



Cleveland Clinic Laboratories

# Anatomic Pathology Services

**Trust** in us for everything you need in a reference lab.



## OUR MISSION

The Pathology and Laboratory Medicine Institute contributes to excellent patient care by providing comprehensive, high quality laboratory testing and patient-focused expert consultation. This mission is supported by innovative research and new test development, exceptional customer service, continuous quality improvement and leadership in education.

## OUR VISION

We will provide the highest quality laboratory testing and expert pathology diagnosis to patients institutionally, regionally and nationally.

## OUR VALUES

**Clinical Excellence** – We provide comprehensive and high quality laboratory testing in a patient-responsive manner.

**Expert Diagnosis** – Diagnoses are provided by subspecialty experts, and consultation with physicians is important for patient care.

**Continuous Quality Improvement** – We are continuously evaluating and implementing the best practices in laboratory testing across the testing spectrum.

**Dedication to Our Staff** – Our staff are our most valuable resource and are supported and recognized for their accomplishments.

**Innovative Test Development** – A continual focus on new test development is important to provide the best capabilities for patient diagnosis.

**Research and Education** – Research is crucial for leadership in laboratory medicine; education and development are important at all levels.

INTEGRITY  
EXPERTISE  
REPUTATION  
FOCUS  
INNOVATION

**Trust** in us for everything you need in a reference lab.

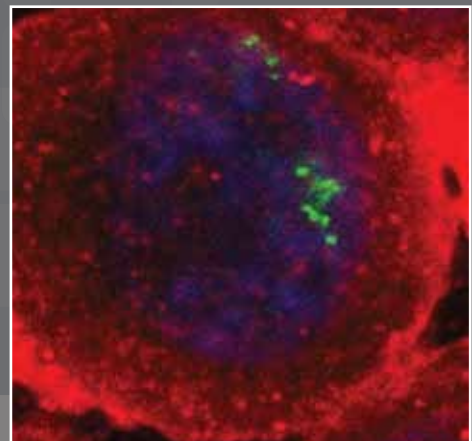


## Anatomic Pathology Services

Anatomic pathology plays a key role in patient care through disease diagnosis and management. For decades pathologists, institutions, and community-based clinicians across the country have relied on Cleveland Clinic Laboratories to deliver world-class, comprehensive anatomic pathology services in addition to clinical laboratory testing.

The same staff of more than 45 anatomic pathologists that provides diagnostic interpretations for Cleveland Clinic patients provides diagnostic services for our Cleveland Clinic Laboratories clients, utilizing a subspecialty expert sign-out system and state-of-the-art technology.

Currently, our subspecialty pathologists interpret more than 112,000 surgical pathology cases and 75,000 cytology specimens annually.





## Subspecialty Consultative Services

Cleveland Clinic offers second opinion surgical pathology case review. Specimens submitted to Cleveland Clinic Laboratories is triaged to one of our subspecialty teams. The subspecialty teams are comprised of the same experienced, specialty-trained anatomic pathologists who provide diagnostic services for Cleveland Clinic patients. This subspecialty approach ensures that every specimen submitted to Cleveland Clinic Laboratories is evaluated by a pathologist with a high level of diagnostic expertise in that specific field of pathology. Each subspecialty service regularly conducts consensus review sessions of unique and challenging cases to leverage the diagnostic expertise of each team member.

Close working relationships between each subspecialty team and Cleveland Clinic subspecialty clinicians ensure our pathologists are well-versed in the current standards of care in their subspecialties and aware of the clinical and therapeutic aspects of their diagnoses.

## Experience and Expertise

Cleveland Clinic anatomic pathologists are widely recognized for their clinical experience and diagnostic expertise. Our staff includes nationally and internationally recognized experts in many subspecialty areas, and a number of our pathologists have attained leadership positions in premier professional organizations in pathology and related fields. Our pathologists are invited as guest lecturers throughout the world and are widely recognized for their teaching and contributions to advancements in diagnostic pathology.



## Specialized Capabilities

In addition to conventional techniques for evaluation of anatomic pathology specimens, our pathologists maintain expertise in state-of-the-art technologies in:

- Molecular Pathology
- Immunohistochemistry and immunofluorescence
- Electron microscopy
- Cytogenetics

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## eIHC Services

Incorporating technology advances in digital imaging (eSlides) enhances research, education, and patient care. A web-based review of IHC-stained slides (eSlides) help optimize clinical workflow for immunohistochemistry (IHC) and faster turnaround time.







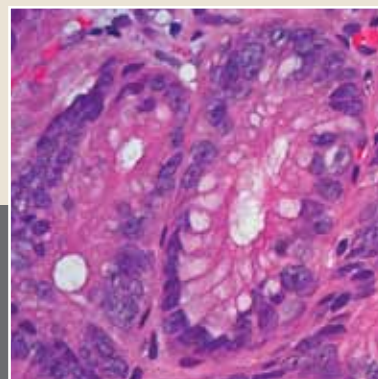
## Research and Development

Research and development is an important activity of our laboratories. We constantly strive to develop new tests to better diagnose disease and manage patients. Translational research efforts span a wide variety of activities and include predictive and prognostic biomarker development, clinical trials correlative science, and new assay development funded through governmental and non-governmental sources. Our collaborators include local, national and international partners.

## Our Service Commitment

Cleveland Clinic Laboratories is committed to providing world-class anatomic pathology services with timely turnaround to meet the needs of the referring physician.

We look forward to serving your needs.



For more information about Anatomic Pathology Services at Cleveland Clinic Laboratories, please contact:

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**Sales Inquiries:**

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**Submit specimens to:**

**UPS, Fedex, DHL**

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**US Mail**

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Complete information about tests, specimen preparation and ordering is available at [clevelandcliniclabs.com](http://clevelandcliniclabs.com)



# Cleveland Clinic

**Every life deserves world class care.**

9500 Euclid Avenue, Cleveland, OH 44195

Cleveland Clinic is an integrated healthcare delivery system with a main campus, 18 family health centers, eight community hospitals and locations in Ohio, Florida, Nevada, Toronto and Abu Dhabi. It is a not-for-profit group practice where nearly 3,000 staff physicians and scientists in 120 medical specialties collaborate to give every patient the best outcome and experience. Cleveland Clinic is ranked among America's top hospitals overall, and among the nation's leaders in every major medical specialty (*U.S. News & World Report*).

