



LABORATORIES

Pemphigoid Gestationis, Complement-Fixing Basement Membrane Antibodies (Herpes Gestationis Factor)

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

Sex: [REDACTED]

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

ARUP Test Code: 0092283
Collection Date: 01/26/2024
Received in lab: 01/26/2024
Completion Date: 02/07/2024

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: Patient, Example
ARUP Accession: 24-026-122158

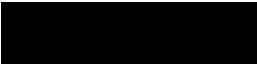


John J. Zone, MD - Co-Director
Kristin M. Leiferman, MD - Co-Director
Mazdak Khalighi, MD
Melanie K. Kuechle, MD

Department of Dermatology
Immunodermatology Laboratory
Immunodermatology.uofumedicine.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

Pemphigoid Gestationis, Complement-Fixing Basement Membrane Antibodies
(Herpes Gestationis Factor) (Final result)

TESTING REPORT follows "See Note"
See Note

CLINICAL INFORMATION

Pruritic, urticarial, and blistering lesions onset late second trimester of pregnancy. Presumptive diagnosis is pemphigoid gestationis versus other dermatosis of pregnancy.

Specimen Details

[Redacted] - ; Collected: 1/26/2024; Received: 1/29/2024

DIAGNOSTIC INTERPRETATION

Consistent with pemphigoid (herpes) gestationis; positive herpes gestationis factor (HGF), also known as complement-fixing basement membrane zone antibodies, and increased IgG BP180 antibody level by ELISA

(See Results and Comments including further testing considerations)

RESULTS

Indirect Immunofluorescence (IIF)

Herpes (Pemphigoid) Gestationis Factor (HGF), Complement-Fixing Basement Membrane Zone (BMZ) Antibodies

Copy For:
IP17112

Printed: 2/7/2024 1:39 PM
Page: 1 of 5



PCP: Unspecified

Positive, epidermal pattern (roof), titer 1:16 (H),
human split skin substrate with
complement
Positive, epidermal pattern (roof), titer 1:4 (H),
human split skin substrate without
complement

Reference Range:
Negative - Titer less than 1:2
Borderline - Titer 1:2
Positive (H) - Titer greater than 1:2

Basement Membrane Zone (BMZ) IgG Antibodies

IgG: Positive, epidermal pattern, titer 1:20 (H),
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, some types of 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

(H) = high/positive

Enzyme-Linked Immunosorbent Assay (ELISA)

Bullous Pemphigoid (BP)180 IgG Antibodies

IgG BP180 antibody level: 63 U/mL (H)

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

Copy For:
IP17112

Printed: 2/7/2024 1:39 PM
Page: 2 of 5



PCP: Unspecified

COMMENTS

Specific

The positive complement-fixing basement membrane zone antibodies detected in this serum specimen (so-called herpes gestationis factor or HGF) by indirect immunofluorescence, together with an increased IgG BP180 antibody level by ELISA, support the diagnosis of pemphigoid (herpes) gestationis. Approximately 25 percent of patients with pemphigoid gestationis have IgG basement membrane zone antibodies, as observed in this testing. This pattern of immunopathological reactivity can be observed in other types of pemphigoid, and IgA basement membrane zone antibodies may be co-expressed with IgG which can have implications for disease severity and treatment considerations. Moreover, positive celiac disease serologies have been identified in a subset of patients with pemphigoid gestationis (reference).

Clinical correlation is needed including with treatment status and with direct immunofluorescence findings on a biopsy specimen, typically demonstrating strong linear C3 basement membrane zone localization with weaker or absent linear IgG basement membrane zone antibody reactivity in patients with pemphigoid gestationis. If indicated to further evaluate the immunopathological profile, additional testing can be performed on this specimen by contacting ARUP Client Services at 1-800-242-2787, option 2, with add-on test request(s) for:

- Basement Membrane Zone (Epithelial) Antibodies, IgA by indirect immunofluorescence (ARUP test number 0092057),
- Celiac Disease Reflexive Cascade (ARUP test number 2008114), and
- Epidermal Transglutaminase (eTG/TG3) Antibody, IgA by ELISA (ARUP test number 2010902).

