

REAGENT RED BLOOD CELLS
PANOSCREEN® I and II – 2 vial set
PANOSCREEN® I, II and III – 3 vial set
For Detection of Unexpected Antibodies

 Immucor, Inc.
3130 Gateway Drive
Norcross, GA 30071 USA
US LICENSE 0886
MADE IN USA

Rx Only

**IMMUCOR**

311-20
Rev 6/25

Intended Use:

Panoscreen® is intended for use in the detection of unexpected red blood cell blood group antibodies.

Summary of the Test:

Unexpected antibodies are found most frequently in samples from patients who were exposed to foreign red blood cell antigens through transfusion or pregnancy (approximately 1% of all patient samples). Less frequently red blood cell antibodies are found in samples from blood donors.[1-3] Some red blood cell antibodies are of clinical importance since they may cause decreased red blood cell survival as the result of hemolytic transfusion reactions, hemolytic disease of the newborn or autoimmune hemolytic anemia. In vitro antibody detection (screening) tests are employed to reveal the presence of these antibodies in patient or donor samples.[3]

Panoscreen is manufactured as a two-vial or three-vial set of group O red blood cells suitable for use in antibody detection procedures. The antigens for which these donors have been typed are displayed on the Panoscreen Master List accompanying each lot. Panoscreen I, II, III is manufactured specifically for laboratories concerned with the optimal detection of antibodies exhibiting dosage. (See Limitations)

Principle of the Test:

Serum or plasma is systematically tested against Panoscreen Reagent Red Blood Cells. Agglutination of one or more of the Panoscreen cells at any phase, or hemolysis at the saline or potentiated phases of testing, constitutes a positive test and is the result of a reaction between an antigen and its respective antibody. No agglutination or no hemolysis indicates either the absence of antibody, providing the test red blood cells possess the corresponding antigen, or that an antibody, if present, is in concentrations too low to be detected by the serologic techniques employed. Once an antibody is detected, it can be identified by testing the sample with Panocell® Reagent Red Blood Cells.

Reagents:

Panoscreen I and II: a two-vial set or Panoscreen I, II and III: a three-vial set Each vial contains a 2-4% suspension of single donor, group O red blood cells prepared in a buffered preservative solution containing adenosine and adenine to retard hemolysis and/or loss of antigenicity during the dating period. The diluent does not interfere with complement-mediated hemolysis. The donor red blood cells used in each reagent set are selected to contain most of the frequently inherited antigens. These red blood cells, when tested in parallel, will detect most of the commonly encountered antibodies other than anti-A or anti-B. The Panoscreen Master List indicates the donor code and antigenic composition for each red blood cell reagent.

Chloramphenicol (0.25 mg/mL), neomycin sulfate (0.1 mg/mL) and gentamycin sulfate (0.05 mg/mL) have been added as preservatives.

No US standard of potency.

Storage:

- Store at 1-10°C when not in use.
- Do not freeze or expose to elevated temperatures.
- Do not use beyond the expiration date which is expressed as CCYY-MM-DD (year-month-day).

Precautions and Warnings:

- For in vitro diagnostic use.
- For laboratory professional use only.
- Suspend the red blood cells before use by gently inverting each vial several times.
- Panoscreen reagent red blood cells should be washed with physiologic saline prior to their use in procedures employing enzymes or in techniques using some low ionic strength solutions (LISS) if specified by the LISS manufacturer.
- Avoid contaminating this product during use. Contamination will adversely effect the product's performance during its shelf life.
- Do not use contaminated reagents.
- Do not use leaking vials.
- Do not use unlabeled vials.

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- Reagent red blood cells should not be used if the cells darken, spontaneously clump or if there is significant hemolysis. Slight hemolysis may occur with age. In this instance, the red blood cells may be washed and suspended in saline immediately prior to use.



Handle and dispose of reagent as if potentially infectious.

CAUTION: All blood products should be treated as potentially infectious. Source material from which this product was derived was found negative when tested in accordance with current FDA required tests. No known test methods can offer assurance that products derived from human blood will not transmit infectious agents.



CAUTION: The packaging of this product (Dropper Bulbs) contains dry natural rubber.

Specimen Collection and Preparation:

Serum or plasma may be used in antibody detection procedures. Plasma anticoagulants may interfere with the detection of complement-binding antibodies.[4-6] Fibrin clots may also develop and interfere in tests employing plasma.

Draw a blood specimen using an acceptable phlebotomy technique. Testing should be performed as soon as possible to minimize the chance that falsely positive or falsely negative reactions will occur due to improper storage or contamination of the specimen. Should delays in testing occur, specimens should be stored at 1-10°C. Alternatively, serum or plasma can be separated from red blood cells and stored frozen. Weakly reactive antibodies may deteriorate and become undetectable in samples stored at room temperature for several days before testing or in samples stored for prolonged periods at 1-10°C. Do not use samples drawn into tubes with neutral gel separators. False-positive results may occur with such samples.