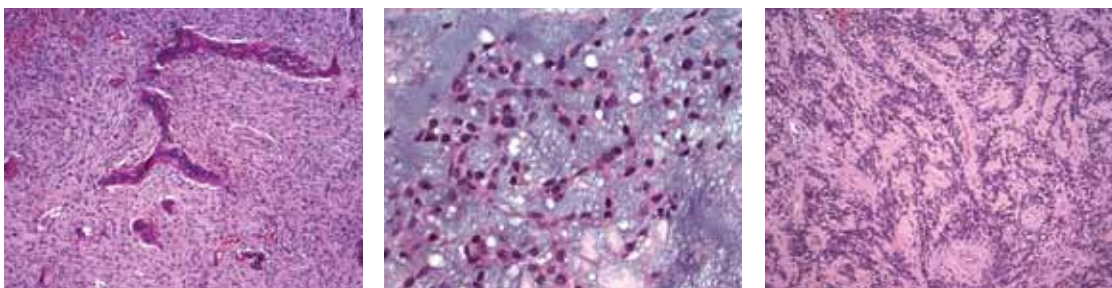
[clevelandclinic.org](http://clevelandclinic.org)

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# Cleveland Clinic Laboratories

## Soft Tissue and Bone Pathology Consultative Group



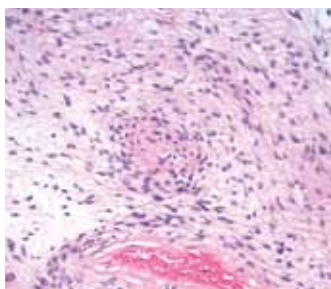
The Soft Tissue and Bone Consultative Service of Cleveland Clinic Laboratories offers comprehensive evaluation of benign and malignant neoplasms arising in bone and soft tissue as well as mesenchymal neoplasms of the skin and parenchymal organs.

### Experience and Expertise

Soft tissue and bone pathology consultative services are provided by Drs. Thomas Bauer, John Goldblum, Brian Rubin and Steven Billings, who are nationally and internationally recognized as experts in the field. They provide expert primary diagnoses and second opinions on some of the most difficult cases in bone and soft tissue pathology. In addition to outside consultative services, they also provide in-house diagnostic pathology through their clinical practice at Cleveland Clinic, a respected international tertiary referral center for cancer and musculoskeletal diseases.

### Consultative Services

Soft tissue and primary bone tumors are rare, and include benign and malignant neoplasms that are diverse in histologic appearance and biologic behavior. Accurate diagnosis, grading and staging are essential for appropriate treatment. In part because these lesions are so rare, many pathologists find the diagnosis of soft tissue and bone tumors to be extremely challenging. Our pathologists have extensive experience with the diagnosis of bone and soft tissue tumors, and have written authoritative work concerning many of these tumors. Consultation is available at any stage of diagnosis or treatment.



### Available Testing and Analysis

Our consultative service offers state-of-the-art tests to aid in diagnosis, including:

- Immunohistochemistry
- Molecular analysis
- Cytogenetics
- Electron microscopy

## Soft Tissue and Bone Pathology Staff



**Thomas Bauer, MD, PhD**  
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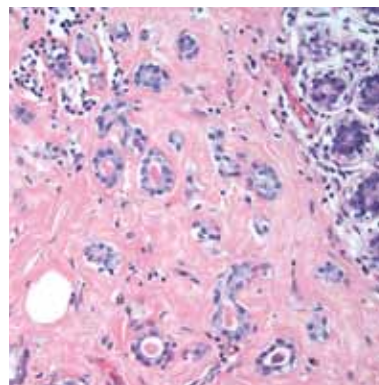
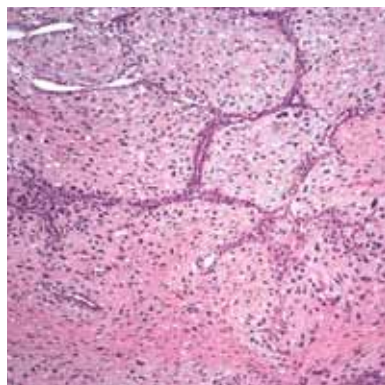
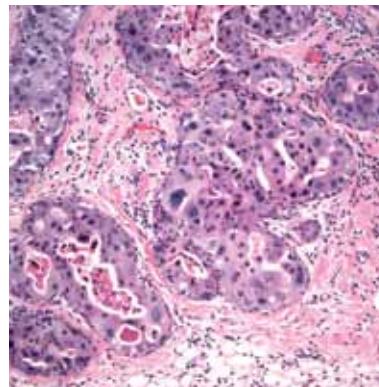
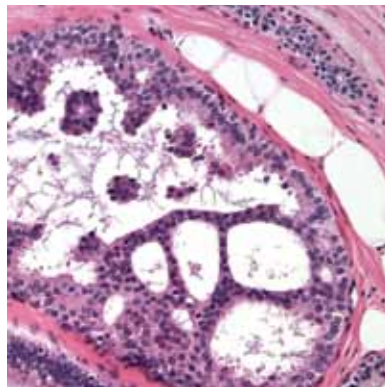
# Cleveland Clinic Laboratories

## Breast Pathology Consultative Group

The Breast Pathology Service provides diagnostic histopathology for breast lesions from needle core biopsies, lumpectomies and mastectomy specimens. Four surgical pathologists with subspecialty expertise in breast pathology interpret more than 5,000 specimens annually. To complement the traditional histologic diagnosis of breast cancer, our pathologists also provide interpretation of special studies, such as immunohistochemistry testing for estrogen/progesterone receptors and molecular testing, including Her2 FISH. Research interests include the application of biomarkers to determine new means of predicting prognosis and therapeutic response.

### Experience and Expertise

Our breast pathologists frequently serve as speakers at national continuing medical education courses in breast pathology and participate in leading professional organizations in the field.





