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

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

**Instructions:**

THIS REQ IS FOR SOMATIC SOLID TUMOUR TESTING ONLY – see link at bottom of page for HEREDITARY or MALIGNANT HEMATOLOGY requisitions

1. Complete all information as requested
2. Send req with specimen to address above
3. If shipping, send same day or next day delivery
4. Label specimen with **Name, DOB, MRN#, Date Taken**

**Information For Reporting:**

Full Name of Referring Physician:
Physician Billing #
Hospital/Address:

Phone:
Fax:

Physician Signature:_____________________________

Copy Report To:________________________________

**Specimen Requirements – Genome Diagnostics:**

- **Peripheral blood** - For circulating cell-free tumour DNA (ctDNA) – **18 ml in STRECK tubes**
- **Peripheral blood** - DPYD and qEBV – **5 ml in EDTA**
- **Fresh/Fixed Cytology fluid**: as much as possible

**Solid Tumour**: Keep shipped PE material below 30ºC

- **Tissue block (PREFERRED)**
  - Recut H&E slide (slide will not be returned) and copy of the pathology report is required
  - Note that a 3mm punch biopsy 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.

- **Cell Block or Paraffin Embedded Tissue (curls)**
  - 5x10µm sections in a sterile Eppendorf tube

For Cytology specimens: Please provide ALL fixatives used:

- **Fresh tissue**: 5mm³ frozen or in 10 ml sterile medium at room temperature

Please ensure that you are using an updated copy of this requisition available at:
Note: Please send requisitions to specimen holding facility to ensure that block/slides accompany requisitions when sent to testing lab.

Genome Diagnostics - Lymphoma:
- ▲B-cell Clonality
- ▲T-cell Clonality
- ▲MYD88
- ▲Mantle Cell (TP53 sequencing only)

Genome Diagnostics - Solid Tumour

Adrenal Cortical Carcinoma
- MLH1 Promotor Methylation

Breast Cancer – Advanced/Metastatic (where PIK3CA directed therapy is being considered)
- ▲Comprehensive Sequencing (NGS) - PIK3CA, ESR1

Breast Cancer (Secretory) – Advanced/Metastatic (where NTRK directed therapy is being considered)
- ▲Comprehensive Sequencing (NGS) - NTRK1, NTRK2, NTRK3 (Fusions)

Cholangiocarcinoma (Hepatobiliary) – Advanced/Metastatic
- ▲Comprehensive Sequencing (NGS) - FGFR2 (fusions only)

CNS Tumours (Primary) – Advanced/Metastatic (where NTRK directed therapy is being considered)
- ▲Comprehensive Sequencing (NGS) - NTRK1, NTRK2, NTRK3 (Fusions)

Colorectal/Small Bowel Carcinoma
- ▲Comprehensive Sequencing (NGS) - BRAF, ERBB2, KRAS, NRAS, PIK3CA, PTEN
- ▲MLH1 Promoter Methylation
- ▲^MSI - Only performed for cases with equivocal IHC MMR results - requires normal reference (normal tissue or blood)

Endometrial Carcinoma (Invasive)
- ▲Comprehensive Sequencing (NGS) - CTNNB1, CCNE1, FGFR2, KRAS, PIK3CA, POLD1, POLE, PTEN, TP53
- ▲MLH1 Promotor Methylation
- ▲^MSI – Only performed for cases with equivocal IHC MMR results - requires normal reference (normal tissue or peripheral blood)

Esophageal/Gastroesophageal/Gastric Adenocarcinoma
- ▲MLH1 Promotor Methylation

Gastrointestinal Stromal Tumour
- ▲Comprehensive Sequencing (NGS) –BRAF, KIT, PDGFRA

^Indicates a test that will be billed to the referring hospital, laboratory, physician or medical group.
Genome Diagnostics Tests – Solid Tumour

Glioma
- MGMT Promotor Methylation
- Comprehensive Sequencing (NGS) - ALK, ATRX, BRAF, CDK4, CDK6, CDKN2A, CTNNB1, EGFR, ERBB2, FGFR1, FGFR2, FGFR3, H3F3A, HIST1H3B, HRAS, IDH1, IDH2, KRAS, MDM4, MET, MYB, MYBL1, MYC, NF1, NRAS, NRG1, NTRK1, NTRK2, NTRK3, PDGFRA, PIK3CA, POLE, PTEN, RAF1, RB1, TERT Promoter, TP53

Lung Adenocarcinoma
- Comprehensive Sequencing (NGS) - ALK, BRAF, CTNNB1, EGFR, ERBB2, FGFR1, KRAS, MET, NRG1, NTRK1, NTRK2, NTRK3, PIK3CA, RB1, RET, ROS1, SMARCA4, STK11, TP53

Note - all requests for Lung Comprehensive Sequencing will also have PD-L1 by IHC performed. If PD-L1 testing has already been performed and/or is not required – please indicate by checking here ____.

