



## **DIRECTORY OF SERVICES**

General Laboratory Information  
Anatomic Pathology  
Cytology  
Test List

300 Portland Street, Suite 110, Columbia, MO 65201  
573-886-4600 | [www.bbpllab.com](http://www.bbpllab.com)

Hours of Operation  
Monday-Friday, 8 a.m. – 5 p.m.

September 2022

## **General Laboratory Information**

### **Introduction**

Boyce and Bynum Pathology Professional Services, Inc., a division of MAWD Pathologists, LLC, is mid-Missouri's exclusive private anatomic and molecular pathology practice, offering a full spectrum of routine and esoteric anatomic tests and procedures while operating under the directorship of multi-specialty pathologists who are committed to serving the needs of the hospitals, specialty clinics, physician offices and communities that we serve.

### **At-A-Glance**

- 16 AP/CP board-certified pathologists with multi-specialty board certifications in anatomic pathology, cytopathology, dermatopathology and hematopathology, including expert gastrointestinal pathology.
- Daily anatomic pathology conference using multi-headed microscopy to view all malignancies, dysplasia, unusual and difficult diagnostic cases. All malignancies are reported verbally to clients and followed by written final reports.
- Quality assurance process involves reviewing more than 10% of each pathologist's workload. Pathologists are easily accessible via phone to discuss reports and to aid with concerns and client education.
- Turnaround time of 90% tissue biopsies is completed in two working days.
- Client requested rush cases are expedited within 24 hours.

### **Connectivity Services**

We understand the value of information system integrating and have the technology and resources to facilitate communications with a variety of applications and platforms. In addition to interface solutions, upon completion of testing, results are reported to clients and available 24/7 on our secure internet portal.

### **Continuous Quality Management**

We have an extensive Continuous Quality Management Program. A core principle at Boyce and Bynum is the continuous improvement of all processes and services that support the needs of our clients and the patients they serve.

### **Test Turnaround Time**

Turnaround time is defined as the usual number of hours/days between the time a specimen is received in the laboratory and the time a result is released.

## **Policies**

### **Business Continuity and Contingency Planning**

In the event of a disaster, we have a comprehensive contingency plan in place to ensure that the impact on the practice is minimized.

### **Compliance**

We are committed to complying with applicable laws and regulations such as the Clinical Laboratory Improvement Amendments (CLIA). Regulatory agencies that oversee our compliance include, but are not limited to, the Centers for Medicare and Medicaid Services (CMS), and the Department of Transportation (DOT).

Boyce and Bynum develops, implements, and maintains policies, processes, and procedures designed to meet relevant requirements. We expect clients utilizing our services to ensure their own compliance with patient confidentiality, diagnosis coding, anti-kickback statutes, professional courtesy, current CPT coding, CLIA proficiency testing, and other similar regulatory requirements.

### **HIPAA Compliance**

Boyce and Bynum is fully committed to compliance with all privacy, security, and electronic transaction code requirements of the Health Insurance Portability and Accountability Act of 1996 (HIPAA). All services provided by Boyce and Bynum that involve joint efforts are done in a manner that enables our clients to be HIPAA and The College of American Pathologists (CAP) compliant.

### **Proficiency Testing**

Boyce and Bynum is a College of American Pathologists accredited, CLIA-licensed facility that voluntarily participates in many diverse external and internal proficiency testing programs. It is Boyce and Bynum's expectation that clients utilizing our services adhere to CLIA requirements for proficiency testing (42 CFR 493.801), including a prohibition on discussion about samples or results and sharing of proficiency testing materials with Boyce and Bynum during the active survey period.

### **Reportable Diseases**

Boyce and Bynum endeavors to comply with laboratory reporting requirements for each state health department regarding reportable diseases. We strive to cooperate with our clients so that we both comply with state regulation.

### **General Specimen Collection and Labeling Instructions**

Test request forms - The laboratory must have a written or electronic test request for patient testing from an authorized person. The quality of results from laboratory testing depends greatly on the proper collection and handling of the

specimen submitted for analysis. Correct patient preparation, specimen collection, specimen labeling, specimen packaging and transportation are essential factors for quality results.

Each specimen submitted must be accompanied by a Boyce and Bynum manual requisition form or electronic order. We know that proper and timely billing of your patients is one of your concerns. For us to accomplish this task, we must have accurate patient information from you, which must be legibly written on the requisition form accompanying the specimen. (A separate patient information sheet may be attached to the requisition.) Please include the following:

- Complete patient name as it appears on the primary insurance card
- Complete address of the patient
- Patient's date of birth
- Guarantor's name and date of birth if other than the patient
- Complete insurance information. It is best to attach a copy of patient's insurance card(s), front and back, to the requisition.
- Appropriate ICD-10 code
- Patient's clinical history. This is a regulatory requirement because of its importance in rendering an accurate diagnosis.
- Authorized/Requesting physician's first and last name. Circle the appropriate choice if multiple physician names appear on the requisition.
- Specimen type and source
- Specimen collection date
- The procedures or special tests desired

If the above information is not complete and legible, processing of the specimen may be delayed while we contact your office by phone or fax to obtain the required information.

All specimens submitted to Boyce and Bynum for testing must be appropriately labeled. This requirement assures positive identification and optimum integrity of patient specimens from the time of collection until testing is complete and results reported. The College of American Pathologists and CLIA require that all specimens must be labeled with two identifiers at the time of collection. Ideally, a name-number system is desirable so that there are at least two, person-specific identifying items on each sample. Person-specific identifiers may include accession number, patient's first and last name or patient's initials, unique identifying number (e.g., medical record number), or date of birth. Glass slides need to be labeled on the frosted end in pencil. When insufficient or inconsistent identification is submitted, Boyce and Bynum may recommend that a new specimen be obtained, if feasible.

## **Anatomic Pathology**

### **Specimen Handling**

Label each container with patient's name, a second unique identifier (date of birth or medical record number), physician name and source.

Complete a Histopathology test request form. The test request form must contain pertinent clinical information including patient date of birth, collection date and time, gender, clinical impression, and anatomical location of tissue.

If submitting multiple specimens, use a separate container for each specimen and clearly identify specimens using A, B, C etc. both on the specimen container and the test request form.

Place each specimen in a tightly secured container with 10% neutral buffered formalin. Do not allow specimen to dry. Do not send in saline.

Do not crush specimen with forceps, hemostats, or other instruments. Avoid using cautery.

Does not force a large specimen into a small container: Formalin must surround the specimen for proper fixation. It is important to use a container of adequate size with an opening large enough to remove the tissue. (Tissues harden after being placed in the fixative).

## **Cytology**

### **Non-Gyn**

It is essential for clinicians to refer their non-gynecological specimens to a facility which provides the highest quality service. Accurate early detection of malignant, dysplastic, and infectious processes depends upon the expertise of the professionals who participate in this important aspect of patient care.

To ensure that you and your patient receive the full benefit of a cytological screening for the detection of neoplasia and pre-malignant changes, a comprehensive approach is utilized. The patient's medical history and correlation of findings with other cytological and histologic results on file are considered before reporting the final interpretation.

Clinicians must provide the lab with patient information and pertinent clinical history when submitting a test request form (requisition) to ensure accurate, timely results.

### **Required information**

- Patient Name
- Date of Birth
- Submitting Physician Name

- Gender
- Date of Collection
- Source
- Applicable Clinical Information

### **NonGyn Reports Include**

- Case Number
- Specimen source
- Gross Description of Specimen Received
- Description of Prepared Slides for Microscopic Examination
- Clinical History
- Statement of Adequacy
- Immediate Evaluation (if applicable)
- Review Pathologist's Name and Date of Review
- Bethesda Diagnostic Category and Recommended Clinical Management for Thyroid FNA specimens

### **Specimen Rejection Policy**

All requisitions must have the patient's name, a second identifier such as a date of birth or patient ID number, tissue type and all pertinent available clinical history.

