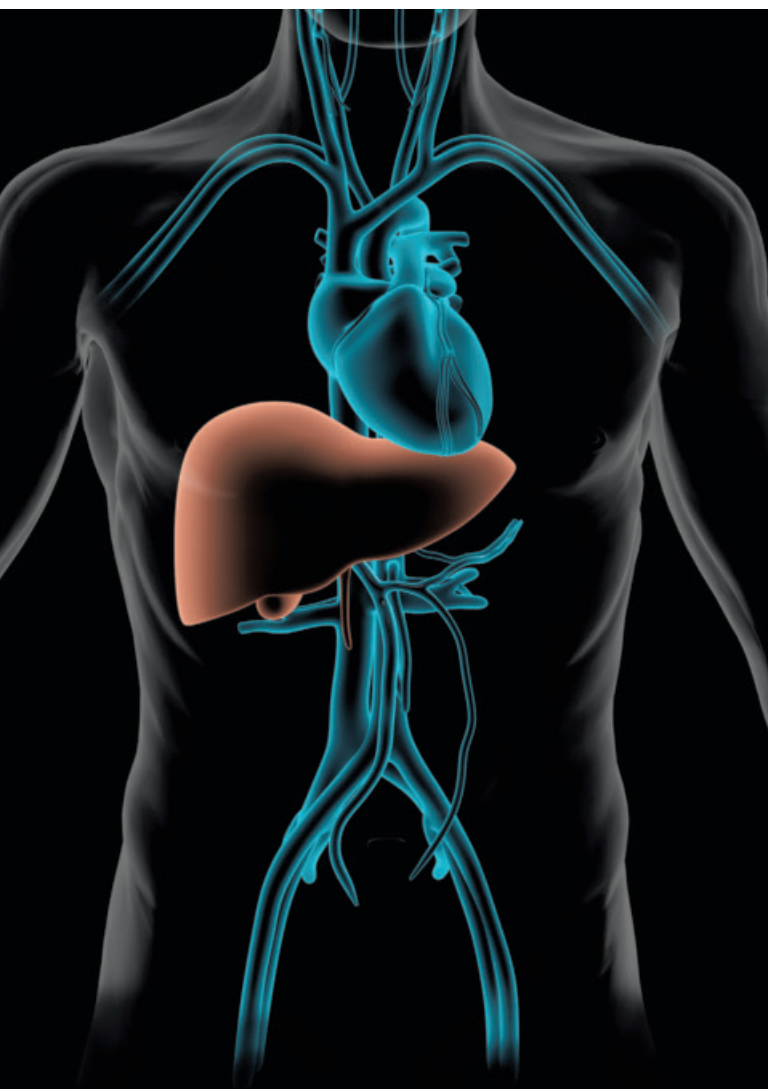




DIGESTIVE DISEASE INSTITUTE

Understanding Liver Disease

Treatments and Options



At Cleveland Clinic's Digestive Disease Institute, our liver specialists have the experience and expertise to accurately diagnose and offer world-class treatments for all forms of liver disease, including viral hepatitis, fatty liver, alcoholic liver disease, autoimmune liver diseases, genetic liver diseases and liver cancer. Our experts in the Cleveland Clinic Digestive Disease Institute were ranked second in the nation by *U.S. News & World Report* in its 2008 Best Hospitals Survey.

Seeking treatment as soon as possible is critical when it comes to many liver diseases. Don't delay. We can help, no matter how rare or hard to treat.

ABOUT US

At Cleveland Clinic's Digestive Disease Institute, we've designed our services so that all of the specialists you need – including hepato-pancreato-biliary and liver transplant surgeons – work together as a team.

