

## SUGGESTED BIOPSY SITES FOR DIRECT IMMUNOFLUORESCENCE AND SERUM STUDIES

### BULLOUS DISEASES: INDICATED DIRECT IMMUNOFLUORESCENT (DIF) AND SERUM STUDIES\*

#### SKIN LESIONS

**If pemphigoid or epidermolysis bullosa acquisita is suspected**, take skin biopsy with ~2/3 normal skin and ~1/3 edge of lesion. For best DIF results, take second biopsy ~3mm from lesion.

**If pemphigus is suspected**, take skin biopsy with ~2/3 normal skin and ~1/3 lesion edge plus serum for best diagnostic results. Also do IgG4 DIF. For best results take 2nd biopsy as for pemphigoid.

**If dermatitis herpetiformis is suspected**, take normal skin ~3 mm from lesion for best results.

**If porphyria or pseudoporphyria is suspected**, take skin biopsy with ~2/3 normal skin and ~1/3 lesion edge for best DIF results.

**If in doubt, take two biopsies** – one perilesional, as for pemphigoid, and one normal, as for DH, for best results.

**If eruptions with other non-disease specific immune deposits are suspected**, including lichenoid, psoriasiform or factitious lesions, or related disorders, take biopsy as for porphyria for DIF and lesional biopsy for light microscopy.\*

#### MUCOSAL LESIONS

**If pemphigoid is suspected**, take normal mucosa ~3 mm from lesion or Nikolsky sign. For best DIF results, take second biopsy 3-10mm from lesion.

**If pemphigus or paraneoplastic pemphigus is suspected**, take normal mucosa ~3 mm from lesion or Nikolsky sign **plus serum**. For best diagnostic results, take two biopsies as for pemphigoid.

**If erosive lichen planus (LP) is suspected**, take mucosal biopsy with ~2/3 normal mucosa and ~1/3 edge of lesion or of Nikolsky sign for best DIF results.

### HEREDITARY EPIDERMOLYSIS BULLOSA (EB)

If hereditary EB needs to be classified or confirmed, take biopsy of **induced** lesion in normal skin.

### CONNECTIVE TISSUE DISEASES: INDICATED DIRECT IMMUNOFLUORESCENT (DIF) AND SERUM STUDIES

**If SLE is suspected**, take biopsy of sun-exposed normal skin of forearm for DIF for LE band test and blood in red top tube for serum tests.

**If DLE is suspected**, take biopsy of lesion in sun-exposed area of 3 or more months duration for DIF and for light microscopy.\* Non-sun-exposed areas are of little value.

**If SCLE or Sjögren Syndrome is suspected**, take sun-exposed skin lesion biopsy for DIF for in vivo ANA and blood in red top tube for serum tests.

**If systemic sclerosis (SSc) is suspected**, take biopsy of sun-exposed skin for DIF and C+DIF studies and blood for serum tests.

### IMMUNE COMPLEX MEDIATED VASCULITIS: INDICATED DIRECT IMMUNOFLUORESCENT STUDIES\*

**If leukocytoclastic vasculitis is suspected**, (or most other immune complex vasculitides), take biopsy for DIF either of a fresh lesion, less than 48 hours old, or of the edge of a lesion plus adjacent normal skin.

**If Henoch Schoenlein purpura is suspected**, take biopsy of a fresh lesion (less than 48 hours old).

**If stasis dermatitis is suspected**, take biopsy for DIF of edge of skin lesion plus adjacent normal skin.

### MOLECULAR TESTING FOR T CELL NEOPLASMS

If T cell neoplasm is suspected, send (a) 3-5ml whole blood in EDTA, ACD or heparin tube, or (b) skin biopsy in RPMI media, or (c) 5 unstained skin section slides.

\* Additional/separate biopsy should be sent in formalin.

Light microscopic studies of lesional biopsy sites are indicated, in most cases of vesiculobullous, connective tissue disease, vascular disorders and T cell disorders.



