Overview

Useful For
Initial screening test in the diagnosis of bullous pemphigoid and its variants

Complementing the standard serum test of indirect immunofluorescence utilizing monkey esophagus substrate and human salt-split skin substrate (CIFS / Cutaneous Immunofluorescence Antibodies (IgG), Serum)

Method Name
Enzyme-Linked Immunosorbent Assay (ELISA)

NY State Available
Yes

Specimen

Specimen Type
Serum Red

Specimen Required
Container/Tube:

Preferred: Red top

Acceptable: Serum gel

Specimen Volume: 1 mL

Specimen Minimum Volume
0.5 mL

Reject Due To

<table>
<thead>
<tr>
<th>Gross hemolysis</th>
<th>OK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross lipemia</td>
<td>OK</td>
</tr>
<tr>
<td>Gross icterus</td>
<td>OK</td>
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</table>

Specimen Stability Information

<table>
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<tr>
<th>Specimen Type</th>
<th>Temperature</th>
<th>Time</th>
<th>Special Container</th>
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<tbody>
<tr>
<td>Serum Red</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Frozen</td>
<td>30 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ambient</td>
<td>14 days</td>
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Clinical and Interpretive
Clinical Information

Bullous pemphigoid (BP) is a chronic pruritic blistering disorder found mainly in aged persons, characterized by the development of tense blisters over an erythematous or urticarial base. IgG-antibasement membrane zone antibodies are found in the serum of patients, and linear IgG and C3 sediment is found on the basement membrane zone of the lesion. Several well-characterized variants exist including localized, mucous membrane predominant and pemphigoid gestationis, also referred to as herpes gestationis.

Target antigens of the autoantibodies in BP patient serum are BP230 and BP180, also called BPAG1 and BPAG2. Molecular weight of these antigens is 230 kD and 180 kD, respectively. BP180 is thought to be the direct target of the autoantibody because of its location along the basement membranes, and the autoantibody against BP230 is thought to be secondarily produced.

Reference Values

BULLOUS PEMPHIGOID 180

<20 RU/mL (negative)

> or =20 RU/mL (positive)

BULLOUS PEMPHIGOID 230

<20 RU/mL (negative)

> or =20 RU/mL (positive)

Interpretation

Antibodies to bullous pemphigoid (BP) BP180 and BP230 have been shown to be present in most patients with pemphigoid. Adequate sensitivities and specificity for disease are documented and Mayo Clinic's experience demonstrates a very good correlation between BP180 and BP230 results and the presence of pemphigoid (see Supportive Data). However, in those patients strongly suspected to have pemphigoid, either by clinical findings or by routine biopsy and/or direct immunofluorescence, and in whom the BP180/BP230 assay is negative, follow-up testing by CIFS / Cutaneous Immunofluorescence Antibodies (IgG), Serum is recommended.

Antibody titer may correlates with disease activity in some patients. Patients with severe disease may be expected to have high titers of antibodies to BP. Titers may decrease with clinical improvement.

Cautions

As with other diagnostic test procedures, the results obtained with bullous pemphigoid (BP) BP180 and BP230 enzyme-linked immunosorbent assay (ELISA) kit serve only as an aid to diagnosis and should not be interpreted as diagnostic in themselves.

Performance of the assay in pediatric patients has not been established.

Performance of the assay on other matrices besides serum has not been established.

Supportive Data

Thirty-two classic bullous pemphigoid (BP), 15 mucous membrane pemphigoid, and 7 other pemphigoid variants, diagnosed by direct immunofluorescence, routine histology, and clinical presentation were tested. Controls included 47 patients with other autoimmune blistering disorders and 42 age-matched controls without skin disease. Forty of 54 (74%) patients with BP and variants tested positive for BP180 and/or BP230 autoantibodies. Of these patients, 28 of 32 (88%) with classical BP, 8 of 15 (53%) with mucous membrane predominant (MMP), and 4 of 7 (57%) of other
pemphigoid variants, tested positive.

The calculated sensitivities in classical BP were 54% for BP180 alone and 56% for BP230 alone. The sensitivity increased to 88% with both tests combined, which is comparable to that of indirect immunofluorescence (IIF) (88%). In MMP the calculated sensitivities were 47% for BP180 alone, 13% for BP230 alone, and 53% for both combined. This was slightly less than the sensitivity of IIF (67%). Only 5 of 47 (11%) and 2 of 47 (4%) control patients with other autoimmune blistering disorders were positive for BP180 and BP230 autoantibodies respectively. Interestingly, the 2 patient’s positive for BP230 autoantibody had paraneoplastic pemphigus. One of 42 (2%) and 0 normal controls tested positive for BP180 and BP230 respectively.

The calculated specificities for BP180, BP230, and IIF were 93%, 98%, and 92% respectively.

**Clinical Reference**


**Performance**

**Method Description**

This enzyme-linked immunosorbent assay (ELISA) method detects and measures serum levels of antibodies of certain pemphigoid diseases. Calibrators and patient sera are added to microwells coated with bullous pemphigoid (BP) BP180 and BP230 antigens, allowing antibodies to react with the immobilized antigens. After washing to remove any unbound serum proteins, horseradish peroxidase-conjugated IgG is added and incubated. Following another wash step, the peroxidase substrate is added and allowed to incubate for an additional period. Stop solution is then added to each well to cancel the enzyme reaction and to stabilize the color development. The assay can be quantified by measuring the reaction photometrically and plotting the results. The amount of antigen specific bound antibody is proportional to the color intensity. (Package inserts: Anti-BP180-NC16A-4X ELISA (IgG), Form EA_1502-2G_A_US_D04.doc, Version: 7/6/11; Anti-BP230-CF ELISA (IgG), Form EA_1502-1G_A_UK_C03.doc, Version: 5/9/11)

**PDF Report**

No

**Day(s) and Time(s) Test Performed**
Once or twice weekly, Monday through Friday; 7:30 a.m.-5 p.m., days of testing to be determined by the laboratory.

**Analytic Time**
1 day

**Maximum Laboratory Time**
5 days

**Performing Laboratory Location**
Rochester

### Fees and Codes

**Fees**
- Authorized users can sign in to [Test Prices](#) for detailed fee information.
- Clients without access to Test Prices can contact [Customer Service](#) 24 hours a day, seven days a week.
- Prospective clients should contact their Regional Manager. For assistance, contact [Customer Service](#).

**Test Classification**
This test was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the U.S. Food and Drug Administration.

**CPT Code Information**
83516 x 2

**LOINC® Information**

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