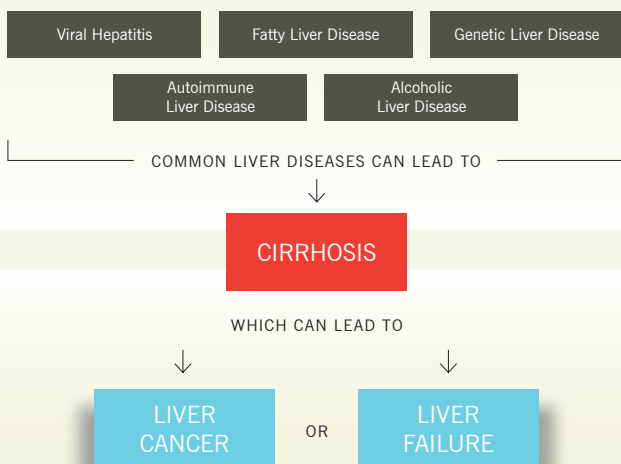
One call puts you in touch with our multidisciplinary team that will work with you to develop the appropriate treatment plan aimed at preserving liver function and quality of life.

You can trust the experts in the field: Cleveland Clinic is a national leader in caring for patients with cirrhosis and its complications and has one of the most innovative and experienced transplant programs in the country.

But our patients not only benefit from our clinical experience. They also have the advantage of an active research team, which continues to play key roles in the development and testing of new treatments. This means our patients benefit from having access to clinical trials, should they qualify. These research studies not only provide treatments otherwise unavailable, but they also help us expand our overall understanding of liver disease.

888.410.1775, option 1

Many common liver diseases can cause the organ to become inflamed. This inflammation can progress to scarring, or cirrhosis. It is critical that patients with cirrhosis, due to any type of liver disease, seek help because people with cirrhosis are at an increased risk for liver cancer or liver failure. Liver cancer and liver failure can be treated by a multidisciplinary approach including radiation, medication, or surgery, including transplant.



What we treat

Common liver diseases treated by hepatologists at Cleveland Clinic's Digestive Disease Institute include:

VIRAL HEPATITIS

Viral hepatitis is an inflammation of the liver caused by one of three virus forms, A, B or C.

- **Hepatitis A (Hep A)** – This infection is usually caused by consuming contaminated food or water. This form of hepatitis usually clears without lasting problems within six months and does not lead to a chronic infection. Typically, you cannot get it more than once since it causes lifetime

Our team works closely with patients to help them best manage their disease, provide emotional support and aid with lifestyle decisions.

immunity after first infection. A vaccine to prevent infection is available.

- **Hepatitis B (Hep B)** – This virus is transmitted through bodily fluids that triggers an immune reaction, causing low-level inflammation and liver damage. It is normally successfully treated with oral medications that have few side effects or pegylated interferon injections. In a small number of cases, Hep B can develop into a chronic infection, which can lead to more serious liver diseases. A vaccine to prevent infection is available.
- **Hepatitis C (Hep C)** – Spread through contact with infected blood, Hep C infection can be very serious. Most people infected experience no symptoms and the virus may remain in the liver for years and it is not discovered until much damage is done. It is increasingly successfully treated with pegylated interferon injections along with oral drugs.

Up to 50 percent of those infected with Hepatitis C are able to fight off the virus within six months. However, many patients develop a chronic infection. A liver biopsy can determine the extent of injury and damage to the liver. Treatment includes antiviral medicines, such as pegylated interferon and ribavirin, to limit liver damage. Clinical trials of new treatments are available for those who qualify. Our team works closely with patients to help them best manage their disease, provide emotional support and aid with lifestyle decisions.

Eligible patients may qualify for enrollment in one of several novel clinical trials led by our hepatologists.

FATTY LIVER DISEASE

Fatty liver disease is an excess buildup of fat in the liver – or more than 5 to 10 percent of the liver’s total weight. This condition is most common in those who are overweight, diabetic or have metabolic syndrome. If unrelated to alcohol consumption, it is known as nonalcoholic steatohepatitis, or NASH. Otherwise, it is known as alcoholic liver disease.