Procedure:

Materials Provided

1. Panoscreen I and II, or Panoscreen I, II, and III Reagent Red Blood Cells supplied in dropper vials ready for use
2. Panoscreen Master List

Additional Materials Required but not provided

1. 10 x 75 mm or 12 x 75 mm test tubes and a test tube rack
2. Transfer pipettes
3. Isotonic saline or phosphate-buffered (approximately 15 mM) isotonic saline, pH 6.5-7.5
4. Potentiator (eg, N-HANCE®, Gamma®PeG or Immucor Bovine Albumin Solution 22%) (optional)
5. Anti-Human Globulin containing anti-IgG (e.g., Gamma-clone® Anti-IgG (Murine Monoclonal))
6. Antiglobulin control cells (cells sensitized with IgG) (e.g., Checkcell or Checkcell (Weak))
7. 37°C water bath or dry heat incubator
8. Serologic centrifuge*
9. Interval timer*
10. Galileo Neo (as applicable for antibody titration)*
11. NEO Iris (as applicable for antibody titration)*

*It is the user's responsibility to validate an accessory device (either listed or otherwise) for its intended use. Validation results should be maintained as part of the laboratory's records for review by regulatory agencies.

Test Methods:

Tube Method

The procedure detailed below is intended as a guideline. It may be desirable to modify this procedure to comply with the requirements or in-house standard operating procedures of the particular laboratory. If potentiating agents are employed, they should be used to their respective Instruction for Use.

1. Label one test tube for each Panoscreen vial.
2. Place 2-3 drops of the serum or plasma to be tested into each of the tubes. Adding 3 drops may enhance reactivity.
3. Gently invert each Panoscreen vial several times to achieve a complete suspension of the red blood cells.
4. Add 1 drop of the Panoscreen red blood cells to the appropriately labeled tubes. Mix the contents of each tube thoroughly.
5. Add potentiator, if used, to each tube in the amount specified by the manufacturer's product insert. NOTE: If desired, all tubes may be immediately centrifuged* or incubated at room temperature (18-30°C) for 5-30 minutes, centrifuged and examined for hemolysis and agglutination prior to the addition of a potentiator or incubation at 36-38°C.
6. Incubate at 36-38°C for 30-60 minutes. NOTE: Depending on the potentiator employed, the tubes may be incubated for shorter periods of time. Consult the manufacturer's product insert for optimal incubation time for potentiator employed.

7. Centrifuge each tube.* Examine the supernatants for hemolysis. Gently suspend each red blood cell button and examine for agglutination. Record results.
8. Wash the red blood cells a minimum of three times with saline, being careful to decant completely after each wash.
9. Add Anti-Human Globulin to each tube in the amount specified by the manufacturer's product insert.
10. Centrifuge each tube.* Gently suspend each red blood cell button and examine for agglutination. Record results. Negative reactions may be examined with an optical aid.
11. Confirm the validity of all negative or weakly positive reactions with IgG-sensitized antiglobulin control red blood cells.

* Suggested centrifugation time: 15-30 seconds at 900-1000 x g or a time, appropriate for the centrifuge used, that produces the strongest reaction of antibody with antigen-positive red cells, yet allows easy suspension of antigen-negative red blood cells.

Stability of Reaction:

Following centrifugation, all tests should be read immediately, and results should be interpreted without delay. Delays may result in dissociation of antigen-antibody complexes leading to falsely negative, or at most, weakly positive reactions.

Quality Control:

In addition to visual inspection for evidence of deterioration, the reactivity of the red cells may be checked periodically by testing antigens likely to deteriorate, such as Le^a, with a weakly reactive antibody of the same specificity. If such cells are found nonreactive, the product should not be used.

Interpretation of Results:

Positive Test: Agglutination of any of the Panoscreen red blood cells at any phase, or hemolysis at the saline or potentiated phases of testing, constitutes a positive test.

Negative Test: Absence of agglutination and hemolysis throughout the test procedure indicates that the test serum does not contain detectable antibodies to any of the antigens present in the reagent.

Automated Antibody Titration on Galileo Neo or NEO Iris

For automated antibody titration assays, see the appropriate Operator Manual for further instructions. The Galileo Neo and NEO Iris report final titer results.

