COLUMBIA UNIVERSITY
Vagelos College of Physicians and Surgeons

Laboratory of Personalized Genomic Medicine
Department of Pathology and Cell Biology

630 West 168th Street
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Tel: 212-305-9706
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PGMINQUIRY@cumc.columbia.edu

Molecular Oncology Test Requisition Form

Internal Use Only Accession #:_____

For Paraffin Embedded Tissue samples, fax completed form to Surgical Pathology at (212) 305-2301
For Hematological and other samples, fax completed form to the PGM Laboratory at (212) 342-0420

PATIENT INFORMATION:

LAST NAME: | FIRST NAME: | M.I.:

DATE OF BIRTH: | MRN: | GENDER: ☐ MALE ☐ FEMALE

ADDRESS:

CITY, STATE & ZIP:

HOME PHONE: | WORK PHONE:

INSURANCE INFORMATION:

NAME OF POLICY HOLDER: | DATE OF BIRTH:

RELATIONSHIP TO PATIENT: ☐ SELF ☐ PARENT ☐ SPOUSE ☐ CHILD ☐ OTHER

NAME & ADDRESS OF INSURANCE COMPANY:

POLICY NUMBER: | GROUP NUMBER:

SECONDARY INSURANCE CARRIER: | NAME OF POLICY HOLDER:

POLICY NUMBER: | GROUP NUMBER:

CREDIT CARD: I have provided my credit card information to the Pathology Billing Office (call 212-305-7399 to provide card information). ☐

PREAUTHORIZATION: If your health insurance requires preauthorization , check here if preauthorization is pending: ☐

ORDERING PHYSICIAN INFORMATION:

LAST NAME: | FIRST NAME: | M.I.:

INSTITUTION: | NPI #:

ADDRESS:

CITY, STATE & ZIP:

TELEPHONE NUMBER: | FAX NUMBER:

EMAIL ADDRESS:

SIGNATURE: | DATE:

INSTITUTIONAL BILLING: Do you have a PGM Billing Account?
☐ Yes P.O. #_____
☐ No (Email PGMinquiry@cumc.columbia.edu to establish an account)

TISSUE / SAMPLE INFORMATION (see next page for details)

☐ **BLOOD IN EDTA** (Lavender top tube, 3-5ml room temp or refrigerated)
☐ **BONE MARROW IN EDTA** (Lavender top tube, 0.5-2 ml room temp or refrigerated)
☐ **PARAFFIN EMBEDDED TISSUE** slides only (ship at room temp); blocks are not accepted

Pathology Specimen ID Number:_____ **# of Unstained Slides**:_____

☐ **OTHER**: _____
(Call before sending sample. Fresh Tissue is NOT accepted in the Laboratory.)

DATE SPECIMEN COLLECTED: | TIME: ☐AM ☐PM

DATE ORDERED:

CLINICAL INFORMATION:

Diagnosis of: _____

History of: _____

Other Relevant Clinical Information:

ICD 10 Code(s):

TEST ORDERED (FILL IN COMPLETELY):

HEMATOLOGY/ONCOLOGY TESTING

☐ **TERT Promoter Mutation**
☐ **MGMT Methylation Assay**
☐ **Microsatellite Instability Testing (MSI)**
☐ **Immunoglobulin Heavy Chain (IgH) Rearrangement**
☐ **TCR-beta (TCRB) Rearrangement**
☐ **BCR-ABL1 (by RT-PCR)**
  ☐ **P190 (QUANTITATIVE)**
  ☐ **P210 (QUANTITATIVE W/ IS)**
☐ **FLT3-ITD, NPM1, IDH1 (New Dx RUSH)**
☐ **DNA/RNA Storage Molecular Oncology** – *HEMEPATH ONLY*

NGS PANEL TESTING

☐ **Columbia Solid Tumor Panel (CSTP)** Full 48 gene panel (select exons)

Disease-specific subpanels:

