OUR RESEARCH FOCUS



CANCER IMMUNOTHERAPY



AUTOIMMUNE TREATMENT



ARRHYTHMIA CORRECTION



CANCER NANOTHERAPY



At LIMR, research is guided by our founding mission to advance science that improves human health. A major theme of our work is to identify broad-acting modifier genes that determine disease severity, using unique models of human disease to validate our inventions before clinical testing. In our clinical research, we focus on new devices and treatments that can improve patient outcomes.

Following are a few examples of current or recent research activity at LIMR:

•	 Phase II clinical trial of a novel immunochemotherapy to treat advanced breast cancer, using an IDO inhibitor discovered at LIMR 	Clinical testing of new drugs and devices to limit cardiac arrhythmia, arteriosclerosis, and heart failure
		Preclinical study of modifier genes that drive
•	Preclinical development and Phase I clinical trial of nanotherapy to treat advanced ovarian cancer	plaque formation and cardiac hypertrophy
		 Clinical development of a test to detect joint
•	Clinical development/testing of a blood test to predict prognosis of triple-negative breast cancer	infection during orthopaedic surgery
		 Preclinical development/testing of an
•	Clinical development/testing of a blood test to predict acute nausea due to chemotherapy	"anti-immune checkpoint" drug to broadly limit autoimmune disease
•	Investigation of human antibodies cloned from patients who survived aggressive cancers	 Investigation of genetic factors involved in joint- specific autoimmunity in rheumatoid arthritis

LIMR PROGRAM LEADERSHIP

Cancer Research

George C. Prendergast, PhD President and CEO

- Havens Chair in Biomedical Research
- Editor-in-Chief, Cancer Research

Paul B. Gilman, MD

Director, Center for Clinical Cancer Research

• Chief, Hematology and Medical Oncology, Main Line Health

Cardiovascular Research

Charles Antzelevitch, PhD

Executive Director of Cardiovascular Research

- Director of Research, Lankenau Heart Institute, Main Line Health
- Associate Editor, Heart Rhythm

Peter R. Kowey, MD

Director, Center for Clinical Cardiology

• William Wikoff Smith Chair in Cardiovascular Research

Lankenau Institute for Medical Resarch (LIMR), part of Main Line Health, is a nonprofit biomedical research center located on the campus of Lankenau Medical Center. Launched in 1927, LIMR specializes in basic, preclinical, clinical, and translational research, with a major focus on cancer, cardiovascular and other metabolic disease, and autoimmunity. An important goal of research at LIMR is to move rapidly from scientific discovery to exploration of methods to improve disease detection, diagnosis, treatment, and prevention. LIMR also oversees clinical trials offered through Main Line Health.

Learn more at limr.org





LANKENAU INSTITUTE FOR MEDICAL RESEARCH

product development polyamines basic arrhythmia publication research translational immunotherapy cancer research drug and device prognosis chemoprevention discovery cancer population health inflammation nanotherapy diabetes education cardiovascular human antibodies as drugs disease scientific patient quality of life discovery disease modifier disease modifier clinical pathways regenerative research biomedical medicine invention serum triglycerides

HISTORY AT A GLANCE



Pioneering cancer researcher Stanley Reimann joins Lankenau Hospital in Philadelphia as chief pathologist on condition that a biomedical research program is created at the hospital.

1917

LHRI launches and becomes the first U.S. research center to study cancer as a fundamental problem of cell growth. Reimann is named Director of LHRI, a position he holds until 1957.

1927

Growth and success of the cancer research program at LHRI prompt Lankenau Hospital to create the Institute for Cancer Research (ICR), a sister entity focused exclusively on cancer research, with Reimann as Scientific Director.

1944

Reimann secures land in Fox Chase for a larger research facility for LHRI and ICR. Donations to Lankenau by the Pew family fund construction of the new building and laboratories.

1946

Lankenau consolidates LHRI and ICR cancer research activity under a single name (ICR). ICR remains at the Fox Chase location while all non-cancer research programs of LHRI move to the newly built Lankenau Hospital in Wynnewood.

1957

1925

With funds donated by Rodman Wanamaker, Reimann founds Lankenau Hospital Research Institute (LHRI). Construction begins while Reimann conducts research in a lab above the hospital morgue.