Beutner  
Laboratories

(716) 838-0549 Phone  
(800) 288-0549 Toll Free  
(716) 838-0798 Fax  
www.beutnerlabs.com

## DATA ON SKIN AND MUCOSAL BIOPSIES

Interpretation of direct immunofluorescence (IF) of tissue specimens requires knowledge of the location of the biopsy relative to the clinical lesion. **FOR ALL DIRECT IF SPECIMENS, PLEASE FILL OUT THIS PANEL.**

Biopsy of:  skin  oral mucosa  conjunctiva  other

Specific location:

Lesional site: \_\_\_\_\_

Normal site: \_\_\_\_\_

Perilesional site: \_\_\_\_\_

For Lupus:  sun exposed  sun protected

If applicable please draw the biopsy site as it relates to the lesion.



See "Suggested biopsy sites" for major bullous and collagen-vascular diseases on panels to the left.

Fixative used:  Beutner Labs  Other: \_\_\_\_\_  
(Biopsies in formalin can NOT be used for DIF.)

Clinical diagnoses: \_\_\_\_\_

ICD-10 Code (Required): \_\_\_\_\_

Clinical findings: \_\_\_\_\_

Therapy: \_\_\_\_\_

ANA titer \_\_\_\_\_

Anti Ro(SS-A)/La(SS-B): \_\_\_\_\_ ANA pattern \_\_\_\_\_

**REQUEST KITS FREE OF CHARGE AT  
1-800-288-0549 OR INDICATE BELOW OR  
ORDER AT WWW.BEUTNERLABS.COM**

**BIOPSY  
KITS**

# \_\_\_\_\_

**SERUM  
KITS**

# \_\_\_\_\_

**4-TUBE  
KITS**

# \_\_\_\_\_

Beutner Labs. complies with the Health Insurance Portability and Accounting Act (HIPAA). The information provided herein will remain strictly confidential. For a copy of Beutner's Labs' Policy, please contact customer service.



Beutner  
Laboratories

3580 Harlem Road  
Buffalo, NY 14215  
(716) 838-0549 Phone  
(800) 288-0549 Toll Free  
(716) 838-0798 Fax  
www.beutnerlabs.com

### TEST REQUEST FORM

**PLEASE COMPLETE ALL ITEMS  
TYPE OR PRINT PER HIPAA REGULATIONS**

Patient Last Name \_\_\_\_\_

First Name \_\_\_\_\_ MI \_\_\_\_\_

**Parent Name** (if patient is a minor) \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

DOB (M/D/Y) \_\_\_\_\_ Age: \_\_\_\_\_ Sex:  M  F

**DATE OF SPECIMEN**  
(Required by State and Federal Law)

Please Bill:  Insurance  Patient  Lab  Doctor

I accept responsibility for bills related to the testing of my specimen:

**PATIENT SIGNATURE**

**HEALTH INSURANCE INFORMATION REQUIRED  
COPIES OF INSURANCE CARDS, FRONT AND BACK**

Inpatient  Outpatient **If Inpatient, please complete:**

Facility \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Admin Date \_\_\_\_\_ MR/Lab # \_\_\_\_\_

Insurance Company \_\_\_\_\_

Policy # \_\_\_\_\_ Group # \_\_\_\_\_

Authorization # (if insurance requires) \_\_\_\_\_

**Requesting Doctor**

Specialty \_\_\_\_\_ **NPI #** \_\_\_\_\_

Group Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Doctor's Email \_\_\_\_\_

Doctor's Phone ( ) \_\_\_\_\_

HIPAA Fax ( ) \_\_\_\_\_

**PHYSICIAN SIGNATURE**

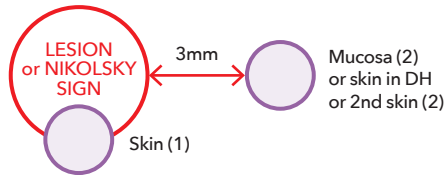
**\*Required by CMS**

## BULLOUS DISEASES

### SKIN AND MUCOSAL BIOPSY STUDIES

- 001  Direct immunofluorescence (DIF) for IgG, IgA, IgM, fibrin and C3. If needed, IgG4 and/or IgG1 are also added for greater sensitivity.
- 002  Differentiation of bullous pemphigoid from epidermolysis bullosa acquisita by DIF of 1 M NaCl split biopsy (with no vesicles)
- 003  Light microscopy (H&E)
- 004  Light microscopy (H&E) - consult only

#### BLISTERING AND OTHER ERUPTIONS



Please fill in data on back of form. See back of form for abbreviations.

