

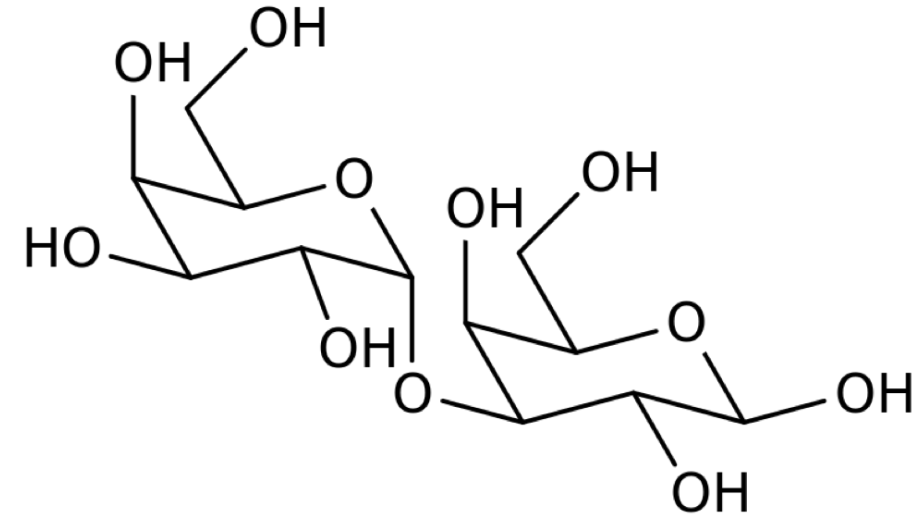
A man wearing a straw hat and a plaid shirt is walking away from the camera, holding the hand of a young child. They are walking through a field of tall grass or crops. In the background, a small house is visible on a hill under a warm, golden sky, suggesting a sunset or sunrise. The overall mood is peaceful and contemplative.

Alpha-gal Syndrome

*A growing threat to
farmers and ranchers*

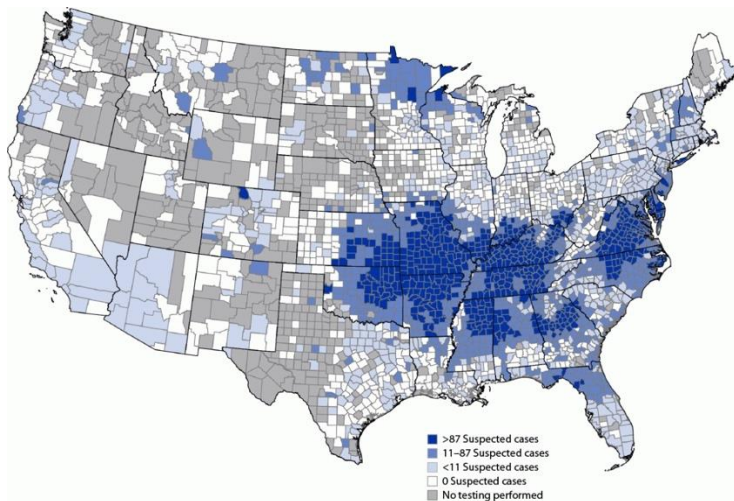
What is alpha-gal syndrome (AGS)?

- ❖ Alpha-gal syndrome (AGS) is a severe, often life-threatening allergy to a sugar.
- ❖ Galactose-alpha-1,3-galactose
nickname: alpha-gal



Caused by tick bites

- ❖ Mostly lone star ticks (U.S.)
- ❖ Many other tick species



What is alpha-gal found in?