Detection, levels, and patterns of diagnostic antibodies generally fluctuate with disease manifestations, and IgG BP180 antibody levels correlate with disease activity in some patients with bullous pemphigoid but may remain increased in patients with pemphigoid gestationis even with disease remission/resolution. Monitoring serum antibody profiles by indirect immunofluorescence and antibody levels by ELISAs may aid in assessing disease expression and activity, particularly for persisting, progressing, or changing disease.

If it would be helpful to discuss the patient case with this report, contact 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.

Reference:

Saffari H, Zone JJ, Allen M, Leiferman KM. A subset of patients with pemphigoid (herpes) gestationis has serological evidence of celiac disease. *Int J Dermatol.* 2018 May;57(5):534-540. doi: 10.1111/ijd.13925.

Copy For:
IP17112

Printed: 2/7/2024 1:39 PM
Page: 3 of 5



██████████
PCP: Unspecified

Epub 2018 Feb 23. PMID: 29473148.
<https://pubmed.ncbi.nlm.nih.gov/29473148/>

General

Basement membrane zone antibodies with added complement are detected in more than 90 percent of patients with pemphigoid gestationis and without added complement in up to 25 percent of patients. Complement-fixing basement membrane zone antibodies detected by adding fresh serum complement to indirect immunofluorescence testing for herpes gestationis factor also may develop in conditions other than pemphigoid gestationis. IgG4 subclass reactivity by indirect immunofluorescence may be more sensitive than IgG in some patients with pemphigoid but are not the predominant IgG subclass in pemphigoid gestationis, rather it is IgG1.

A major molecular structure in the basement membrane zone to which IgG pemphigoid antibodies bind has 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). 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 for antibodies in patients with bullous pemphigoid and patients with pemphigoid gestationis. Serum levels of IgG BP180 antibodies, determined by ELISA, are in the negative range in normal individuals, and serum levels of IgG BP180 antibodies are increased in most patients with pemphigoid gestationis. IgG BP180 antibody levels by ELISA correlate with disease activity in some patients with bullous pemphigoid but may remain increased in patients with pemphigoid gestationis even with disease remission/resolution.

TESTING METHODS

Indirect Immunofluorescence (IIF)

Herpes (pemphigoid) gestationis factor (HGF), complement-fixing basement membrane zone (BMZ) antibodies with IgG BMZ antibodies

Patient serum is layered on substrate sections of human skin split at the basement membrane zone on microscope slides, at neat, 1:2, and progressively in two-fold serum dilutions to a maximum of 1:128, both with and without a fresh source of complement. The substrate sections on slides incubated with serum are then washed and reacted with fluorescein isothiocyanate (FITC)-conjugated antibody to C3. FITC-conjugated anti-IgG also is tested on the human split skin substrate sections with serum in two-fold dilutions from 1:5 to maximum of 1:40,960. The limiting-dilution, end-point titers and patterns of staining on split skin substrate are reported. This indirect immunofluorescence testing, including complement fixation, was developed, and its performance characteristics 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

Copy For:
IP17112

Printed: 2/7/2024 1:39 PM
Page: 4 of 5



Patient: ██████████
ARUP Accession: 24-026-122158

██████████
PCP: Unspecified

not required for this testing performed in a CLIA-certified laboratory (Clinical Laboratory Improvement Amendments) and intended for clinical use. [Indirect immunofluorescence assays, one antibody on one substrate, with and without complement, and one antibody on one substrate (IIF X 3) with two limiting-dilution, end-point titers (antibody titer X 2)]

Enzyme-Linked Immunosorbent Assay (ELISA)

IgG BP180 serum antibody level determined by U.S. Food and Drug Administration (FDA)-approved ELISA (Mesacup, MBL BION). [One ELISA]

Electronically signed by ██████████ on 02/07/24 at 1:24 PM.

Resulting Laboratory

IMMUNODERMATOLOGY LABORATORY 801-581-7139
University of Utah
417 S. Wakara Way, Suite 2151
Salt Lake City, UT 84108
Director: Kristin M. Leiferman, MD

Copy For:
IP17112

Printed: 2/7/2024 1:39 PM
Page: 5 of 5