1930s - mid 1940s

under Reimann's leadership, expanding its research focus to include nutrition and biochemistry.

1949

LHRI and ICR move from Lankenau Hospital to the new facility in Fox Chase. From 1949 to 1957, LHRI and ICR conduct research operations jointly.

1958

LHRI is renamed Lankenau Medical Research Center (LMRC) and broadens its research focus to include cardiovascular disease, arthritis, aging, occupational medicine, and environmental stress. Later, basic cancer research begins at the Wynnewood facility.

1943

LHRI gains worldwide recognition

1937

The National Cancer Institute is created and identifies LHRI and Memorial Hospital (later known as Memorial Sloan Kettering Cancer Center) as the most significant cancer research labs in the U.S. at the time.

Jack Schultz, one of the few geneticists working in the field of cancer research at the time, joins LHRI. With clinical specimens readily available from Lankenau Hospital, Reimann encourages Schultz to study human chromosomes.

1952

chemistry at LHRI and ICR, receives the first grant ever awarded by the National Science Foundation (\$10,300).

LHRI/ICR's Robert Briggs and Thomas King report the first successful cell nucleus transplantation. Their methods later enable the cloning of the sheep "Dolly" and are used by others in Nobel Prize-winning work.

1960

Sidney Weinhouse, head of metabolic ICR's David Hungerford (a student of Schultz) and Penn's Peter Nowell codiscover the Philadelphia chromosome, the first genetic marker of cancer, launching the modern era of molecular genetics in cancer research.

1962

ICR's Beatrice Mintz creates the first mammal composed of genetically different cell populations in all tissues ("mosaic animal"). Her research methods enable later development of the first transgenic species, now widely used in research.

1967

ICR's cancer prevention pioneer Baruch Blumberg discovers the hepatitis B virus, shows it can cause liver cancer, and develops a blood test to detect the virus and a vaccine to fight it. He later receives the Nobel Prize for his work.

LIMR BY THE NUMBERS*



LIMR FACULTY INVENTIONS IN CLINICAL USE (5 DRUGS, 4 TESTS)







TRAINEES (GRADUATE, PHD, POSTDOC, MD)



MILLION IN FEDERAL RESEARCH GRANTS (TOTAL COSTS)

*TOTALS SHOWN ARE FROM 1999 TO PRESENT

Lankenau Hospital and its biomedical research program (LMRC) become part of Main Line Health, and LMRC moves to a new state-of-the-art research facility on the Lankenau Hospital campus. Research at LMRC increasingly involves transgenic mouse models of disease, with a focus on cancer and cardiovascular disease.

1985 - 1998

1974

ICR merges with the American Oncologic Hospital to form Fox Chase Cancer Center. Cancer research at LMRC accelerates.

Cancer genetics and biology researcher George Prendergast is appointed LIMR president, launching study of disease modifier genes and incubation of biotech companies that translate discoveries into clinical tools.

2004

1999

LMRC is renamed Lankenau Institute for Medical Research (LIMR) and greatly expands its research programs in cell and molecular biology.

1980s

LMRC's James Mullin discovers how tumor-promoting substances break down organ tissue barriers, contributing to a growing understanding of the crucial role of the tumor microenvironment in cancer

1990s

LMRC's Susan Gilmour and Thomas O'Brien discover a molecular explanation for solid tumors' addiction to polyamines, a key nutrient. Their work contributes to development of the first signal transduction inhibitor for cancer—a drug that blocks polyamine synthesis.

2000s

LIMR's George Prendergast and Alexander Muller discover how tumors hijack the IDO pathway to avoid immune attack. The researchers create the first IDO inhibitors that trigger anti-tumor host immunity.

2010s

LIMR's Laura Mandik-Navak advances LIMR's pioneering studies of the IDO pathway to discover new therapeutic principles for treating autoimmune disease as a class.

2014

Ellen Heber-Katz, immunologist and leader in the field of regenerative biology, joins LIMR to advance her pursuit of tissue regeneration approaches that do not require stem cells.

2015

World-renowned cardiac electrophysiology researcher Charles Antzelevitch joins LIMR to continue investigating causes and mechanisms of arrhythmias and sudden cardiac arrest.