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Email: HTL@ucalgary.ca

PATIENT'S INFORMATION

Name (Last, First)
Medical Record #
Date of Birth (yyyy-mm-dd):..... Gender: ☐ M ☐ F
Address:.....
City, Province:.....Country.....

ORDER INFORMATION

Requesting Physician..... Location/Facility.....
Street Address..... City Province Postal code
Phone..... Fax Email Report delivery method ☐ Email ☐ Fax ☐ Mail

DIAGNOSIS

☐ **Hematological Malignancy** ☐ AML ☐ MDS ☐ MPN ☐ CML ☐ CMML ☐ JMML ☐ ALL ☐ Lymphoma ☐ Other (specify)
☐ **Solid Tumor** ☐ Bladder ☐ Breast ☐ Cervical ☐ Colorectal ☐ Endometrial ☐ Gastric ☐ Glioblastoma ☐ Head/neck
☐ Lung ☐ Melanoma ☐ Neuroblastoma ☐ Ovarian ☐ Pancreatic ☐ Prostate ☐ Renal cell ☐ Thyroid
Cancer sub-type & grade ☐ **Other Diagnosis (specify)**
Disease status (select applicable) ☐ Diagnosis ☐ Follow-up ☐ Metastatic ☐ Recurrent/Refractory ☐ Relapse ☐ Other (specify)

TESTS

HEMATO-ONCOLOGY GENOMICS

☐ Myeloid (DNA) 54 genes frequently mutated in AML, MDS, MPN and other myeloid neoplasms
☐ Custom (select all that apply) ☐ MYD88 ☐ CALR ☐ JAK2 (ex: 12, 14) ☐ KIT ☐ MPL ☐ FLT3 ☐ IDH1/IDH2 ☐ TP53

SOLID TUMOR GENOMICS (RUO)

☐ 170-gene Comprehensive 133 DNA target genes, 59 targets of CNV and 55 RNA fusion genes in solid tumors. FFPE Compatible.

CYTOKINE PROFILE

☐ Regular (2 weeks TAT) ☐ STAT (48 hrs TAT) ☐ 34-Plex cytokine panel ☐ 2-Plex cytokine panel (sIL2Ra and CD163)
☐ Enhanced 36-cytokine panel (34-plex cytokine panel, sIL2Ra and CD163)

FLOW SORTING FOR CHIMERISM

Source: ☐ BM ☐ PB ☐ T cells ☐ Myeloid cells ☐ B cells ☐ NK cells ☐ Other (specify)

IMMUNE FUNCTION & IMMUNOGENETICS (RUO)

☐ Degranulation & IFN- γ Production Quantitative assessment of IFN- γ producing and CD107a expressing NK cells expressed as %parent
☐ IL-10 Promoter Variation Qualitative assessment of promoter region variation resulting in high/low production of regulatory cytokine

Specimen Information

Date of collection Time of collection Collected by

IMPORTANT INFORMATION

Panels Refer to Genomic Panel Descriptions for list of genes on page 2
Refer to Cytokine Panel Descriptions for list of analytes on page 2
Specimens Refer to sample requirements, guidelines and shipping instructions on page 3

LABORATORY USE

Sample Received(dd-mm-yy)(AM/PM)
Specimen type
Tubes/amount
Lab Acc#

NGS PANEL DESCRIPTION

HEMATO-ONCOLOGY - Myeloid Panel (DNA only)

Specimen compatibility: Genomic DNA extracted from biopsies (bone marrow, lymph node, peripheral blood etc.). NOT FFPE compatible

Full genes (15): BCOR, BCORL1, CDKN2A, CEBPA, CUX1, DNMT3A, ETV6, EZH2, IKZF1, KDM6A, PHF6, RAD21, RUNX1, STAG2, ZRSR2

Hotspot genes (39): ABL1, ASXL1, ATRX, BRAF, CALR, CBL, CBLB, CBLC, CSF3R, FBXW7, FLT3, GATA1, GATA2, GNAS, HRAS, IDH1, IDH2, JAK2, JAK3, KIT, KRAS, MLL, MPL, MYD88, NOTCH1, NPM1, NRAS, PDGFRA, PTEN, PTPN11, SETBP1, SF3B1, SMC1A, SMC3, SRSF2, TET2, TP53, U2AF1, WT1

