

Patient: [REDACTED]
DOB: [REDACTED] Age: [REDACTED] Sex: [REDACTED]
Patient Identifiers: [REDACTED]
Visit Number (FIN): [REDACTED]

Client: ARUP Example Report Only
500 Chipeta Way
Salt Lake City, UT 84108
Physician: [REDACTED]

ARUP Test Code: 0092566
Collection Date: 12/19/2023
Received in lab: 12/19/2023
Completion Date: 12/31/2023

Immunodermatology Serum Test Report Navigation Guide

The Immunodermatology TESTING REPORT from the University of Utah follows "See Note" and is arranged as outlined below on the following pages:

CLINICAL INFORMATION

This content is provided by the ordering clinician and includes the reason for testing.

Specimen Details

This includes specimen identification with collected and received dates.

DIAGNOSTIC INTERPRETATION

This is a synopsis of key findings from the testing and their diagnostic relevance.

RESULTS

This section reports the discrete finding and value of each test component, along with the reference range.

COMMENTS

Specific

These comments provide an explanation of the test results as they relate to clinical considerations, and include reference to any concurrent and/or previous testing.

General

These comments summarize fundamental information about the test(s) and the component(s) assessed to aid in interpretation of their clinical applicability.

TESTING METHODS

The section lists the procedures performed, the test source(s), and the applicable laboratory developed test disclaimer(s).

TEST RESULTS SUMMARY CHART

A chart tabulating results of tests ordered for the patient by the same client is included if previous and/or concurrent testing has been performed.

ELISA RESULTS GRAPH

A graph of ELISA results also is included if previous and/or concurrent testing has been performed; the graph may be found on a subsequent page.

For testing algorithm and additional information, refer to:
arupconsult.com/content/immunobullous-skin-diseases-screening



Patient: [REDACTED]
ARUP Accession: 23-353-111037



John J. Zone, MD - Co-Director
Kristin M. Leiferman, MD - Co-Director
Mazdak Khalighi, MD
Melanie K. Kuechle, MD

Department of Dermatology
Immunodermatology Laboratory

Immunodermatology.uofmedicine.org

417 S. Wakara Way, Suite 2151
Salt Lake City, UT 84108

Phone: 1-801-581-7139 or 1-866-266-5699
Fax: 1-801-585-5695

IMMUNODERMATOLOGY LABORATORY REPORT



Submitter

ARUP Sendouts

Bullous Pemphigoid (BP180 and BP230) Antibodies, IgG by ELISA (Final result)

TESTING REPORT follows "See Note"
See Note

CLINICAL INFORMATION

Urticarial plaques, blisters, and pruritus. Presumptive diagnosis is persisting bullous pemphigoid versus urticarial vasculitis versus contact dermatitis.

Specimen Details

; Collected: 12/19/2023; Received: 12/19/2023

DIAGNOSTIC INTERPRETATION

Bullous Pemphigoid (BP180 and BP230) IgG Antibodies monitoring, consistent with pemphigoid

(See Results, Comments, Test Results Summary Chart with previous and current findings, and Graph of ELISA results in the Enhanced Electronic Report/EELR and/or available upon request)

RESULTS

Enzyme-Linked Immunosorbent Assay (ELISA)

Bullous Pemphigoid (BP)180 and BP230 IgG Antibodies

Copy For:
IP16152

Printed: 12/31/2023 12:18 PM
Page: 1 of 6



Patient:
ARUP Accession: 23-353-111037

PCP: Unspecified

IgG BP180 antibody level: 64 U/mL (H)

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

(H) = high/positive

U = antibody level in ELISA units

COMMENTS

Specific

The increased IgG BP180 antibody level by ELISA in this testing provides support for the diagnosis of pemphigoid. Of note, up to 7 percent of individuals unaffected by pemphigoid, including some with other immunobullous diseases, have increased IgG BP180 and/or IgG BP230 antibody levels, although, generally, those patients who have a relatively high level of IgG BP180 antibodies, as observed in this specimen, are affected with pemphigoid. Previous ELISA testing demonstrated increased IgG BP180 antibody levels. See chart (below) for summary of previous and current test results; a graph of the ELISA results is available in the Enhanced Electronic Report/EELR and/or available upon request by contacting ARUP Client Services at 1-800-242-2787, option 2, and ask to speak with the Immunodermatology Laboratory at the University of Utah regarding patient results.

