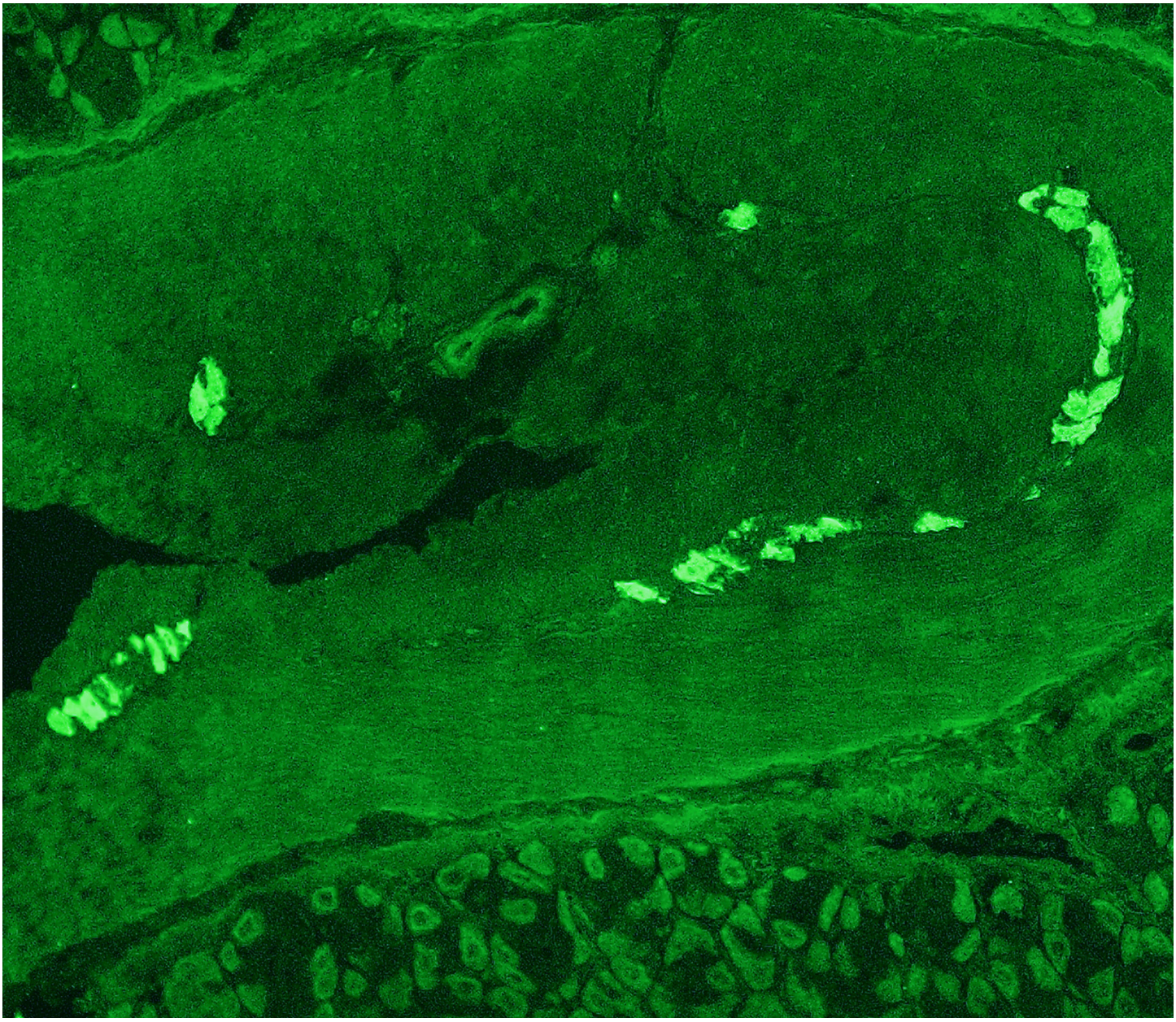
MAYO CLINIC
LABORATORIES

AUTOIMMUNE GASTROINTESTINAL DYSMOTILITY

TARGETED EVALUATIONS FOR IDIOPATHIC GASTROINTESTINAL MOTILITY DISORDERS



WHAT IS AUTOIMMUNE GI DYSMOTILITY?

Autoimmune gastrointestinal dysmotility (AGID) is a limited manifestation of autoimmune dysautonomia that occurs as an idiopathic phenomenon. Signs and symptoms include early satiety, nausea, vomiting, bloating, diarrhea, constipation, and involuntary weight loss. The onset may be subacute, and neurological manifestations may or may not be an accompaniment.

IMPROVING PATIENT OUTCOMES

Identifying GI dysmotility as autoimmune-mediated is extremely important because patients treated with immunotherapy can see a dramatic improvement, going from persistent nausea, vomiting, and weight loss to feeling normal within a few weeks.

