Department of Clinical Laboratory Genetics
Genome Diagnostics & Cancer Cytogenetics
Somatic Testing

Toronto General Hospital
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Toronto, Ontario M5G 2C4
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Fax: (416) 340-3596

Hours of Operation (Mon-Fri) 8:30AM-4:30PM
CAP: 7175217   CLIA:99D1106115
IQMH: 4204-site 0141

Patient Information or Hospital Stamp Here
Last Name:
First Name:
Date of Birth (MM/DD/YYYY):
Gender:
Health Card #:
Hospital #:

Instructions:
THIS REQ IS FOR SOMATIC TESTING ONLY – see link at bottom of page for HEREDITARY REQ
1. Complete all information as requested
2. Send requisition with specimen to address above
3. Keep specimen at room temperature unless frozen
4. If shipping, send same day or next day delivery
5. Specimen labelling: Name, DOB, MRN#

Referring Physician Signature:__________________________

Information for Reporting:
Full Name of Referring physician:
Hospital/Address:

Phone:
Fax:
Copy Report To:____________________________________

Specimen Requirements - Genome Diagnostics:

- Peripheral blood
  20 mL in EDTA for leukemia/lymphoma
  18 mL in STREK tubes for circulating tumour (cell free DNA)
  5mL in EDTA for all other testing

- Bone marrow aspirate
  1-2 mL in EDTA

- Extracted DNA or RNA (>1µg) (please circle nucleic acid)
  Tissue Source: ________________
  Concentration: ____________
  Volume: ____________

Extracted nucleic acid will only be accepted from an appropriately qualified laboratory (IQMH).

Solid Tumour: Keep shipped PE material below 30°C

- Tissue or cell block (PREFERRED)
  - Recut H&E slide (slide will not be returned) and copy of the pathology report is required
  - Note that two 1mm punch biopsies will be taken from block

- Unstained slides (only if BLOCK is not available)
  - Cut 8 unstained sections @ 7µm thickness on uncoated slides
  - Air dry (not in oven) unstained sections at room temperature.
  - For all tissues we require 2 H&E stained sections, one cut before cutting slides from block and one cut after.

- PE tissue (curls) 5x10µm sections in a sterile Eppendorf tube
- Fresh tissue: 5mm^3 frozen or in 10 ml sterile medium at room temperature
- CSF or FNA: as much as possible

Specimen Requirements - Cytogenetics:

- Bone marrow aspirate
  1.5-2 mL in sodium heparin

- Peripheral blood
  7 mL in sodium heparin

- Tissue biopsy (5-10mm^3 in sterile medium/saline)

- Paraffin Embedded Tissue (FISH)
  - Include circled H&E
  - 2 x 4µm sections/probe on positively charged slides

- Cytology preparation (FISH)
  - Air-dried smear/touch prep (1-2 per test)
  - Cytospin slide (1-2 per test)

See page 4 for Cytogenetics testing

Collection date/time:__________________________
Collected by:______________________________
Clinical Diagnosis/Reason for Referral:
- **Diagnosis:** __________________________________________
- **Monitoring:** (follow-up sample)
  - Treatment (specify type) ______________________________
  - Date of last treatment ______________________
- **Other:** ____________________________________________

Genome Diagnostics Tests - Hematological

**Leukemia: Single Gene testing**
- BCR/ABL1 t(9;22)
- ABL1 kinase domain mutation
- RUNX1/RUNX1T1 (AML/ETO) t(8;21)
- CBFB/MYH11 Inv(16) or t(16;16)
- PML/RARA t(15;17)
- FLT3/RARA
- CLL IGHV Somatic Hypermutation *(for patients requiring treatment only)*

**Malignant Hematology NGS panel - Acute Myeloid Leukemia (New Diagnosis only)**
- **Comprehensive Sequencing (NGS), includes:**
  - ASXL1
  - DNMT3A
  - JAK2
  - NRAS
  - STAG2
  - ZRSR2
  - BCOR
  - EZH2
  - KIT
  - RAD21
  - TET2
  - BRAF
  - FLT3
  - KMT2A
  - RUNX1
  - TP53
  - CALR
  - IDH1
  - MPL
  - SF3B1
  - U2AF1
  - CEBPA
  - IDH2
  - NPM1
  - SRSF2
  - WT1

*Please provide a Karyotype report if analysis was not done at UHN*

**Bone marrow/Stem cell transplant monitoring:**
- 15 STRs and amelogenin XY loci

**Please specify:**
- Donor
- Recipient Pre-SCT
- Recipient Post-SCT

**Other:**
- BRAF (p.V600E/K only) *(Hairy cell leukemia, Langerhans cell histiocytosis, Erdheim-Chester)*
- KIT (Mastocytosis - BM or involved tissue preferred)
- JAK2 (Exon 12 + Exon 14 p.V617F) / CALR (MPD)

**Identity Testing (15 STRs and amelogenin XY loci):**
- Specimen matching *(Please provide control specimen, specimen in question and details)*

**Virus Detection (Nasopharyngeal Carcinoma):**
- Quantitative EBV from blood plasma
Genome Diagnostics Tests – Solid Tumour

**Note:** Please send requisitions to specimen holding facility to ensure that block/slides accompany requisitions when sent to testing lab

**Adenocarcinoma of the Lung**
- EGFR – Exons 18,19,20,21 (clinically relevant variants only)
- EGFR – p.T790M mutation only (solid tumour/cell block)
- *EGFR – p. T790M mutation only (Circulating tumour DNA in blood) *peripheral blood in STRECK tube required (see pg. 1 for specimen requirements)

