

Diagnosis of alpha-gal syndrome, summary

Different allergies to mammalian meat have different features. If you experience symptoms after eating mammalian meat, in most cases, your primary care physician or allergist should be able to determine whether you have alpha-gal syndrome; pork-cat syndrome; primary beef allergy; "traditional" cow's milk allergy or a different health issue based on a combination of your clinical history and test results. If not, allergists at referral centers like UNC and UVA have experience diagnosing less straightforward cases.

Doctors typically diagnose alpha-gal syndrome through a combination of clinical history and tests, including:

- History of allergic reactions to mammalian meat, including symptoms, timing of symptoms, and age of onset
- History of exposure to ticks, including the presence or absence of persistent, localized reactions to tick bites
- A blood test for galactose-alpha-1,3-galactose (alpha-gal) specific IgE (sIgE)
- Responsiveness to dietary changes

The alpha-gal IgE test

- Quest Galactose-alpha-1,3-galactose (Alpha-gal) IgE Test Code: 10554
- Labcorp Galactose-alpha-1,3-galactose (Alpha-gal) IgE Test Code: 650001

Other tests

- **Total IgE** is sometimes checked, as some cases are non-atopic and have low total IgE and the ratio of alpha-gal IgE to total IgE is clinically significant.
- **Alpha-gal panel:** Sometimes healthcare providers order the alpha-gal IgE test as part of an Alpha-gal Panel that includes tests for beef, pork, and lamb as well. The advantage of ordering these additional tests is that they can be helpful for figuring out whether a patient has a mammalian meat allergy other than AGS when the test for alpha-gal IgE is negative. The disadvantages of the panel are that the panel is considerably more expensive than the test for alpha-gal IgE alone and that the results can lead to confusion.
- **Skin prick tests** with commercial extracts of beef or pork and are frequently negative or borderline positive. They are unreliable and not recommended for the diagnosis of alpha-gal syndrome.
- **Prick-to-prick (prick-prick) skin testing** using raw or cooked meats/organs are also used in some cases. Please see [Diagnosis & management of alpha-gal syndrome: lessons from 2,500 patients](#) for more information about this method.

- **Intradermal (ID) testing** with meat extracts or gelatin-derived medical products are sometimes used in the diagnostic process, especially when blood tests are negative but there is a history of delayed reactions after ingestion of mammalian meat. Some studies suggest ID testing with gelatin is more reliable than ID testing with meat extracts. However, intradermal testing involves risks and few clinics perform these tests.
- **Food challenges:** occasionally, food challenges are used in diagnosis of AGS. Food challenges need to be conducted with the utmost care, because of the delayed and unpredictable nature and severity of allergic reactions to alpha-gal. Commins reports that 15-20% of food challenge reactions in patients with AGS require one or more doses of epinephrine and/or emergency medical transport. In [Diagnosis & management of alpha-gal syndrome: lessons from 2,500 patients](#) Commins describes the limited set of circumstances in which alpha-gal food challenges are clinically appropriate (2) and makes recommendations as to how to conduct them.

Negative alpha-gal IgE tests

Commins describes a multi-step protocol used by a referral center for diagnosing the 2% of patients with a history of reactions to mammalian products who test negative for alpha-gal IgE (2). This is detailed in [Diagnosis & management of alpha-gal syndrome: lessons from 2,500 patients](#) and can include:

- The assessment of surrogate markers (beef, pork, lamb) by skin and serum IgE testing
- Testing for cat serum albumin (Fel d 2) to identify patients with pork-cat syndrome
- Testing for IgE to both porcine and bovine gelatin
- Skin testing using alpha-gal-containing biologics such as cetuximab
- Basophil activation testing

This approach has led to diagnostic clarification in 78% of patients with seronegative testing who report compelling symptoms.

ICD code

Z91.014 – Allergy to mammalian meat.

Sources:

This summary is derived from Diagnosis and Testing: A Patient Guide to the Diagnosis of Alpha-gal Syndrome <https://alphagalinformation.org/diagnosis-and-testing/>

Key sources include:

Commins SP. Diagnosis & management of alpha-gal syndrome: lessons from 2,500 patients. *Expert Rev Clin Immunol*. 2020;16(7):667-677.

Platts-Mills TAE, Li RC, Keshavarz B, Smith AR, Wilson JM. Diagnosis and Management of Patients with the α -Gal Syndrome. *J Allergy Clin Immunol Pract*. 2020;8(1):15-23.e1.