All specimen containers must be labeled with the patient's name, a second patient identifier and type of specimen.

All slides and smears must be received labeled with the patient's name and date of birth or second unique identifier.

If specimens are received without a secondary identifier a letter will be sent to the physician's office to remind the office of the requirements for specimen submission. If there continues to be secondary labeling issues the specimen(s) will be returned to the client.

Additionally, specimens will be rejected when slides are broken or beyond repair, a specimen is received in a syringe with an intact needle, or the names on the specimen and requisition do not match.

## Test List

<b>ALL Adult FISH Panel (Acute Lymphoblastic Leukemia)</b>		<b>Order Code 7600</b>
<b>Preferred specimen:</b>	<ul style="list-style-type: none"> <li>• <b>Bone Marrow Aspirate:</b> 1-2 mL sodium heparin tube. EDTA tube is acceptable.</li> <li>• <b>Peripheral Blood:</b> 2-5 mL sodium heparin tube. EDTA tube is acceptable.</li> <li>• <b>Fresh, Unfixed Tissue:</b> Tissue in RPMI.</li> <li>• <b>Fluids:</b> Equal parts RPMI to specimen volume.</li> <li>• <b>Paraffin Block or Cut Slides:</b> Not available.</li> </ul>	
<b>Notes:</b>	Probes: TCF3/PBX1 (E2A/PBX1) t(1;19)   Trisomy or Tetrasomy 4,6,10,17 (Cen 4, Cen 6, Cen 10, Cen 17)   MYC (8q24)   BCR/ABL1/ASS1 t(9;22)   MLL (11q23)   IgH (14q32)  Please exclude biopsy needles, blades, and other foreign objects from transport tubes. These can compromise specimen viability and yield and create hazards for employees.	
<b>Unacceptable specimen:</b>	Frozen	
<b>Transport temp:</b>	Use cold pack for transport making sure cold pack is not in direct contact with specimen	
<b>Methodology:</b>	FISH	
<b>Unit Code:</b>		
<b>CPT Code:</b>	88374x7 automated. Codes may differ if manual analysis is performed.	
<b>Ref Range:</b>	By report	
<b>Reported:</b>	4-6 days	
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<b>AML Standard FISH Panel (Acute Myeloid Leukemia)</b>		<b>Order Code 8505</b>
<b>Preferred specimen:</b>	<ul style="list-style-type: none"> <li>• <b>Bone Marrow Aspirate:</b> 1-2 mL sodium heparin tube. EDTA tube is acceptable.</li> <li>• <b>Peripheral Blood:</b> 2-5 mL sodium heparin tube. EDTA tube is acceptable.</li> <li>• <b>Fresh, Unfixed Tissue:</b> Tissue in RPMI.</li> <li>• <b>Fluids:</b> Equal parts RPMI to specimen volume.</li> <li>• <b>Paraffin Block or Cut Slides:</b> Not available.</li> </ul>	
<b>Notes:</b>	Probes: 5q-, -5 (5p15, 5q31, 5q33)   7q-, -7 (Cen 7, 7q22, 7q31)   Trisomy 8 (Cen 8)   MLL (11q23)   20q- (20q12, 20qter)   RUNX1/RUNX1T1 (ETO/AML1) t(8;21)   PML/RARA t(15;17)   CBFB inv(16), t(16;16)  Please exclude biopsy needles, blades, and other foreign objects from transport tubes. These can compromise specimen viability and yield and create hazards for employees.	
<b>Unacceptable specimen:</b>	Frozen	
<b>Transport temp:</b>	Use cold pack for transport making sure cold pack is not in direct contact with specimen.	
<b>Methodology:</b>	FISH	

<b>Unit Code:</b>	
<b>CPT Code:</b>	88374x7 automated. Codes may differ if manual analysis is performed.
<b>Ref Range:</b>	By report
<b>Reported:</b>	3-6 days
<b>Anaplastic Large Cell Lymphoma FISH Panel (ALCL, PTCL) Order Code 8506</b>	
<b>Preferred specimen:</b>	<ul style="list-style-type: none"> <li>• <b>Bone Marrow Aspirate:</b> N/A</li> <li>• <b>Peripheral Blood:</b> N/A</li> <li>• <b>Fresh, Unfixed Tissue:</b> N/A</li> <li>• <b>Fluids:</b> N/A</li> <li>• <b>Paraffin Block:</b> H&amp;E slide (required) plus paraffin block. Circle H&amp;E for tech only.</li> <li>• <b>Cut Slides:</b> H&amp;E slide (required) plus 4 unstained slides cut at 4 microns. Circle H&amp;E for tech only.</li> </ul>
<b>Notes:</b>	Probes: ALK (2p23)   TP63 (3q28)   TBL1XR1/TP63 [inv(3)(q26q28)]   DUSP22-IRF4 (6p25.3) Probes may be ordered separately except TP63 (3q28) and TBL1XR1/TP63 [inv(3)(q26q28)] are performed combined and reported as co-dependent for result and interpretation of TP63 rearrangement status.
<b>Unacceptable specimen:</b>	Frozen
<b>Transport temp:</b>	Use cold pack for transport making sure cold pack is not in direct contact with specimen.
<b>Methodology:</b>	FISH
<b>Unit Code:</b>	
<b>CPT Code:</b>	88374x4 automated or 88377x4 manual
<b>Ref Range:</b>	By report
<b>Reported:</b>	3-6 days
<b>BCR/ABL1 t(9;22)01 Order Code 532048</b>	
<b>Preferred specimen:</b>	<ul style="list-style-type: none"> <li>• <b>Bone Marrow Aspirate:</b> 1-2 mL Sodium Heparin Tube. EDTA tube is acceptable.</li> <li>• <b>Peripheral Blood:</b> 2-5 mL Sodium Heparin Tube. EDTA tube is acceptable.</li> <li>• <b>Fresh, Unfixed Tissue:</b> Tissue in RPMI</li> <li>• <b>Fluids:</b> Equal parts RPMI to specimen volume.</li> <li>• <b>Paraffin or Cut Slides:</b> N/A</li> <li>• <b>Note:</b> Please exclude biopsy needles, blades and other foreign objects from transport tubes which can compromise specimen viability and yield and create hazards for employees.</li> </ul>
<b>Notes:</b>	Probes: ABL1 (9q34); ASS1 (9q34); BCR (22q11.2) Disease(s): CML, ALL, MPN
<b>Unacceptable specimen:</b>	Frozen, clotted or severely hemolyzed specimens.
<b>Transport temp:</b>	Refrigerated; do not freeze. Use cold pack for transport, making sure pack is not in contact with specimen.

<b>Methodology:</b>	FISH
<b>Unit Code:</b>	532048
<b>CPT Code:</b>	88374 x 1 automated. Codes may differ if manual analysis is performed.
<b>Ref Range:</b>	By report
<b>Reported:</b>	3-5 days
<b>Bladder Cancer Detection-UroVysion</b> <span style="float: right;"><b>Order Code 8512</b></span>	
<b>Preferred specimen:</b>	<b>Voided urine:</b> 33-60 mL voided urine mixed 2:1 with supplied PreservCyt within 30 minutes of collection for total volume ~50mL.
<b>Minimum specimen:</b>	60 mL urine
<b>Notes:</b>	Urine preservative transport kits with handling instructions are available upon request.
<b>Acceptable specimen:</b>	Fresh urine (33-60 mL) in a sterile specimen container mixed with urine cytology fixative (alcohol based). Urine must be fixed immediately after collection and refrigerated.
<b>Unacceptable specimen:</b>	Urine specimens with no fixative added. Frozen specimens
<b>Transport temp:</b>	Refrigerated. Do not freeze. Use cold pack for transport making sure pack is not in direct contact with specimen.
<b>Methodology:</b>	FISH
<b>Unit Code:</b>	535144
<b>CPT Code:</b>	88121 x 1 automated. Codes may differ if manual analysis is performed.
<b>Ref Range:</b>	By report
<b>Reported:</b>	3-5 days
<b>Bone Marrow</b> <span style="float: right;"><b>Order Code 701000</b></span>	
<b>Preferred specimen:</b>	Six (6) to ten (10) air dried marrow/aspirate smears, two (2) unstained peripheral blood smears, aspirate clot containing marrow particles and bone core biopsy. Bone marrow kit available upon request. Include CBC results and other pertinent clinical history. Aspirate clot and bone biopsy to be submitted in 10% neutral formalin fixative (if from same site, the aspirate clot and biopsy may be submitted in the same container). <u>Keep peripheral and marrow aspirate smears separate from formalin fixative in an airtight container/specimen bag as the fumes from formalin interfere with staining.</u> Reported 1 to 2 business days.
<b>Unacceptable specimen:</b>	Specimen(s) or test request form improperly labeled
<b>Methodology:</b>	Routine Pathologic Evaluation
<b>Ref Range:</b>	By report
<b>Reported:</b>	Bone Marrow Biopsy: 1 to 2 business days

