New York Blood Center Enterprises

Genomics

NYBCe Genomics Laboratories support and complement our Immunohematology Reference Labs with DNA arrays, lab-developed tests, gene specific DNA and RNA/cDNA sequencing by the Sanger method and by next generation sequencing.

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.

With NYBCe, you will have direct access to **genotyping at an AABB-accredited molecular laboratories in the United States**.

Our licensed and accredited National Center for Blood Group Genomics (NCBGG) laboratory handles patient samples and performs the highest quality testing services for extended blood typing. Our mission is to improve transfusion medicine practices. NCBGG offers low-cost, high throughout donor testing, highly-qualified staff, and state-of-the-art equipment. We take great pride in our training, quality assurance, and process development. NCGBB allows customers across the US to access detailed information about their blood donors and uncover uncommon antigen combinations, identify rare units, and detect weak antigens.

Methodologies

- DNA array, PCR-RFLP, AS-PCR and gene specific amplification and sequencing.
- Isolation of mRNA and synthesis and sequencing of cDNA

Genomic 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.

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Genomic Clinical Indications

- 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 patients 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 or alleles
- Identification of novel antigens or phenotypes
- Testing for platelet antigens and post-transfusion purpura (PTP)

Genomic Tests

RED CELL

- ABO and subgroups
- RHD: weak D, partial D, Del
- RHCE: partial, altered, or silenced Cc or Ee
- Duffy
- Dombrock: Hy, Joa and Gya
- Colton
- Diego
- Lutheran
- Kell
- Kidd
- MNSs: U and Uvar
- Knops
- Cromer
- Cartwright
- Scianna
- Any other system with known genetic basis

Genomic Tests

RED CELL

- 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

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