☐ **LUNG:** BRAF, EGFR, ERBB2, KEAP1, KRAS, MET, PIK3CA, POLD1, POLE, STK11, TP53
☐ **COLORECTAL/PANCREATIC:** BRAF, ERBB2, KRAS, NRAS, PIK3CA, POLD1, POLE, TP53
☐ **CHOLANGIOCARCINOMA:** BRAF, ERBB2, FGFR2, IDH1, IDH2, KRAS, NRAS, POLD1, POLE, TP53
☐ **GIST:** KIT, PDGFRA
☐ **GLIOMA:** BRAF, EGFR, FGFR1/2/3, H3F3A, HIST1H3B, IDH1, IDH2, PIK3CA, PTEN, TERT, TP53
☐ **GYNECOLOGICAL:** AKT1, BRAF, CTNNB1, ERBB2, KRAS, PIK3CA, POLD1, POLE, PTEN, TERT, TP53
☐ **HISTIOCYTIC:** ARAF, BRAF, KRAS, MAP2K1, NRAS, PIK3CA
☐ **MELANOMA:** BRAF, CYSLTR2, EIF1AX, GNAQ, GNA11, HRAS, IDH1, KIT, KRAS, NRAS, PLCB4, RAC1, SF3B1, SRSF2, TERT, TP53
☐ **UROTHELIAL:** AKT1, CDKN2A, ERBB2, FGFR1/2/3, HRAS, KRAS, NRAS, PIK3CA, TERT, TP53
☐ **THYROID:** AKT1, BRAF, CTNNB1, EIF1AX, GNAS, HRAS, KRAS, NRAS, PIK3CA, PTEN, RET, TERT, TP53, TSHR

☐ **Columbia Comprehensive Cancer Panel (CCCP)** 568 gene panel
Complete list of genes can be found at:
https://www.pathology.columbia.edu/diagnostic-specialties/personalized-genomic-medicine/oncology-testing/columbia-combined-cancer-panel-cccp

☐ **Columbia Targeted Myeloid Panel (TMP)** (*not for MRD detection*)
GENE LIST: ABL1, ANKRD26, ASXL1, BCOR, BCORL1, CALR, CBL, CBLB, CBLC, CEBPA, CSF3R, CUX1, DDX41, DNMT3A, ETNK1, ETV6, EZH2, FLT3, GATA2, GNAS, IDH1, IDH2, JAK2, KIT, KMT2A, KRAS, LUC7L2, MPL, NF1, NPM1, NRAS, PHF6, PIGA, PPM1D, PTPN11, RAD21, RUNX1, SETBP1, SF3B1, SH2B3, SMC1A, SMC3, SRSF2, STAG2, TET2, TP53, U2AF1, U2AF2, WT1, ZRSR2

☐ **Myeloproliferative Neoplasm Panel (MPN)** (*not for MRD detection*)
GENE LIST: ASXL1, CALR, CSF3R, EZH2, IDH1, IDH2, JAK2, KIT, MPL, RUNX1, SETBP1, SRSF2, TET2, TP53, U2AF1

☐ **Columbia Targeted Fusion Panel (CTFP)**
GENE LIST: ALK, AXL, BRAF, EGFR, FGFR1, FGFR2, FGFR3, MET, NRG1, NTRK1, NTRK2, NTRK3, PDGFRA, PPARG, RET, ROS1, THADA
  ☐ **NTRK PANEL:** NTRK1, NTRK2, NTRK3

☐ **Columbia Low Pass Whole Genome Copy Number Assay**

☐ **Columbia Targeted Lymphoid Panel (TLP)** (*not for MRD detection*)
GENE LIST: ABL1, ARID1A, ATM, B2M, BIRC3, BRAF, BTK, CARD11, CD79B, CDKN2A, CREBBP, CRLF2, CXCR4, DNMT3A, EP300, ERG, EZH2, FOXO1, IDH2, IKZF1, IL7R, JAK1, JAK2, JAK3, KLF2, KRAS, MAP2K1, MYD88, NOTCH1, NOTCH2, NRAS, PAX5, PLCG2, RHOA, SF3B1, STAT3, STAT5B, STAT6, TET2, TNFRSF14, TP53, SH2B3, RUNX1, PTPN11, NF1, FLT3, ETV6, GATA2, PTEN, FBXW7

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INSTRUCTIONS FOR SUBMISSION OF MOLECULAR ONCOLOGY SPECIMENS

GENERAL INFORMATION:

No special patient preparation is required. Surgical and cytology specimens should be obtained and labeled as per standard hospital protocols. Pathology specimens not from CUMC should have accompanying pathology reports to ensure identity.

BLOOD in EDTA: Lavender top tube, 3-5ml room temperature or refrigerated (do not freeze).