Limitations:

1. Falsely positive or falsely negative test results can occur from bacterial or chemical contamination of test materials, inadequate incubation time or temperature, improper centrifugation, inadequate washing of red cells, improper storage of test materials and omission of antiglobulin reagent or test serum.
2. Falsely negative results may be obtained if an inappropriate serum-to-cell ratio is used.^[7] It is important to perform antibody screening or identification procedures using an optimum serum-to-cell ratio. The amount (number of drops) of serum employed will depend on the percent suspension of red blood cells used, the delivery volume of the dropper and type of enhancement medium employed.
3. Panoscreen red blood cells are selected so they possess the most commonly inherited red blood cell antigens. They do not possess all known red blood cell determinants. On occasion, it is possible that a particular serum will contain an antibody defining an antigen that is not present on these reagent red blood cells.
4. Negative reactions will be obtained if the test serum contains antibodies present in concentrations too low to be detected by the test method employed.
5. The genetic background of donors of Reagent Red Cells with phenotypes such as Fy(a-b-), Fy(a-b+), Jk(a+b-), Jk(a+b+), M+N-, M-N+, S+s-, S-s+, etc. is not known. Such red blood cells are assumed to be from genetic homozygotes, but in fact, could have been collected from persons who are genetically heterozygous for the encoding genes. No serological tests have been performed to demonstrate the red blood cells of apparent homozygotes used to prepare this reagent carry a double dose of the appropriate antigen.
6. Infrequently, falsely positive results may occur in the presence of antibodies directed to components of the red blood cell diluent. These unwanted reactions can usually be avoided by utilizing reagent red blood cells that have been washed with saline prior to testing.
7. Panoscreen reagent red blood cells may be pretreated with proteolytic enzymes to increase their sensitivity in the detection of some blood group antibodies (e.g., those of the Rh, Lewis and Kidd systems). However, some antigens (most notably M, N, S, Fy^a, and Fy^b) are destroyed or altered by enzymes and antibodies to these antigens will fail to react with enzyme-premodified cells.^[5]
8. The reactivity of Reagent Red Blood Cells may diminish over the dating period. The rate at which antigen reactivity (ie, agglutinability) is lost is partially dependent upon the individual donor characteristics that are neither controlled nor predicted by the manufacturer.
9. Some alloantibodies of clinical significance, most notably anti-Jk^a, bind complement components to the red blood cell membrane. It has been reported that some examples of anti-Jk^a are better detected in a serum test if an antiglobulin reagent containing anti-C3, as well as anti-IgG, is employed. Such

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- antibodies may also be better detected if serum specimens less than 48 hours old are used in testing because some complement components undergo changes on storage that render them unable to participate in the complement activation cycle.
10. No one test method is capable of detecting all unexpected red blood cell antibodies.
11. The red blood cells used to prepare this reagent will carry antigens that may not be defined by the manufacturer, therefore, it is possible to obtain positive reactions with this reagent that do not match the profiles of any reagents shown on the Master List.
12. For antibody titration assays, the clinical significance of titer results must be established by the user.
13. The user is responsible for validating the use of Panoscreen in methods other than the manual tube method described in this insert.

Specific Performance Characteristics:

Prior to release, each lot of Immucor reagent red blood cells, unless otherwise indicated, is tested by two independent laboratories using two donor sources of antibody (except where precluded by the rarity of the antibody) to confirm the presence or absence of all blood group antigens specified on the Master List. The performance of this product is dependent upon adhering to the insert's recommended methodology. All cell suspensions are tested and shown to have a negative direct antiglobulin test using polyspecific Anti-Human Globulin.

This product meets the requirements of the FDA for Reagent Red Blood Cells for use in the detection of unexpected antibodies. The expiration date is set at 67 days from the date of manufacture which is the earliest date that blood is withdrawn from any donor used in a component of the product.

Automated Antibody Titration Assay on NEO Iris:

Method comparison studies were performed at two (2) external sites and at Immucor, Inc. as an internal site. Test results were compared for agreement between NEO Iris and manually prepared dilutions of the samples tested on NEO Iris by a modified crossmatch method.

Note: Agreement between methods does not indicate which method is correct.

Results	Equal or within ±1 doubling-dilution			Equal or within ±2 doubling-dilutions			
	N	n	% Agreement	% LCI*	n	% Agreement	% LCI*
	66	62	93.9	86.7	66	100	95.6

*95% one-sided lower confidence interval

For additional information or for technical support, contact Immucor at 855-IMMUCOR (466-8267) (US/Canada).

For additional information or to get a Certificate of Analysis (CoA) or paper copy of the IFU or SDS please go to www.immucor.com and enter Customer Login or contact your local Customer Service.

Bibliography:

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3. Roualt CL. Appropriate pretransfusion testing. In: *Pretransfusion testing for the '80s*. Washington DC: American Association of Blood Banks, 1980:125.
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5. Garratty G, Petz LD. The significance of red cell bound complement components in the development of standards and quality control for the anticomplement components of antiglobulin sera. *Transfusion* 1976;16:297.
6. Garratty G. The effect of anticoagulants and storage on complement. *Am J Clin Pathol* 1970;54:531.
7. Beattie KM. Control of the antigen-antibody ratio in antibody detection/compatibility tests. *Transfusion* 1980;20:277.

Symbols Glossary:

The Symbols Glossary (ID No. 400) is provided electronically at <http://adextranet.immucor.com/EN/Pages/PackageInserts.aspx>