Most mammals



Cows



Goats



Pigs



Sheep

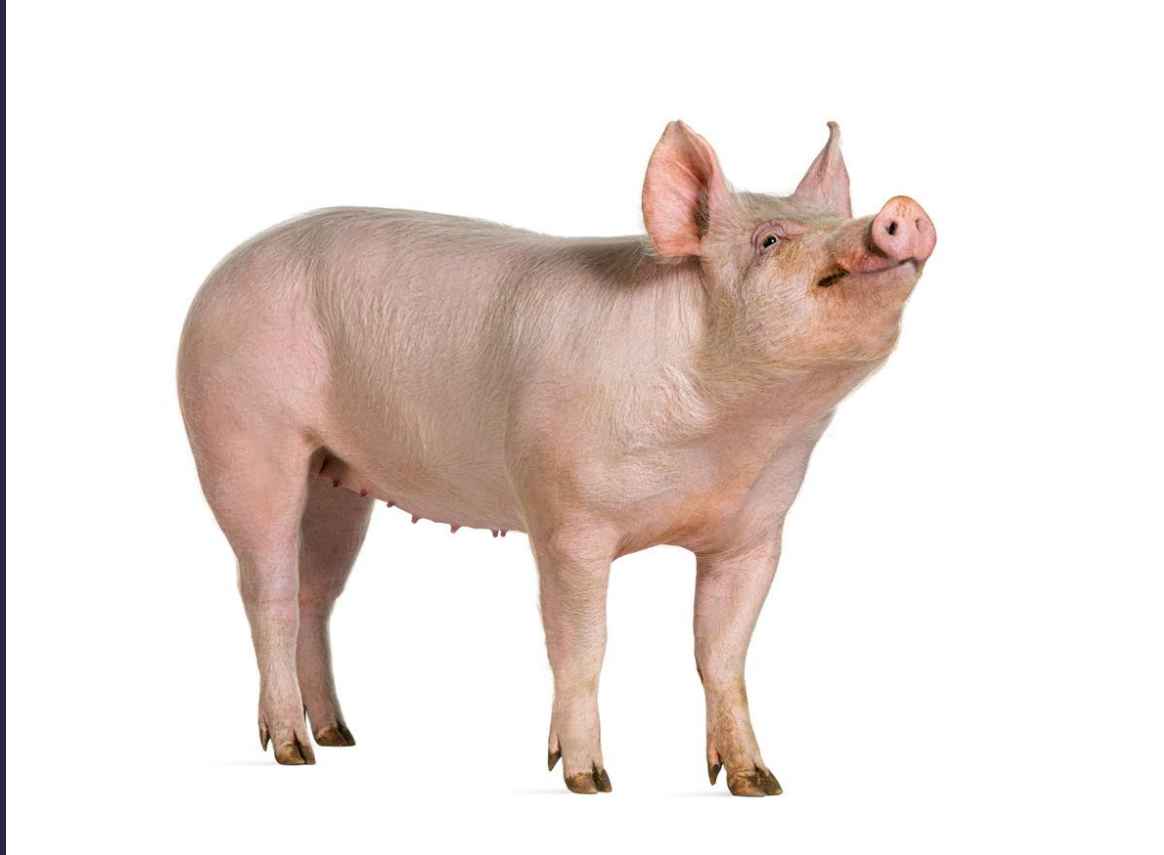
Cats & dogs



Other non-primate
mammals



Exception: GalSafe pigs



Alpha-gal is also found in:

- ❖ Products made from mammals
- ❖ Products made with ingredients from mammals



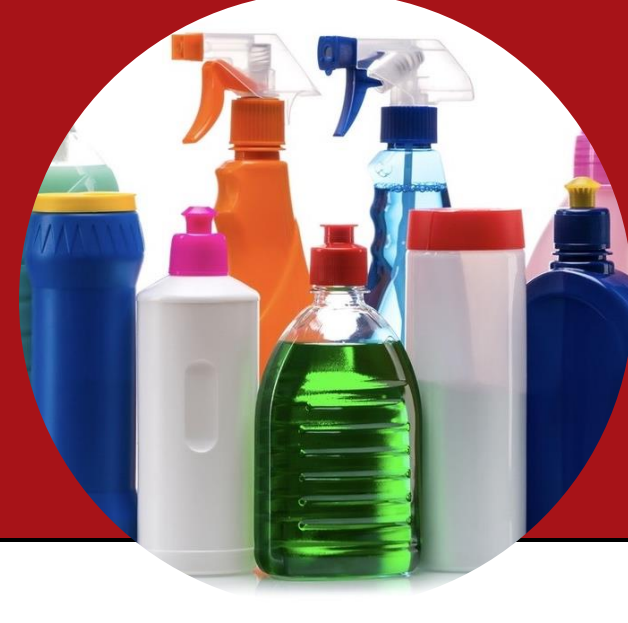
Foods



Drugs &
medical devices



Personal care
products



Household
products

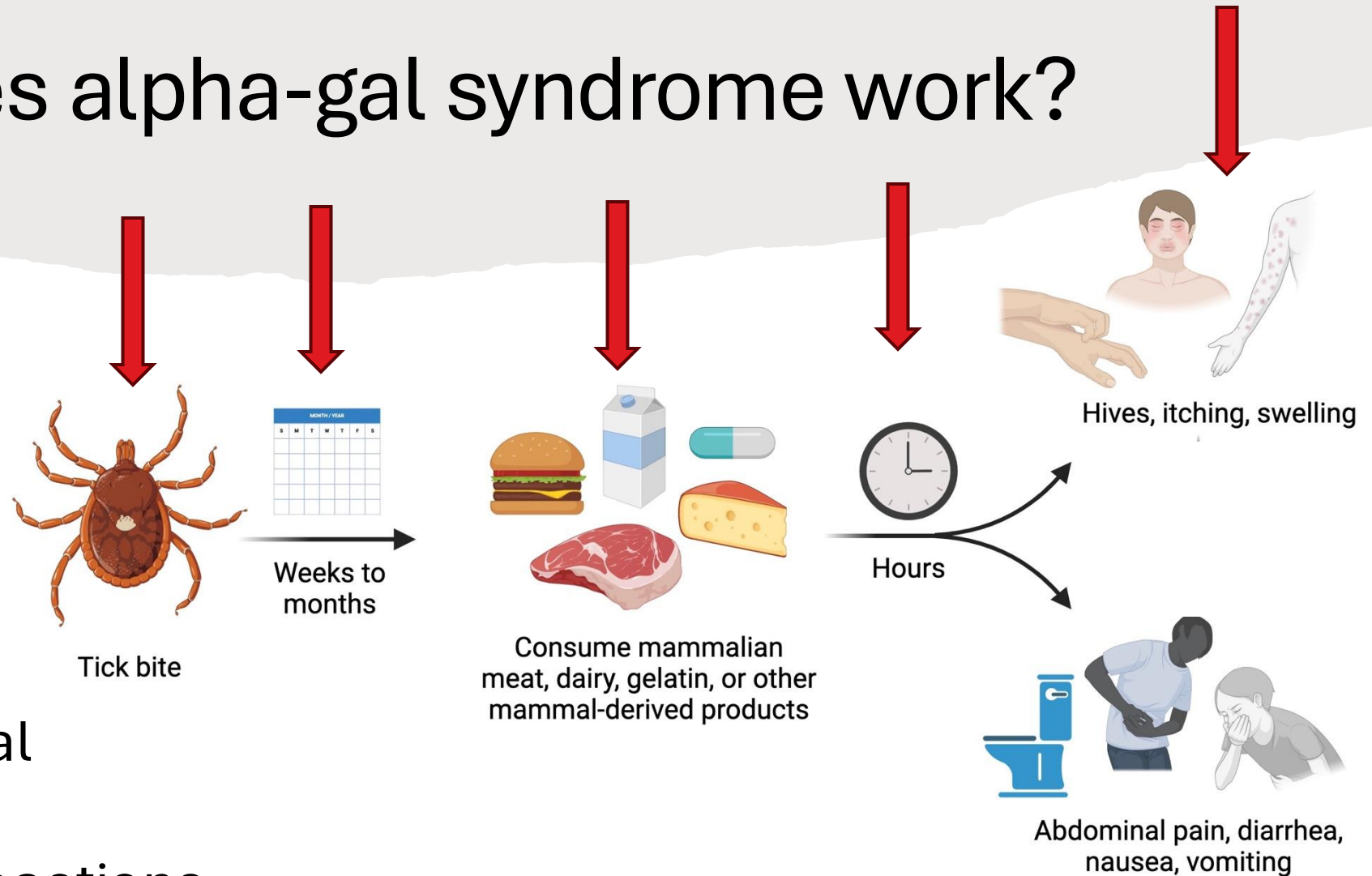
How does alpha-gal syndrome work?