Additional considerations are that co-expression of IgG and IgA basement membrane zone antibodies may develop in patients with pemphigoid, which may have implications for disease severity and treatment approach, or that overlapping antibody expression develops to other basement membrane zone antigens that can be detected by ELISA for IgG type VII collagen antibodies.

If indicated to further evaluate the immunopathological profile with respect to basement membrane zone antibodies currently, additional testing may be performed on this specimen by contacting ARUP Client Services, 1-800-242-2787, option 2, with add-on test request(s) for:

- Basement Membrane Zone (Epithelial) Antibodies, IgG by IIF (ARUP test number 0092056) and
- Basement Membrane Zone (Epithelial) Antibodies, IgA by IIF (ARUP test number 0092057) with or without
- Collagen Type VII Antibody, IgG by ELISA (ARUP test number 2010905).

Copy For:
IP16152

Printed: 12/31/2023 12:18 PM
Page: 2 of 6



PCP: Unspecified

Detection, levels, and patterns of diagnostic antibodies may fluctuate with disease manifestations, and IgG BP180 antibody levels correlate with disease activity in some patients with pemphigoid. Clinical correlation is needed, including with treatment status. Monitoring serum antibody profiles by indirect immunofluorescence as well as continued monitoring of antibody levels by ELISAs may aid in assessing disease expression and activity, including response to therapy.

General

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; the non-collagenous 16A (NC16A) antigenic domain of BP180 has been identified as a main 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, which may be more sensitive than indirect immunofluorescence. 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 in the tested ELISAs. Type VII collagen is a component of anchoring fibrils within epithelial basement membrane zone (skin and mucous membranes) and is an antigenic target of IgG autoantibodies in patients with epidermolysis bullosa acquisita and in a subset of patients with bullous lupus erythematosus and, potentially, as overlapping basement membrane zone antibody expression in patients with other epithelial antibody-associated disease.

TESTING METHODS

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]

TEST RESULTS SUMMARY CHART

Basement Membrane Zone Antibodies

Serum Number	Date of Specimen	IgG BMZ Titers	IgA BMZ Titers	BP 180	BP 230	Col VII
--------------	------------------	----------------	----------------	--------	--------	---------

Copy For:
IP16152

Printed: 12/31/2023 12:18 PM
Page: 3 of 6



PCP: Unspecified

21-0001	09/01/21	IgG ME: NA IgG SS: NA	ME: NA SS: NA	96	0	NA
21-0002	11/30/21	IgG ME: NA IgG SS: NA	ME: NA SS: NA	70	1	NA
21-0003	12/15/21	IgG ME: NA IgG SS: NA	ME: NA SS: NA	79	4	NA
23-0001	12/19/23	IgG ME: NA IgG SS: NA	ME: NA SS: NA	64	3	NA

ELISA Reference Ranges:

IgG BP180 and IgG BP230 Antibody Levels

Normal (negative) = Less than 9 U/mL

Increased (H) (positive) = 9 U/mL and greater

IgG Type VII Collagen Antibody Level

Normal (negative) = Less than 7 U/mL

Slightly increased (H) (positive) = 7-8 U/mL

Increased (H) (positive) = 9 U/mL and greater

Chart Key:

IgG BMZ = IgG basement membrane zone (BMZ) antibodies by indirect immunofluorescence

IgA BMZ = IgA basement membrane zone (BMZ) antibodies by indirect immunofluorescence

ME = Antibody absence (negative) or antibody presence (positive endpoint titer) on monkey esophagus (ME) substrate