Excess liver fat can lead to inflammation, progressing to scarring (or cirrhosis) in 20 percent of patients. Treatment includes weight loss, exercise, diabetes control, regulating blood pressure and cholesterol, limiting or eliminating alcohol consumption and not smoking.

Cleveland Clinic hepatologists are experts in treating fatty liver disease and were the first to establish a scoring system that helps predict which patients will progress to develop cirrhosis. Eligible patients may be able to enroll in a national clinical trial aimed at determining why the disease progresses in some patients, but not in others.

GENETIC LIVER DISEASES

Our Digestive Disease Institute hepatologists have extensive experience diagnosing and treating these and other forms of hereditary genetic liver disease. In addition, our group is committed to counseling families with genetic liver diseases about the risk of their children and first degree relatives to have the same genetic disease of the liver and appropriate screening tests:

- **Hereditary Hemochromatosis** – The most common adult genetic liver disease in which a specific genetic defect leads to iron accumulation in the liver, leading to liver cirrhosis and liver cancer in some patients. Iron

Our Digestive Disease Institute hepatologists have extensive experience diagnosing and treating these and other forms of hereditary genetic liver disease.

accumulation may go beyond the liver affecting the heart, joints and pancreas. Specific and effective treatments are available. Liver transplantation may be required in some of these patients.

- **Alpha-1 antitrypsin deficiency (Alpha-1)** – This inherited disease may affect the liver and/or the lungs in children and adults. It is caused by an inability to produce enough of a particular protein, called Alpha-1 antitrypsin, which is used to prevent the breakdown of enzymes in various organs. Management of Alpha-1 antitrypsin deficiency includes patient education, maintaining normal nutrition, and closely monitoring patients so that any complications can be treated early. There are potential clinical trials for medical therapies. Liver transplantation successfully cures the condition.
- **Wilson’s disease** – A rare genetic disorder that causes excessive buildup of copper in the liver and brain. Treatment is managed by both a hepatologist and neurologist and includes oral medication, which binds to the copper and removes it from the body. Therapy is continued to prevent its reaccumulation.
- **Hereditary amyloidosis** – A condition in which the liver produces an abnormal protein that builds up in other organs, causing problems in the nerves and kidneys. Treatment includes medications or other therapies to avoid protein buildup, or a liver transplant to stop disease progression and prevent further damage to other organs.

AUTOIMMUNE LIVER DISEASE

Cleveland Clinic hepatologists have extensive expertise in treating autoimmune liver diseases, or conditions that occur when the body's immune system attacks the liver. Eligible patients may qualify for enrollment in one of several novel clinical trials led by our hepatologists.

- **Primary sclerosing cholangitis (PSC)** – This disease causes the liver's bile ducts to become inflamed, scarred and eventually blocked. This can lead to cholangitis, a condition of bacterial infection of the bile, and cirrhosis. Treatment includes medication to relieve itching, antibiotics, anti-inflammatories, bile thinners and vitamin supplements. PSC is often associated with inflammatory bowel disease (IBD), which may require treatment on its own. Cleveland Clinic is a leader in the management of IBD. PSC can cause liver failure and also is a risk factor for developing bile duct cancer, thus close followup is required.
- **Primary biliary cirrhosis (PBC)** – PBC is another disease that destroys the liver's bile ducts, causing bile to accumulate in the liver and damage liver tissue. Initial treatment is usually aimed at providing symptom relief and includes vitamin therapy, calcium supplements and drugs to treat itching. Bile thinners and anti-inflammatory medications are also commonly used. While the disease cannot be cured, its progression may be delayed. However, if the liver becomes severely damaged, a transplant may be necessary.
- **Autoimmune hepatitis** – This is a condition in which the body attacks the liver, causing the liver to become inflamed and scarred (hepatitis). If diagnosed and treated early, autoimmune hepatitis can usually be effectively controlled. Treatment typically includes a combination of medications and corticosteroids to slow down the overactive immune

system and prevent the disease from getting worse, and perhaps reverse some of the damage.