## Breast Pathology Staff



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# Cleveland Clinic Laboratories

## Cardiovascular Pathology Consultative Group

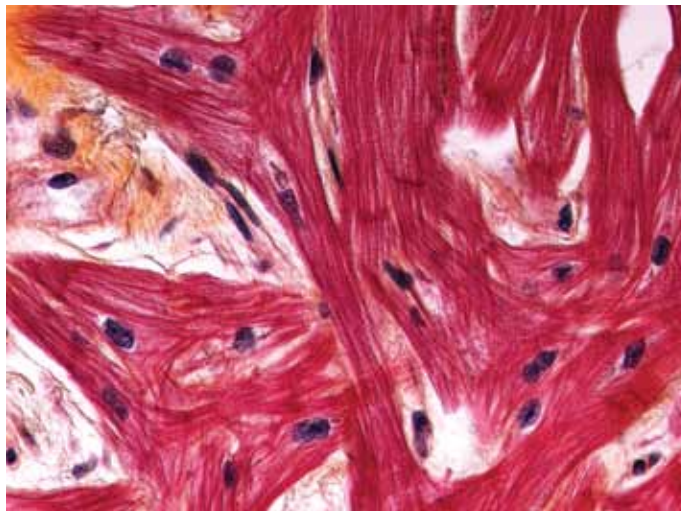


Cardiovascular Pathology is the pathological evaluation and interpretation of diseases affecting the heart and its blood vessels. For more than 30 years, our Cardiovascular Program has worked together with Cleveland Clinic's internationally renowned cardiology and cardiovascular programs, offering expertise in pediatric and adult cardiovascular pathology.

Cardiovascular Pathology offers a full range of cardiovascular pathology services, including evaluation of congenital cardiovascular malformations, heart valve pathology, vascular pathology and acquired heart disease; diagnosis of cardiomyopathies; diagnosis of primary cardiac disease by light, immunofluorescence and transmission electron microscopy; heart transplant surveillance for cellular and antibody-mediated rejection; and evaluation of the cardiac conduction system and implantable cardiovascular devices.

### Experience and Expertise

Special interests include genomic profiling of the failing human heart; assessment of arrhythmogenic right ventricular dysplasia; and issues related to cardiac transplantation and developmental cardiac pathology. Pathologists on the service are editorial board members and ad hoc reviewers for major cardiology and pathology journals, participate in numerous collaborative research projects in the field and are involved in leading international and national professional organizations.



## Cardiovascular Pathology Staff



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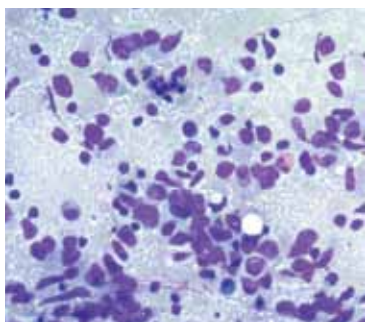
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# Cleveland Clinic Laboratories

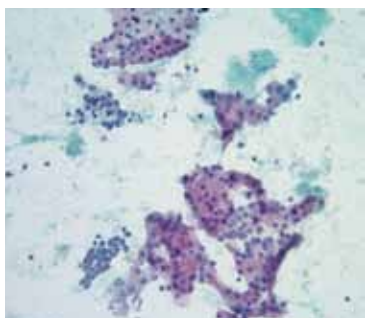
## Cytopathology Consultative Group



Cleveland Clinic's Cytopathology Laboratory evaluates a large volume of gynecologic (75,000) and non-gynecologic (10,000) specimens in a wide breadth of disease categories.

Cytopathologists on the Fine Needle Aspiration (FNA) service aspirate and evaluate superficial lesions to provide rapid assessment and diagnosis for improved patient management. The laboratory also provides rapid assessment for clinicians performing FNA of deep-seated lesions to ensure that an adequate sample is available for diagnosis and ancillary testing if needed.

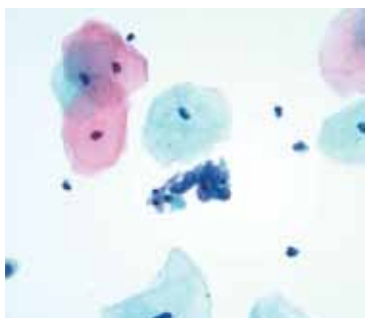
### Experience and Expertise



The staff includes 10 board-certified cytopathologists with expertise in glandular gynecologic lesions, ThinPrep® gynecologic cytology, breast and respiratory cytology, among others. Many of the staff are nationally recognized for their expertise and are actively involved in teaching and research in cytology.

In addition to providing outstanding cytomorphologic diagnoses in a timely fashion, the laboratory has distinguished itself by implementing cutting-edge technology and molecular cytology methods. A few examples are listed below:

- Computer-assisted Pap smear screening with the Cytoc ThinPrep® Imaging System. The goal of the laboratory is to provide rapid, consistent and accurate Pap smear diagnoses to provide better patient care and allow for appropriate ancillary testing when needed.
- Implementation of Urovysion™ FISH testing as an adjunct test to the traditional cytologic interpretation. This technique provides valuable information for the management of bladder cancer patients undergoing surveillance for recurrence.
- Reflex HPV testing for patients with atypical diagnoses on Pap smear. This testing allows more accurate triage of patients for further clinical evaluation and biopsy.
- State-of-the-art lymph node FNA diagnosis utilizing cytomorphologic, flow cytometric and molecular techniques.



The Laboratory offers an accredited fellowship in cytopathology.

## Cytopathology Staff



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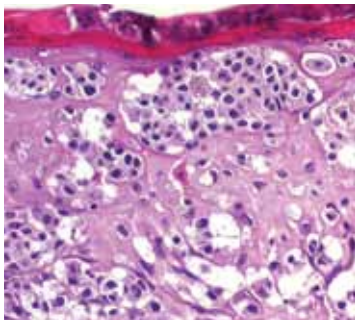


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# Cleveland Clinic Laboratories