#1 Tick bite

#2 Weeks to months
for allergy to develop

#3 Exposure to alpha-gal

#4 Hours after eating: reactions



Not your grandmother's allergy— it's weird!

Typical food allergies


- ❖ Don't know cause
- ❖ Usually start in childhood
- ❖ Reactions happen quickly
- ❖ Reactions: every time
- ❖ Typical allergy symptoms, like hives and swelling

Alpha-gal syndrome

- ❖ Caused by tick bites
- ❖ Usually starts in adulthood
- ❖ Reactions delayed (2-10 hrs)
- ❖ Reactions: sometimes
- ❖ Can mimic IBS or arthritis (no hives or other classic allergic symptoms)

Cofactors





What do people
with alpha-gal
syndrome react to?

Foods & drinks

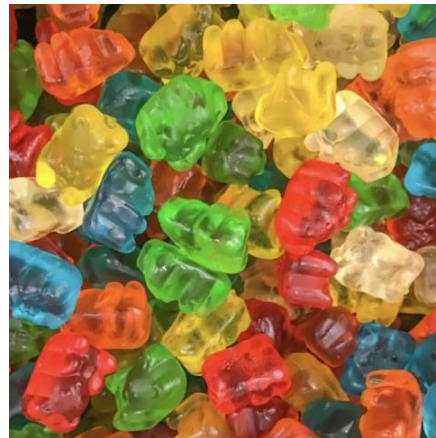




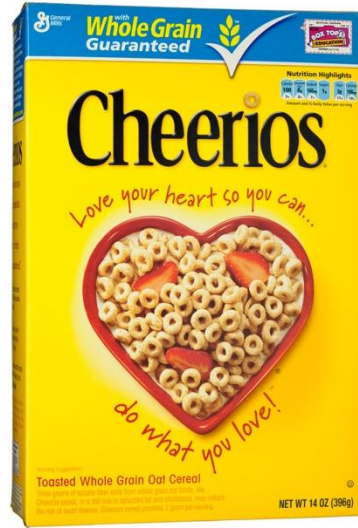
- ❖ Mammal meats, like beef, pork, lamb, goat, & rabbit
 - ❖ Mammal organs, like liver, kidneys, lungs, intestines
-



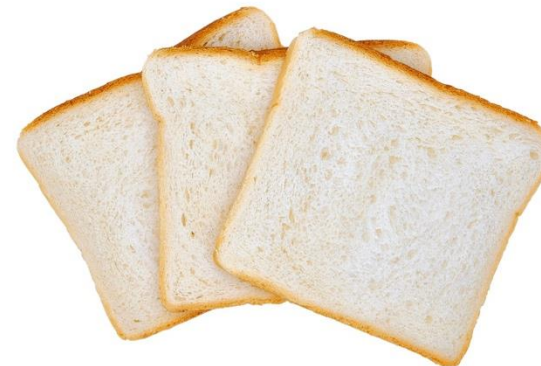
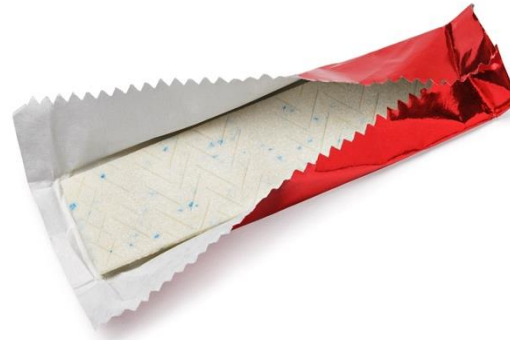
Milk & dairy products



Foods made with gelatin

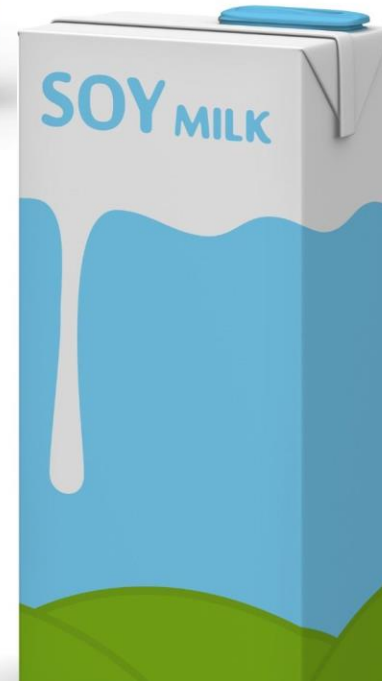


Foods made with *many* other mammal ingredients



Foods & drinks made with carrageenan

- ❖ From red algae
- ❖ These algae also make alpha-gal.