- (1) Skin biopsy in most pemphigus/pemphigoid cases.
- (2) Mucosal biopsy or skin biopsy for DH or 2nd skin biopsy for pemphigus or pemphigoid cases.

### SERUM STUDIES

- 014  Split skin, pemphigoid/epidermolysis bullosa acquisita (EBA) differentiation by IgG & IgG4 indirect IF (Split-IIF)
- 015  Desmoglein (Dsg3 and Dsg1) ELISA
- 016  BP230 (BPAG1) and BP180 (BPAG2) ELISA
- 017  Paraneoplastic pemphigus antibody titer (on rat bladder) (PPA-IIF)
- 009  Envoplakin antibodies (ELISA)
- 018  Pemphigus antibody titer prognostic test comparing old and new sera for IgG and IgG4 (Monkey esophagus-IIF)
- 023  Collagen VII antibodies (ELISA)
- 024  IgA split skin - IIF, linear IgA bullous dermatosis (LABD)

NOTE: SERUM STUDIES AND PROFILES REQUIRE A MINIMUM OF 2-5ml OF SERUM



Beutner  
Laboratories

(716) 838-0549 Phone  
(800) 288-0549 Toll Free  
(716) 838-0798 Fax  
www.beutnerlabs.com

### SERUM PANELS

#### BASIC PEMPHIGUS - PEMPHIGOID SCREEN

- 013  Monkey esophagus for IgG and IgG4 antibodies by indirect immunofluorescence (IIF)  
Do other profiles if positive?  Yes  No

#### PEMPHIGUS

- 025  Monkey esophagus for IgG and IgG4 antibodies by IIF and Dsg 3/1 ELISA

#### PARANEOPLASTIC PEMPHIGUS

- 026  Monkey esophagus for IgG, IgG1 & IgG4 antibodies by IIF plus IIF on rat bladder and Dsg3/1 ELISA and envoplakin ELISA

#### PEMPHIGOID

- 027  Monkey esophagus and split skin for IgG & IgG4 antibodies by IIF and BP180 plus BP230 ELISA, or Collagen VII antibodies by ELISA, or Laminin 332 by IIF

#### EBA/BULLOUS LE

- 061  Monkey Esophagus, Split Skin for IgG and IgG4 by IIF and Collagen VII antibodies by ELISA

#### LAMININ 332 PEMPHIGOID

- 062  Monkey Esophagus, Split Skin for IgG and IgG4, and Laminin 332 (Laminin 5 or epiligrin) antibodies by IIF

#### DERMATITIS HERPETIFORMIS & CELIAC DISEASE

- 020  IgA/IgG anti endomysial antibodies (AEma-IIF)
- 022  IgA epidermal transglutaminase antibodies (eTG-ELISA)
- 053  IgA/IgG Tissue Transglutaminase fluoroenzyme immunoassay (tTG-FEIA)
- 054  IgA/IgG Deaminated Gliadin fluoroenzyme immunoassay (DGP-FEIA)
- 055  Comprehensive Panel (020,022,053,054)

#### HEREDITARY EPIDERMOLYSIS BULLOSA

- 011  IF mapping of pencil eraser induced clefts in normal skin away from lesions for hereditary epidermolysis bullosa (EB):  
(a) Primary screen for collagen type VII, collagen type IV, & keratin 14 to check for suitable biopsy  
(b) For suitable biopsies, test for collagen XVII, alpha6 integrin, beta4 integrin, laminin 332 and plectin to differentiate dystrophic EB and junctional EB from EB simplex
- 003  Light microscopy for hereditary EB of an intact, spontaneous vesicle or a freshly induced perilesional cleft for diagnosis of HEREDITARY EB

#### MOLECULAR STUDIES (SERUM/BIOPSY)

##### T CELL NEOPLASMS

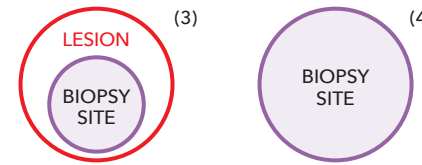
- 048  Gamma receptor rearrangement
- 049  Profile (gamma and beta receptor rearrangement)