SOLID TUMOR – 170-gene Comprehensive Panel (DNA & RNA)

Specimen compatibility: Genomic DNA & RNA extracted from fresh frozen and FFPE tissues

Small variants and indel (133): AKT1, AKT2, AKT3, ALK, APC, AR, ARID1A, ATM, ATR, BAP1, BARD1, BCL2, BCL6, BRAF, BRCA1, BRCA2, BRIP1, BTK, CARD11, CCND1, CCND2, CCNE1, CD79A, CD79B, CDH1, CDK12, CDK4, CDK6, CDKN2A, CEBPA, CHEK1, CHEK2, CREBBP, CSF1R, CTNNB1, DDR2, DNMT3A, EGFR, EP300, ERBB2, ERBB3, ERBB4, ERCC1, ERG, ESR1, EZH2, FAM175A, FANCI, FANCL, FBXW7, FGF1, FGF10, FGF2, FGF23, FGF3, FGF4, FGF5, FGF7, FGF9, FGFR1, FGFR2, FGFR3, FGFR4, FLT1, FLT3, FOXL2, GNA11, GNAQ, GNAS, HNF1A, HRAS, IDH1, IDH2, INPP4B, JAK2, JAK3, KDR, KIT, KRAS, MAP2K1, MAP2K2, MCL1, MDM2, MDM4, MET, MLH1, MLLT3, MPL, MRE11A, MSH2, MSH3, MSH6, MTOR, MUTYH, MYC, MYCN, MYD88, NBN, NF1, NOTCH1, NOTCH2, NOTCH3, NPM1, NRAS, NRG1, PALB2, PDGFRA, PDGFRB, PIK3CA, PIK3CB, PIK3CD, PIK3CG, PIK3R1, PMS2, PTCH1, PTEN, PTPN11, RAD51B, RAD51C, RAD54L, RB1, RET, RICTOR, ROS1, SLX4, SMAD4, SMARCB1, SMO, STK11, TET2, TP53, TSC1, TSC2

DNA amplification target genes (59): AKT2, ALK, AR, ATM, BRAF, BRCA1, BRCA2, CCND1, CCND3, CCNE1, CDK4, CDK6, CHEK1, CHEK2, EGFR, ERBB2, ERBB3, ERCC1, ERCC2, ESR1, FGF1, FGF10, FGF14, FGF19, FGF2, FGF23, FGF3, FGF4, FGF5, FGF6, FGF7, FGF8, FGF9, FGFR1, FGFR2, FGFR3, FGFR4, JAK2, KIT, KRAS, LAMP1, MDM2, MDM4, MET, MYC, MYCL1, MYCN, NRAS, NRG1, PDGFRA, PDGFRB, PIK3CA, PIK3CB, PTEN, RAF1, RET, RICTOR, RPS6KB1, TFRC

RNA fusion target genes (55): ABL1, AKT3, ALK, AR, AXL, BCL2, BRAF, BRCA1, BRCA2, CDK4, CSF1R, EGFR, EML4, ERBB2, ERG, ESR1, ETS1, ETV1, ETV4, ETV5, EWSR1, FGFR1, FGFR2, FGFR3, FGFR4, FLI1, FLT1, FLT3, JAK2, KDR, KIF5B, KIT, KMT2A (MLL), MET, MLLT3, MSH2, MYC, NOTCH1, NOTCH2, NOTCH3, NRG1, NTRK1, NTRK2, NTRK3, PAX3, PAX7, PDGFRA, PDGFRB, PIK3CA, PPARG, RAF1, RET, ROS1, RPS6KB1, TMPRSS2

CYTOKINE PANEL DESCRIPTION

Quantitative 34-Plex Cytokine Panel (Luminex™)