CELIAC DISEASE

Celiac disease is a digestive disease in which the body attacks the lining of the small intestines, preventing proper absorption of nutrients from food. People who have celiac disease cannot tolerate a protein called gluten, which is found in some grains (such as wheat, rye and barley), vitamins and medicines. Research being done at Cleveland Clinic is shedding light on how this process affects the liver. Celiac disease can be effectively treated by avoiding gluten. Without gluten, the anatomy returns to normal and liver disease regresses. In some patients with liver disease, particularly PBC, celiac disease can coexist.

LIVER CANCER (HEPATOCELLULAR CARCINOMA)

At Cleveland Clinic, liver cancer is diagnosed and treated by a multidisciplinary team that includes our hepatologists and experts from a number of other departments, including hepato-pancreato-biliary surgery, interventional radiology and medical oncology.

As with any cancer, early diagnosis is critical. Patients with certain liver diseases are susceptible to liver cancer and should be screened regularly. Cleveland Clinic hepatologists have experience in determining who needs to be screened and how often.

In collaboration with Cleveland Clinic Taussig Cancer Institute, patients are provided a wide variety of treatment options, including access to appropriate clinical trials.



LIVER TRANSPLANTATION

Cleveland Clinic's liver transplant program is an essential component of a broad medical and surgical strategy to manage all patients with liver disease with the therapy most appropriate to that patient. Experts in all areas of liver disease participate in the evaluation, management, treatment and follow-up of liver transplant patients.

Our liver transplant program has performed more than 1,000 liver transplants since its inception in 1984. Cleveland Clinic's liver transplant program is a member of the Ohio Solid Organ Transplant Consortium (OSOTC) and the United Network For Organ Sharing (UNOS), meeting all their requirements for liver transplants. In addition, Cleveland Clinic has an approved and very active living-donor program. The liver transplantation program at Cleveland Clinic has been recognized by outside professional groups for its growing volume and excellent patient outcomes.

OUR PHYSICIANS

GASTROENTEROLOGY AND HEPATOLOGY



Talal Adhami, MD

Department of Gastroenterology and Hepatology

Board Certification: Internal Medicine, Gastroenterology

Medical School: American University of Beirut Faculty of Medicine, Beirut, Lebanon

Advanced Training: MetroHealth Medical Center, Cleveland, Ohio; University of Kentucky Chandler Medical Center, Lexington, Ky.; Cleveland Clinic, Cleveland, Ohio

Specialty Interests: Hepatitis C, hepatitis, liver conditions, liver transplantation

Locations: Main Campus, Beachwood



David S. Barnes, MD

Vice Chairman, Department of Gastroenterology and Hepatology

Department of Gastroenterology and Hepatology

Board Certification: Internal Medicine, Gastroenterology, Transplant Hepatology

Medical School: University of North Carolina at Chapel Hill School of Medicine, Chapel Hill, N.C.

Advanced Training: University of Massachusetts Medical Center, Worcester, Mass.; University Hospitals of Cleveland, Cleveland, Ohio

Specialty Interests: Liver and biliary tract disease, liver transplantation, diagnostic/therapeutic endoscopy

Location: Main Campus



William D. Carey, MD

*Director, Center for Continuing Education;
Vice Chairman, Division of Education,
Cleveland Clinic*

Department of Gastroenterology and Hepatology

Board Certification: Internal Medicine, Gastroenterology

Medical School: Tufts University School of Medicine, Boston, Mass.

Advanced Training: Harborview Medical Center, Seattle, Wash.; Pacific Presbyterian Medical Center, San Francisco, Calif.; Institute of Medical Sciences, San Francisco, Calif.; Mayo Clinic, Rochester, Minn.

