



IMMUNOFLUORESCENCE

Immune-mediated diseases of the skin and other epithelial organs are caused by or associated with the deposition of specific antibodies on cutaneous structures. Their diagnosis is aided by specific immunofluorescence testing.

Immunofluorescence allows the imaging of a particular factor in cells or tissue sections through the use of a specific antibody that is conjugated with a fluorescent dye.

- **Direct immunofluorescence staining (DIF)** has a primary antibody labeled with a fluorescence dye.
- **Indirect immunofluorescence staining (IIF)** has a secondary antibody labeled with a fluorochrome used to recognize a primary antibody.

DIF is a one-step procedure for detecting in-vivo deposition of immunoglobulins, complement components, and fibrinogen in a patient's skin. A linear pattern of immunoglobulin and/or complement deposition at the cutaneous basement membrane zone is a characteristic feature in a number of acquired bullous diseases and is occasionally observed in systemic lupus erythematosus. A positive **DIF** is critical for the diagnosis of:

- Pemphigus
- Pemphigoid
- Linear IgA bullous dermatoses
- Dermatitis herpetiformis
- Epidermolysis bullosa acquisita
- Discoid and systemic lupus erythematosus
- IgA vasculitis/Henoch-Schonlein purpura.

It may also be helpful in the diagnosis of lichen planus, porphyria, and amyloidosis.

IIF is a two-step procedure for demonstrating circulating autoantibodies in a patient's serum. It is most useful in the diagnosis and management of patients with the pemphigus and pemphigoid group of diseases. Autoantibodies may be present in normal individuals, usually in low titers and/or levels. Clinical correlation is needed to determine the significance of this finding.

Sometimes, more advanced techniques may be necessary to establish the diagnosis such as split skin immunoblotting, immunoelectron-microscopy, and enzyme-linked immunosorbent assay (ELISA). While **DIF** and **IIF** are routinely and widely performed, advanced techniques require significant expertise and are only carried out in specialized centers, or as part of research protocols.

Vesna Petronic-Rosic, MD, MSc
Chicago, IL, USA