## Dermatopathology Consultative Group

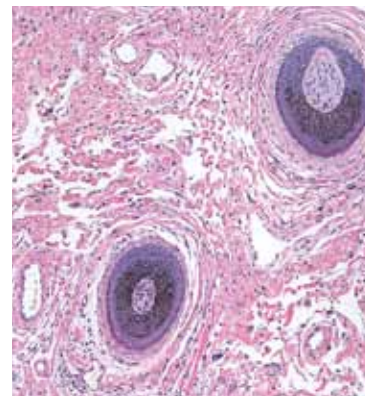
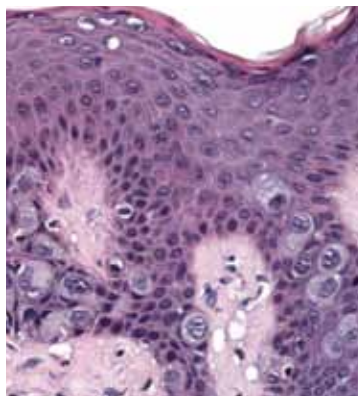
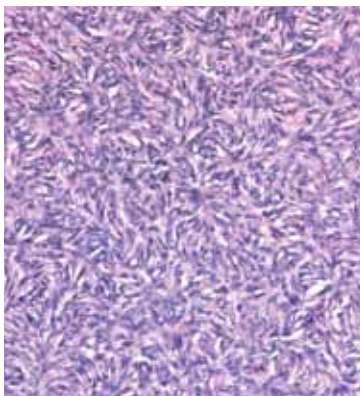


Cleveland Clinic Laboratories Dermatopathology Consultative Group offers a complete cutaneous disease diagnostic program, including evaluation of wet tissue specimens and expert second opinion consultations.

### Experience and Expertise

Our faculty members are board-certified dermatopathologists with extensive experience in the diagnosis of neoplastic and inflammatory skin diseases. Their interests and diagnostic capabilities cover the entire range of cutaneous diseases, including melanocytic lesions, cutaneous soft tissue tumors, cutaneous lymphocytic tumors, inflammatory skin diseases and alopecia. Collaboration between clinicians and pathologists and a team approach to specimen review enhance diagnostic accuracy.

The dermatopathologists serve and collaborate closely with clinicians in the Cleveland Clinic Department of Dermatology. Our service also attracts consultations from dermatologists across the United States and internationally. Each year, the dermatopathology service group provides expert diagnosis and second opinions for more than 25,000 in-house and referral cases, including the rarest and most complex cases in the field.





## Dermatopathology Staff



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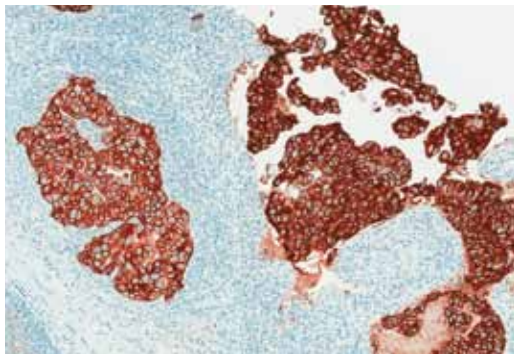
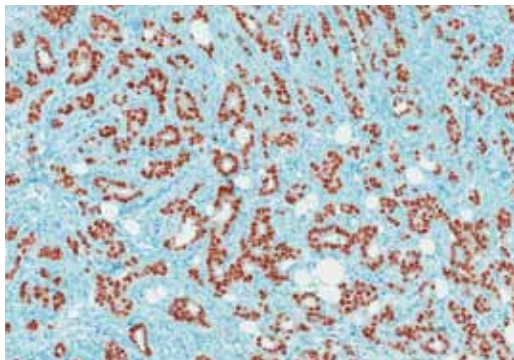


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# Cleveland Clinic Laboratories

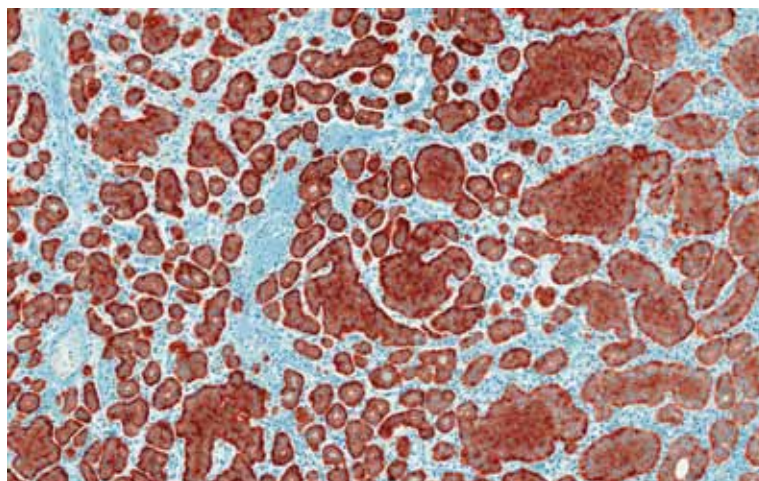
## eIHC Services



Incorporating technological advances in digital imaging (eSlides) enhances research, education, and patient care across the street and around the world. Cleveland Clinic Laboratories offers secure, web-based review of IHC-stained slides (eSlides) to help optimize clinical workflow for immunohistochemistry (IHC).

Clients have the opportunity to view IHC-stained eSlides on a computer monitor anytime, anywhere, within 24 hours after the blocks or unstained slides arrive at Cleveland Clinic. Cases contain specimen and slide information, as well as controls that are conveniently at your fingertips. Besides allowing rapid review of IHC-stained slides, additional stains can be ordered following an algorithm, eliminating the need to initially order a large number of stains.

To learn more about our Cleveland Clinic Laboratories eIHC and other imaging opportunities please contact us at 00+1+216+4445755.



## eIHC Staff



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# Cleveland Clinic Laboratories

## Gastrointestinal and Hepatobiliary Pathology Consultative Group

*Specializing in gastrointestinal, hepatic and pancreaticobiliary pathology*

### Gastrointestinal Pathology

The Gastrointestinal Pathology Consultative Service of Cleveland Clinic Laboratories offers a complete gastrointestinal disease management program, including diagnosis, therapeutic monitoring and disease tracking for neoplastic and non-neoplastic digestive diseases.

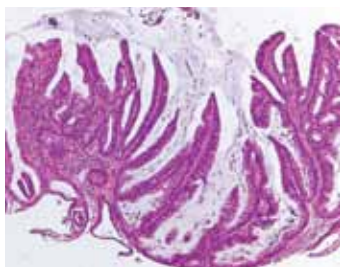
#### Experience and Expertise

Our faculty members are subspecialty trained in gastrointestinal, hepatic and pancreaticobiliary pathology with years of subspecialty practice in a challenging multidisciplinary academic environment.

