



# HHS Public Access

Author manuscript

*J Allergy Clin Immunol.* Author manuscript; available in PMC 2019 May 01.

Published in final edited form as:

*J Allergy Clin Immunol.* 2018 May ; 141(5): 1957–1958. doi:10.1016/j.jaci.2017.08.048.

## Correspondence

**Cosby A. Stone Jr, MD, MPH<sup>a</sup>, Jonathan A. Hemler, MD<sup>b</sup>, Scott P. Commins, MD, PhD<sup>c</sup>, Alexander J. Schuyler, BS, BA<sup>d</sup>, Elizabeth J. Phillips, MD<sup>e,f,g,h</sup>, R. Stokes Peebles Jr, MD<sup>a,g,i</sup>, and John M. Fahrenholz, MD<sup>a,i</sup>**

<sup>a</sup>Division of Allergy, Pulmonary and Critical Care Medicine, Department of Medicine, Vanderbilt University Medical Center, Nashville, Tenn

<sup>b</sup>Division of Allergy, Immunology and Pulmonary Medicine, Department of Pediatrics, Vanderbilt University Medical Center, Nashville, Tenn

<sup>c</sup>Division of Rheumatology, Allergy & Immunology, Department of Medicine, University of North Carolina School of Medicine, Chapel Hill, NC

<sup>d</sup>Asthma and Allergic Disease Center, Carter Immunology Center, Department of Medicine, University of Virginia Health System, Charlottesville, Va

<sup>e</sup>Division of Infectious Diseases, Department of Medicine, Vanderbilt University Medical Center, Vanderbilt University School of Medicine, Nashville, Tenn

<sup>f</sup>Department of Pharmacology, Vanderbilt University School of Medicine, Nashville, Tenn

<sup>g</sup>Department of Pathology, Microbiology and Immunology, Vanderbilt University School of Medicine, Nashville, Tenn

<sup>h</sup>Institute for Immunology & Infectious Diseases, Murdoch University, Murdoch, Western Australia, Australia

<sup>i</sup>Allergy and Immunology Section, Medical Service, Veterans Administration Medical Center, Tennessee Valley Healthcare System, Nashville, Tenn.

---

## Reply

### To the Editor:

Retterer et al<sup>1</sup> note that their patient reacted to zoster vaccine, and then was primarily found to be sensitized to gelatin 3 years later, without alpha-gal-specific IgE. In their assessment, the best explanation is that the gelatin-specific IgE is more likely the culprit in the previous reaction to zoster vaccine than alpha-gal-specific IgE. They suggest for this specific patient that tick bites inoculate other antigens such as gelatin that could potentially sensitize the patient.<sup>2</sup> Alternatively, we suggest that before the availability of alpha-gal-specific IgE testing the patient may have had positive specific IgE to alpha-gal (and gelatin and beef), but the circulating alpha-gal-specific IgE antibody concentrations diminished over time, as is frequently observed in our clinics when patients successfully avoid further tick bites and red meat.<sup>3</sup>

Although the quantitative alpha-gal content of various meats clearly varies and contributes to reactions,<sup>4</sup> an important clinical observation suggested by the report of Mullins et al<sup>5</sup> is that

patients who have alpha-gal allergy can often have reactions that are context specific. Some patients report reactions only to beef, whereas others react only to pork.<sup>5</sup> We have performed a 2-step challenge/administration of zoster vaccine in an alpha-gal–allergic patient avoidant of mammalian meat with declining alpha-gal–specific IgE (sIgE alpha-gal of 23.10 kU/mL, negative gelatin sIgE) and observed no symptoms, similar to what was done by Pinson and Waibel.<sup>6</sup> In addition, we are aware of 4 more patients among our alpha-gal patients who have received zoster vaccine uneventfully despite an existing diagnosis of alpha-gal allergy demonstrated by positive sIgE to alpha-gal and appropriate clinical history. This provides additional support that not all alpha-gal–allergic patients will react to zoster vaccine.

There are a large number of clinical questions that challenge the management of alpha-gal allergy. What are the incidence and prevalence of alpha-gal in the US population? Why do some patients react to alpha-gal in one context but not another? How long does alpha-gal allergy typically last? Should patients who can tolerate alpha-gal in some contexts continue to consume it? Can we *a priori* identify individuals who are unsafe to receive certain vaccinations? We would suggest that researchers and clinicians would benefit from a multisite, collaborative, cohort study of alpha-gal allergy, with the multifold goal of determining how antigenic specificity varies between patients at the time of diagnosis and following how reactivity, specific IgE antibody concentrations, and antibody specificity change within patients naturally over time, as well as with ongoing exposure versus avoidance and with unexpected antigenic challenges.

## Acknowledgments

Elizabeth and John Murray Endowment, Vanderbilt University supported this study. C.A.S. receives funding from the National Institutes of Health (NIH)/National Heart, Lung, and Blood Institute (grant no. T32 HL87738). E.J.P. receives funding related to this project from the NIH (grant nos. 1P50GM115305-01, 1R01AI103348-01, and 1P30AI110527-01A1), the National Health and Medical Research Foundation of Australia, and the Australian Centre for HIV and Hepatitis Virology Research. S.P.C. receives funding related to this project from the NIH (grant no. R56AI113095). R.S.P. receives funding from the NIH (grant nos. R01 AI 124456, U19 AI 095227, and R01 AI 111820) and the Department of Veterans Affairs (grant no. 2I01BX000624).

Disclosure of potential conflict of interest: C. A. Stone and J. M. Fahrenholz have received grants from the National Institutes of Health (NIH) (grant no. T-32 Training Grant). S. P. Commins has received grants from the NIH; has received payment for lectures from Genentech; and has received royalties from UpToDate. E. J. Phillips has received grants from the National Health Medical Research Council Australia, the NIH, and ACH2 Australia; has received personal fees from UpToDate and Bio-cryst; is codirector of IIID Pty Ltd, which holds the patent for HLA-B\*57:01 testing for abacavir hypersensitivity, without any financial remuneration and not directly related to the submitted work; and has received a nondirect consultant fee from Aicuris. R. S. Peebles has received grants from the NIH. The rest of the authors declare that they have no relevant conflicts of interest.

## REFERENCES

1. Retterer MKC, Workman LJ, Bacon JR, Platts-Mills TAE. Specific IgE to gelatin as a cause of anaphylaxis to zoster vaccine. *J Allergy Clin Immunol* 2018;141: 1956–1957 [PubMed: 29361333]
2. Commins S, James H, Kelly L, Pochan S, Workman L, Perzanowski M, 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: 1286–93.e6. [PubMed: 21453959]
3. Commins S, Jerath M, Cox K, Erickson L, Platts-Mills T. Delayed anaphylaxis to alpha-gal, an oligosaccharide in mammalian meat. *Allergol Int* 2016;65:16–20. [PubMed: 26666477]
4. Fischer J, Yazdi A, Biedermann T. Clinical spectrum of alpha-gal syndrome: from immediate-type to delayed immediate-type reactions to mammalian innards and meat. *Allergo J Int* 2016;25:55–62. [PubMed: 27226951]

5. Mullins R, James H, Platts-Mills T, Commins S. Relationship between red meat allergy and sensitization to gelatin and galactose-a-1,3-galactose. *J Allergy Clin Immunol* 2012;129:1334–42. [PubMed: 22480538]
6. Pinson M, Waibel K. Safe administration of a gelatin-containing vaccine in an adult with galactose-a-1,3-galactose allergy. *Vaccine* 2015;33:1231–2. [PubMed: 25620248]

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript