IMMUNOHEMATOLOGY & GENOMICS LABORATORY SERVICES

The New York Blood Center Enterprises Immunohematology and Genomics Laboratory provides reference laboratory services and consultation to assist hospitals in the resolution of patient antibody problems and to locate suitable units of blood for transfusion. The laboratory maintains one of the largest collections of well-characterized panel cells to identify antibodies and one of the largest inventories of liquid and frozen donor units to support patients who need antigen-negative units for transfusion. The laboratory also participates in the American Rare Donor Program (ARDP) to find rare blood that cannot be found locally.

INVESTIGATION OF:
- Antibodies to red cell antigens
- Warm autoantibodies
- Cold autoantibodies
- Transfusion reactions
- Hemolytic disease of the fetus and newborn
- Drug-induced hemolytic anemia
- Polyagglutination

SPECIFIC TESTS:
- Elution
- Antigen phenotyping
- Adsorptions - autologous and allogeneic
- Neutralization with soluble blood group substances
- Antibody titration including prenatal and cold agglutinin
- Donath-Landsteiner

HOW TO ORDER
NYBC CUSTOMER CARE CENTER
Toll Free: 855.55.BLOOD (855.552.5663) or 718.707.3771
Fax: 718.707.3551
Email: customercare@nybc.org
MOLECULAR (DNA) BLOOD GROUP AND PLATELET TESTING

We have expanded our immunohematology services to include genomic testing of DNA and RNA for blood group antigens and introduced testing for platelet and neutrophil antigens. DNA molecular testing can improve blood typing accuracy, help select compatible donors, aid the management and treatment for neonatal red cell or platelet destruction, and improve transfusion safety and outcomes for patients.

The Laboratory of Immunohematology and Genomics employs methods that include DNA array, PCR-RFLP, AS-PCR and gene specific amplification and sequencing. Isolation of mRNA and synthesis and sequencing of cDNA is also performed when indicated. The results are interpreted by staff experienced and knowledgeable in genetics and immunohematology.

SAMPLE REQUIREMENTS

- Whole blood: 5 ml EDTA or ACD (or equivalent). Avoid heparin.
- Buccal cells, amniocytes, and other tissues or cell sources.
- Leukoreduced samples often do not yield sufficient DNA for testing.

INDICATIONS FOR DNA TESTING

- Predict RBC phenotype of recently transfused patients or patients with positive direct antiglobulin tests (DAT)
- Obtain extensive antigen profile on:
  » Patients with warm autoantibodies
  » Patients with sickle cell disease or thalassemia
  » Transfused who have developed an antibody
  » Patients needing long-term transfusion support
  » Patients whose RBCs demonstrate spontaneous agglutination
- Resolution of complex antibody identification and/or distinguish allo from autoantibody
- Resolution of Rh typing discrepancies
- Resolution of ABO discrepancies
- Confirmation of weak or partial D phenotypes in women of child bearing age to guide transfusion and/or RhIG administration
- Identification of antigen-negative donor units if antisera is unavailable or limited in supply
- Typing of panel cells for uncommon or weakly expressed antigens
- Identification of novel antigens or phenotypes
- Testing for platelet antigens and post-transfusion purpura (PTP)

FETAL OR NEONATAL TESTING

- Evaluation of fetal risk for hemolytic disease of the fetus or newborn (HDFN) due to maternal antibodies to red cell antigens
- Evaluation of fetal risk for alloimmune thrombocytopenia (NAIT) due to maternal antibodies to platelet antigens
- Confirmation of maternal type, paternal zygosity, and fetal type

MOLECULAR (DNA) TESTS OFFERED

RED CELL

- ABO and subgroups
- RHD: weak D, partial D, and zygosity
- RHCE: partial, altered, or silenced Cc or Ee
- Duffy
- Dombrock; Hy, Joa and Gyα
- Kell
- Kidd
- MNSs: U and Uvar
- Knops
- Cromer
- Yt (Cartwright)
- Sciannda
- Any system for which genetics basis known

OTHERS

- RHD zygosity
- XK for McLeod phenotype
- Null phenotypes and new antigens

PLATELET

- HPA-1a/1b (PLA)
- HPA-2a/2b (Ko)
- HPA-3a/3b (Bako)
- HPA-4a/4b (Pen)
- HPA-5a/5b (Br)
- HPA-15a/15b (Gov)
- HPA Panel: includes HPA 1 through 9, 11 and 15

NEUTROPHIL

- HNA-3a/b