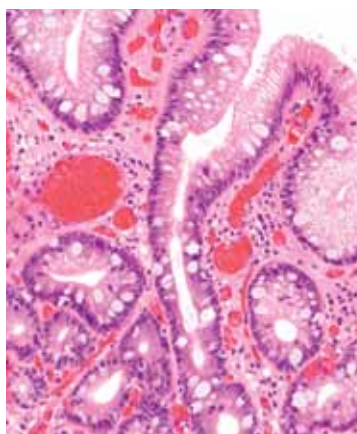
Their interests cover the range of diseases, including Barrett's esophagus; inflammatory bowel disease; cancer and precancerous conditions; mesenchymal lesions; hepatic and pancreatic diseases; and transplantation pathology. Attracting consultations from across the United States and internationally, this service provides expert diagnosis and second opinions on more than 4,000 cases annually, including the most rare and complex pathology in this field. We also provide pathologic interpretations for numerous large NIH and industry-funded gastrointestinal research trials each year and process more than 40,000 gastrointestinal, hepatic and pancreaticobiliary cases annually in our clinical practice at Cleveland Clinic.

#### Specialized Capabilities

In addition to conventional techniques for evaluation of gastrointestinal, hepatic and pancreaticobiliary specimens, our laboratory offers an extensive in-house immunohistochemical test menu and molecular pathology testing, allowing for accurate diagnoses and prognosis of gastrointestinal neoplasia.



- Mismatch repair protein expression by immunohistochemistry (hMLH1, hMSH2, hMSH6 and PMS2)
- Microsatellite instability (MSI) evaluated by PCR (molecular)
- *KRAS* codon 12/13 mutation (Sanger sequencing molecular)
- *BRAF* V600 mutation (Sanger sequencing molecular)
- *HER2* immunohistochemistry and fluorescence in situ hybridization (FISH) for gastric and GE junction carcinoma



## GI Pathology Staff



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**Ana Bennett, MD**  
Director, Gastrointestinal Pathology; Co-Director, Gastrointestinal Pathology Fellowship Program  
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**Specialty Interest:** Hepatic pathology  
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**Michael Cruise, MD, PhD**  
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**Xiuli Liu, MD, PhD**  
**Board Certifications:**  
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**Rish Pai, MD, PhD**  
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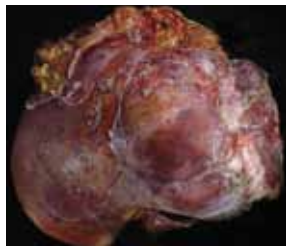
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**Lisa Yerian, MD**  
Medical Director, Continuous Improvement; Director, Hepatobiliary Pathology  
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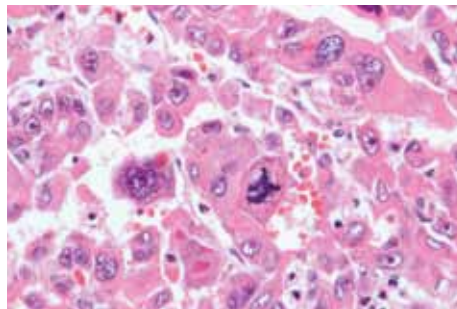
and gastrointestinal pathology  
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## Hepatopancreaticobiliary Pathology



The Hepatopancreaticobiliary (HPB) Pathology Service provides diagnostic histopathology for biopsy and resection specimens from the liver, biliary tree and pancreas. Seven surgical pathologists with specialty expertise in liver, biliary, and pancreas pathology interpret over 12,000 HPB specimens annually and are actively involved in local, national and international research and teaching activities. Specialty interests among the HPB pathologists include viral hepatitis; fatty liver disease; primary biliary diseases; other chronic liver diseases; and hepatic, pancreatic and biliary tumors. They also have expertise in allograft dysfunction after liver and pancreas transplantation and provide comprehensive consultation on these cases. Our pathologists hold joint appointments and work closely with the highly regarded Cleveland Clinic liver transplant program, supporting the diagnostic needs for the some 120 patients undergoing liver transplantation every year. Selected in-house and consult cases are reviewed regularly by the team in departmental consensus conferences and at multidisciplinary conferences. A weekly multidisciplinary liver pathology review conference is held weekly in the department and provides a venue for clinical care, collaboration and education of providers and trainees from pathology, surgery, pharmacy, and gastroenterology and hepatology.

Our pathologists hold positions in the premier professional organizations in their field and frequently serve as guest lecturers and speakers at national and international pathology meetings and clinical gastrointestinal, hepatic and transplantation conferences. They also publish extensively in leading medical journals and have authored several book chapters in the field.



## Hepatobiliary Pathology Staff



**Lisa Yerian, MD**  
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and gastrointestinal pathology

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**Specialty Interest:** Hepatic pathology

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pathology, hepatic and  
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pathology, molecular  
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pathology, hepatobiliary pathology,  
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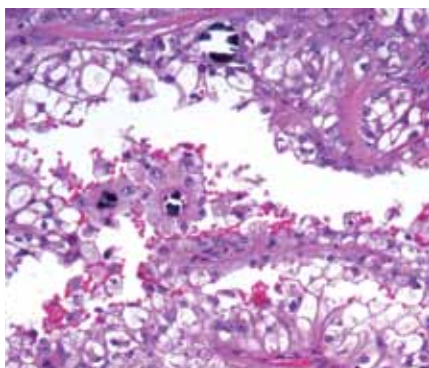
**Thomas Plesec, MD**  
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# Cleveland Clinic Laboratories

## Genitourinary Pathology Consultative Group



Cleveland Clinic Laboratories' Genitourinary Pathology Consultative Service specializes in a complete genitourinary and adrenal disease management program, including diagnosis of biopsy and resection specimens, evaluation for histological and molecular prognostic markers, and therapeutic response monitoring.

### Experience and Expertise

Our faculty members are among the most experienced in the country in genitourinary and adrenal pathology. Their interests and diagnostic capabilities cover the spectrum of diseases, including the neoplastic and non-neoplastic diseases of the prostate, testis, bladder, ureter, kidney and adrenal gland.

Diagnostic accuracy is enhanced by specimen review by a team of pathologists.

Our service reviews all slides and confirms diagnosis for patients undergoing genitourinary and adrenal surgical procedures at Cleveland Clinic. We also attract consultations from across the United States and internationally. Each year, the genitourinary pathology consultative group provides expert diagnosis and second opinions on more than 5,000 inhouse and referral cases, including the most rare and complex pathology in the field. We also provide pathologic interpretations and perform molecular studies for industry-sponsored genitourinary disease research trials.

