EIGHT different award types; INCREASED Junior Faculty FUNDING; NEW Health Equity Research Award; Med Resident and Student Awards

www.gi.org/research-awards

Grant System Opens: September 7, 2021
Deadline: December 3, 2021

Read the Grant Flyer, FAQs, or visit the webpage for the full RFAs.

NEW! ACG Institute
Health Equity Research Award

APPLY: gi.org/research-awards  DEADLINE: December 3, 2021
Read the flyer at gi.org/research-awards to learn more!
EIGHT different award types; NEW Health Equity Research Award; Bridge Funding; GIQuIC Research funding; Med Resident and Student Awards

[www.gi.org/research-awards](http://www.gi.org/research-awards)

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Participating in the Webinar

All attendees will be muted and will remain in Listen Only Mode.

Type your questions here so that the moderator can see them. Not all questions will be answered but we will get to as many as possible.
How to Receive CME and MOC Points

LIVE VIRTUAL GRAND ROUNDS WEBINAR
ACG will send a link to a CME & MOC evaluation to all attendees on the live webinar.

ABIM Board Certified physicians need to complete their MOC activities by December 31, 2021 in order for the MOC points to count toward any MOC requirements that are due by the end of the year. No MOC credit may be awarded after March 1, 2022 for this activity.

MOC QUESTION
If you plan to claim MOC Points for this activity, you will be asked to: Please list specific changes you will make in your practice as a result of the information you received from this activity.

Include specific strategies or changes that you plan to implement. THESE ANSWERS WILL BE REVIEWED.
ACG Virtual Grand Rounds
Join us for upcoming Virtual Grand Rounds!

Week 33, 2021
Hepatocellular Carcinoma: Epidemiology, Diagnosis and Treatment
Patricia Jones, MD, MSCR
August 26, 2021 at Noon Eastern

Week 34, 2021
ACG Clinical Guideline: Treatment of Helicobacter pylori Infection
William D. Chey, MD, FACP
September 2, 2021 at Noon Eastern

Visit gi.org/ACGVGR to Register

Disclosures:

Speaker:
Sarah K. McGill, MD, MSc
Research Funding: Finch Pharmaceuticals, Olympus.

Moderator:
Animesh Jain, MD
Dr. Jain, faculty for this educational event, has no relevant financial relationship(s) with ineligible companies to disclose.

*All of the relevant financial relationships listed for these individuals have been mitigated
Alpha-Gal Mammalian Meat Allergy: What You Need to Know

Sarah McGill, MD MSc
Associate Professor of Medicine
University of North Carolina at Chapel Hill

“It’s been three years of desiring bacon. I like meat, but I don’t like throwing up.”

- RR, GI- Alpha gal patient
Learning Objectives:

You should be able to:

• Describe symptoms of alpha-gal allergy and how sensitization happens
• Understand what activities and geography put patients at risk for developing alpha-gal meat allergy
• Manage alpha-gal allergy

A Case: Ms. K

- variable stools
- severe episodes of diarrhea, abdominal pain, distension and urgency to defecate resolve on mammalian meat-free diet
Alpha-gal allergy == delayed food allergy to a sugar present on the blood cells and tissues of all non-primate mammals (galactose-alpha-l-1,3-galactose)

Alpha-gal cases worldwide by self-report

Zeemaps, 2021.
Alpha-gal Symptoms

Abdominal pain, diarrhea, nausea

Hives, urticaria, angioedema

Alpha-gal Allergy Pathophysiology

Mast Cells are dense in skin, gut & respiratory tract

GI Alpha-Gal: a localized hypersensitivity reaction

= Symptoms are limited to the site of allergen entry
Diagnosis: Alpha Gal-IgE + Clinical Context

- Elevated serum alpha gal IgE
- Symptom improvement on alpha gal avoidant diet

Geography: the Lone Star Tick Range
Activities: A Walk in the Woods

Testing Triggers
Why Alpha-gal is the weirdest food allergy you’ve (never) heard of

- Almost all food allergies develop under age 2
- Almost all food allergies happen at every exposure
- IgE hypersensitivity reactions are IMMEDIATE (right?)