<b>BRAF Mutation Analysis (BRAF V600)</b>		<b>Order Code 8501</b>
<b>Preferred specimen:</b>	<ul style="list-style-type: none"> <li>• <b>FFPE solid tumor tissue:</b> Paraffin block is preferred. Alternatively, send 1 H&amp;E slide plus 5-10 unstained slides cut at 5 or more microns. Please use positively charged slides and 10% NBF fixative. Do not use zinc fixatives.</li> <li>• <b>Fine needle aspirate (FNA):</b> Requisition must note specimen is FNA. Fresh cells in suspension, unstained air-dried smears (approx. 6-8 slides), or FFPE cell blocks are acceptable if pathologist attaches note verifying sample has &gt;30% tumor or abnormal cells (required). Minimum 10<sup>6</sup> cells.</li> <li>• <b>Peripheral blood:</b> 5 mL in EDTA tube.</li> <li>• <b>Bone Marrow:</b> 2 mL in EDTA tube.</li> </ul>	
<b>Notes:</b>	Tissue block will be returned after testing is complete.	
<b>Acceptable specimen:</b>	Minimum of three unstained, positively charged slides with 4-5 micron tissue sections	
<b>Transport temp:</b>	Use cold pack for transport making sure pack is not in direct contact with specimen. All slides can be packed at room temperature.	
<b>Methodology:</b>	Molecular	
<b>Unit Code:</b>	550050	
<b>CPT Code:</b>	81210	
<b>Ref Range:</b>	By report	
<b>Reported:</b>	7-9 days	
<b>Breast Cancer Prognostic Panel</b>		<b>Order Code 35601</b>
<b>Preferred specimen:</b>	Formalin-fixed, paraffin-embedded tissue block. Tumor tissue is to be placed in 10% neutral buffered formalin as soon as possible, no later than 1 hour after removal from patient. Fixative duration: Minimum 6 hours, not to exceed 72 hours. Time from tissue acquisition to fixation and fixation duration should be recorded on test request form. Transport at room temperature and protect tissue block from excessive heat. Ship refrigerated during summer months. Surgical pathology report should be included with specimen. For multiple samples, submit a separate test request form with each sample.	
<b>Minimum specimen:</b>	1 block with tumor	
<b>Notes:</b>	Test includes: ERA/PRA Receptor Assay, Paraffin Block HER-2/neu Analysis Ki67 (MIB1), Breast, Immunohistochemistry	
<b>Unacceptable specimen:</b>	Specimens fixed in any other fixative than 10% neutral buffered formalin, decalcified specimens, cytology samples fixed in alcohol, biopsies fixed for less than 6 hours or greater than 72 hours, samples where fixation was delayed for more than 1 hour. Paraffin block with no tumor tissue remaining.	
<b>Transport temp:</b>	Room temperature	
<b>Methodology:</b>	Image Analysis Immunohistochemistry and FISH	
<b>Unit Code:</b>	535601	

<b>CPT Code:</b>	88360 x4 88374 x1
<b>Ref Range:</b>	By report
<b>Reported:</b>	3-7 days
<b>CALR Mutation Analysis</b> <span style="float: right;">Order Code 850009</span>	
<b>Preferred specimen:</b>	<ul style="list-style-type: none"> <li>• <b>Peripheral Blood:</b> 5 mL in EDTA tube.</li> <li>• <b>Bone Marrow:</b> 2 mL in EDTA tube.</li> </ul>
<b>Notes:</b>	Test in DNA-based, suitable for Freeze & Hold option.
<b>Transport temp:</b>	Use cold pack for transport making sure cold pack is not in direct contact with specimen. Ship same day as drawn whenever possible; specimens <72 hours old preferred.
<b>Methodology:</b>	Molecular
<b>Unit Code:</b>	
<b>CPT Code:</b>	81219
<b>Ref Range:</b>	By report
<b>Reported:</b>	10 days
<b>CLL FISH Panel (Chronic Lymphocytic Leukemia)</b> <span style="float: right;">Order Code 7601</span>	
<b>Preferred specimen:</b>	<ul style="list-style-type: none"> <li>• <b>Bone Marrow Aspirate:</b> 1-2 mL sodium heparin tube. EDTA tube is acceptable. Minimum 1.0 mL bone marrow.</li> <li>• <b>Peripheral Blood:</b> 2-5 mL sodium heparin tube. EDTA tube is acceptable. Minimum: 5.0 mL whole blood.</li> <li>• <b>Fresh, Unfixed Tissue:</b> Tissue in RPMI.</li> <li>• <b>Fluids:</b> Equal parts RPMI to specimen volume.</li> <li>• <b>Paraffin Block:</b> Send paraffin block.</li> <li>• <b>Cut Slides:</b> H&amp;E slide (required) plus 4 unstained slides cut at 4-5 microns.</li> </ul>
<b>Notes:</b>	<p>Probes: 6q- [SEC63 (6q21), MYB (6q23)]   ATM (11q22.3)   p53 (17p13.1)   Trisomy 12 (Cen12)   13q-/-13 (13q14,13q34)   CCND1/IgH t(11;14)</p> <p>Please exclude biopsy needles, blades, and other foreign objects from transport tubes. These can compromise specimen viability and yield and create hazards for employees.</p>
<b>Unacceptable specimen:</b>	Frozen, clotted or severely hemolyzed specimens
<b>Transport temp:</b>	Use cold pack for transport making sure pack is not in direct contact with specimen.
<b>Methodology:</b>	FISH
<b>Unit Code:</b>	532045
<b>CPT Code:</b>	88374 x4. Codes may differ if manual analysis is performed.
<b>Ref Range:</b>	By report
<b>Reported:</b>	3-6 days

<b>Cytology, Sputum</b>		<b>Order Code 4050</b>
<b>Preferred specimen:</b>	Submit sputum (early morning deep cough specimen preferred) with an equal volume of cytology fixative.	
<b>Notes:</b>	The specimen must be labeled with two (2) person specific identifiers and specimen source. Submit specimen with a completed Cytology test request form that includes clinical history.	
<b>Transport temp:</b>	Room temperature	
<b>Methodology:</b>	Routine Cytopathologic Evaluation	
<b>Unit Code:</b>	604050	
<b>CPT Code:</b>	88108	
<b>Reported:</b>	1-3 days	
<b>Cytology, Urine</b>		<b>Order Code 4075</b>
<b>Preferred specimen:</b>	30 mL of fresh urine, bladder washing, or urethral drainage submitted in a 90 mL specimen container with an equal volume of cytology fixative (30 mL CytoRich). Transport at room temperature. Voided urine should be collected sometime after the first morning urination or 3-4 hours after the patient has last urinated. Cells held overnight in the bladder may be degraded, making them difficult to analyze in the laboratory.	
<b>Notes:</b>	The specimen must be labeled with two (2) person specific identifiers and specimen source. Submit specimen with a completed Cytology test request form that includes clinical history.	
<b>Acceptable specimen:</b>	Urine without cytology fixative that has been refrigerated	
<b>Unacceptable specimen:</b>	Specimens improperly labeled. Specimens submitted in expired collection reagent. 24-hour urine collection (for kidney diagnostics).	
<b>Transport temp:</b>	Urine with fixative: Room temperature Urine without fixative: Refrigerated	
<b>Methodology:</b>	Routine Cytopathologic Evaluation	
<b>Unit Code:</b>	604075	
<b>CPT Code:</b>	88108	
<b>Ref Range:</b>	By report	
<b>Reported:</b>	3-5 days	
<b>Cytology, Fluid</b>		<b>Order Code 4080</b>
<b>Preferred specimen:</b>	Submit fluid with an equal volume of cytology fixative.	
<b>Notes:</b>	The specimen must be labeled with two (2) person specific identifiers and specimen source. Submit specimen with a completed Cytology test request form that includes clinical history.	
<b>Acceptable specimen:</b>	Fluid without cytology fixative. Must refrigerate and ship refrigerated.	
<b>Unacceptable specimen:</b>	Improper identification, fixation, or 24 hr specimen.	

<b>Transport temp:</b>	Ambient fixed, Refrigerated unfixed
<b>Methodology:</b>	Routine Cytopathologic Evaluation
<b>Unit Code:</b>	604080
<b>CPT Code:</b>	88108
<b>Reported:</b>	1-3 days
<b>Cytology, Non-Gyn Miscellaneous</b> <span style="float: right;"><b>Order Code 4100</b></span>	
<b>Preferred specimen:</b>	Submit fluid (3-5 mL) with an equal volume of cytology fixative. Record the source on the test request form.
<b>Minimum specimen:</b>	1 mL fluid
<b>Notes:</b>	The specimen must be labeled with two (2) person specific identifiers and specimen source. Submit specimen with a completed Cytology test request form that includes clinical history.
<b>Acceptable specimen:</b>	Fluid without cytology fixative if refrigerated
<b>Unacceptable specimen:</b>	Syringes with or without needles. Specimens improperly labeled.
<b>Transport temp:</b>	Room temperature fixed Refrigerated unfixed
<b>Methodology:</b>	Routine Cytopathologic Evaluation
<b>Unit Code:</b>	604100
<b>CPT Code:</b>	88108
<b>Reported:</b>	1-3 days
<b>Cytology, Breast Secretion</b> <span style="float: right;"><b>Order Code 4125</b></span>	
<b>Preferred specimen:</b>	Direct collection of nipple secretion on a glass microscopic slide (single-end frosted). <u>Collection:</u> Gently grip subareolar area and nipple with thumb and forefinger to produce pea size drop of secretion. Touch clean slide to the nipple. Immediately fix slide with cytologic spray fixative or place in slide holder pre-filled with 95% alcohol.
<b>Notes:</b>	The frosted end of slide must be labeled with two (2) person specific identifiers and specimen site (include left or right). Submit specimen with a completed Cytology test request form.
<b>Unacceptable specimen:</b>	Slide with improper identification. Slide with improper fixative.
<b>Transport temp:</b>	Room temperature
<b>Methodology:</b>	Routine Cytopathologic Evaluation
<b>Unit Code:</b>	604125
<b>CPT Code:</b>	88104
<b>Ref Range:</b>	By report
<b>Reported:</b>	2-3 days

<b>Cytology, Bronchial Washings and Brushings</b>		<b>Order Code 4175</b>
<b>Preferred specimen:</b>	<p><b>Washings:</b> Submit with an equal volume of cytology fixative. Print patients name and specimen site on the container and complete a Cytology test request form.</p> <p><b>Brushings:</b> Prepare slides by rolling material on a slide. Fix immediately with spray fixative. The brush(es) used to prepare slides may also be swished in a container of fixative to dislodge additional material and send to the laboratory.</p>	
<b>Notes:</b>	Label the slides and the containers with two (2) person specific identifiers and specimen source. Submit specimen with a completed Cytology test request form that includes clinical history.	
<b>Acceptable specimen:</b>	Fluid without cytology fixative. Must refrigerate and ship refrigerated.	
<b>Unacceptable specimen:</b>	Improper identification, fixation, or 24 hr specimen	
<b>Transport temp:</b>	Room temperature fixed. Refrigerated unfixed.	
<b>Methodology:</b>	Routine Cytopathologic Evaluation	
<b>Unit Code:</b>	604175	
<b>CPT Code:</b>	88108	
<b>Reported:</b>	1-3 days	
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<b>Cytology, Fine Needle Aspiration (FNA)</b>		<b>Order Code 4400</b>
<b>Preferred specimen:</b>	<p><b>Collection:</b> FNA collection kits are available through BBPPS or online using the BBPPS Electronic Supply Order Form. Refer to Fine Needle Aspiration (FNA) Specimen Collection for detailed instructions.</p> <p><b>Specimen:</b> Aspirated cellular material from lesions/masses of all body sites submitted for evaluation and detection of malignant diseases. Fine needle aspirations should include the following three components for optimal cytologic results.</p> <ol style="list-style-type: none"> <li><b>Two fixed slides:</b> Place one small drop of specimen on a glass slide. Take a second glass slide and smear the drop of material. Immediately place both slides in plastic container with cytology fixative.</li> <li><b>Two air dried slides:</b> Place one small drop of specimen on a glass slide. Take a second glass slide and smear the drop of material. Allow both slides to dry. Place air dried slides in plastic cytology transport container.</li> <li><b>Remaining Fluid:</b> The remaining fluid is submitted in a cytology container with equal amount of CytoRich fixative. After the direct smears have been prepared, the needle is removed from the syringe. The syringe is used to draw up the cytology fixative fluid and then <u>expel the remaining specimen into the cytology container</u>. The lid must be placed on tightly for shipping to the laboratory.</li> </ol>	
<b>Notes:</b>	The frosted end of the microscopic slides and collection containers must be labeled with two (2) person specific identifiers and detailed specimen information (e.g., left breast or right breast). Submit specimen with a completed Cytology test request form.	

<b>Unacceptable specimen:</b>	Syringes with or without needles Specimens improperly labeled Specimens submitted in expired collection reagent
<b>Transport temp:</b>	Room temperature
<b>Methodology:</b>	Routine Cytopathologic Evaluation
<b>Unit Code:</b>	604400
<b>CPT Code:</b>	88173
<b>Reported:</b>	1-3 days
<b>Cytology, Fine Needle Aspiration (FNA), Thyroid</b>	
<b>Order Code 4405</b>	
<b>Preferred specimen:</b>	<p><b>Collection:</b> Thyroid FNA Collection Kits and test request forms are available through BBPPS or online using the BBPPS Electronic Supply Order Form. Refer to Fine Needle Aspiration (FNA) Specimen Collection for detailed instructions.</p> <p><b>Specimen:</b> Aspirated cellular material from thyroid lesions/cysts submitted for evaluation and detection of malignant diseases. Fine needle aspirations should include the following three components for optimal cytologic results:</p> <ol style="list-style-type: none"> <li><b>Two fixed slides:</b> Place one small drop of specimen on a glass slide. Take a second glass slide and smear the drop of material. Immediately place both slides in plastic container with cytology fixative.</li> <li><b>Two air dried slides:</b> Place one small drop of specimen on a glass slide. Take a second glass slide and smear the drop of material. Allow both slides to dry. Place air dried slides in plastic cytology transport container.</li> <li><b>Remaining Fluid:</b> The remaining fluid is submitted in a cytology container with equal amount of CytoRich fixative. After the direct smears have been prepared, the needle is removed from the syringe. The syringe is used to draw up the cytology fixative fluid and then <u>expel the remaining specimen into the cytology container</u>. The lid must be placed on tightly for shipping to the laboratory.</li> </ol>
<b>Notes:</b>	The frosted end of the microscopic slides and collection containers must be labeled with two (2) person specific identifiers and detailed specimen information (e.g., left upper lobe, thyroid). Submit specimen with a completed Cytology test request form.
<b>Unacceptable specimen:</b>	Syringes with or without needles. Specimens improperly labeled. Specimens submitted in expired collection reagent.
<b>Transport temp:</b>	Room temperature
<b>Methodology:</b>	Routine Cytopathologic Evaluation Reporting: The Bethesda System for Thyroid Cytopathology
<b>Unit Code:</b>	604405
<b>CPT Code:</b>	88173
<b>Reported:</b>	1-3 days