Specimen compatibility: Serum collected from peripheral blood and immediately frozen at -20 °C

Analytes (pg/ml and reference ranges): Eotaxin/CCL11, GM-CSF, GRO alpha/CXCL1, IFN alpha, IFN gamma, IL-1 beta, IL-1 alpha, IL-1RA, IL-2, IL-4, IL-5, IL-6, IL-7, IL-8/CXCL8, IL-9, IL-10, IL-12 p70, IL-13, IL-15, IL-17A, IL-18, IL-21, IL-22, IL-23, IL-27, IL-31, IP-10/CXCL10, MCP-1/CCL2, MIP-1 alpha/CCL3, MIP-1 beta/CCL4, RANTES/CCL5, SDF1 alpha/CXCL12, TNF alpha, TNF beta/LTA.

SAMPLE REQUIREMENT & GUIDELINES

NGS & IMMUNOGENETICS

Test	DNA	RNA	Biopsy	FFPE	Guidelines
Solid Tumor 170 gene	250 ng	150 ng	120 µm or 4 mm ³	✓	- Extracted nucleic acids and tissue samples – fresh frozen (FF) and formalin fixed paraffin embedded (FFPE) are accepted 120 µm of FFPE tissue section (4 scrolls of 30 µm thickness) with a minimum of 40% tissue content; or 2-4 FFPE cores of 1-2 mm³; or 4mm³ FF tissue.
Myeloid (DNA)	100 ng	NA	1 ml	✗	- High quality nucleic acid must be extracted and dissolved in low TE (>15 µL) - Biopsy samples (PB, BM etc.) collected in EDTA are accepted
IL10 Promoter Variant *RUO	250 ng	NA	5 ml	✗	PB sample collected in EDTA is accepted. PB collected in Heparin is not accepted

Specimen Type (select all that apply)

☐ DNA (ng)
 ☐ RNA (ng)
 ☐ Biopsy (ml/µm/mm³)

• DNA & RNA Source:
 ☐ Bone marrow
 ☐ Peripheral blood
 ☐ FFPE Tissue
 ☐ Other (specify)

• Biopsy Type:
 ☐ Bone marrow
 ☐ Peripheral blood
 ☐ FFPE Tissue
 ☐ FF Tissue
 ☐ Other (specify)

General Notes and Quality Recommendations:

- Minimum required nucleic acid concentrations are based on fluorometric estimation by Qubit reagents. A spectrophotometric method (nanodrop) overestimates the amount of nucleic acid and may only be used for the determination of sample purity (260/280 ≥ 1.8 for DNA and ≥ 1.9 for RNA)
- Nucleic acid must be extracted from a minimum of 1 ml of biopsy in EDTA, 120 µm or of FFPE tissue or 4 mm³ of FF tissue
- All nucleic acids will be tested for quality as per laboratory thresholds prior to processing

FF & FFPE Tissue Recommendations

- For FF tissues, the fresh samples must be frozen in liquid nitrogen as quickly as possible after removal from patients and immediately delivered to the laboratory. The tumor tissues must be stored at -80°C until DNA and RNA extraction.
- For both FF and FFPE, H&E slides must be analyzed by the pathologist and information of tumor cellularity must accompany the specimen description.

SPECIMEN TYPE	SHIPPING & HANDLING INSTRUCTIONS	REJECTION CRITERIA
Peripheral Blood/Bone Marrow	• EDTA tubes shipped at 4°C (use Ice packs)	- Hemolyzed / clotted specimen - Inappropriate anticoagulant (e.g., Heparin). - Suboptimal quantity/quality - For FFPE/FF: Tissue content < 40%; Tumor cellularity < 10%
DNA & RNA	• Ship at -20°C (use dry ice)	
FF Tissue	• DNA only specimens may be shipped at 4 °C	
FFPE Tissue	• Ship at room temperature	

FLOW SORTING FOR CHIMERISM

Specimen Type	☐ Blood in ACD-A/EDTA/Sodium Citrate Tube/Sodium Heparin ☐ Bone Marrow Aspirate in bone marrow medium
Guidelines	Minimum volume of the specimen required is 1mL.

