

## For Public Health Officials

- At the 2021 annual meeting, the Council of State and Territorial Epidemiologists (CSTE) approved a position statement standardizing a case definition for alpha-gal syndrome (AGS).
- The case definition is for surveillance purposes only and does not replace a clinical diagnosis by a healthcare provider.
- A standard surveillance case definition provides consistent laboratory and clinical criteria to ensure that data captured across multiple jurisdictions are comparable.
- AGS is not a nationally notifiable condition.
- States and local jurisdictions are encouraged, but not required to share information on AGS with members of CDC's Rickettsial Zoonoses Branch to better understand national trends.

[Surveillance case definition](#)  [\[PDF – 12 pages\]](#) 

## Alpha-gal testing

- The main diagnostic test for AGS is a blood test looking for immunoglobulin-E antibodies specific to alpha-gal (alpha-gal sIgE).
  - Tests for alpha-gal sIgE antibodies are available at several large commercial laboratories and may be available at certain academic institutions.
  - LOINC Code: 73837-7 Galactose-alpha-1,3-galactose (Alpha-Gal) IgE Ab [Units/volume] in Serum.
- Skin tests documenting reaction to certain allergens (such as pork or beef) may also be used to diagnose AGS.

## Additional resources

Recent publications on alpha-gal syndrome:

- Binder AM, Commins SP, Altrich ML, Wachs T, Biggerstaff BJ, Beard CB, Petersen LR, Kersh GJ, Armstrong PA. [Diagnostic testing for galactose-alpha-1,3-galactose, United States, 2010 to 2018.](#)  *Ann Allergy Asthma Immunol.* 2021 Apr;126(4):411-416.e1.
- Chung CH, Mirakhur B, Chan E, et al. [Cetuximab-induced anaphylaxis and IgE specific for galactose-alpha-1,3-galactose.](#)  *N Engl J Med* 2008;358(11):1109–17.
- Commins SP, Satinover SM, Hosen J, et al. [Delayed anaphylaxis, angioedema, or urticaria after consumption of red meat in patients with IgE antibodies specific for galactose- \$\alpha\$ -1,3-galactose.](#)  *Journal of Allergy and Clinical Immunology* 2009;123(2):426-433.e2.
- Commins SP, James HR, Kelly LA, et al. [The relevance of tick bites to the production of IgE antibodies to the mammalian oligosaccharide galactose- \$\alpha\$ -1,3-galactose](#)  *J Allergy Clin Immunol* 2011;127(5):1286-1293.e6.
- Commins SP, Jerath MR, Cox K, Erickson LD, Platts-Mills T. [Delayed anaphylaxis to alpha-gal, an oligosaccharide in mammalian meat.](#)  *Allergology International* 2016;65(1):16–20.
- Crispell G, Commins SP, Archer-Hartman SA, et al. [Discovery of Alpha-Gal-Containing Antigens in North American Tick Species Believed to Induce Red Meat Allergy.](#)  *Front Immunol* 2019;10:1056.
- [FDA Approves First-of-its-Kind Intentional Genomic Alteration in Line of Domestic Pigs for Both Human Food, Potential Therapeutic Uses](#)  , Press Release U.S. Food and Drug Administration, December 14, 2020.
- Hashizume H, Fujiyama T, Umayahara T, Kageyama R, Walls AF, Satoh T. [Repeated \*Amblyomma testudinarium\* tick bites are associated with increased galactose- \$\alpha\$ -1,3-galactose carbohydrate IgE antibody levels: A retrospective cohort study in a single institution.](#)  *J Am Acad Dermatol* 2018;78(6):1135-1141.e3.
- Hilger C, Fischer J, Wölbing F, Biedermann T. [Role and Mechanism of Galactose-Alpha-1,3-Galactose in the Elicitation of Delayed Anaphylactic Reactions to Red Meat.](#)  [\[PDF – 11 pages\]](#)  *Curr Allergy Asthma Rep* 2019;19(1):3.

- Kim MS, Straesser MD, Keshavarz B, et al. [IgE to galactose- \$\alpha\$ -1,3-galactose wanes over time in patients who avoid tick bites.](#) [J Allergy Clin Immunol Pract](#) 2020;8(1):364-367.e2.
- Mabelane T, Basera W, Botha M, Thomas HF, Ramjith J, Levin ME. [Predictive values of alpha-gal IgE levels and alpha-gal IgE: Total IgE ratio and oral food challenge-proven meat allergy in a population with a high prevalence of reported red meat allergy.](#) [Pediatr Allergy Immunol](#) 2018;29(8):841–9.
- Mitchell CL, Lin F-C, Vaughn M, Apperson CS, Meshnick SR, Commins SP. [Association between lone star tick bites and increased alpha-gal sensitization: evidence from a prospective cohort of outdoor workers.](#) [Parasites Vectors](#) 2020;13(1):470.
- Platts-Mills TAE, Li R, Keshavarz B, Smith AR, Wilson JM. [Diagnosis and Management of Patients with the  \$\alpha\$ -Gal Syndrome.](#) [The Journal of Allergy and Clinical Immunology: In Practice](#) 2020;8(1):15-23.e1.
- Wilson JM, Schuyler AJ, Workman L, et al. [Investigation into the  \$\alpha\$ -Gal Syndrome: Characteristics of 261 Children and Adults Reporting Red Meat Allergy.](#) [The Journal of Allergy and Clinical Immunology: In Practice](#) 2019;7(7):2348-2358.e4.
- Young I, Prematunge C, Pussegoda K, Corrin T, Waddell L. [Tick exposures and alpha-gal syndrome: A systematic review of the evidence.](#) [Ticks and Tick-borne Diseases](#) 2021;12(3):101674.

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