Specialty Interests: Liver disease, medical management of liver transplantation

Location: Main Campus



Srinivasan Dasarathy, MD

Department of Gastroenterology and Hepatology

Board Certification: Internal Medicine, Gastroenterology

Medical School: Jawaharlal Institute of Post Graduate Medical Education and Research, Pondicherry, India

Advanced Training: All India Institute of Medical Sciences, New Delhi, India; MetroHealth Medical Center, Cleveland, Ohio

Specialty Interests: Liver transplantation, skeletal muscle loss in liver disease, non alcoholic fatty liver disease

Location: Main Campus



Milan Dodig, MD

Department of Gastroenterology and Hepatology

Board Certification: Internal Medicine, Gastroenterology

Medical School: University of Zagreb School of Medicine, Zagreb, Croatia

Advanced Training: MetroHealth Medical Center, Cleveland, Ohio

Specialty Interests: Noninvasive GI imaging (wireless capsule endoscopy), liver fibrosis, cirrhosis

Location: Main Campus



Kyrsten Fairbanks, MD

Department of Gastroenterology and Hepatology

Board Certification: Internal Medicine, Gastroenterology

Medical School: Washington University School of Medicine, St. Louis, Mo.

Advanced Training: Johns Hopkins Hospital, Baltimore, Md.

Specialty Interests: Liver disease, liver transplantation

Location: Main Campus

OUR PHYSICIANS

GASTROENTEROLOGY AND HEPATOLOGY



Arthur J. McCullough, MD

Chairman, Department of Gastroenterology and Hepatology

Department of Gastroenterology and Hepatology

Board Certification: Internal Medicine, Gastroenterology

Medical School: SUNY Health Science Center, Syracuse, N.Y.

Advanced Training: Cleveland Clinic, Cleveland, Ohio; Mayo Clinic, Rochester, Minn.

Specialty Interests: Fatty liver disease, chronic liver disease and cirrhosis of the liver, viral hepatitis, nutrition and metabolism

Location: Main Campus



Robert O'Shea, MD, MSCE

Department of Gastroenterology and Hepatology

Board Certification: Internal Medicine, Gastroenterology, Transplant Hepatology

Medical School: University of Rochester School of Medicine and Dentistry, Rochester, N.Y.

Advanced Training: University of Pennsylvania, Philadelphia, Pa.; University of Michigan Medical School, Ann Arbor, Mich.

Specialty Interests: End stage liver disease, liver transplantation, viral hepatitis, drug induced liver disease

Location: Main Campus



Anthony Tavill, MD

*Mt. Sinai Health Care Foundation
Mathile and Morton Stone Chair in
Digestive and Liver Disorders*

Department of Gastroenterology and Hepatology

Board Certification: Internal Medicine, Gastroenterology

Medical School: Victoria University of Manchester School, Manchester, England

Advanced Training: Manchester Royal Infirmary, Manchester, England; Royal Free Hospital, University of London, London

Specialty Interest: Hepatology

Location: Main Campus



Jamile' Wakim-Fleming, MD, FACP

Department of Gastroenterology and Hepatology

Board Certification: Gastroenterology

Medical School: St Joseph University, Beirut, Lebanon

Advanced Training: Gastroenterology

Specialty Interest: Liver diseases and women's health

Location: Main Campus



Nizar Zein, MD

Mikati Foundation Endowed Chair in Liver Diseases

Chief, Section of Hepatology

Medical Director of Liver Transplantation

Department of Gastroenterology and Hepatology

Board Certification: Internal Medicine, Gastroenterology, Pediatrics and Pediatric Gastroenterology

Medical School: Tishreen University, Lattakia, Syria

Advanced Training: Medical College of Ohio Hospitals, Toledo, Ohio; Mayo Clinic, Rochester, Minn.