Foods & drinks processed or treated with mammal ingredients or carrageenan



Drugs and medical devices

- ❖ Major drug allergy
- ❖ 75%: react to medications
- ❖ Life-threatening or fatal reactions (e.g. cetuximab)



Personal care & household products

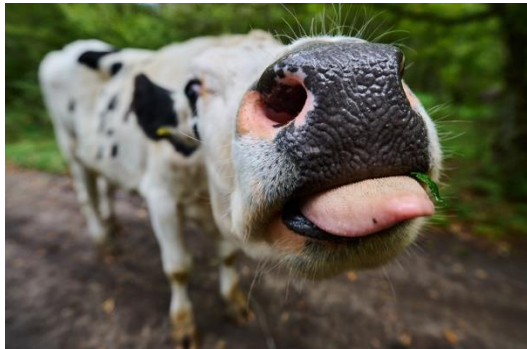
Livestock exposures

You don't need to EAT a mammal to react to one.



Fluids—most dangerous

- ❖ Amniotic fluid
- ❖ Blood
- ❖ Saliva



Other exposures

- ❖ Waste
- ❖ Contact with animals
- ❖ Fumes
- ❖ Products used in livestock care—e.g. lanolin



Common symptoms

Skin

- Hives, other rashes, itching

GI

- Abdominal pain
- Diarrhea, nausea, vomiting
- Heartburn, indigestion

Swelling

- Swelling of the palms, soles of feet, lips, throat, tongue, or eye lids

Breathing

- Cough
- Shortness of breath, difficulty breathing

Cardiac

- Drop in blood pressure
- Dizziness or faintness




Remember
AGS
reactions
are:

- ❖ Delayed (*usually*)
- ❖ Not every time



Itching or swelling of the palms & soles of feet: often first symptom

A person is shown from the waist up, wearing a dark blue long-sleeved shirt. They are holding their right hand on their lower right abdomen, suggesting discomfort. Overlaid on the person's torso is a glowing, semi-transparent anatomical diagram of the human digestive system. The diagram shows the esophagus, stomach, small intestine, and large intestine (colon) in a warm, orange-red glow, with the large intestine being particularly prominent and coiled. The background is a soft, out-of-focus indoor setting with warm lighting.

GI variant of AGS

- ❖ GI symptoms ONLY
- ❖ No hives or other classic allergic symptoms

Typical symptoms:

- ❖ Abdominal pain
- ❖ Diarrhea
- ❖ Other IBS-like symptoms

Common misdiagnoses:

- ❖ IBS
- ❖ IBD
- ❖ Gallbladder issues

A person wearing a pink athletic shirt and black leggings is standing on a blue running track. They are holding their stomach with both hands, indicating abdominal pain. The background is a blurred view of the track and some distant structures.

Kids

- ❖ Abdominal pain
- ❖ Only during exercise
- ❖ Only after eating certain foods



Rheumatological
symptoms,
like joint pain

Anaphylaxis

- ❖ Severe, life-threatening reaction
- ❖ 75% of people with AGS
- ❖ Higher percentage than for any other food allergy—even peanut allergy!



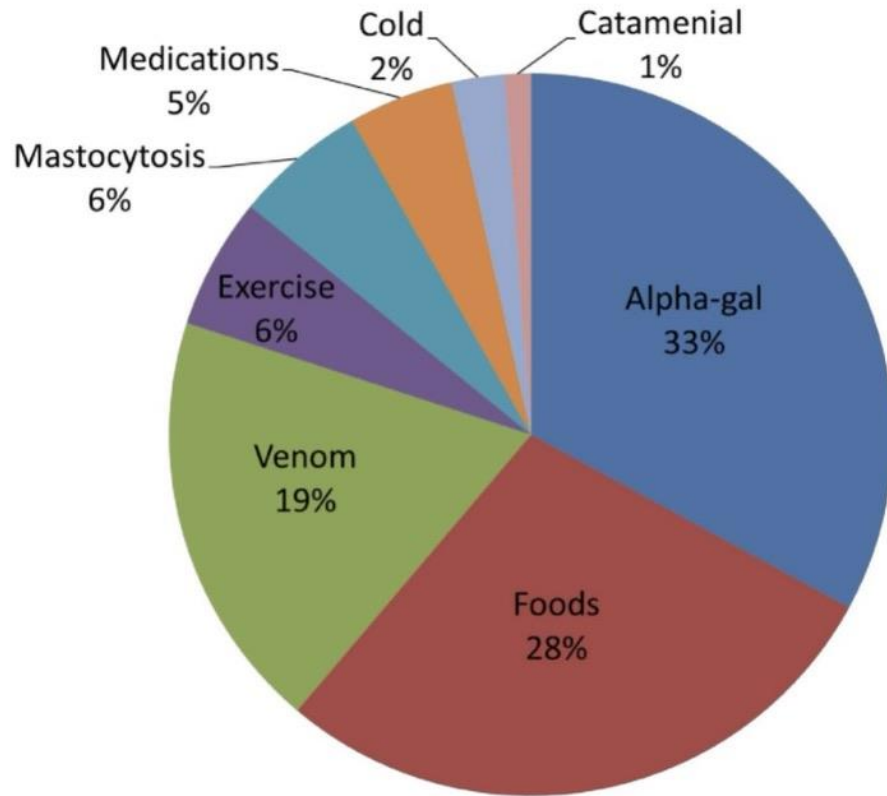


Figure 1. Etiologies of anaphylaxis based on proposed "definitive cause." Alpha-gal, galactose-a-1,3-galactose.