Please indicate primary EGFR mutation:
- Exon 19 deletion
- Exon 21 L858R
- Other

**Colorectal Adenocarcinoma**
- Comprehensive Sequencing (NGS) (BRAF, KRAS, NRAS, PIK3CA)
- MLH1 Methylation (*Please include IHC MMR results if completed*)
- MSI - Only performed for cases with equivocal IHC MMR results
  - requires normal reference (normal tissue or blood)

**Endometrial Carcinoma**
- MLH1 Methylation (*Please include IHC MMR results if completed*)
- MSI – Only performed for cases with equivocal IHC MMR results
  - requires normal reference (normal tissue or blood)

**Gastrointestinal Stromal Tumour**
- Comprehensive Sequencing (NGS) (KIT, PDGFRA)

**Glioma**
- MGMT methylation
- IDH1/IDH2 Sequencing

**High Grade Serous Carcinoma**
(Ovarian/Tubal/Peritoneal)
- BRCA1/2 Comprehensive Sequencing (NGS)

*Tumour Cellularity within circled area_________%

NOTE: EXTERNAL pathology review and circled HE required prior to sending block. Tumour cellularity must be a minimum of 20% tumour within circled area. A ~3mm area will be cored from block. If a block cannot be sent, please send sections (see page 1).

**Melanoma (Somatic)**
- BRAF (p.V600E/K only)
- Comprehensive Sequencing (NGS)

**Papillary Thyroid Carcinoma**
- BRAF (p.V600E/K only)

**Polymorphous Low Grade Adenocarcinoma (PLGA) Salivary gland**
- PRKD1 Sequencing

**Virus Detection**
- HPV (DNA tissue testing-37 genotypes)
### Clinical Diagnosis/Reason for Referral:

- **Diagnosis:**

- **Monitoring:** (follow-up sample) Treatment (specify type) (date of last treatment) **Other:**

*proper interpretation of post-transplant karyotyping requires information about transplant type

- **Pre-transplant monitoring**
- **Post-transplant monitoring**
  - Type of transplant □ auto □ allo □ sex-mismatch
  - Date of transplant (mm/yyyy):

### Conventional Cytogenetics

- **G-banded karyotyping on bone marrow**
- **G-banded Karyotyping on peripheral blood**
  (Only to confirm a constitutional abnormality detected on bone marrow karyotype)

#### FISH for Hematologic Disorders

- **Chronic Lymphocytic Leukemia**
  - CLL FISH Panel (11q del, trisomy 12, 13q del, 17p del)
  - diagnostic □
  - follow-up (justify):

- **Chronic Myelogenous Leukemia**
  - BCR/ABL1 (only for molecular negative)

#### Plasma Cell Neoplasms with CD138 Cell Enrichment

(Magnetic separation requires ≥ 1mL marrow aspirate. If other tests are requested, e.g. karyotype, please submit an additional 1.5-2mL of aspirate in a separate tube.)

- Multiple Myeloma Panel
- Amyloidosis Panel

#### Eosinophilia FISH Panel

- PDGFRA / PDGFRB / FGFR1

#### MDS/AML Panel

(ordered automatically for failed karyotypes)

- Del(5q)/-5 and Del(7q)/-7
- KMT2A Break-apart
- MECOM 3q26 rearrangement

### Lymphoid Disorders:

<table>
<thead>
<tr>
<th>High Grade B-cell Lymphoma Panel</th>
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<tbody>
<tr>
<td>□ Entire Panel</td>
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<tr>
<td>□ MYC</td>
</tr>
<tr>
<td>□ IGH/BCL2 t(14;18)(q32;q21)</td>
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<tr>
<td>□ BCL6</td>
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<tr>
<td>Anaplastic large cell lymphoma</td>
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<tr>
<td>□ ALK</td>
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<tr>
<td>MALT lymphoma</td>
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<tr>
<td>□ MALT1</td>
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<tr>
<td>Mantle cell lymphoma</td>
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<tr>
<td>□ CCND1/IGH t(11;14)(q13;q32)</td>
</tr>
<tr>
<td>Follicular lymphoma / Diffuse Large B-Cell Lymphoma</td>
</tr>
<tr>
<td>□ IGH/BCL2 t(14;18)(q32;q21)</td>
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<tr>
<td>□ BCL6</td>
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</tbody>
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### Solid Tumour *

<table>
<thead>
<tr>
<th>Breast cancer</th>
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</thead>
<tbody>
<tr>
<td>□ HER2 Amplification</td>
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<tr>
<td>Brain Cancer: Gliomas</td>
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<tr>
<td>□ 1p/19q Co-deletion FISH</td>
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<tr>
<td>Lung Adenocarcinoma</td>
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<tr>
<td>□ ALK</td>
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<tr>
<td>□ ROS1</td>
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<tr>
<td>Sarcoma and Carcinoma FISH</td>
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<tr>
<td>□ EWSR1 - EWS-Family Tumours</td>
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<tr>
<td>□ FUS – Low Grade Fibromyxoid Sarcoma</td>
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<td>□ SS18 – Synovial Sarcoma</td>
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<tr>
<td>□ MAML2 – Mucoepidermoid Carcinoma</td>
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<tr>
<td>□ ETV6 – Secretory Carcinoma</td>
</tr>
</tbody>
</table>

*proper interpretation of post-transplant karyotyping requires information about transplant type

*tests are performed on FFPE tissue only, see specimen requirements. For cytology specimens please contact the lab to inquire if test is validated.

For all cytogenetics inquiries please contact cancercytogenetics@uhn.ca