

Part I- Basic Science Research

Plastic Surgery Research Laboratory

Plastic Surgery Research Laboratory is a part of the Lerner Research Institute (LRI) and is located on the main campus of Cleveland Clinic. Laboratory is divided into four individual spaces dedicated to surgical procedures, wet laboratory for molecular and biochemical tests and two offices for research fellows and lab administrator.

The procedure room is dedicated to small animal surgery. There are seven platforms for microsurgical procedures, areas for animal anesthesia and preoperative preparation as well as area for postoperative recovery.

CCF Biological Resources Unit (BRU) has full accreditation by AAALAC since 1976. It is staffed by 2 veterinarians, over 30 vet technicians (certified by AALAS) and provides for husbandry, experimental manipulation, ordering and procurement, quarantine procedures, perioperative animal care, health surveillance and consultations. There are 5 large surgical ORs for USDA regulated species conveniently located adjacent to the plastic surgery lab.

Such logistics provides unlimited options for the development of new surgical models using most advanced, state of the art equipment.

Wet laboratory is equipped to provide necessary ex vivo analysis including cell culturing, histological evaluation, and sample preparation for a variety of biochemical tests. All lab personnel has access to modern biomedical instruments and professional staff support through 16 core facilities, providing a full range of Bio-measurements and biomolecule-synthesizing facilities (<http://www.lerner.ccf.org/services/>).

Basic Science

Our basic science research program focuses on:

- (1) New devices and cell therapies to improve wound healing;
- (2) Mechanisms of rejection after vascularized tissue transplantation, new strategies for immune monitoring and immune profiling, mechanisms that facilitate tolerance;
- (3) New methods for reconstruction of craniomaxillofacial defects;
- (4) Neuromodulation in obstructive sleep apnea;
- (5) Vascularized Lymph Node Transfer for treatment of Lymphedema:

BASIC SCIENCE PROJECTS

PROJECT NUMBER	PROJECT TITLE	PRINCIPAL INVESTIGATOR (S)	RESEARCH CATEGORY
1	Functional Electronic Stimulation of Hypoglossal Nerve for the Treatment of Obstructive Sleep Apnea	Dr. Frank Papay	Technology
2	Iontophoretic Drug Delivery System for Wound Healing	Dr. Frank Papay	Wound Healing
3	Placenta Stem Cells in Wound Healing	Dr. James Zins	Wound Healing
4	Decellularized Bone for Maxillofacial Defects	Dr. Frank Papay	Craniofacial
5	Optic Nerve Regeneration	Dr. Bahar Bassiri Gharb Dr. Frank Papay	Nerve Regeneration
7	Vascularized Lymph Node Transfer for the Treatment of Lymphedema	Dr. Graham Schwarz	Lymphedema