

Drug-Dependent RBC Antibody Studies

Drug-induced immune hemolytic anemia (DIHA) may be a severe, life threatening event. Versiti offers testing to detect antibody reactions against drugs.

Acute DIHA can occur due to the formation of antibodies that react either with red blood cells coated with the drug, or with red blood cells in the presence of circulating drug or drug metabolite. Penicillin derivatives, cefotetan (2nd generation cephalosporin), Zosyn and non-steroidal anti-inflammatory drugs (NSAIDs) are most often implicated in DIHA today. In addition, many other drug-dependent antibodies are reported. We have detected antibodies induced by the following drugs:

Ampicillin	Lodine (Etodolac) metabolite ⁴
Cefazolin	Nabumetone (Relafen) metabolite ⁵
Cefotetan	Nafcillin
Cefoxitin	Piperacillin
Ceftazidime	Quinidine
Ceftriaxone	Quinine
Diclofenac metabolite ^{2,3}	Sulindac
Ibuprofen	Tolmetin
Indomethacin	Zosyn

Indications for testing:

Evaluation of patients who develop immune hemolysis after exposure to certain drugs is important in order to make the correct diagnosis and to prevent possible future adverse complications.

Test method:

Serological.

Assay sensitivity and limitations:

Positive test results are not absolutely diagnostic of drug-induced immune hemolytic anemia and must be used in combination with clinical information to make a diagnosis. Negative results do not completely rule out a diagnosis of drug-induced immune hemolytic anemia.

Specimen requirements:

- 5 ml EDTA (lavender top) whole blood, refrigerated
- Two 10 ml clot (red top) tubes whole blood, refrigerated
- Sample of each suspected drug. Consultation is required before submitting sample.

Please contact the laboratory by calling 800-245-3117, ext. 6205. On weekends or at night, call 800-245-3117, ext. 6160.



SHIP

Shipping requirements:

Place the specimen and the test requisition form in plastic bags, seal, and surround with cold packs in a Styrofoam container. Seal the container and place in a sturdy cardboard box and tape securely. Ship the package in compliance with your overnight carrier guidelines. Label with the following address:

Versiti Client Services
Immunoematology Reference Laboratory
638 N. 18th Street
Milwaukee, WI 53233
800-245-3117, ext. 6250





ORDER

Required forms:

Please complete all pages of the requisition form. Clinical history (including patient's ethnicity, clinical diagnosis, family history and relevant laboratory findings) is necessary for optimal interpretation of genetic test results and recommendations. Clinical and laboratory history can either be recorded on the

requisition form or clinical and laboratory reports can be submitted with the sample.

CPT Codes/Billing/Turnaround time:

CPT codes: For recommended CPT codes, visit the [versiti.org/test-catalog](https://www.versiti.org/test-catalog)

Turnaround time: 3 days

References:

1. Johnson ST, Fueger JT, Gottschall JL. One center's experience: the serology and drugs associated with drug-induced immune hemolytic anemia - a new paradigm. *Transfusion* 2007; 47(4): 697-702.
2. Bougie D, Johnson ST, Weitekamp LA, Aster RH. Sensitivity to a metabolite of diclofenac as a cause of acute immune hemolytic anemia. *Blood* 1997; 90: 407-413.
3. Meyer O, Hoffman T, Aslan T, Ahrens N, Kiesewetter H, Salama A. Diclofenac-induced antibodies against RBCs and platelets: two case reports and a concise review. *Transfusion* 2003; 345-349.
4. Cunha PD, Lord RS, Johnson ST, Wilker PR, Aster RH, Bougie D. Immune hemolytic anemia caused by sensitivity to a metabolite of etodolac, a nonsteroidal anti-inflammatory drug. *Transfusion* 2000; 40: 663-668.
5. Johnson ST, Bandouveres S, Aster RH, Bougie D. Nabumetone metabolite-dependent antibody reacting with untreated red cells in the presence of urinary metabolite. *Transfusion* 2003; 43(suppl.): 101A.
6. GENERAL REFERENCES FOR DRUG INDUCED IMMUNE HEMOLYTIC ANEMIA: LD Petz and George Garrity, *Immune Hemolytic Anemias*, 2nd ed. (Elsevier) 2004. Mark Brecher (ed). *Technical Manual*, 15th ed. (American Association of Blood Banks) 2005