GI Alpha-Gal: Management

- Antihistamine
- Epinephrine autoinjector
Alpha-gal Clinical Pearls from Dr. Commins

• Response to eating meat is (highly) variable
• Fattier cuts of meat / alcohol with meat is more problematic
• There exists “seronegative alpha gal” who react on challenge
• Reversely, patients with elevated titers can be asymptomatic with meat ingestion

Isolated Gastrointestinal Alpha-gal Meat Allergy Is a Cause for Gastrointestinal Distress Without Anaphylaxis

Michael P. Croglio,¹ Scott P. Commins,² and Sarah K. McGill³

¹Department of Internal Medicine, ²Division of Allergy and Immunology, and ³Division of Gastroenterology and Hepatology, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina
Our GI alpha gal cohort

- 16 patients with isolated GI complaints and high titers of alpha gal IgE
- 75% women, 25% men
- 100% follow-up data
- None considered meat a problem
- Median follow up 14 months (range 2 mos-3 years)
- All patients counseled on a mammalian meat-free diet; half had allergy consult

Croglio, Commins, McGill. Gastro 2021

GI Symptoms (n=16)

- Abdominal Pain n=14
- Diarrhea n=11
- Nausea n=12
- IBS-Diarrhea n=7

Croglio, Commins, McGill. Gastro 2021
75% recalled a tick bite

Alpha-Gal IgE Titer

Median = 0.61
range 0.26-100 IU/L
Meat Avoidance

Strict
n=13
(81%)

Partial
n=3

Croglio, Commins, McGill. Gastro 2021

Dairy Avoidance

Yes
n=10

No

No Data

Croglio, Commins, McGill. Gastro 2021
Symptom Improvement

- Significant, n=8
- Resolution, n=4
- Some, n=4

Rechallenge n=8

Croglio, Commins, McGill. *Gastroenterology* 2021
1112 Patients with unexplained abdominal pain, diarrhea, nausea and vomiting tested for alpha gal
359 alpha gal positive patients (32%)
122 Patients with follow-up data
24 patients with other diagnoses

Little Difference in GI Symptoms among Alpha gal + and - patients

<table>
<thead>
<tr>
<th>Table 3. Symptoms in relation to alpha-gal IgE status</th>
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<tr>
<td>Abdominal pain</td>
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<td>Diarrhea</td>
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<td>Nausea/vomiting</td>
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<td>IBS-diarrhea</td>
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<td>IBS-constipation</td>
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<td>Meat exacerbation</td>
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<td>exacerbation</td>
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<td>Recall tick bite</td>
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<tr>
<td>Hives</td>
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<td>Bronchospasm</td>
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Richards and Richards. Southern Medical Journal 2021
79% had Symptom response to meat-free diet (n=122)

Richards and Richards. Southern Medical Journal 2021

These are small retrospective studies...

WHERE'S THE BEEF?!
The initial Sausage Challenge tests, 2009

24 patients, half alpha gal + and half –

10 of 12 Alpha Gal + had reactions
3-7 hours after challenge

2 Patients with GI symptoms alone
• Abdominal cramping and heartburn@ 5 hrs
• “grumbling stomach” @ 4 hrs

Commins et al. *Journal of Clinical Allergy and Immunology* 2009

• 7.5 hours after eating pork sausage

Commins et al. *Journal of Clinical Allergy and Immunology* 2009
All Patients Had GI Symptoms and Half had Isolated-GI Sxs on large challenge test (n=114)

- Adult + Pediatric Patients diagnosed with ↑ alpha gal IgE and challenged to beef sausage, 81 reacted
- ALL patients had GI symptoms (abdominal cramping, nausea, vomiting); half had skin symptoms; 5% anaphylaxis
- 45% had abdominal symptoms alone

Mabelane et al. *Pediatric Allergy and Immunology* 2009

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Why is alpha gal a problem now?

- Abundant Tick Hosts
- Urban Sprawl
- Fewer Hunters

American College of Gastroenterology
Depleted Microbiota to train our immune system...

High gut microbe diversity in African hunter-gatherers and rural agrarians

Amerians’ low microbial diversity

North Carolina and Missouri: anaphylaxis to a mouse chimeric monoclonal antibody
High incidence of hypersensitivity reactions to cetuximab infusions in mid-Missouri: Association with prior history of atopy

R. Owera, A. Gill, S. Haddadin, R. Khozouz and M. C. Perry
University of Missouri Columbia, Columbia, MO


Cetuximab had a murine (mouse) component heavily glycosylated with alpha-gal

Murine (Blue) with alpha gal sugars

Human [White]

Serum tests of red meat allergic patients showed high alpha gal IgE antibodies

History of Tick Bites correlated with high alpha gal IgE titers

“I was gratified to be able to answer promptly, and I did. I said I didn’t know.”

- Mark Twain

• What proportion of patients only have GI symptoms?
• When should we test for alpha gal?
• Which patients will improve on an alpha gal- avoidant diet?
• When should patients improve, if they are going to?

Take-Home Points

• People can develop IgE antibodies to the alpha-gal sugar after a tick bite, and then can have allergic reactions
• These allergic reactions happen after eating mammalian meat and are delayed by 1-7 hours, and some are local to the GI tract
• Current testing is serum IgE alpha gal antibodies, and current management is mammalian meat- and products- avoidant diet