Client: Example Client ABC123
123 Test Drive

UNITED STATES

Physician: Doctor, Example

Patient: Patient, Example

DOB

Sex:

Patient Identifiers: 01234567890ABCD, 012345

Visit Number (FIN): 01234567890ABCD

Collection Date: 01/01/2017 12:34

Pemphigoid Antibody Panel

ARUP test code 0092001

Pemphigoid Antibody Panel

See Note

CLINICAL INFORMATION
Eczematous lesions and generalized pruritus.

Specimen Details
S22-IP0000516 - Serum; Collected: ; Received:

DIAGNOSTIC INTERPRETATION

Negative/normal Pemphigoid Antibody Panel

(See Results and Comments including further testing considerations)

RESULTS
Indirect Immunofluorescence (IIF)

Basement Membrane Zone (BMZ) IgG and IgA Antibodies

IgG: Negative, monkey esophagus substrate
Negative, human split skin substrate

IgA: Negative, monkey esophagus substrate
Negative, human split skin substrate

Reference Range:
Negative - Titer less than 1:10
Borderline - Titer 1:10
Positive (H) - Titer greater than 1:10

Localization Pattern on Human BMZ Split Skin:
Epidermal (roof) or combined epidermal-dermal (roof and floor) IgG and/or IgG4 BMZ antibodies = pemphigoid (including pemphigoid gestationis, bullous pemphigoid, mucous membrane pemphigoid)

Dermal (floor) IgG and/or IgG4 BMZ antibodies = epidermolysis bullosa acquisita or bullous lupus erythematosus or anti-laminin-332 pemphigoid or anti-p200 (laminin gamma-1) pemphigoid or another rare pemphigoid subtype

Epidermal (roof), combined epidermal-dermal (roof and floor), or, dermal (floor) IgA BMZ antibodies = linear IgA disease (including linear IgA bullous dermatosis and chronic bullous disease of childhood)

H=High, L=Low, *=Abnormal, C=Critical

(H) = high/positive

Enzyme-Linked Immunosorbent Assay (ELISA)

Bullous Pemphigoid (BP)180 and BP230 IgG Antibodies

IgG BP180 antibody level: 4 U/mL

Reference Range:
Normal (negative) = Less than 9 U/mL
Increased (H) (positive) = 9 U/mL and greater

IgG BP230 antibody level: 3 U/mL

Reference Range:
Normal (negative) = Less than 9 U/mL
Increased (H) (positive) = 9 U/mL and greater

COMMENTS

Specific

The negative IgG and IgA basement membrane zone antibodies by indirect immunofluorescence testing and the normal IgG BP180 and IgG BP230 antibody levels by ELISAs are against, but do not rule out, the diagnoses of bullous pemphigoid, epidermolysis bullosa acquisita, and linear IgA disease. The results do not rule out the diagnosis of mucous membrane/cicatricial pemphigoid because patients with this pemphigoid subtype may not have detectable circulating basement membrane zone antibodies, although, when present, they can be helpful diagnostically.

Also, in patients with epidermolysis bullosa acquisita and in a subset of patients with bullous lupus erythematosus, the IgG type VII collagen antibody level by ELISA may be a more sensitive diagnostic marker than basement membrane zone antibody reactivity by indirect immunofluorescence. If clinically indicated to further evaluate the immunopathological profile, additional testing with respect to basement membrane zone antibodies or other epithelial cell surface/pemphigus antibodies may be performed on this specimen by contacting ARUP Client Services at 1-800-242-2787, option 2, with add-on test request(s) for:
- Collagen Type VII Antibody, IgG by ELISA (ARUP test number 2010905), and/or
- Pemphigus Antibody Panel, IgG (ARUP test number 0090650),
- Pemphigus Antibodies, IgA by IIF (ARUP test number 0092106).

Detection, levels, and patterns of diagnostic antibodies may fluctuate with disease manifestations. Clinical correlation is needed, including direct immunofluorescence findings on a biopsy specimen and treatment status. Monitoring serum antibody profiles by indirect immunofluorescence and antibody levels by ELISAs may aid in assessing disease expression and activity, particularly with persistent, progressive, or changing disease.

General

Approximately 80 percent of patients with bullous pemphigoid and epidermolysis bullosa acquisita have positive IgG antibodies to basement membrane zone components in their sera detected by indirect immunofluorescence. Approximately 50 percent of patients with mucous membrane/cicatricial pemphigoid demonstrate antibodies to basement membrane zone components detected by indirect immunofluorescence. The immunoglobulin class of basement membrane zone antibodies and pattern of antibody localization on split skin substrate (also known as salt split

skin) distinguish the diseases.

Positive serum IgA epithelial basement membrane zone antibodies are highly specific diagnostic markers for linear IgA disease and are present in up to 80 percent of patients with linear IgA bullous dermatosis. Titers of positive IgA basement membrane zone antibodies may be useful markers in following disease expression and activity. IgA basement membrane zone antibodies may be found in variant presentations of mucous membrane pemphigoid and epidermolysis bullosa acquisita. IgA basement membrane zone antibodies may be co-expressed with IgG basement membrane zone antibodies in some patients with pemphigoid including mucous membrane/cicatricial pemphigoid. When co-expressed, the presence of two antibody classes with reactivity toward basement membrane zone may have implications for disease severity and treatment considerations.

Major molecular structures in the basement membrane zone to which IgG pemphigoid antibodies bind have been identified and termed "BP180" for a 180 kDa bullous pemphigoid antigen (also known as bullous pemphigoid antigen 2, BPAG2, or type XVII collagen, COL17) and "BP230" for a 230 kDa bullous pemphigoid antigen (also known as bullous pemphigoid antigen 1, BPAG1). BP180 is a transmembrane component of the basement membrane zone with collagen-like domains and is a principal antigenic target. BP230 is located in the hemidesmosomal plaque of basal cells in the epidermis. Serum levels of IgG BP180 and IgG BP230 antibodies are determined by ELISA, and serum levels of IgG BP180 antibodies may correlate with disease activity in pemphigoid, diminishing with treatment response. Up to 7 percent of individuals who do not have pemphigoid, including patients with other immunobullous diseases, have increased levels of IgG BP180 and/or BP230 antibodies by ELISAs. Patients with pemphigoid may show reactivity to multiple basement membrane zone components in addition to or other than the BP180 and BP230 epitopes displayed in the tested ELISAs. Type VII collagen is a component of anchoring fibrils within epithelial basement membrane zone (skin and mucous membranes) and patients with epidermolysis bullosa acquisita characteristically develop IgG antibodies to type VII collagen.

TESTING METHODS
Indirect Immunofluorescence (IIF)

IgG and IgA Epithelial Basement Membrane Zone (BMZ) Antibodies

Patient serum is progressively diluted beginning at 1:5 in three two-fold screening dilutions, layered on sections of human skin split at the basement membrane zone and monkey esophagus substrates, and reacted with fluorescein isothiocyanate (FITC)-conjugated antibodies to IgG and IgA. When positive, the serum is further diluted in two-fold reductions to the limiting dilution of antibody detection or to a maximum dilution of 1:40,960. The limiting-dilution, end-point titer is reported for each substrate, and the pattern of staining on split skin substrate also is reported. This indirect immunofluorescence testing was developed and its performance characteristics were determined by the Immunodermatology Laboratory at the University of Utah. It has not been cleared or approved by the FDA (US Food and Drug Administration). FDA clearance or approval currently is not required for this testing performed in a CLIA-certified laboratory (Clinical Laboratory Improvement Amendments) and intended for clinical use. [Indirect immunofluorescence, two antibodies on two substrates (IIF X 4)]

Enzyme-Linked Immunosorbent Assays (ELISA)

IgG BP180 and IgG BP230 serum antibody levels determined by U.S. Food and Drug Administration (FDA)-approved ELISAs (Mesacup, MBL

BION). [Two ELISAs]

Electronically signed by , MD, on
at .
Performed At:

Medical Director: , MD
CLIA Number:

EER Pemphigoid Antibody Panel

See Note

Authorized individuals can access the ARUP Enhanced Report using the following link:

https:

VERIFIED/REPORTED DATES

Procedure	Accession	Collected	Received	Verified/Reported
Pemphigoid Antibody Panel	22-173-115328			
EER Pemphigoid Antibody Panel	22-173-115328			

END OF CHART

H=High, L=Low, *=Abnormal, C=Critical