

TRALI

Transfusion-Related Acute Lung Injury (TRALI) is a pulmonary syndrome associated with transfusion. Often severe and potentially life-threatening it is the most frequent cause of transfusion-associated death in the United States¹. TRALI has been associated with antibodies against neutrophils, HLA class I and/or HLA Class II in up to 89% of cases². The Center for Biologics Evaluation and Research of the FDA has recommended that donors involved in a TRALI reaction be tested for these antibodies.

INDICATIONS

A diverse number of clinical features are observed in TRALI such as hypoxemia, tachypnea, cyanosis, fever, and hypotension. Noncardiogenic pulmonary edema demonstrating diffuse bilateral lung infiltrates on a chest x-ray are commonly seen within one to six hours of transfusion. All plasma containing blood components (including red blood cells, whole blood, fresh frozen plasma, cryoprecipitate, apheresis platelets, platelet concentrates and IVIG) have been implicated. The incidence of TRALI has been reported between 1 in 2000³ and 1 in 5000² transfusions.

TESTING WORK-UP

Neutrophil Antibody Screen:

Neutrophil specific antibodies are detected using a panel of cells typed for characteristic neutrophil antigens by the Granulocyte Agglutination (GA) and Granulocyte Immunofluorescence (GIF) assays.

Optional Testing:

- **HLA (PRA) Antibody Screen** which detects HLA Class I and Class II antibodies.
- **HLA Class I and Class II Antibody Identification** if the HLA (PRA) screening test is positive.
- **Monoclonal Antibody Immobilization of Neutrophil Antigen Assay (MAINA)** is available to differentiate HLA from neutrophil specific antibodies when both are positive.
- **Neutrophil Crossmatching** can be used to determine if antibody in the donor sera reacts with the recipient's neutrophils.
- **Neutrophil genotyping/phenotyping** can be performed to establish the presence of the antithetical gene/antigen if a specific neutrophil antibody has been identified.

SPECIMEN REQUIREMENTS

1. Neutrophil and HLA (PRA) Antibody Testing:

- 2 to 3 mL of serum or 4 to 5 mL of plasma from the implicated donor(s).
- *Optional:* 2 to 3 mL of serum or 4 to 5 mL of plasma (pre and/or post-transfusion) from the recipient.



SHIPPING ADDRESS

North Central Blood Services
 Neutrophil Serology Laboratory
 100 Robert Street South
 St. Paul, Minnesota 55107-1489

For further information please call the Neutrophil Serology Laboratory at 651-291-6797 or the laboratory supervisor at 651-291-6758.

CLIA License Number:
24D0651229

REFERENCES

- Holness L: Proceedings of a Consensus Conference: Towards an Understanding of TRALI. Transfusion Medicine Reviews, Vol 19, No 1 (January), 2005: pp 15.
- Popovsky MA, Moore SB: Diagnostic and Pathogenetic Considerations in Transfusion Related Acute Lung Injury. Transfusion 25: 573-577, 1985.
- Weber JG, Warner MA, Moore SB: What is the incidence of perioperative transfusion-related acute lung injury? Anesthesiology 1995; 82:789.

- Collect blood in either a red top or EDTA tube. Separate serum or plasma from the red cells as soon as possible and store at 2° to 8°C up to 48 hours after collection. If testing is delayed, store frozen and ship on dry ice. Fresh frozen plasma is acceptable. Segments from blood components are **NOT** acceptable.

2. Neutrophil Crossmatch and Phenotyping:

- 14 to 28 mL whole blood collected in EDTA.
- DO NOT** separate plasma from the red cells. Ship overnight at room temperature in a well insulated container. Contact the laboratory before collecting specimens as testing must begin within 24 hours of venipuncture.

3. Neutrophil Genotyping:

- 5 to 7 mL whole blood collected in citrate or EDTA.
- Ship overnight at room temperature in a well insulated container.

TEST RESULTS

Final results will be reported within 14 days unless additional testing is requested (MAINA). Results can be faxed and/or mailed.

PRICE

Refer to current fee schedule.

CPT CODE

TEST	CPT CODE
Neutrophil Antibody Screen	86021 x 2
HLA (PRA) Screen	86807
HLA (PRA) Identification	86807 x 2
MAINA	86021 x 3
Neutrophil Crossmatch	86021 x 2
Neutrophil Antigen Phenotyping	86021 x 3
Neutrophil Genotyping (HNA-1a, -1b, -1c)	83890, 83898 x 3, 83894, 83912