- EGFR – p.T790M mutation only (solid tumour/cell block or cytology fluid)
- ^*EGFR – p.T790M mutation only (Circulating tumour DNA in blood) *peripheral blood in STRECK tube required (see pg. 1 for specimen requirements)

Melanoma - Cutaneous
- Comprehensive Sequencing (NGS) - ALK, BAP1, BRAF, CCND1, CDK4, CDK6, CDKN2A, EIF1AX, GNA11, GNAQ, HRAS, KIT, MAAML2, MAP3K3, MAP3K8, MET, MYB, NF1, NFIB, NRAS, NTRK1, NTRK2, NTRK3, NUML1, RET, ROS1, SF3B1, TERT, TRIM11, YAP1

Melanoma - Uveal
- Comprehensive Sequencing (NGS) - ALK, BAP1, BRAF, CCND1, CDK4, CDK6, CDKN2A, EIF1AX, GNA11, GNAQ, HRAS, KIT, MBD4, MET, NF1, NRAS, RET, ROS1, SF3B1, TERT

Mammary Analogue Secretory Carcinoma - Advanced/Metastatic (where NTRK directed therapy is being considered)
- Comprehensive Sequencing (NGS) - NTRK1, NTRK2, NTRK3 (Fusions)

Nasopharyngeal Carcinoma
- ^ Quantitative EBV detection from blood plasma

Ovarian Carcinoma
- High Grade Epithelial Carcinoma (Ovarian/Fallopian/Peritoneal) - Comprehensive Sequencing (NGS) – BRCA1, BRCA2
- Epithelial and low malignant potential ovarian tumours - MLH1 Promotor Methylation
- Sex-Cord Stromal Tumour - Comprehensive Sequencing (NGS) - APC, CTNNB1, DICER1, FOXL2, STK11, VHL
- Small cell Carcinoma (SCCOHT) - Comprehensive Sequencing (NGS) - SMARCA4

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Genome Diagnostics Tests – Solid Tumour

Pancreatic Carcinoma - Invasive
- MLH1 Promotor Methylation

Prostate Carcinoma – Advanced/Metastatic
- Comprehensive Sequencing (NGS) - ATM, BRCA1, BRCA2, MLH1, MSH2, MSH6, PALB2, PMS2

Salivary Carcinoma - Advanced/Metastatic (where NTRK directed therapy is being considered)
- Comprehensive Sequencing (NGS) - NTRK1, NTRK2, NTRK3 (Fusions)

Sebaceous Carcinoma/Neoplasms (Skin or Ocular)
- MLH1 Promotor Methylation

Sinonasal Carcinoma
- Comprehensive Sequencing (NGS) – AFF2, DEK, EGFR, EWSR1, FLI1, IDH2, NUTM1, PAX3, PAX7
- MLH1 Promotor Methylation

Soft Tissue Sarcoma - Advanced/Metastatic (where NTRK directed therapy is being considered)
- Comprehensive Sequencing (NGS) - NTRK1, NTRK2, NTRK3 (Fusions)

Thyroid Carcinoma
- Metastatic Sporadic Medullary Thyroid Carcinoma - Comprehensive Sequencing (NGS) – ALK, BRAF, DICER1, HRAS, KRAS, NRAS, NTRK1, NTRK2, NTRK3, PAX8, PPARG, RET, TERT Promoter
- Metastatic Follicular Cell-Derived Thyroid Carcinoma (including Anaplastic, Papillary, Follicular and poorly differentiated Thyroid Carcinoma) - Comprehensive Sequencing (NGS) - ALK, BRAF, DICER1, HRAS, KRAS, NRAS, NTRK1, NTRK2, NTRK3, PAX8, PPARG, RET, TERT Promoter
- Anaplastic, Poorly differentiated, High Grade Differentiated (High Grade Papillary, High Grade Follicular, High Grade Oncocytic), or Iodide Refractory Differentiated Thyroid Carcinoma - Comprehensive Sequencing (NGS) - ALK, BRAF, DICER1, HRAS, KRAS, NRAS, NTRK1, NTRK2, NTRK3, PAX8, PPARG, RET, TERT Promoter

Urothelial/Urinary Tract Carcinoma - Advanced/Metastatic
- Comprehensive Sequencing (NGS) – ERBB2, FGFR1, FGFR2, FGFR3, FGFR4

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Cytogenetics Specimen Requirements – Fluorescence in situ Hybridization (FISH):

- **Paraffin-Embedded Tissue Block**
  - H&E slide, with area for FISH circled (slide will not be returned)

- **Unstained slides (FFPE)**
  - Cut three (3) unstained sections per probe at 4 µm thickness on positively charged slides

- **Cytology Specimens**
  - Air-dried smear/touch prep (1-2 per test)
  - Cytospin slide (1-2 per test)
  - Please indicate fixative(s) used

General Considerations for sending FFPE Tissues

- For all tissues we require an H&E slide, cut one level above or below the slides sent for testing with tumour area of interest circled where FISH is to be performed (slide will not be returned)*.
- Copy of pathology report is required
- Air dry unstained sections at room temperature
- **DO NOT BAKE**

Lymphoid Disorders:

Large B-Cell Lymphoma Panel

- ^Reflex Panel (BCL2 and BCL6 only when MYC Positive)

Burkitt Lymphoma

- ^MYC ONLY

Follicular lymphoma / Diffuse Large B-Cell Lymphoma

- ^IGH/BCL2 t(14;18)(q32;q21)
- ^BCL6

Anaplastic large cell lymphoma

- ^ALK

MALT lymphoma

- ^MALT1

Mantle cell lymphoma

- ^CCND1/IGH t(11;14)(q13;q32)

Solid Tumour:

HER2 Amplification (indicate tumour primary)

- Breast
- Gastric
- Endometrial

Brain Cancer: Gliomas

- 1p/19q
- CDKN2A FISH (IDH Mut)
- EGFR + PTEN FISH (IDH WT)

Sarcoma and Carcinoma FISH

- ^EWSR1 - EWS-Family Tumours
- ^FUS – Low Grade Fibromyxoid Sarcoma
- ^SS18 – Synovial Sarcoma
- ^MAML2 – Mucoepidermoid Carcinoma
- ^ETV6 – Secretory Carcinoma
- ^CDKN2A (p16) – Malignant Mesothelioma

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