SS = Antibody absence (negative) or antibody presence (positive pattern and endpoint titer) on split skin (SS) substrate

Epi = epidermal localization (roof) on split skin substrate (IgG - pemphigoid including bullous pemphigoid, some mucous membrane pemphigoid, and other pemphigoid variants; IgA - linear IgA disease including linear IgA bullous dermatosis and chronic bullous disease of childhood)

Derm = dermal localization (floor) on split skin substrate (IgG - epidermolysis bullosa acquisita, bullous lupus erythematosus, anti-laminin-332 pemphigoid, anti-p200 (laminin gamma-1) pemphigoid, other rare pemphigoid subtypes; IgA - linear IgA disease including linear IgA epidermolysis bullosa acquisita)

Comb = combined epidermal-dermal localization (roof and

Copy For:
IP16152

Printed: 12/31/2023 12:18 PM
Page: 4 of 6



Patient: [REDACTED]

ARUP Accession: 23-353-111037

PCP: Unspecified

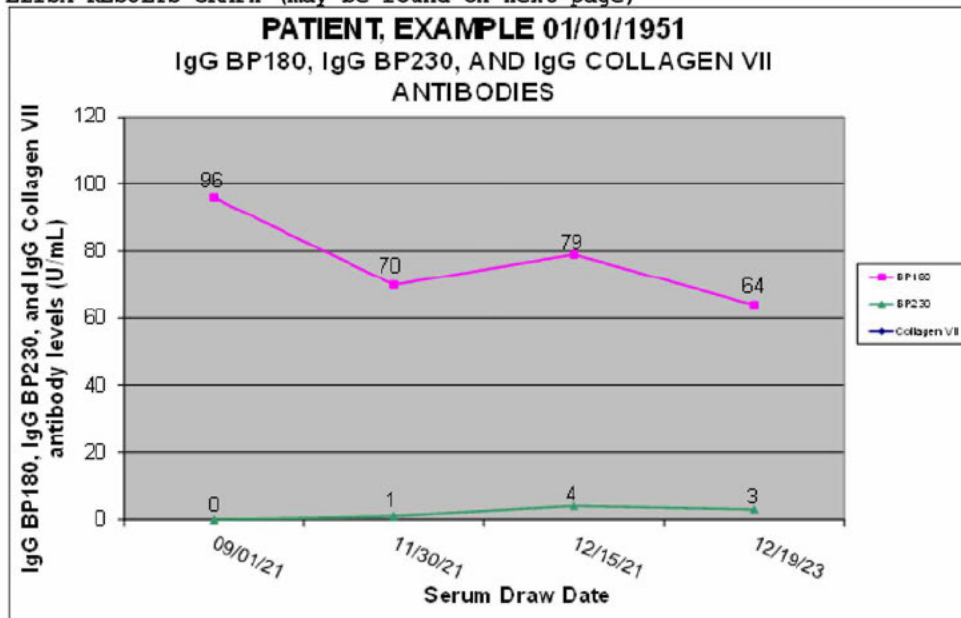
floor) on split skin substrate (IgG - pemphigoid and pemphigoid variants; IgA - linear IgA disease)

BP180 = IgG BP180 antibody level (U/mL) by ELISA
BP230 = IgG BP230 antibody level (U/mL) by ELISA
Col VII = IgG Collagen VII antibody level (U/mL) by ELISA

NA = Not Assayed

Electronically signed by [REDACTED] on 12/31/23 at 12:17 PM.

ELISA RESULTS GRAPH (may be found on next page)



Resulting Laboratory

IMMUNODERMATOLOGY LABORATORY
University of Utah
417 S. Wakara Way, Suite 2151

801-581-7139

Copy For:
IP16152

Printed: 12/31/2023 12:18 PM
Page: 5 of 6





PCP: Unspecified

Salt Lake City, UT 84108
Director: Kristin M. Leiferman, MD

Copy For:
IP16152

Printed: 12/31/2023 12:18 PM
Page: 6 of 6

