Clinical Biochemistry and Immunology

Embark on an Adventure

The Division of Clinical Biochemistry and Immunology provides diagnostic testing for antibodies, enzymes, peptides, proteins, and small molecular weight biochemicals such as products of metabolism, drugs, and hormones. The laboratories affiliated with clinical biochemistry and immunology perform more than six million laboratory procedures per year for Mayo Clinic patients in Rochester, as well as Mayo reference laboratory customers. These laboratories have state-of-the-art facilities, utilize the latest equipment, and employ more than 300 staff holding degrees in biology, chemistry, clinical laboratory science, or molecular biology.

Endocrine Laboratory

The Endocrine Laboratory provides testing for the diagnosis and management of endocrinologic disorders, maternal serum testing for trisomes and neural tube defects, and the assessment of tumor markers. Both routine and esoteric testing for over 75 analytes is performed using a wide array of technologies including Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS), Radioimmunoassay (RIA) and Immunochemiluminometric Assay (ICMA).

Metals Laboratory

This lab is a specialized chemistry laboratory that includes a clean room for ultra-trace elemental analysis. We routinely perform analyses for essential, heavy and trace metals in biological samples. The primary analytical platform is Inductively Coupled Plasma-Mass Spectrometry (ICP-MS). We also perform kidney stone analysis by Fourier Transform-Infrared Spectroscopy (FT-IR). Laboratory process range from fully manual to semi-automated and all are essentially quantitative, analytical chemistry methods.

Neuroimmunology Laboratory

This laboratory bridges autoimmune neurology practice and cutting edge research. Autoantibody tests performed on serum and spinal fluid aid the diagnosis of autoimmune disorders of brain, nerve and muscle that are often a reflection of immune responses initiated by unsuspected cancer. These disorders are usually mistaken at the start for multiple sclerosis, stroke, and untreatable degenerative disorders. Autoantibodies specific for neurons, glial cells and muscle are detected by fluorescence microscopy on normal tissues, radioimmunoassay, western blot, and ELISA assays. Unique clinical autoimmune serology services are provided.

Immunology Laboratory

The "Antibody" portion of the laboratory performs analyses to detect and quantitate levels of human antibodies and autoantibodies that characterize allergic and autoimmune inflammatory diseases using manual IFA, automated FEIA and automated ELISA testing methods. The "Cellular" portion of the laboratory performs manual cellular immune function analyses used in evaluating patients with primary or acquired immunodeficiency diseases. The "Protein" portion of the laboratory performs analyses for the detection, quantitation, and identification of proteins using electrophoresis, automated nephelometry, ELISA, isoelectric focusing, and immunofixation.

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Nucleotide Polymorphism Laboratory

This lab develops and performs clinical diagnostic testing in pharmacogenomics. Current testing is in support of neuropsychiatric applications with development in the areas of transplantation biology, neurodegenerative disorders, and cardiovascular risk. Our primary focus is the development and implementation of testing as rapidly as we are able with steady growth in testing volumes expected for the near future.

Toxicology Drug Laboratory

This lab is designed for therapeutic drug monitoring and drug abuse testing. Techs are trained in one of these two areas. Testing is performed utilizing HPLC (high pressure liquid chromatography), GC/MS (gas chromatography/mass spectrometry), LC/MS/MS (liquid chromatography with tandem mass spectrometry) and automated immunoassay.