EGFR Mutation Analysis		Order Code: 8521
<b>Preferred specimen:</b>	<ul style="list-style-type: none"> <li>• <b>FFPE Solid Tumor Tissue:</b> Paraffin block is preferred. Alternatively, send 1 H&amp;E slide plus 5-10 unstained slides cut at 5 or more microns. Please use positively charged slides and 10% NBF fixative. Do not use zinc fixatives.</li> <li>• <b>Fine Needle Aspirate (FNA):</b> Requisition must note specimen is FNA. FFPE cell blocks are acceptable if pathologist attaches note verifying sample has &gt;30% tumor or abnormal cells (required). Minimum 10<sup>6</sup> cells.</li> </ul>	
<b>Notes:</b>		
<b>Transport temp:</b>	Use cold pack for transport during summer to prevent block from melting. Slides can be packed at room temperature.	
<b>Methodology:</b>	Molecular	
<b>Unit Code:</b>		
<b>CPT Code:</b>	81235	
<b>Ref Range:</b>	By report	
<b>Reported:</b>	7 days	
Eosinophilia FISH Panel		Order Code: 8525
<b>Preferred specimen:</b>	<ul style="list-style-type: none"> <li>• <b>Bone Marrow Aspirate:</b> 1-2 mL sodium heparin tube. EDTA tube is acceptable.</li> <li>• <b>Peripheral Blood:</b> 2-5 mL sodium heparin tube. EDTA tube is acceptable.</li> <li>• <b>Fresh, Unfixed Tissue:</b> Tissue in RPMI.</li> <li>• <b>Fluids:</b> Equal parts RPMI to specimen volume.</li> <li>• <b>Paraffin Block or Cut Slides:</b> N/A</li> </ul>	
<b>Notes:</b>	Probes: PDGFRa, CHIC2, FIP1L1 (4q12)   PDGFRb (5q33)   FGFR1 (8p11)   CBFB inv(16), t(16;16)   Probes may be ordered separately	
<b>Unacceptable specimen:</b>	Frozen	
<b>Transport temp:</b>	Use cold pack for transport making sure cold pack is not in direct contact with specimen.	
<b>Methodology:</b>	FISH	
<b>Unit Code:</b>		
<b>CPT Code:</b>	88374x4 automated. Codes may differ if manual analysis is performed.	
<b>Ref Range:</b>	By report	
<b>Reported:</b>	3-6 days	
ERA/PRA Receptor Assay, Paraffin Block		Order Code 35210
<b>Preferred specimen:</b>	Formalin-fixed, paraffin-embedded tissue block. Tumor tissue is to be placed in 10% neutral buffered formalin as soon as possible, no later than 1 hour after removal from patient. Fixative duration: Minimum 6 hours, not to exceed 72 hours. Time from tissue acquisition to fixation and fixation duration should be recorded on test request form. Transport at room temperature and protect	

	tissue block from excessive heat. Ship refrigerated during summer months. Surgical pathology report should be included with specimen. For multiple samples, submit a separate test request form with each sample.
<b>Minimum specimen:</b>	1 block with tumor
<b>Notes:</b>	Test includes: Estrogen Receptor Progesterone Receptor Pathologist review for presence of malignant cells
<b>Unacceptable specimen:</b>	Specimens fixed in any other fixative than 10% neutral buffered formalin, decalcified specimens, cytology samples fixed in alcohol, biopsies fixed for less than 6 hours or greater than 72 hours, samples where fixation was delayed for more than 1 hour. Paraffin block with no tumor tissue remaining.
<b>Transport temp:</b>	Room temperature
<b>Methodology:</b>	Image Analysis
<b>Unit Code:</b>	535210
<b>CPT Code:</b>	88360x2
<b>Ref Range:</b>	By report
<b>Reported:</b>	3-7 days
<b>HER2 by FISH</b> <span style="float: right;"><b>Order Code 35700</b></span>	
<b>Preferred specimen:</b>	Formalin-fixed, paraffin-embedded tissue. Submit specimen at room temperature, do not expose to excessive heat.
<b>Notes:</b>	Call Molecular Pathology Department for further instructions.
<b>Transport temp:</b>	Room temperature
<b>Methodology:</b>	Fluorescence in situ Hybridization (FISH)
<b>Unit Code:</b>	535700
<b>CPT Code:</b>	88374
<b>Ref Range:</b>	Ratio >2.00 indicates over-amplification of Her2/Neu
<b>Reported:</b>	3-7 days
<b>HER2 Analysis</b> <span style="float: right;"><b>Order Code 35702</b></span>	
<b>Preferred specimen:</b>	Formalin-fixed, paraffin-embedded tissue block. Tumor tissue is to be placed in 10% neutral buffered formalin as soon as possible, no later than 1 hour after removal from patient. Fixative duration: Minimum 6 hours, not to exceed 72 hours. Time from tissue acquisition to fixation and fixation duration should be recorded on test request form. Transport at room temperature and protect tissue block from excessive heat. Ship refrigerated during summer months. Surgical pathology report should be included with specimen. For multiple samples, submit a separate test request form with each sample.
<b>Acceptable specimen:</b>	Needle biopsy fixed a minimum of 1 hour in 10% neutral buffered formalin.
<b>Unacceptable specimen:</b>	Specimens fixed in any other fixative than 10% neutral buffered formalin, decalcified specimens, cytology samples fixed in alcohol, biopsies fixed for

	less than 6 hours or greater than 72 hours, samples where fixation was delayed for more than 1 hour. Paraffin block with no tumor tissue remaining.
<b>Transport temp:</b>	Room temperature
<b>Methodology:</b>	Immunohistochemistry (IHC) and Fluorescence in situ Hybridization (FISH)
<b>Unit Code:</b>	535702
<b>CPT Code:</b>	88360 88374
<b>Ref Range:</b>	By report
<b>Reported:</b>	3-7 days
<b>HER2 by FISH, Gastroesophageal</b> <span style="float: right;"><b>Order Code 35703</b></span>	
<b>Preferred specimen:</b>	Formalin-fixed, paraffin-embedded tissue block. Specimen must be fixed in 10% neutral buffered formalin for 6-72 hours.
<b>Acceptable specimen:</b>	Needle biopsy fixed a minimum of 1 hour in 10% neutral buffered formalin.
<b>Transport temp:</b>	Room temperature
<b>Methodology:</b>	Fluorescence in situ Hybridization (FISH)
<b>Unit Code:</b>	535703
<b>CPT Code:</b>	88360 88374
<b>Ref Range:</b>	By report
<b>Reported:</b>	3-7 days
<b>HER2 Analysis, Gastroesophageal</b> <span style="float: right;"><b>Order Code 35704</b></span>	
<b>Preferred specimen:</b>	Formalin-fixed, paraffin-embedded tissue block. Specimen must be fixed in 10% neutral buffered formalin for 6-72 hours.
<b>Acceptable specimen:</b>	Needle biopsy fixed a minimum of 1 hour in 10% neutral buffered formalin
<b>Transport temp:</b>	Room temperature
<b>Methodology:</b>	Immunohistochemistry (IHC) and Fluorescence in situ Hybridization (FISH)
<b>Unit Code:</b>	535704
<b>CPT Code:</b>	88360 88374
<b>Ref Range:</b>	By report
<b>Reported:</b>	3-7 days
<b>Histopathology</b> <span style="float: right;"><b>Order Code 7000</b></span>	
<b>Preferred specimen:</b>	Tissue (Routine Histology): Tissue submitted in 10% Formalin, 1:10 ratio; transported at room temperature. This is for routine histopathology studies only. Any leak-proof container is acceptable. If 10% Formalin is unavailable, sterile saline is acceptable; transported refrigerated. Test request form must indicate "Please transfer to formalin upon receipt". If test request form does not