### Recognized for Excellence

Our genitourinary pathologists collaborate closely with clinicians in the Cleveland Clinic Glickman Urological Institute and the Taussig Cancer Institute. *US News & World Report* has rated the Glickman Urological Institute among the top two urology programs in the nation since 2000, among the top five in the country for 17 consecutive years, and No. 1 in the nation in 2012.

In addition, the Taussig Cancer Institute helped Cleveland Clinic attain No. 6 among the nation's top cancer hospitals, as rated by *US News & World Report* in 2012. The expertise of our genitourinary pathologists, who work closely with the clinical urologists and oncologists in diagnosis and treatment planning, plays a significant role in those accomplishments. Our work in pathology is simultaneously enhanced by our access to the renowned clinical expertise at Cleveland Clinic.

### National and International Reputation

Cleveland Clinic genitourinary pathologists have attained leadership positions in the premier professional organizations in the field. They are welcomed as distinguished guest lecturers and speakers at respected conferences around the world, publish extensively in leading medical journals, and have edited genitourinary pathology textbooks.

### Specialized Capabilities

In addition to conventional techniques for evaluation of genitourinary and adrenal specimens, the genitourinary pathology consultative service is experienced in state-of-the-art technologies in:

- Molecular pathology
- Hematopathology
- Cytogenetics
- Cytopathology
- Electron microscopy
- Soft tissue pathology
- Immunohistochemistry and immunofluorescence

## Genitourinary Pathology Staff



**Cristina Magi-Galluzzi, MD, PhD**  
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**Jonathan Myles, MD**  
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**Board Certifications:**  
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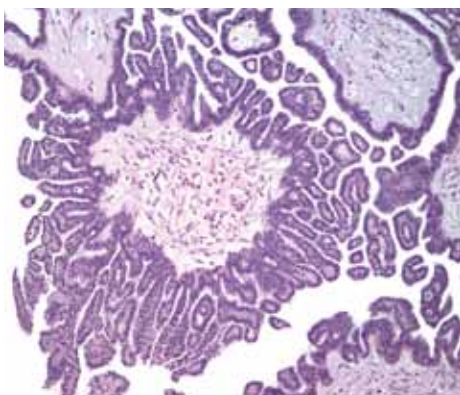


**Andres Roma, MD**  
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# Cleveland Clinic Laboratories

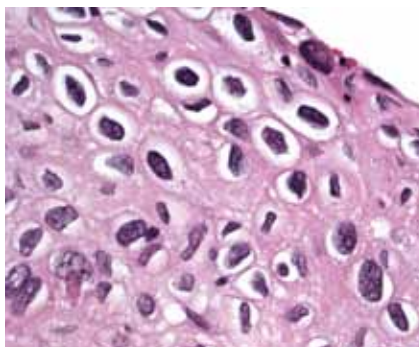
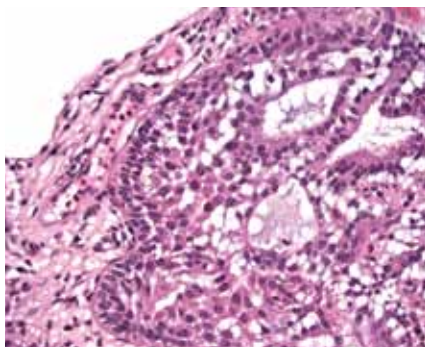
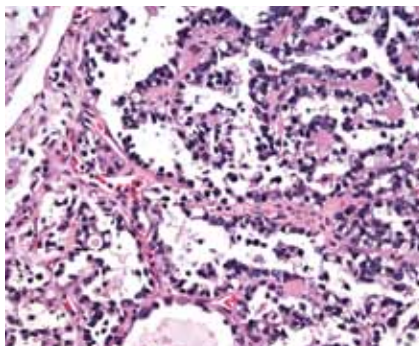
## Gynecologic Pathology Consultative Group



Gynecologic Pathology provides interpretation and analysis of more than 9,500 specimens annually, representing the full spectrum of gynecological pathology, including surgical oncology. Frozen sections, biopsy and surgical resection specimens are received daily. Special interests among the gynecologic pathologists include cervical intra-epithelial lesions, ovarian tumors, prediction of chemosensitivity of ovarian carcinoma, protein expression in vulvar intraepithelial neoplasia and applications of micro-array analysis.

### Experience and Expertise

Our gynecologic pathologists are involved in numerous clinical and basic research studies related to the diagnosis and management of gynecologic malignancies.



## Gynecologic Pathology Staff



**Charles Biscotti, MD**  
Director, Gynecologic Pathology  
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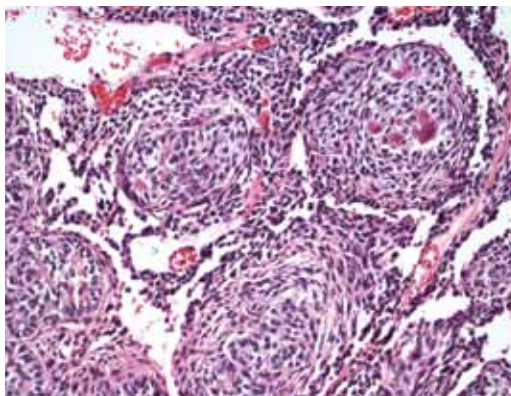
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Cytopathology  
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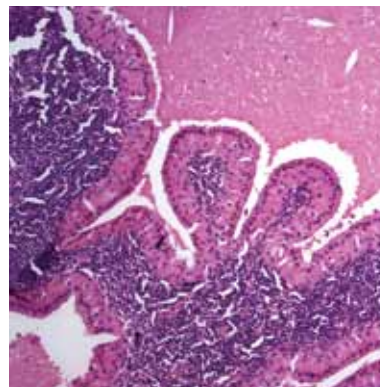
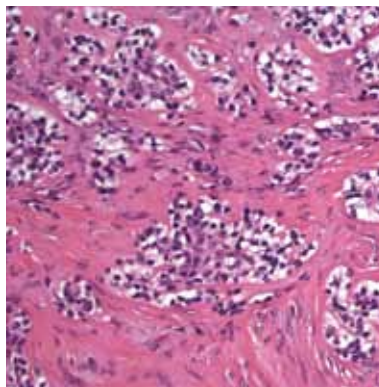
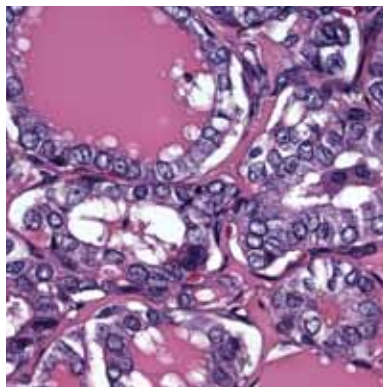