Specialty Interests: Liver diseases, liver transplantation, viral hepatitis

Location: Main Campus

OUR PHYSICIANS

HEPATO-PANCREATO-BILIARY AND TRANSPLANT SURGERY



Federico N. Aucejo, MD

**Department of Hepato-pancreato-biliary
and Transplant Surgery**

Board Certification: General Surgery

Medical School: Favaloro University Medical School,
Buenos Aires, Argentina

Advanced Training: Favaloro Foundation, Buenos Aires,
Argentina; Pirovano Hospital, Buenos Aires, Argentina;
Cleveland Clinic, Cleveland, Ohio; Mount Sinai Medical
Center, New York, N.Y.

Specialty Interests: General surgery, liver transplanta-
tion,
living donor liver transplantation (LDLT), pediatric liver
transplant, hepatocellular carcinoma, laparoscopic liver
surgery

Location: Main Campus



Bijan Eghtesad, MD

**Department of Hepato-pancreato-biliary
and Transplant Surgery**

Board Certification: General Surgery

Medical School: Shiraz University Faculty of Medicine,
Shiraz, Iran

Advanced Training: Shiraz University Faculty of
Medicine, Shiraz, Iran; University of Pittsburgh Medi-
cal Center/Thomas E. Starzl Transplantation Institute,
Pittsburgh, Pa.; University of Pittsburgh School of
Medicine, Pittsburgh, Pa.; Parkland Memorial Hospital,
Dallas, Texas

Specialty Interests: Liver transplantation, hepatitis B &
C, liver transplantation in HIV positive patients, living
donor liver transplantation, immunosuppression, organ
donation, recovery and preservation

Location: Main Campus



John J. Fung, MD, PhD

*Chairman, Department of Hepato-pancreato-biliary
and Transplant Surgery*

**Department of Hepato-pancreato-biliary
and Transplant Surgery, Department of
General Surgery, Academic Department of Surgery**

Board Certification: American Board of Surgery

Medical School: University of Chicago, Chicago

Graduate School: University of Chicago, Chicago

Advanced Training: University of Rochester, Rochester, N.Y.;
University of Pittsburgh, Pa.

Specialty Interests: hepatobiliary and liver, kidney,
pancreas and intestinal transplant surgery, immunology,
liver cancer

Location: Main Campus, Euclid Hospital, Fairview
Hospital, Hillcrest Hospital



J. Michael Henderson, MD

Chairman, Quality & Patient Safety Institute at Cleveland Clinic

Department of Hepato-pancreato-biliary and Transplant Surgery, Quality & Patient Safety Institute, Department of General Surgery

Board Certification: General Surgery

Medical School: Saint Andrew's University Medical School, St. Andrew's, Scotland

Advanced Training: University of Dundee Faculty of Medicine, Dundee, Scotland; University of Edinburgh, Edinburgh, Scotland; Emory University Hospital, Atlanta, Ga.

Specialty Interests: Portal hypertension and hepatobiliary surgery, pancreatic surgery

Location: Main Campus



Dymrna Kelly, MD

Director, Large Animal Transplant Laboratory

Department of Hepato-pancreato-biliary and Transplant Surgery

Board Certification: General Surgery

Medical School: National University of Ireland, University College Faculty of Medicine, Dublin, Ireland

Advanced Training: King's College Hospital, London; Mount Sinai Medical Center, New York, N.Y.; University of Pittsburgh Medical Center, Pittsburgh, Pa.

Specialty Interest: Liver transplantation

Location: Main Campus



Charles Miller, MD

Program and Surgical Director for Liver Transplantation

Department of Hepato-pancreato-biliary and Transplant Surgery

Board Certification: General Surgery

Medical School: Mount Sinai School of Medicine, New York, N.Y.

Advanced Training: Mount Sinai Medical Center, New York, N.Y.; University of Pittsburgh Medical Center, Pittsburgh, Pa.