	<p>indicate transfer statement, a call will be generated to client to clarify test. This will also increase the TAT of result.</p> <p>Frozen Section (FS): Frozen sections must be scheduled at least one day in advance. Please call Anatomic Pathology (AP) at 573-886-4619 to schedule. Day of surgery, when patient enters the operating room, please notify AP with approximate time to expect frozen section sample. Test request form must provide a call-back phone number. Transport specimen in labeled container with saline soaked gauze or telfa-pad; refrigerated. When sample is ready for transport, please call Anatomic Pathology to request a STAT courier. Frozen Section consult diagnosis should be reported within 45 minutes from histology receipt.</p> <p>Tissue for Crystals/Gout: Tissue must be submitted in 100% alcohol; transported at room temperature. Reported 1 to 2 business days.</p>
<b>Notes:</b>	The specimen(s) must be labeled with two (2) person specific identifiers and specimen source. Submit a Histopathology Test request form or accompany with an electronically generated test request. Test request form must be completely filled with date of procedure, patient's name, date of birth or age, clinical history, clinician, location of procedure, specimen submitted and any requests for special procedures. Multiple specimens from the same patient should be submitted on the same test request form and labeled sequentially (1,2,3).
<b>Unacceptable specimen:</b>	Specimen(s) or test request form improperly labeled.
<b>Methodology:</b>	Routine Pathologic Evaluation
<b>Ref Range:</b>	By report
<b>Reported:</b>	Tissue (Routine Histology): 1 to 2 business days. If additional in-house studies are required, please add 2 to 4 business days. Direct Immunofluorescence (DIF): 1 to 4 business days Frozen Section (FS): Within 45 minutes from Histology receipt Tissue for Crystals/Gout: 1 to 2 business days
<b>Immunofluorescent, Direct</b> <span style="float: right;"><b>Order Code 708000</b></span>	
<b>Preferred specimen:</b>	<b>Direct Immunofluorescence (DIF):</b> Tissue biopsy submitted in Michel's or Zeus fixative; transported at room temperature. 10% Formalin is unacceptable. Reported 1-4 business days.
<b>Notes:</b>	The specimen(s) must be labeled with two (2) person specific identifiers and specimen source. Submit a Histopathology test request form or accompany with an electronically generated test request. Test request form must be completely filled out with date of procedure, patient's name, date of birth or age, clinical history, clinician, location of procedure, specimen submitted and any requests for special procedures. Multiple specimens from the same patient should be submitted on the same test request form and labeled sequentially (1,2,3).
<b>Unacceptable specimen:</b>	Specimen(s) or test request form improperly labeled
<b>Methodology:</b>	Routine Pathologic Evaluation
<b>Ref Range:</b>	By report

<b>Reported:</b>	Direct Immunofluorescence (DIF): 1 to 4 business days
<b>Immunohistochemistry</b> <span style="float: right;"><b>Order Code 708000</b></span>	
<b>Preferred specimen:</b>	Formalin-fixed, paraffin-embedded (FFPE) tissue. For multiple specimens, submit a separate test request form with each specimen.
<b>Minimum specimen:</b>	Three pre-cut tissue slides
<b>Acceptable specimen:</b>	Three pre-cut tissue slides
<b>Transport temp:</b>	Room temperature
<b>Methodology:</b>	Immunohistochemistry
<b>Unit Code:</b>	535110
<b>CPT Code:</b>	88341 - additional 88342
<b>Ref Range:</b>	By report
<b>Reported:</b>	3-7 days
<b>Iron Stain</b> <span style="float: right;"><b>Order Code 708000</b></span>	
<b>Preferred specimen:</b>	Collect lavender (EDTA) top tube or bone marrow. Prepare 4 unfixed, air-dried smears or core punch preps and transfer to a metal free container.
<b>Unacceptable specimen:</b>	Fixed smears. Refrigerated or frozen smears.
<b>Transport temp:</b>	Room temperature
<b>Methodology:</b>	Cytochemical Stain
<b>Unit Code:</b>	702050
<b>CPT Code:</b>	88313
<b>Ref Range:</b>	By report
<b>Reported:</b>	2-3 days
<b>JAK2 V617F Mutation Analysis – Qualitative</b> <span style="float: right;"><b>Order Code 8507</b></span>	
<b>Preferred specimen:</b>	<ul style="list-style-type: none"> <li>• <b>Peripheral Blood:</b> 5 mL EDTA tube</li> <li>• <b>Bone Marrow:</b> 2 mL EDTA tube</li> </ul>
<b>Notes:</b>	Test is RNA-based, NOT suitable for Freeze & Hold Option
<b>Transport temp:</b>	Use cold pack for transport making sure pack is not in direct contact with specimen. Ship same day as drawn whenever possible; specimens <72 hours old preferred.
<b>Methodology:</b>	Molecular
<b>Unit Code:</b>	
<b>CPT Code:</b>	81270
<b>Ref Range:</b>	By report
<b>Reported:</b>	7 days

<b>Ki-67 (MIB1), Breast, Immunohistochemistry</b>		<b>Order Code 35950</b>
<b>Preferred specimen:</b>	Formalin-fixed, paraffin-embedded tissue block. Tumor tissue is to be placed in 10% neutral buffered formalin as soon as possible, no later than 1 hour after removal from patient. Fixative duration: Minimum 6 hours, not to exceed 72 hours. Time from tissue acquisition to fixation and fixation duration should be recorded on test request form. Transport at room temperature and protect tissue block from excessive heat. Ship refrigerated during summer months. Surgical pathology report should be included with specimen. For multiple samples, submit a separate test request form with each sample.	
<b>Notes:</b>	Tissue block will be returned after testing is complete.	
<b>Acceptable specimen:</b>	Unstained, positively charged slides with 4 micron FFPE tissue sections (one for each stain ordered plus 2-5 extra).	
<b>Unacceptable specimen:</b>	Specimens fixed in any other fixative than 10% neutral buffered formalin, decalcified specimens, cytology samples fixed in alcohol, biopsies fixed for less than 6 hours or greater than 72 hours, samples where fixation was delayed for more than 1 hour. Paraffin block with no tumor tissue remaining.	
<b>Transport temp:</b>	Room temperature	
<b>Methodology:</b>	Immunohistochemistry (IHC) with Image Analysis	
<b>Unit Code:</b>	535950	
<b>CPT Code:</b>	88360	
<b>Ref Range:</b>	By report	
<b>Reported:</b>	3-7 days	
<b>KRAS Mutation Analysis</b>		<b>Order Code 8502</b>
<b>Preferred specimen:</b>	<ul style="list-style-type: none"> <li>• <b>FFPE solid tumor tissue:</b> Paraffin block is preferred. Alternatively, send 1 H&amp;E slide plus 5-10 unstained slides cut at 5 or more microns. Please use positively charged slides and 10% NBF fixative. Do not use zinc fixatives.</li> <li>• <b>Fine needle aspirate (FNA):</b> FFPE cell blocks are acceptable. Requisition must note specimen is FNA. Fresh cells and smears are not acceptable.</li> </ul>	
<b>Notes:</b>	KRAS Gene Sequencing, KRAS Exons 2-4 (includes G12C mutation)	
<b>Transport temp:</b>	Use cold pack for transport making sure cold pack is not in direct contact with specimen.	
<b>Methodology:</b>	Molecular	
<b>Unit Code:</b>		
<b>CPT Code:</b>	81275	
<b>Ref Range:</b>	By report	
<b>Reported:</b>	7 days	

