsy (non-marrow tissue)	**For flow cytometry and genetics:** Place in transport media***** or as last resort, saline. **For histology:** Place in formalin.
Leukaemia, Lymhoma, Marrow failure, Non-haemato-poietic malignancies	Bone Marrow Always send a 1× EDTA peripheral blood sample with any bone marrow request	**Aspirate** **Morphology and perls stain**: Bedside smears, minimum 4 **Flow**: EDTA (1×purple top, minimum 1 ml) **Molecular genetics**: EDTA (1×purple top, minimum 1 ml) **Cytogenetics/FISH**: Heparin (1×green top, minimum 2 ml); or cytogenetic transport media **Trephine biopsy** **Histology**: Formalin **Flow/molecular genetics**: transport media***** or as last resort, saline. **FISH** may be carried out on
Leukaemia, Lymhoma	Peripheral Blood	**Film and Flow**: EDTA (1×purple top) **Molecular genetics**: EDTA (1×purple top) **Cytogenetics/FISH**: Heparin (1×green top) or cytogenetic transport media
	Cerebrospinal Fluid	**Automated cell count and cytospin**: Minimum 1 ml **Flow:** Minimum 1 ml
	Other Fluid Samples	Please send for cell count and cytology, no anticoagulants required. Contact HMDS for further advice and discussion.
	Post treatment monitoring	This depends on type of disease and investigations required. The laboratory will provide information.
PNH	Peripheral Blood	**Flow**: EDTA (1×purple top)
Other	Contact the HMDS office on 0117 342 0779 or UHB_HMDS@UHBristol.nhs.uk	

*****Transport media: For urgent unexpected sampling: Contact HMDS via careflow or on 0117 342 2596.

Reports

All results are reported on the Laboratory Information System (LIS) and visible on Medway. Turnaround times may be found in the 'Tests provided' table below.

Urgent reports are issued for treatment-guiding results, where treatment is required promptly.

Urgent results may be telephoned prior to being issued on the Laboratory Information System.

Tests provided

The table below summarises the tests performed. For full details of each test and for a complete description of diagnostic pathway: Please contact the office and/or relevant section.

Disease	Flow cytometry	Immunohistochemistry	Molecular genetics	FISH	Karyotyping
CML Diagnostic sample	Myeloid progenitor quantification	MPN panel	Qualitative and quantitative BCR-ABL on blood	t(9;22)	Yes
CML FU samples		MPN panel	Quantitative BCR-ABL on blood Monitoring 3 monthly	t(9;22) Until negative or suspected relapse	
MPN	Myeloid progenitor quantification If ? Mastocytosis: Mast cell panel	MPN panel	JAK-2 V617F, JAK-2 exon12 MPL515 MPL Baltimore BCR-ABL FIP1L1-PDGFRa (Salisbury) Familial ET: EPOR. NGS panel^ if clinically relevant If ? Mastocytosis: KIT D816V	Not unless target suspected or identified by karyotyping	Yes
MDS	Myeloid progenitor quantification MDS panel	MDS panel	JAK-2 if thrombocytosis SRSF2 if CMML suspected Familial MDS/AML: RUNX1 mutations. NGS panel if clinically relevant	Not unless target suspected or identified by karyotyping	Yes
AML Diagnosis	Acute leukaemia panel	MDS panel	Qualitative PML-Rara, t(8;21), inv16, Flt-3 NPM-1	If ? APML: t(15;17) If ? Monomyeloid with eosinophilia: inv 16 If ? With maturation: t(8;21)	Yes
AML Follow-up samples	Myeloid progenitor quantification, and MRD where available, normally	MDS panel	MRD where available	If target identified at Dx: Until negative or suspected relapse	If target identified at Dx: Until negative or suspected

	post each chemotherapy course.				relapse
APML Follow-up samples	Until cytogenetic remission and at suspected relapse	MDS panel	Quantitaive PML-Rara ^	t(15;17) post each course until negative	
CLL/SLL	B-LPD panel Clonal B cell quantification Absolute clonal B cell count from PB MRD analysis on follow-up samples	lymphoma panel	IgVh (<60 years) p53 mutation, NOTCH1 on NGS panel as indicated^	Trisomy 12, Del 13q, Del 11q, del 17p P53	
MCL	B-LPD panel Clonal B cell quantification	lymphoma panel	Sox-11	t(11;14)	
FL	B-LPD panel Clonal B cell quantification	lymphoma panel		t(14;14) if diagnostic uncertainty	
HCL	B-LPD panel Clonal B cell quantification	lymphoma panel	BRAF V600E		
NHL	LPD panel Clonal B/T cell quantification	lymphoma panel	If suspect: TCR/IgH clonality		
HG NHL	LPD panel KI-67 Clonal B/T cell quantification	High grade lymphoma panel		t(8;14) if Burkitt's needs excluding, High grade panel	
HL		Hodgkin Lymphoma panels			
Burkitt's Lymphoma	LPD panel TdT/Partial AL panel	High grade B cell lymphoma panel		t(8;14) , High grade panel	
ALL Diagnostic sample	Acute leukaemia panel		BCR-ABL	If suspected or if identified by karyotyping t(9;22), t(11;23), TEL/AML-1 . t(8;14) if Burkitt's needs excluding	Yes
ALL Follow-up samples	MRD		If target identified	If target identified	
Myeloma/PCD Diagnostic sample	Plasma cell Panel	CD138, CD20, CD3, CD56		<50-60 years: Del 13q, t(11;14), t(4;14), del 17p	
Myeloma/PCD Follow-up samples	Plasma cell Panel, MRD	CD138, CD20, CD3, CD56			

^ Test referred; See referral of investigations section.