In high prevalence areas

#1 cause of anaphylaxis in adults

Source: Pattanaik D, Lieberman P, Lieberman J, Pongdee T, Keene AT. The changing face of anaphylaxis in adults and adolescents. *Ann Allergy Asthma Immunol.* 2018;121(5):594-597.

A top cause of anaphylaxis

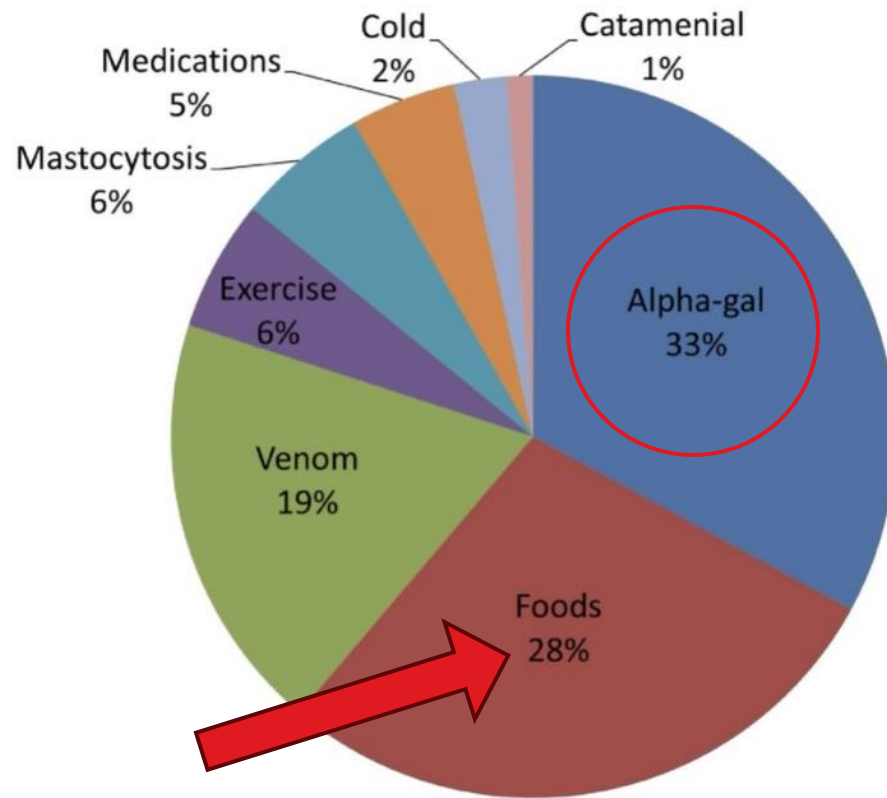


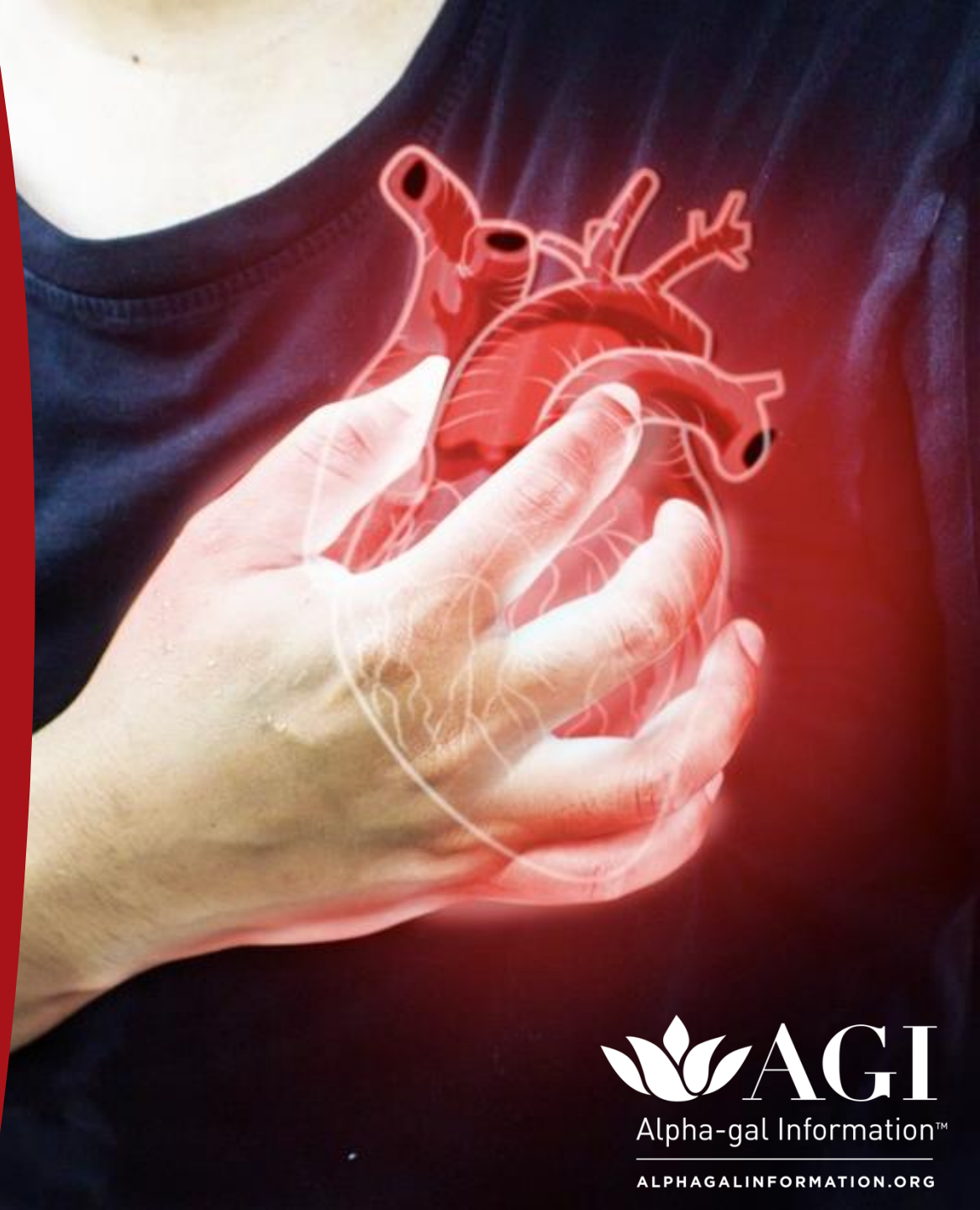
Figure 1. Etiologies of anaphylaxis based on proposed "definitive cause." Alpha-gal, galactose-a-1,3-galactose.