<b>Leukemia Immunophenotyping by Flow Cytometry, Acute Leukemia/Cell Lineage</b>		<b>Order Code 35416</b>
<b>Preferred specimen:</b>	<p><b>Whole Blood:</b> 5.0 mL whole blood, lavender (EDTA) top tube <b>and/or</b> 1 yellow (ACD solution A) top tube.</p> <p><b>Bone Marrow:</b> 2.0 mL bone marrow submitted in a green (sodium heparin) top tube. After specimen is well mixed with anticoagulant, add equal amount of RPMI to the tube and invert to mix. Label specimen as bone marrow.</p> <p><b>Tissue:</b> Fresh tissue submitted in 10-15 mL RPMI.</p> <p>Specimens must be received within 48 hours of collection. Do not freeze specimens.</p>	
<b>Notes:</b>	<p>Routine testing includes 19 antibodies. Test includes CD45, CD13, CD14, CD7, CD3, CD20, CD19, CD16, CD10, CD33, CD34, HLA-DR, Kappa light chains, Lambda light chains, CD38, CD5, CD117, CD64, and FMC7. Testing may include additional antibodies based on initial findings as interpreted by a pathologist.</p> <p>Test request form should include suspected diagnosis and any available patient history.</p>	
<b>Unacceptable specimen:</b>	Fixed or frozen specimens	
<b>Transport temp:</b>	Refrigerated	
<b>Methodology:</b>	Flow Cytometry	
<b>Unit Code:</b>	535416	
<b>CPT Code:</b>	88184 88185 x18	
<b>Ref Range:</b>	By report	
<b>Reported:</b>	1-3 days	
<b>Lymphoma Immunophenotyping by Flow Cytometry</b>		<b>Order Code 35408</b>
<b>Preferred specimen:</b>	<p><b>Whole Blood:</b> 5.0 mL whole blood, lavender (EDTA) top tube <b>and/or</b> 1 yellow (ACD solution A) top tube.</p> <p><b>Bone Marrow:</b> 2.0 mL bone marrow submitted in a green (sodium heparin) top tube. After specimen is well mixed with anticoagulant, add equal amount of RPMI to the tube and invert to mix. Label specimen as bone marrow.</p> <p><b>Tissue:</b> Fresh tissue submitted in 10-15 mL RPMI.</p> <p>Specimens must be received within 48 hours of collection. Do not freeze specimens.</p>	
<b>Notes:</b>	<p>Routine testing includes 14 antibodies. Test includes CD45, CD3, CD19, CD20, CD5, CD4, CD8, CD23, CD10, CD38, CD7, FMC7, Kappa light chains, and Lambda light chains. Testing may include additional antibodies based on initial findings as interpreted by a pathologist or specimen type submitted.</p> <p>Test request form should include suspected diagnosis and any available patient history.</p>	

<b>Unacceptable specimen:</b>	Fixed or frozen specimens
<b>Transport temp:</b>	Refrigerated
<b>Methodology:</b>	Flow Cytometry
<b>Unit Code:</b>	535408
<b>CPT Code:</b>	88184 88185 x13
<b>Ref Range:</b>	By report
<b>Reported:</b>	1-3 days
<b>MDM2 (E3 Ubiquitin Ligase) <span style="float: right;">Order Code 8513</span></b>	
<b>Preferred specimen:</b>	<b>Bone Marrow Aspirate:</b> N/A <b>Peripheral Blood:</b> N/A <b>Fluids:</b> N/A <b>Paraffin Block:</b> Send paraffin block. Also send circled H&E slide for tech only (required). <b>Cut Slides:</b> H&E slide (required) plus 4 unstained slides cut at 405 microns. Circle H&E slide for tech only.
<b>Notes:</b>	Probes: MDM2 (12q15)   Centromere 12
<b>Transport temp:</b>	Use cold pack for transport making sure cold pack is not in direct contact with specimen.
<b>Methodology:</b>	FISH
<b>Unit Code:</b>	
<b>CPT Code:</b>	88377x1 manual or 88374x1 automated
<b>Ref Range:</b>	By report
<b>Reported:</b>	3-5 days
<b>MDS/CMML Panel <span style="float: right;">Order Code 8515</span></b>	
<b>Preferred specimen:</b>	<b>Bone Marrow Aspirate:</b> 2 mL EDTA tube. <b>Peripheral Blood:</b> 5 mL EDTA tube. <b>FFPE Tissue:</b> Paraffin block. Alternatively, send 1 H&E slide plus 10-14 unstained slides cut at 5 or more microns. Please use positively charged slides and 10% NBF fixative. Do not use zinc or mercury fixatives (B5). Highly acidic or prolonged decalcification processes will not yield sufficient nucleic acid to accurately perform molecular slides.
<b>Notes:</b>	
<b>Transport temp:</b>	Use cold pack for transport making sure cold pack is not in direct contact with specimen. Ship same day as drawn whenever possible; specimens <72 hours old preferred.
<b>Methodology:</b>	Molecular
<b>Unit Code:</b>	
<b>CPT Code:</b>	81450x1

<b>Ref Range:</b>	By report
<b>Reported:</b>	14-16 days
<b>MDS Standard FISH Panel</b> <span style="float: right;"><b>Order Code 7602</b></span>	
<b>Preferred specimen:</b>	<p><b>Bone Marrow Aspirate:</b> 1-2 mL sodium heparin tube. EDTA tube is acceptable.</p> <p><b>Peripheral Blood:</b> 2-5 mL sodium heparin tube. EDTA tube is acceptable.</p> <p><b>Fresh, Unfixed Tissue:</b> Tissue in RPMI</p> <p><b>Fluids:</b> Equal parts RPMI to specimen volume.</p> <p><b>Paraffin Block or Cut Slides:</b> N/A</p> <p>Note: Please exclude biopsy needles, blades, and other foreign objects from transport tubes. These can compromise specimen viability and yield and create hazards for employees.</p>
<b>Notes:</b>	Probes: 5q-, -5 (5p15, 5q31, 5q33)   7q-, -7 (Cen 7q22, 7q31)   Trisomy 8 (Cen 8)   MLL (11q23)   20q- (20q12, 20qter) Probes may be ordered separately except +8 and 20q- which are combined.
<b>Transport temp:</b>	Use cold pack for transport making sure cold pack is not in direct contact with specimen.
<b>Methodology:</b>	FISH
<b>Unit Code:</b>	
<b>CPT Code:</b>	88374x4 automated. Codes may differ if manual analysis is performed.
<b>Ref Range:</b>	By report
<b>Reported:</b>	3-5 days
<b>Microsatellite Instability (MSI) by PCR</b> <span style="float: right;"><b>Order Code 8516</b></span>	
<b>Preferred specimen:</b>	<b>FFPE tissue:</b> Paraffin block is preferred. Alternatively, send 1 H&E slide plus 5-10 unstained slides cut at 5 or more microns. Please use positively charged slides and 10% NBF fixative. Do not use zinc fixatives.
<b>Notes:</b>	
<b>Transport temp:</b>	Use cold pack for transport making sure cold pack is not in direct contact with specimen. Slides can be packed at room temperature.
<b>Methodology:</b>	Molecular
<b>Unit Code:</b>	
<b>CPT Code:</b>	81301x1
<b>Ref Range:</b>	By report
<b>Reported:</b>	7 days
<b>Mismatch Repair Proteins by IHC</b> <span style="float: right;"><b>Order Code 32240</b></span>	
<b>Preferred specimen:</b>	Formalin-fixed, paraffin-embedded (FFPE) tissue block containing colorectal cancer.
<b>Transport temp:</b>	Room temperature