Specialty Interests: Liver transplantation, hepato-biliary surgery, living liver donation

Location: Main Campus



Cristiano Quintini, MD

Surgical Director, Cleveland Clinic's Intestinal Transplant Program

Department of Hepato-pancreato-biliary and Transplant Surgery

Board Certification: General Surgery

Medical School: Universita di Bologna Facolta di Medicina e Chirurgia, Bologna, Italy

Advanced Training: Jackson Memorial Hospital, Miami, Fla.; Cleveland Clinic, Cleveland, Ohio

Specialty Interests: Living donor liver transplantation, liver transplant, liver surgery, intestinal transplant and surgery

Location: Main Campus



David Vogt, MD

Department of Hepato-pancreato-biliary and Transplant Surgery

Board Certification: General Surgery

Medical School: Feinberg School of Medicine, Northwestern University, Chicago

Advanced Training: Cleveland Clinic, Cleveland, Ohio

Specialty Interests: Liver, biliary and pancreatic surgery, liver transplantation

Location: Main Campus



R. Matthew Walsh, MD

Department of Hepato-pancreato-biliary and Transplant Surgery

Board Certification: General Surgery

Medical School: Medical College of Wisconsin, Milwaukee, Wisc.

Advanced Training: Loyola University Medical Center, Foster G. McGaw Hospital, Maywood, Ill.; Cleveland Clinic, Cleveland, Ohio; Massachusetts General Hospital, Boston

Specialty Interests: Surgical endoscopy, gastrointestinal surgery, hepatobiliary and pancreatic surgery, laparoscopy

Location: Main Campus



Charles Winans, MD

Department of Hepato-pancreato-biliary and Transplant Surgery

Board Certification: General Surgery

Medical School: Yale University School of Medicine, New Haven, Conn.

Advanced Training: University of Chicago Hospitals, Chicago

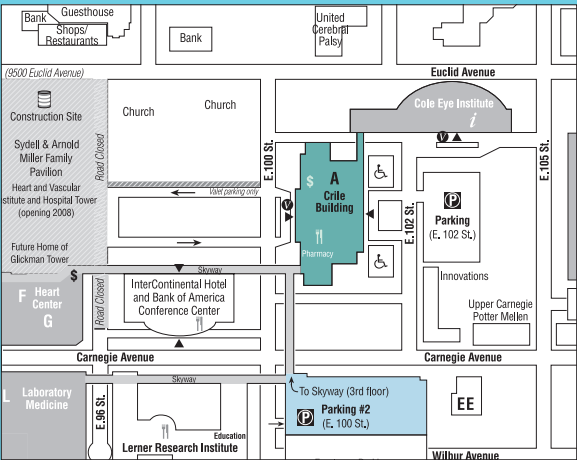
Specialty Interests: Liver and pancreas transplantation, hepatobiliary surgery, general surgery

Location: Main Campus

DIRECTIONS TO THE CLEVELAND CLINIC DIGESTIVE DISEASE INSTITUTE

9500 Euclid Avenue
Cleveland, OH 44195

- Parking is available in Parking Garage #2 at the corner of E. 100 Street and Carnegie Avenue.
- Enter the Crile, or “A” building through the attached skyway.
- You will arrive on the second floor of the A building.
- Take the elevators to the third floor, and check in at desk A30.



SPECIAL ASSISTANCE FOR OUT-OF-STATE PATIENTS

The Cleveland Clinic’s Medical Concierge program is a complimentary service for patients who travel to Cleveland Clinic from outside Ohio. Our patient care representatives facilitate and coordinate the scheduling of multiple medical appointments; provide access to discounts on airline tickets and hotels, when available; make reservations for hotel or housing accommodations; and arrange leisure activities. For more information: call **800.223.2273, ext. 55580**, visit clevelandclinic.org/services, or email medicalconcierge@ccf.org.

Visit us on the Web at: clevelandclinic.org/liver

To make an appointment call: **888.410.1775, option 1**



9500 Euclid Avenue, Cleveland, OH 44195

Cleveland Clinic is a nonprofit multispecialty academic medical center. Founded in 1921, it is dedicated to providing quality specialized care and includes an outpatient clinic, a hospital with more than 1,000 staffed beds, an education institute and a research institute.

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