High prevalence areas:

- ❖ #1 cause of anaphylaxis in adults
- ❖ Cause of more anaphylaxis than *all other food allergies combined.*

Cardiac (heart) symptoms

- ❖ 30-40% of people w/AGS
- ❖ Heart attack



Learn to recognize and respond to anaphylaxis



✚ / Our Initiatives ↓ / FARE Training - Food Allergy Academy ↓ / Recognizing & Responding to Anaphylaxis

FARE TRAINING

Recognizing & Responding to Anaphylaxis

Anaphylaxis can happen at any time. Make sure you're prepared to save a life by taking this free course.



How do I know
if I have AGS ?



Tick bite?

Itchy reaction?



Bites like this?



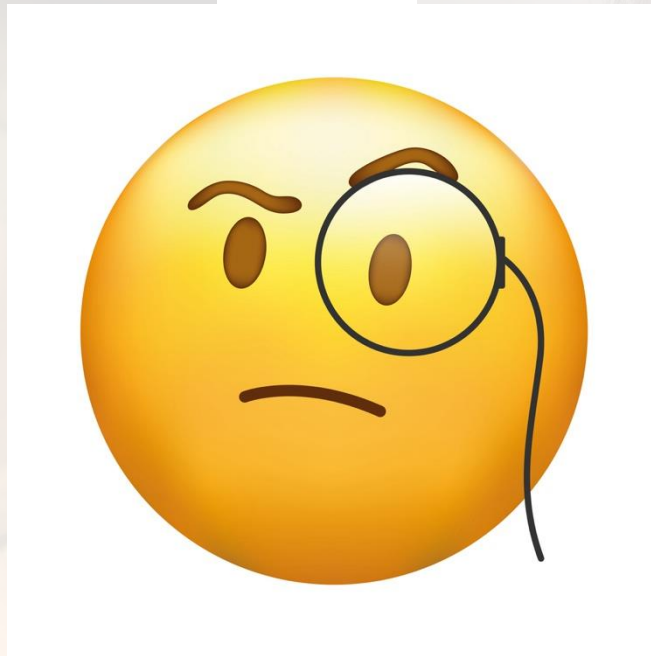
Tick bite

Half the time,

Itchy reaction?

Bites like this?

people don't notice tick bites!



React hours after eating red meat?



2-10 hours
later...



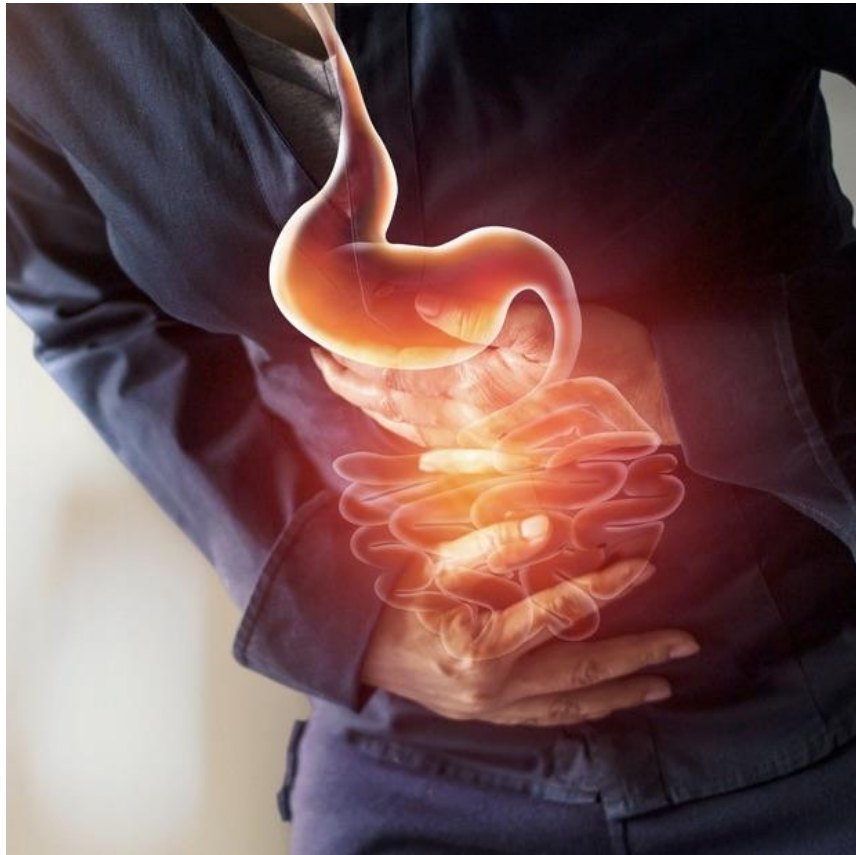
Remember!