## LUPUS ERYTHEMATOSUS, CONNECTIVE TISSUE & VASCULAR DISEASE

### SKIN AND MUCOSAL BIOPSIES

- 005  Direct immunofluorescence for SLE, DLE & SCLE with tests for IgG, IgA, IgM, fibrin and C3
- 007  Direct immunofluorescence for dermatomyositis with tests for IgG, IgA, IgM, fibrin, C3 and C5b-9
- 006  Direct immunofluorescence for vasculitis with tests for IgG, IgA, IgM, fibrin and C3
- 003  Light microscopy (H&E) to rule out LE\*
- 004  Light microscopy (H&E) - consult only

#### COLLAGEN VASCULAR DISEASES



Please fill in data on back of form. See back of form for abbreviations.

- (3) Sun exposed skin biopsy in most LE cases.  
Skin biopsy to rule out Henoch Schoenlein purpura and vasculitis (lesion less than 48 hours old)
- (4) Skin biopsy to rule out SLE

\* All positives are titrated.

### CHRONIC ULCERATIVE STOMATITIS

- 033  Stratified epithelium specific ANA (SES-ANA), Monkey esophagus, and ANA (HEp-2)

### DIAGNOSTIC IMMUNOLOGY

#### SARS-CoV-2 (COVID-19)

- 050  **COVID-19 Immune Index™ – IgG, IgM, IgA Antibody Testing by CLIA Correlated with Virus Neutralization**  
For assessment of antibodies induced by natural infection or vaccination
- 051  **SARS-CoV-2 Total Nucleocapsid Antibody (IgG, IgA, IgM)**  
For assessment of antibodies induced by natural infection
- 052  **SARS-CoV-2 Comprehensive Antibody Profile**  
Includes 050 and 051

## SYSTEMIC CONNECTIVE TISSUE DISEASE SERUM STUDY PANELS

### ANA SCREEN

- 042  ANA titer and pattern on Hep-2 cells (IIF)

### SLE PANEL

- 043  ANA titer and pattern on Hep-2 cells (IIF), antibodies to dsDNA, Ro (SS-A), La (SS-B), Sm, U1RNP, RNP70, Ribo P fluoroenzyme immunoassay (FEIA)

### MIXED CONNECTIVE DISEASE PANEL

- 044  ANA titer and pattern on Hep-2 cells (IIF), Sm, U1RNP, RNP70, Jo-1 and Scl-70 fluoroenzyme immunoassay (FEIA)

### SJÖGREN SYNDROME PANEL

- 045  ANA titer and pattern on Hep-2 cells (IIF), Rheumatoid Factor, Ro (SS-A), La (SS-B), CENP fluoroenzyme immunoassay (FEIA)

### DRUG INDUCED LUPUS PANEL

- 046  ANA titer and pattern on Hep-2 cells (IIF), antibodies to dsDNA, Ro (SS-A), La (SS-B), Sm, fluoroenzyme immunoassay (FEIA), Histone (ELISA)

### SYSTEMIC SCLEROSIS PANEL

- 047  ANA titer and pattern on Hep-2 cells (IIF), U1RNP, RNP70, Scl-70, CENP, RNA Polymerase III, fluoroenzyme immunoassay (FEIA)

## ADDITIONAL DISEASE PANELS

### RHEUMATOID ARTHRITIS

- 056  Cyclic citrullinated peptide (CCP), Rheumatoid Factor (RF) fluoroenzyme immunoassay (FEIA)

### VASCULITIS

- 057  Anti-Neutrophil Cytoplasmic Antibody (ANCA- IIF), Myeloperoxidase Ab (MPO), Proteinase 3 Ab (PR3) fluoroenzyme immunoassay (FEIA)

### GOODPASTURE SYNDROME

- 058  Glomerular Basement Membrane Antibody (GBM) fluoroenzyme immunoassay (FEIA)

### ANTIPHOSPHOLIPID SYNDROME (APS)

- 059  Cardiolipin IgG/IgA/IgM, Beta-2 Glycoprotein 1 IgG/IgA/IgM fluoroenzyme immunoassay (FEIA)

### AUTOIMMUNE THYROID DISEASE

- 060  Thyroglobulin (Tg) and Thyroid Peroxidase (TPO) fluoroenzyme immunoassay (FEIA)