



Laboratory Genetics

Embark on an Adventure

The Division of Laboratory Genetics includes the Cytogenetics, Molecular Genetics, Biochemical Genetics, and Fertility Laboratories. Together, these laboratories contribute to the study of genetic disease and the advancement of genetic testing and related technology. This effort is ultimately aimed at enhancing clinical patient care. Within each laboratory, board-certified directors and genetic counselors work closely with laboratory supervisors and technologists to ensure that accurate, reliable results are available in a timely manner.

Cytogenetics Laboratory

The Cytogenetics Laboratory provides comprehensive services for all types of chromosome studies, including congenital disorders, prenatal diagnosis, and hematologic/oncologic disorders to assist in the diagnosis, treatment and monitoring of disease status. A combination of specimen culturing, slide preparation and staining, and microscope analyses are utilized in a focused, fast paced training environment. Conventional banding techniques and fluorescence in-situ hybridization using DNA probes are used to detect chromosome abnormalities associated with congenital and acquired neoplastic disorders. This lab conducts approximately 45,000 tests per year.

Molecular Genetics Laboratory

The Molecular Genetics laboratory is designed to provide expertise in DNA/Molecular genetic testing for both congenital and inherited cancer syndromes. Procedures performed include DNA extraction, Southern blot, polymerase chain reaction, gel and capillary electrophoresis with some automation and instrumentation in many procedures. Public awareness of genetic testing makes this lab a fast paced, growing laboratory.

Biochemical Genetics Laboratory

This lab provides biochemical testing and result interpretation of the highest quality for the diagnosis, study and clinical care of patients with inborn errors of metabolism, risk of cardiac disease, malabsorption and malnutrition disorders. We routinely perform qualitative detection and quantitative determination of diagnostic markers based on a variety of manual, automated, and chromatographic methods, particularly HPLC, GC/MS, and MS/MS.

Fertility Testing Laboratory

This laboratory offers both analytic tests and clinical services to patients seeking infertility treatment within Mayo Clinic and to outside clients via Mayo Medical Laboratories. Analytic tests for assessing the fertility status of male patients include general semen analysis, post-vasectomy analysis, anti-sperm antibody assay, and the assessment of sperm morphology. Clinical services offered by this laboratory include sperm preparation for intrauterine insemination, therapeutic donor insemination, and semen cryopreservation. Semen cryopreservation is an important clinical service offered to Mayo Clinic cancer patients who may be able to preserve their fertility prior to beginning treatment with chemotherapeutic agents, which have deleterious effects on male fertility.

In Vitro Fertilization Laboratory

This laboratory offers clinical services to Mayo Clinic patients seeking infertility treatment. Perform high-quality clinical embryology assessments and procedures such as oocyte retrieval, insemination of oocytes either by standard methods or by intracytoplasmic sperm injection, fertilization assessment, embryo cryopreservation, assisted hatching, and transfer of embryos back to the patient.