FFPE: Formalin Fixed Paraffin Embedded tissue sections should be delivered to PGM at room temperature. Slides should be submitted unbaked and unstained (except for the reference H&E), preferably on uncoated glass slides. **If percentage of tumor nuclei in entire block is greater than minimum for test ordered,** then five 10-micrometer sections collected in 1.5-2ml RNAse free microcentrifuge tubes ("PCR tubes") are acceptable/preferable. The slides or tubes should be accompanied by an H&E stained serial section (preferably cut after the 5th blank from the same paraffin block). If an H&E slide is not available, a note from a qualified pathologist indicating that the adjacent H&E slide has been evaluated and it contains at least the amount of tumor cells required, is acceptable. Tumor cell content should be evaluated by a qualified pathologist. Note: if ordering multiple tests, one H&E slide is sufficient.

Fresh frozen tissue: Ten 10-micrometer sections in a microcentrifuge tube, kept on dry ice after cutting (if meeting minimum tumor requirements) OR frozen section slides, immediately fixed in cold 100% ethanol or 4% formaldehyde or 4% paraformaldehyde and air-dried after fixation, then immediately delivered to PGM.

Hematological specimens: Peripheral blood (PB), bone marrow (BM), or other fluid specimen containing the required percentage of lesional cells (as determined by immunophenotyping). Blood or bone marrow should be EDTA anticoagulated and delivered at room temperature within 24 hours if local or mailed overnight with a wet ice pack. DO NOT FREEZE

Aspirates: Extrude any remaining material into Qiagen RNAprotect cell reagent. Wash needle after first pass, or if making a second pass for molecular testing, extrude directly into a labeled 2ml tube containing 1.5ml RNAprotect cell reagent. Do not extrude more than 0.3ml. Once collected, the sample is stable at room temperature for at least one week and should be received at PGM within a week.

DNA or RNA: extracted by a CLIA-certified laboratory. Store at 4°C or lower (DNA) and -60°C or lower (RNA), transport to PGM on wet ice/cold pack (DNA) or dry ice (RNA), together with H&E or pathologist confirmation of tumor content.

NOTE: Frozen specimens that arrive thawed, peripheral blood **(PB)** and bone marrow **(BM)** specimens that are visibly altered (hemolyzed, clotted, etc.), unlabeled specimens will be rejected.

TEST-SPECIFIC INFORMATION:

Columbia Targeted Fusion Panel (CTFP): FFPE Sections: Ten 5-micrometer sections containing at least one **5mm x 5mm area** with at least **20%** tumor **OR** Fresh frozen tissue specimens **OR 100ng** or more, but not less than 10ng of RNA obtained from the above tissue **OR** hematological specimens **OR** cytology specimens containing lesional cells.

BCR-ABL1 (P210 and p190): PB or BM aspirates collected in EDTA tube, transported at room temperature, and received at the lab preferably within 24 hours and not later than 36 hours from collection. Only one specimen source, preferably PB, will be used to monitor response to therapy. A minimum of 10 mL is recommended for follow-up samples to achieve adequate test sensitivity.

FLT3-ITD/NPM1/IDH1: PB, or BM, or white blood cell samples (from flow cytometry) with at least **40%** lesional cells either by morphology (blasts), or flow cytometry at AML diagnosis, or following a diagnosed relapse (this is not a test for MRD). **OR** at least **50 ng** of DNA obtained from above tissue.

IGH and TCRB: Frozen tissue sections, frozen cells, mononuclear cells, whole blood, fine-needle aspirates, or paraffin sections. Ensure lesional cells are present.

TERT: FFPE, five 5-micrometer sections or fresh frozen tissue; minimum tumor percentage: 10%.

MGMT: FFPE five 5-micrometer sections; minimum tumor percentage: 40%. Contact laboratory for fresh frozen tissue.

MSI Microsatellite Instability: FFPE. Minimum lesional cell percentage for PCR Tube: 50%; otherwise, submit slides. For other specimens: contact laboratory.

Columbia Solid Tumor Panel (CSTP) & Columbia Combined Cancer Panel (CCCP): FFPE ten 10-micrometer sections; frozen tissue; aspirates (for CSTP only). Minimum tumor percentage: 10% (CSTP) and 20% (CCCP)

Targeted Myeloid Panel (TMP), Targeted Lymphoid Panel (TLP) Myeloproliferative Neoplasm Panel (MPN): PB or BM, or white blood cell samples (from flow cytometry) or FFPE with at least **20%** lesional cells either by morphology (blasts), or flow cytometry from patients diagnosed with or suspected of myeloproliferative neoplasms, **OR** at least **100 ng** of DNA obtained from above tissue.