Client: Example Client ABC123
123 Test Drive
Salt Lake City, UT 84108
UNITED STATES

Physician: Doctor, Example

Patient: Patient, Example

DOB	11/25/1946
Gender:	Female
Patient Identifiers:	01234567890ABCD, 012345
Visit Number (FIN):	01234567890ABCD
Collection Date:	01/01/2017 12:34

Paraneoplastic Pemphigus Antibody Screen

ARUP test code 0092107

Paraneoplastic Pemphigus Ab Screen

See Note

```
IMMUNODERMATOLOGY REPORT


Specimen(s):
1. Serum specimen

Clinical/Diagnostic Information:
No clinical information provided.

_____________________________________________________________
DIAGNOSTIC INTERPRETATION

Probable paraneoplastic pemphigus

(See Results and Comments including further testing
considerations)
_____________________________________________________________

RESULTS
Indirect Immunofluorescence
---------------------------------------
Paraneoplastic Pemphigus IgG Antibodies

IgG:  Positive, titer 1:80 (H), rat bladder substrate
                (cell surface)
      Positive, titer 1:160 (H), rat bladder substrate
                (basement membrane zone)
      Positive, titer 1:40 (H), mouse bladder substrate
                (cell surface)
      Positive, titer 1:80 (H), mouse bladder substrate
                (basement membrane zone)
      Negative, mouse heart substrate
                (intercalating disks)
      Negative, mouse liver substrate
                (portal tracts)

      Negative, monkey esophagus substrate
                (cell surface and basement membrane zone)

      Reference Range:
        Positive - Titer greater than 1:5
        Borderline - Titer 1:5
        Negative - Titer less than 1:5

        (H = high/positive)

COMMENTS
Specific
------------------------------------------------------------
```

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

IgG antibodies reacting with rodent bladder substrates, as detected in this patient's serum, support the diagnosis of paraneoplastic pemphigus. Antibody staining of intercalating disks in rodent heart and portal tracts in rodent liver is supportive when antibody staining of rodent bladder substrate is present, but its absence does not rule out paraneoplastic pemphigus. The lack of IgG cell surface and basement membrane zone antibody reactivity on monkey esophagus substrate is not entirely consistent with the diagnosis of paraneoplastic pemphigus.

Clinical correlation is needed, including with direct immunofluorescence on a biopsy specimen, histopathological examination of formalin-fixed tissue, and other serum epithelial antibodies. Notably, various serum epithelial antibodies may be found in paraneoplastic pemphigus and other paraneoplastic presentations by various tests with differing sensitivities. Profiles and levels of epithelial antibodies may help define disease expression and activity, including response to therapy.

To further evaluate the immunopathological profile in this patients serum, additional testing may be performed on this specimen by add-on test request through ARUP Client Services, 1-800-242-2787, option 2, for:
- Pemphigus Antibody Panel (ARUP test number 0090650) or
- IgG desmoglein antibodies (ARUP test number 0090649); and/or
- IgA Pemphigus (IgA Cell Surface) Antibody (ARUP test number 0092106); and/or
- Basement Membrane Zone Antibody Panel (ARUP test number 3001410).

Or the test panel that includes all of the above:
- Immunobullous Disease Antibody Panel (ARUP test number 3001409).

If it would be helpful to discuss this patient's case with these results, 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.

General

Negative Paraneoplastic Pemphigus Antibody Screen testing results do not rule out paraneoplastic/malignancy-associated disease. Positive Paraneoplastic Pemphigus Antibody Screen testing results indicate the presence of serum antibodies to multiple epithelia (simple, columnar, transitional) and against desmoglein 1, 3; desmoplakin 1, 2; envoplakin; periplakin; and/or BP 230 and BP 180. For positive antibody screen testing results without known malignancy, perform aggressive evaluation for malignancy. For negative results, correlate with histopathological examination of formalin-fixed tissue in addition to direct immunofluorescence on a perilesional biopsy specimen and epithelial antibodies in serum characteristic of other immunobullous diseases.

TESTING METHODS
Indirect Immunofluorescence

Paraneoplastic Pemphigus IgG Antibodies

The patients serum is progressively diluted in calcium-containing buffer beginning at 1:5 in three two-fold screening dilutions, layered on rodent substrates including rat bladder, mouse bladder, mouse heart, and mouse liver and also on monkey esophagus substrate, and stained with fluorescein-conjugated anti-IgG using Analyte Specific Reagents (ASRs). When positive on rodent substrates, 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. These tests were developed and their performance characteristics

determined by the Immunodermatology Laboratory at the University of Utah. They have not been cleared or approved by the U.S. Food and Drug Administration. ASRs are used in many laboratory tests necessary for standard medical care and generally do not require FDA approval. These tests should not be regarded as investigational or for research only. [Immunofluorescence studies, one antibody on five substrates]

[redacted], MD
Immunodermatologist
Electronically signed 1/4/2020 7:11:39PM
Performed at: ARUP - University Hospital Laboratory 50 N. Medical Drive Salt Lake City UT 84132

VERIFIED/REPORTED DATES

Procedure	Accession	Collected	Received	Verified/Reported
Paraneoplastic Pemphigus Ab Screen	19-358-401309	12/20/2019 12:01:00 AM	12/26/2019 8:26:10 AM	1/6/2020 11:56:00 AM

END OF CHART

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