SPECIMEN TYPE	SHIPPING AND HANDLING INSTRUCTIONS	REJECTION CRITERIA
Peripheral Blood	• ACD-A/EDTA/Sodium citrate tube shipped at room temperature	- Hemolyzed/clotted specimen - Inappropriate anticoagulant (e.g., Lithium Heparin)
Bone Marrow	• Bone marrow aspirate in BM medium shipped at room temperature	

CYTOKINE PROFILE

Specimen Type	☐ Frozen Serum
Guidelines (Steps outlined must be stringently followed for specimen collection, shipping and handling)	- Collect 3-5 mL peripheral blood in a tube with no anticoagulant (Red top tube) - Leave at room temperature for 30 minutes to allow it to clot - Centrifuge at 1000g for 10 minutes at room temperature - Collect serum (min. 200 µL) in screw cap tube / cryo vial and freeze at -20 °C immediately ☐ Yes ☐ No ☐ Yes ☐ No

SPECIMEN TYPE	SHIPPING AND HANDLING INSTRUCTIONS	REJECTION CRITERIA
Frozen serum	• Ship at -20°C (use dry ice)	• Hemolyzed specimen

IMMUNE FUNCTION *RUO

Specimen Type	☐ Peripheral Blood in Sodium Heparin
Guidelines	Minimum volume of the specimen required is 10 mL.

SPECIMEN TYPE	SHIPPING AND HANDLING INSTRUCTIONS	REJECTION CRITERIA
Peripheral Blood	• Sodium Heparin tube shipped at room temperature	• Hemolyzed/clotted specimen; Lithium Heparin

SHIPPING INSTRUCTIONS & GUIDELINES

Within Alberta

For Cytokine Profiling

1. Please refer to specimen processing guideline on Page 3
2. Post a label on the shipped specimen indicating CYTOKINE TESTING-HTL
3. Print the following instruction and paste on the shipped specimen parcel:

Instruction for FMC Accession Lab (403-944-1628)

- a) Please place the specimen in -20 C
- b) Please inform Dr. Rad (403-819-1294) or Dr. Dharmani (403-971-9855)
- c) HTL staff will collect the specimen in the morning

Shipping address:

Foothills Medical Center
1403 29 St NW, Calgary, AB T2N 2T9
McCaig Tower, 7th floor, Accessioning Lab

For Flow sorting and Immune function

1. Please refer to specimen processing guideline on Page 3
2. Post a label on the shipped specimen indicating IMMUNE FUNCTION TESTING-HTL
3. Print the following instruction and paste on the shipped specimen parcel:

Instruction for FMC Accession Lab (403-944-1628)

- a) Please place the specimen in 4C
- b) Please inform Dr. Rad (403-819-1294) or Dr. Dharmani (403-971-9855)
- c) HTL staff will collect the specimen in the morning

Shipping address:

Foothills Medical Center
1403 29 St NW, Calgary, AB T2N 2T9
McCaig Tower, 7th floor, Accessioning Lab

For Genomic Profiling and Flow Sorting

Testing for Genomic Profiling is performed on specimens provided for

1. Hematological malignancies: by Molecular Hematology Lab, APL, south
2. Solid tumors: by Precision Oncology and Experimental Therapeutics (POET) program at TBCC and/or Molecular Pathology Lab, APL south.

For details contact:

Hematology Translational Lab
P: 403-2207671; 403-2103935
E: HTL@ucalgary.ca

Outside Alberta

For all tests

1. Please refer to specimen processing guidelines on Page 3
2. OncoHelix manages all outside Alberta tests. For instructions and other details, please visit OncoHelix website:

Contact:

Hematology Translational Lab
P: 403-2207671; 403-2103935
E: HTL@ucalgary.ca

Shipping address:

Hematology Translational Lab
HMRB336, 3330 Hospital Drive NW
Calgary, AB, Canada. T2N 4N1.