# Cleveland Clinic Laboratories

## Head and Neck Pathology Consultative Group



The Head and Neck Pathology Consultative Group of Cleveland Clinic Laboratories evaluates more than 4,000 surgical and biopsy specimens each year, encompassing a wide spectrum of pathology. The pathologists work closely with surgeons and endocrinologists in the workup and evaluation of patients with a range of head and neck pathology, including endocrine disorders, salivary gland neoplasms, and benign and malignant squamous lesions. The head and neck pathologists in the group also are experienced in the evaluation of complex head and neck resection specimens, including the oral cavity, larynx, ear, salivary gland and nasopharynx.



## Head and Neck Pathology Staff



**Aaron Hoschar, MD**  
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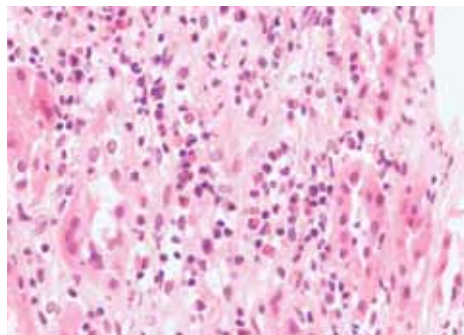
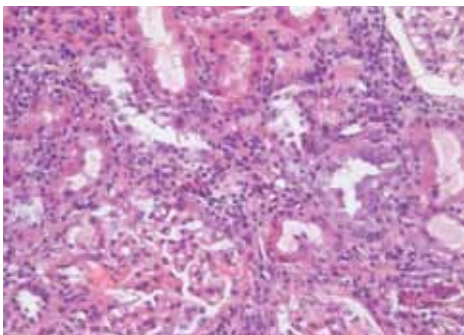
**Tarik Elsheikh, MD**  
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Cytopathology  
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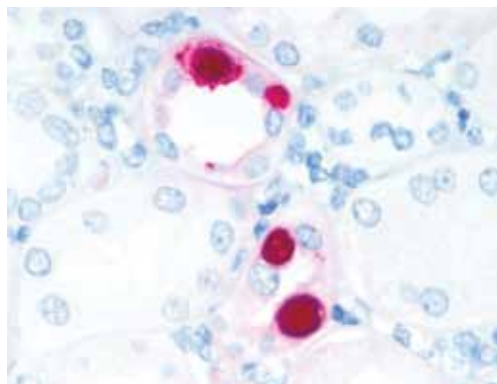
# Cleveland Clinic Laboratories

## Medical Kidney Consultative Group

*Specializing in non-transplant and transplant medical kidney disease*



The Medical Kidney Consultative Group of Cleveland Clinic Laboratories provides comprehensive consultative evaluation of the medical kidney biopsy specimen. Conventional light microscopic evaluation combined with immunofluorescence, molecular techniques and electron microscopy where needed are used to evaluate a biopsy to arrive at the most specific diagnosis possible. Specialty interests cover all areas of medical renal disease including nephrotic syndrome, acute renal failure, chronic renal failure, ANCA-associated renal disease, immune complex mediated disease, fibril associated glomerular disease and transplant evaluation. Molecular techniques such as in situ hybridization studies for BK virus are used where needed in selected cases to evaluate the specimen. Cleveland Clinic Laboratories provides a wide range of services ranging from full consultation with processing of the biopsy specimen and full professional interpretation through performance of the technical component only for electron microscopy. The service allows customization to fulfill the individual needs of the client.



## Medical Kidney Pathology Staff



**Jonathan Myles, MD**  
Director, Medical Kidney  
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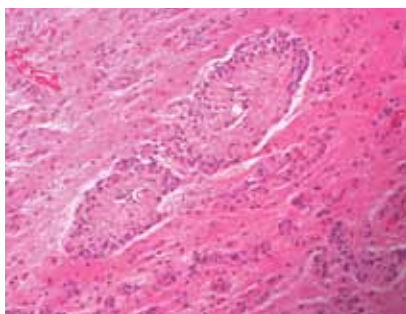
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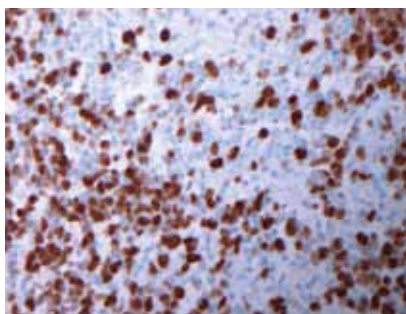
# Cleveland Clinic Laboratories

## Neuropathology Consultative Group



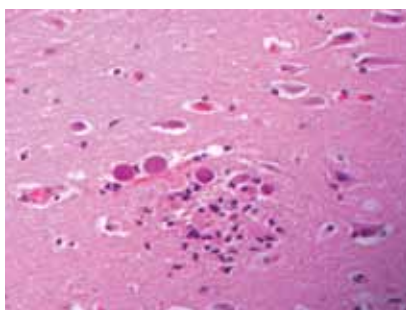
Neuropathology specializes in the pathological evaluation and interpretation of patient specimens from the central and peripheral nervous systems and skeletal muscle. The breadth of expertise encompasses neoplastic and non-neoplastic pathology, with special expertise in brain tumors, epilepsy-related conditions and neuromuscular diseases.

Primary services include the performance of intraoperative consultation (frozen sections), interpretation of biopsy and resection specimens, and evaluation of autopsied tissue. State-of-the-art molecular testing is performed in the evaluation of CNS neoplasms and includes 1p/19q loss of heterozygosity in gliomas, EGFR amplification, p53 mutational analysis and MGMT testing for brain tumors.