<b>Methodology:</b>	Immunohistochemistry (IHC)
<b>Unit Code:</b>	532240
<b>CPT Code:</b>	88360 x4
<b>Ref Range:</b>	By report
<b>Reported:</b>	Within 5 days
<b>MPL Mutation Analysis (Myeloproliferative Leukemia) Order Code 850010</b>	
<b>Preferred specimen:</b>	<b>Peripheral blood:</b> 5 mL in EDTA tube. <b>Bone marrow:</b> 2 mL in EDTA tube.  Note: Test is DNA-based, suitable for Freeze & Hold option.
<b>Transport temp:</b>	Use cold pack for transport making sure cold pack is not in direct contact with specimen. Ship same day as drawn whenever possible; specimens <72 hours old preferred.
<b>Methodology:</b>	Molecular
<b>Unit Code:</b>	
<b>CPT Code:</b>	81339
<b>Ref Range:</b>	By report
<b>Reported:</b>	10 days
<b>MPN FISH Panel (Myeloproliferative Neoplasms) Order Code 8506</b>	
<b>Preferred specimen:</b>	<b>Bone Marrow Aspirate:</b> 1-2 mL sodium heparin tube. EDTA tube is acceptable. <b>Peripheral Blood:</b> 2-5 mL sodium heparin tube. EDTA tube is acceptable. <b>Fresh, Unfixed Tissue:</b> Tissue in RPMI <b>Fluids:</b> Equal parts RPMI to specimen volume. <b>Paraffin Block or Cut Slides:</b> N/A  Note: Please exclude biopsy needles, blades, and other foreign objects from transport tubes. These can compromise specimen viability and yield and create hazards for employees.
<b>Notes:</b>	Probes: PDGFRa, CHIC2, FIP1L1 (4q12)   PDGFRb (5q33)   FGFR1 (8p11)   BCR/ABL1 t(9;22) including ASS1 (9q34) Probes may be ordered separately.
<b>Transport temp:</b>	Use cold pack for transport making sure cold pack is not in direct contact with specimen.
<b>Methodology:</b>	FISH
<b>Unit Code:</b>	
<b>CPT Code:</b>	88374x4 automated. Codes may differ if manual analysis is performed.
<b>Ref Range:</b>	By report
<b>Reported:</b>	3-6 days

<b>Oncology Chromosome Analysis</b>		<b>Order Code 8707</b>
<b>Preferred specimen:</b>	<b>Bone Marrow Aspirate:</b> 1-2 mL sodium heparin tube. <b>Peripheral Blood:</b> 2-5 mL sodium heparin tube. <b>Fresh/Unfixed Tissue – Lymph Node or Solid Tumor Tissue Biopsy:</b> One thin cross section of fresh node or one representative section of solid tumor with minimum 0.5 cm <sup>3</sup> tissue. Collect under sterile conditions as if for microbiologic culture. Place tissue in RPMI and note type of tissue on test requisition. Tissues placed in formalin are unacceptable for cytogenetics.	
<b>Notes:</b>	Please exclude biopsy needles, blades and other foreign objects from transport tubes. These can compromise specimen viability and yield and create hazards for employees.	
<b>Transport temp:</b>	Do not freeze. Use cold pack for transport making sure cold pack is not in direct contact with specimen.	
<b>Methodology:</b>	Cytogenetics	
<b>CPT Code:</b>	88237, 88264, 88291. Some cases require additional study and may use 88280, 88285 and/or an additional 88237	
<b>Ref Range:</b>	By report	
<b>Reported:</b>	7-10 days	
<b>PD-L1 by Immunohistochemistry (IHC)</b>		<b>Order Code 50130</b>
<b>Preferred specimen:</b>	One formalin-fixed paraffin-embedded (FFPE) tissue block	
<b>Notes:</b>	Staining is performed on FFPE tissue using FDA approved DAKO PD-L1 IHC 22C3 and/or PD-L1 IHC 28-8 pharmDx assays. A minimum of 100 viable tumor cells must be present for the specimen to be considered adequate for PD-L1 evaluation. Tissue block will be returned after testing is complete.	
<b>Acceptable specimen:</b>	Five unstained, positively charged slides with 4-5 micron tissue sections	
<b>Transport temp:</b>	Room temperature	
<b>Methodology:</b>	Immunohistochemistry (IHC)	
<b>Unit Code:</b>	550130	
<b>CPT Code:</b>	88341 88342	
<b>Ref Range:</b>	By report	
<b>Reported:</b>	3-7 days	
<b>PD-L1 (Clone 22C3) by Immunohistochemistry (IHC)</b>		<b>Order Code 50135</b>
<b>Preferred specimen:</b>	One formalin-fixed paraffin-embedded (FFPE) tissue block	
<b>Notes:</b>	Staining is performed on FFPE tissue using FDA approved DAKO PD-L1 IHC 22C3 pharmDx assays. A minimum of 100 viable tumor cells must be present for the specimen to be considered adequate for PD-L1 evaluation. Tissue block will be returned after testing is complete.	
<b>Acceptable specimen:</b>	Five unstained, positively charged slides with 4-5 micron tissue sections	
<b>Transport temp:</b>	Room temperature	

<b>Methodology:</b>	Immunohistochemistry (IHC)
<b>Unit Code:</b>	550135
<b>CPT Code:</b>	88342
<b>Ref Range:</b>	By report
<b>Reported:</b>	3-7 days
<b>Plasma Cell Myeloma FISH Panel (MM-MGUS FISH Panel)</b>	
<b>Order Code 8710</b>	
<b>Preferred specimen:</b>	<p><b>Bone Marrow Aspirate:</b> 1-2 mL sodium heparin tube. EDTA tube is acceptable.</p> <p><b>Peripheral Blood:</b> Not recommended as a screening specimen unless increased plasma cells are seen on block smear. 2-5 mL sodium heparin tube. EDTA tube is acceptable.</p> <p><b>Fresh, Unfixed Tissue:</b> Tissue in RPMI</p> <p><b>Fluids:</b> Equal parts RPMI to specimen volume.</p> <p><b>Paraffin Block or Cut Slides:</b> N/A</p> <p>Note: Please exclude biopsy needles, blades, and other foreign objects from transport tubes. These can compromise specimen viability and yield and create hazards for employees.</p>
<b>Notes:</b>	Probes: 1p-, 1q+, iso(1q): CDKN2C (1p32), CKS1B (1q21)   +5 hyperdiploidy (5p15)   +9, hyperdiploidy (9q22)   +15, hyperdiploidy (15q22)   13q- (13q14, 13q34)   IgH (14q32)   17p- (TP53 17p13.1, NF1 17q11.2)
<b>Transport temp:</b>	Refrigerate specimen. Do not freeze. Use cold pack for transport making sure cold pack is not in direct contact with specimen. Specimens should be received within 72 hours of collection
<b>Methodology:</b>	FISH
<b>CPT Code:</b>	88374. Quantity can vary.
<b>Ref Range:</b>	By report
<b>Reported:</b>	3-6 days
<b>TP53 Mutation Analysis</b>	
<b>Order Code 8511</b>	
<b>Preferred specimen:</b>	<p><b>Bone Marrow Aspirate:</b> 2 mL EDTA tube.</p> <p><b>Peripheral Blood:</b> 5 mL EDTA tube.</p> <p><b>FFPE Solid Tumor Tissue:</b> Paraffin block is preferred. Alternatively, send 1 H&amp;E slide plus 5-10 unstained slides cut at 5 or more microns. Please use positively charged slides and 10% NBF fixative. Do not use zinc fixatives.</p>
<b>Transport temp:</b>	Use cold pack for transport making sure cold pack is not in direct contact with specimen.
<b>Methodology:</b>	Molecular
<b>CPT Code:</b>	81352
<b>Ref Range:</b>	By report
<b>Reported:</b>	10 days