Accreditation and Quality Assurance

UHB SI-HMDS is a NICE compliant networked SI-HMDS.
Reception, morphology, flow cytometry, molecular genetics, and final reporting are all located at UHB and are accredited to the ISO 15189:2012 standards by the United Kingdom Accreditation Service (UKAS) (reference number 8227).
Cytogenetics Service is provided by Bristol Genetics Laboratory; and are accredited to the ISO 15189:2012 standards (reference number 9307)
Histology service is located at NBT NHS Trust, Histology Department; and are CPA accredited (reference number 36)

EQA participation
Morphology: UKNEQAS Leucocyte Immunophenotyping Part II,
Flow Cytometry: UKNEQAS Leucocyte Immunophenotyping part I, PNH, CD34, CLL MRD*, AML* and ALL* MRD, Plasma cell MRD*
Molecular Genetics: Factor V Leiden, Prothrombin gene mutation, HFE gene analysis, JAK2, NPM1, FLT3, KIT D816V, T & B cell clonality, Leukaemia-associated chromosome abnormalities and BCR-ABL (Qualitative, quantitative and ABL kinase domain mutation analysis).
For histology and cytogenetics EQA participation, please contact respective laboratory.
** Accreditation pending*

Referral of investigations

1. Tissue biopsies with non haematological malignancies are forwarded to relevant histopathologist/pathology team.
2. Bone marrow aspirate samples from patients with acute promyelocytic leukaemia have a sample of cDNA sent to Department of Haematology,Guy's and St. Thomas's Hospital, London.
3. This is the national reference centre for these investigations.
4. NGS-based p53 and NOTCH mutation is provided by HODS, Cambridge university Hospitals NHS Foundation Trust.
5. NGS-based myeloid mutation analysis is provided by Oxford Molecular Diagnostics Centre, Oxford University Hospitals NHS foundation Trust.

General Enquires

Contact operational lead / office on
0117 342 0779
UHB_HMDS@UHBristol.nhs.uk

If there are problems or complaints about the service please call us. We aim to resolve most problems immediately and informally.

Referral form

See next page.

Address/Send samples to:
SI-HMDS
Queen's Building, Level 8
Bristol Royal Infirmary
Bristol, BS2 8HW

Contact Details:
Office Tel: 0117 342 0779
Laboratory Tel: 0117 342 2596
Fax: 0117 342 2531
Haemdiagnostics @UHBristol.nhs.uk

University Hospitals Bristol NHS
NHS Foundation Trust

SI-HMDS Referral Form

Hospital No:
Patient Name:
Gender: M / F
DOB:
NHS No:
(Use Label if available)

New Patient / Follow-up

Previously investigated by UHB HMDS: Yes / No
Post-Transplant: Auto / Sib / VUD / Cord / Haplo
Donor: Male/Female BMT Date: _____

Clinical Details / Suspected Diagnosis:
(If diagnosis known, please specify)

(On GCSF: Y / N / unknown)
(Recent Chemotherapy? Y / N/ unknown)

Blood count:
Hb: .....
WBC: .....
Ne: .....
Ly: .....
Plts: .....
Other
.....

Organomegaly:
Spleen Y / N
Liver Y / N
Lymph Nodes Y / N

Paraprotein: Y / N
G / A / M / D / E κ / λ
Quantitation: .....g/l

Specimen taken by (FULL NAME REQUIRED IN ALL CASES):

.....

Contact details:.....

Date / Time of sample: .....

Referring Consultant:.....

Referring Hospital:.....

Infection Risk? Yes / No **If yes, specify:**

Specimens Referred:
Peripheral blood (EDTA)
Peripheral blood air-dried slide
Bone marrow (BM) aspirate (EDTA/heparin)
BM unstained air-dried slides
BM Trephine
Lymph Node
FNA / Core
Other (specify):

Indicate Required Tests

- ☐ **Urgent** Full ? Acute Leukaemia work-up / ? APML

- ☐ Flow Immunophenotyping
- ☐ PNH (Peripheral blood only)
- ☐ Cytogenetics (Heparinised sample)
  - ☐ Store
  - Karyotype: ☐ Myeloid ☐ Lymphoid
- ☐ FISH (Heparinised sample)
  - ☐ CLL: Full CLL Panel / p53del only
  - ☐ Myeloma FISH
  - ☐ BCR/ABL
  - ☐ FGFR1, FIP1L1/PDGFRA, PDGFRB
  - ☐ Urgent PML-Rara
  - ☐ Other: Please specify
- ☐ Histology/Cytopathology and Immunohistochemistry
- ☐ Molecular genetics (EDTA sample)
  - ☐ Store
  - ☐ T/ B cell clonality
  - ☐ MyD 88
  - ☐ BRAF V600E
  - ☐ IgVH mutation ☐ p53 mutation (NGS)
  - ☐ BCR ABL p190 / p210
  - ☐ ABL Kinase mutations for non-response to TKIs
  - ☐ SF3B1
  - ☐ JAK2 V617F

  will proceed to: Exon 12 variants for PRV if JAK2 neg
  will proceed to: CALR/MPL for ET/MF if JAK2 neg
  ☐ SFSR2 ☐ KIT mutation ☐ Myeloid NGS panel

UHB SI-HMDS Request Form Ed3