74%

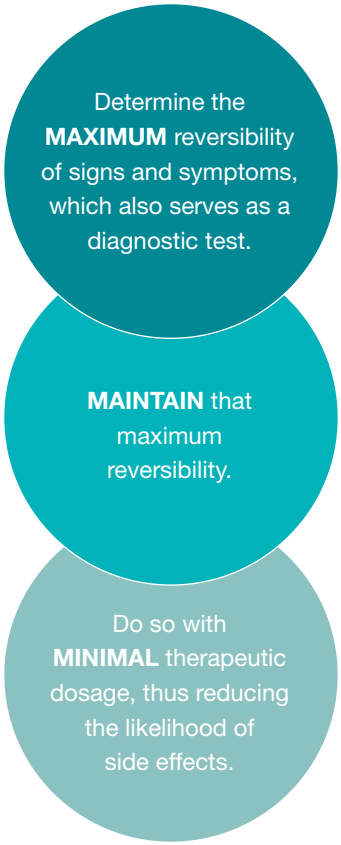
In a Mayo Clinic study of 23 patients with suspected AGID treated with immunotherapy, 74% experienced clinical improvement and 71% tested positive for a neural specific antibody.

IMPORTANCE OF INTERPRETATION WITHIN A CLINICAL CONTEXT

Since the levels of antibodies can be quite low—and low levels may also be seen in healthy people—the interpretation of the antibody testing needs to be done carefully and within a patient's clinical context. Mayo Clinic's standardized approach to autoimmune neurological conditions is based on three M's (see right).

Antibody testing is important because:

- Many antibodies in the panel have implications for cancer, and a positive result may guide a search for underlying malignancies.
- A patient may have an immune therapy-responsive condition that doesn't respond to intravenous immunoglobulin. However, a positive antibody test showing likelihood of an immune-mediated disorder can lead the clinician to be more aggressive in treatment.
- Depending on the antibody present, some patients may go on to develop encephalopathy or seizures, which are treatable, reversible conditions.



SIGNS TO HELP IDENTIFY PATIENTS WITH AGID

- Co-existing autoimmune conditions such as lupus, Sjogren's syndrome, or thyroid disease.
- Proven GI dysmotility that is more diffuse. Involves stomach, small bowel, and colon. Not just a focal gastroparesis, focal colonic dysmotility, or focal esophageal dysmotility.
- Other autonomic dysfunction (abnormal autonomic reflex test or thermoregulation sweat test).
- Subacute, new onset of disorder with a preceding viral prodrome (fever, headache, lethargy, and myalgias) in a patient aged 20 to 60.

The more of these signs are present, the more likely the patient has AGID and the greater the need to test.

CLINICALLY SIGNIFICANT BIOMARKERS FOR AGID

Antibodies, particularly those targeting onconeural proteins shared by neurons, muscles, and certain cancers, are valuable serological markers of a patient's immune response to cancer. They are usually accompanied by subacute symptoms and signs.

Three classes of antibodies are recognized as potential effectors of AGID:

1. Antineuronal nuclear autoantibody-type 1
2. Neuronal and muscle cytoplasm
3. Plasma membrane cation

FEATURED TEST

GID2 | Autoimmune Gastrointestinal Dysmotility Evaluation, Serum

ANTIBODIES INCLUDED* IN THE EVALUATION AND THEIR ONCOLOGICAL ASSOCIATION

ANTIBODY	ONCOLOGICAL ASSOCIATION	APPROX. FREQUENCY OF CANCER
AChR Binding	Thymoma, lung, breast, gynecologic, or prostate carcinoma	<15%
AChR Ganglionic	Miscellaneous carcinomas, thymoma	<15%
ANNA-1 (Hu)**	Small-cell lung carcinoma, neuroblastoma, thymoma	90%
DPPX	B-cell neoplasia	<20%
GAD65**	Occasionally (e.g., thymoma)	<10%
VGKC-Complex	No specific oncological association	<10%
N-Type Calcium Channel	Lung, breast, or gynecologic carcinoma	15%
Striational**	Thymoma	15%

Abbreviations:
- AChR: acetylcholine receptor
- ANNA: antineuronal nuclear antibody
- DPPX: dipeptidyl-peptidase-like protein 6
- GAD65: glutamic acid decarboxylase-65

*Based on antibody findings, the panel may reflex to additional antibody testing if required to confirm or further explain a diagnosis.

**Positive predictive value for neurological autoimmunity varies based on antibody titer.

*** VGKC-complex positive cases are reflexed to LGI1 and CASPR2 antibody evaluation. The detection of the VGKC-complex antibodies in isolation does not define an autoimmune neurological disorder.

A HISTORY OF INNOVATION AND DISCOVERY

Recognized as a world leader in the diagnosis and treatment of autoimmune neurologic disorders and demyelinating disease, Mayo Clinic mounts unmatched resources for uncovering novel syndromes and developing new diagnostic biomarkers and unique laboratory tests.

The Mayo Clinic Neuroimmunology Laboratory was the first to introduce comprehensive serological evaluations for the following diagnoses:

- Paraneoplastic neurologic autoimmune disorders: a group of disorders in which unusual neurological signs and symptoms are the initial manifestations of cancer.
- Autoimmune GI dysmotility: a limited manifestation of autoimmune dysautonomia that occurs as an idiopathic phenomenon.

The laboratory continues to discover and clinically validate novel autoantibody profiles that inform neurological decision-making and guide the search for cancer.

Vanda Lennon, M.D., Ph.D., is the founder of the Neuroimmunology Laboratory. She is also the Dorothy A. Adair Professor in the Department of Laboratory Medicine and Pathology, Neurology, and Immunology at the College of Medicine at Mayo Clinic.

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