- ❖ Maybe not react every time
- ❖ May only react when exercise or drink alcohol



Late-night reactions?

New GI or joint symptoms weeks or months after tick bite?



How is AGS diagnosed?

#1 The alpha-gal IgE blood test

Not like a pregnancy test!



#2: Clinical history

- ❖ Tick bites
- ❖ Reactions

NOT THESE!

- ~~❖ Skin prick tests~~
- ~~❖ Alpha-gal panel~~
- ~~❖ Alpha-galactosidase~~

#3 Change your diet

---> symptoms improve

Why is AGS a growing threat?

- ❖ Lone star tick populations are exploding
- ❖ Lone star ticks are spreading



- ❖ Huge increase in AGS cases

12
2009 estimated cases

5,000
2017 estimated cases

34,000
2018 estimated cases

450,000
2023 estimated cases

Why is AGS a
growing threat?

10TH MOST COMMON FOOD ALLERGY

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How do I avoid getting bit by a lone star tick?



How do I avoid getting bit by a lone star tick?

Tick bite avoidance tips: lone star tick edition

Not your grandmother's tick!



+



- ❖ Aggressive
- ❖ Fast
- ❖ HUNT YOU!



Lone star tick larvae (tiny little baby ticks)

- ❖ Bite humans
- ❖ Tick bombs
- ❖ Hundreds to thousands of bites

Multiple bites → →
More likely to cause AGS

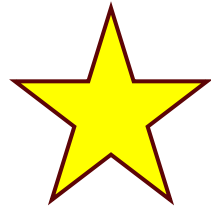


Lone star tick larvae





Before you leave home



Permethrin

Permethrin treated clothing, shoes, and gear
is the single best way to avoid lone star tick bites.



insect  shield[®]

Always read the labels of permethrin products carefully.
If you own a cat, talk to your veterinarian about permethrin

Dress for success

Wear

- ✓ Long socks
- ✓ Long pants
- ✓ Long-sleeved shirts
- ✓ Light colored clothes



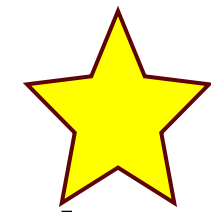
Tuck

- ✓ Pants into socks
- ✓ Shirt into pants



Tick gaiters





Tall boots with double-sided carpet tape

Boot wrapped in double-sided carpet tape to trap ticks



Credit: Sharon Forsyth

- ❖ Trazon—on boot
- ❖ YYXLIFE—on top of Trazon

Ticks caught in double-sided carpet tape



Spray with a repellent?

Do NOT rely exclusively on repellents like DEET and picaridin or home remedies---they are NOT always effective against lone star ticks.

Use the EPA repellent tool

A family of three is walking through a grassy field. On the left, a woman with long brown hair is wearing a light-colored plaid shirt and blue jeans. In the center, a young girl with curly hair is wearing a wide-brimmed straw hat, a yellow long-sleeved shirt, and denim overalls. On the right, a man with short brown hair and a beard is wearing a red quilted vest over a light-colored shirt and blue jeans. They are all holding hands and smiling. In the background, there is a herd of brown cows grazing in the field, and rolling hills are visible under a clear sky.

While out and about

Watch where you walk

- ❖ Avoid wooded and brushy areas with high grass and litter
- ❖ Avoid grassy forest edges



Walk in the center of trails



Keeping moving!

Unlike other ticks, lone star ticks hunt you.
If you stay still, they will detect your odor and come find you.

Don't sit in tick-infested areas
or on stone walls



Use a lint roller



- ❖ Roll up larval tick bombs
- ❖ Check for ticks frequently, using lint roller to pick small ticks you don't see.



- ❖ Before you enter your car or house, run a lint roller over your clothes again.