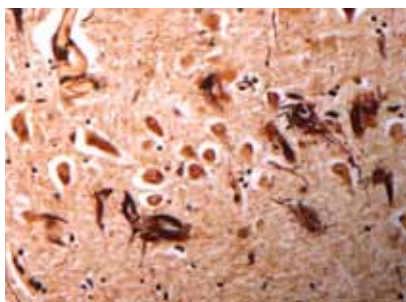
### Experience and Expertise

The Section of Neuropathology participates in interdisciplinary patient management conferences and supports the educational efforts of multiple Institutes and departments throughout Cleveland Clinic, including Neurosurgery, the Brain Tumor Institute, Spine Center, Neurology, Rheumatology, Endocrinology (for pituitary lesions), Epilepsy Center and Neuromuscular Center. Members of the section are involved with more than 100 interdisciplinary conferences annually.



The Section plays important roles in multicenter trials, facilitating institutional participation as well as serving as central pathology reviewers for studies in which the primary investigator is based at Cleveland Clinic.

In addition to extensive collaborative research efforts, members of the section participate in individual research projects, primarily focusing on tumors, epilepsy and multiple sclerosis.



## Neuropathology Staff



**Richard Prayson, MD**  
Section Head, Neuro-  
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placental pathology  
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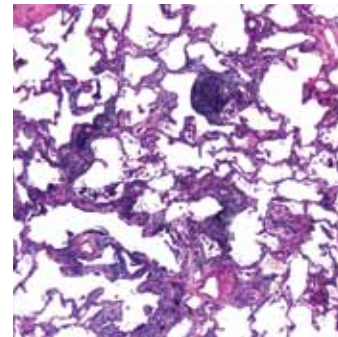
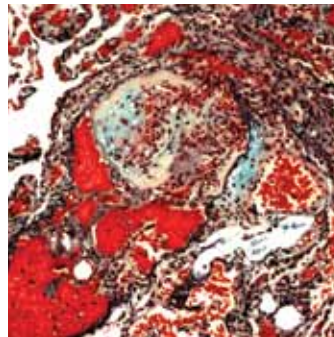
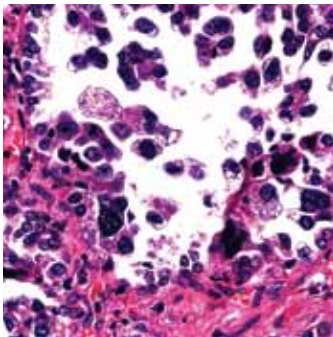


**Susan Staugaitis, MD,  
PhD**  
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# Cleveland Clinic Laboratories

## Pulmonary Pathology Consultative Group



Pulmonary Pathology offers evaluation of specimens for neoplastic and non-neoplastic lung diseases, with specialized expertise in neoplastic lung disease, occupational lung disease and transplantation pathology. Pathologists on the service utilize molecular biology, immunohistochemistry, and ultrastructural techniques in their diagnostic workups. Ultrastructural and elemental/particle analysis are available for cases of occupational lung disease.

Research interests among the pulmonary pathologists include lung carcinogenesis, transplantation immunology and pulmonary infections. They have authored and co-authored leading textbooks in pulmonary pathology, presented national courses on a range of topics in pulmonary pathology and are members of leading professional organizations in the field.

### Experience and Expertise

Our faculty members are subspecialty trained in pulmonary pathology with expertise in lung cancer, interstitial lung disease, lung infectious diseases, occupational lung disease and transplantation pathology. They have special interests in idiopathic interstitial pneumonias, sarcoidosis, pulmonary alveolar proteinosis, and berylliosis. The faculty is actively engaged as collaborators in a number of NIH funded research projects and provides pathologic support for a number of multi-institutional clinical trials in interstitial lung disease, lung cancer and lung transplantation. The lung pathologists see over 6000 lung specimens annually from the Cleveland Clinic Healthcare System.

### Specialized Capabilities

In addition to conventional technologies, our laboratory offers a large panel of immunohistochemical studies, electron microscopy studies and molecular pathology studies.

- Electron microscopy for immune complex diseases, ciliary diseases and malignant mesotheliomas.
- Immunofluorescence for vasculitic diseases of the lung.
- Molecular studies for:
  - EGFR* Mutational analysis
  - FISH *ALK1* Rearrangements
  - KRAS* mutational analysis

## Pulmonary Pathology Staff



**Carol Farver, MD**  
Director, Pulmonary  
Pathology; Section Head,  
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**Specialty Interest:**  
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**Andrea Arrossi, MD**  
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**Specialty Interest:**  
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**Sanjay Mukhopadhyay, MD**  
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# Cleveland Clinic Laboratories

## Subspecialty Consultative Services

Cleveland Clinic offers second opinion surgical pathology case review. Specimens submitted to Cleveland Clinic Laboratories are triaged to one of our subspecialty teams. This subspecialty approach ensures that every specimen submitted to Cleveland Clinic Laboratories is evaluated by a pathologist with a high level of diagnostic expertise in that specific field of pathology; additional testing could be required by the pathologist reviewing the case. Each subspecialty service regularly conducts consensus review sessions of unique and challenging cases to leverage the diagnostic expertise of each team member.

### To Request a Consultation:

Patient Demographics (Full Name, DOB, Sex) Consultation Request Form

Patient Insurance and/or Client Billing Information

Name of Physician requesting Consultation

Client/Facility Information requesting Consultation

Supporting Documentation

- Cover Letter
- Pathology Report

Shipping Information

- **UPS, Fedex, DHL**

Cleveland Clinic Laboratories  
AP Consultative Services  
2119 E. 93<sup>rd</sup> Street, L25  
Cleveland, OH 44106

- **US Mail**

Cleveland Clinic Laboratories  
AP Consultative Services  
9500 Euclid Avenue, L15  
Cleveland, OH 44195

Slides and Blocks Returned

- Routine return of Slides and Blocks will be sent by UPS Ground
- Expedited return services are available when a FedEx or UPS account are provided by the requestor

General Information

- Contact Client Services at: 800.628.6816 (toll free) 216.444.5755 (local) 216.444.0460 (fax)
- Email: [ClientServices@ccf.org](mailto:ClientServices@ccf.org)
- Billing Operations: 800.204.6741 (toll free) 216.444.0561 (local) 216.444.8141 (fax)