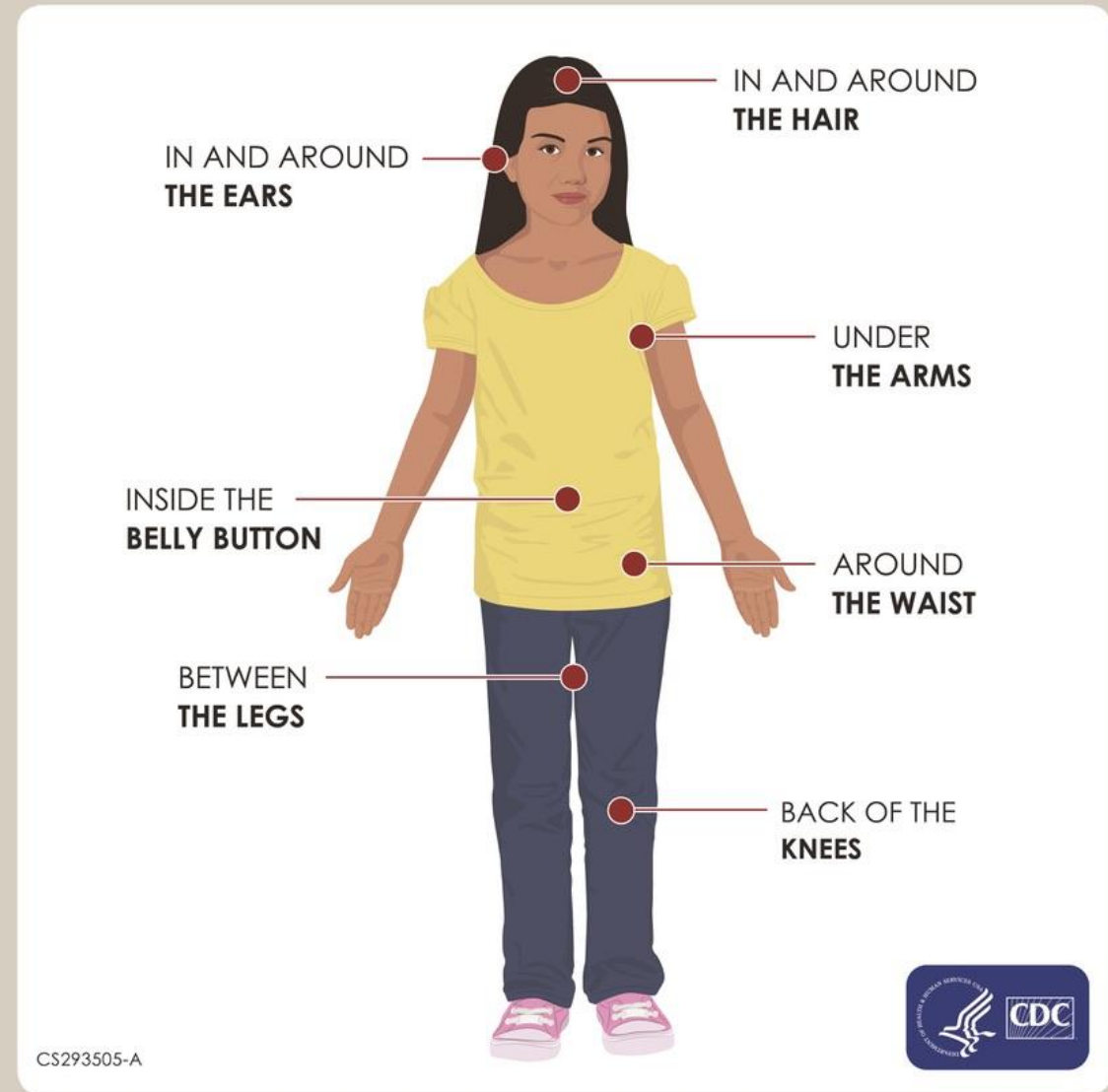




When you get home

As soon as you get home

- ❖ Body check
- ❖ Remove ticks asap, using proper technique
- ❖ Get a shower
- ❖ Clothes → dryer
- ❖ If bitten, watch for signs of tick-borne disease

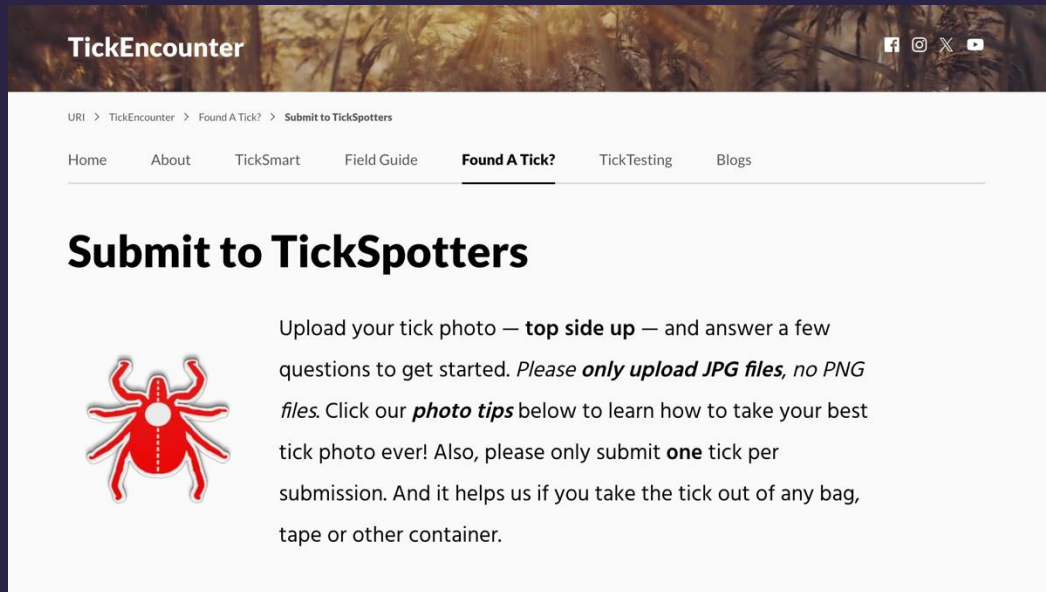


If a you get a tick bite...

Photograph and save the tick!

Tickspotters

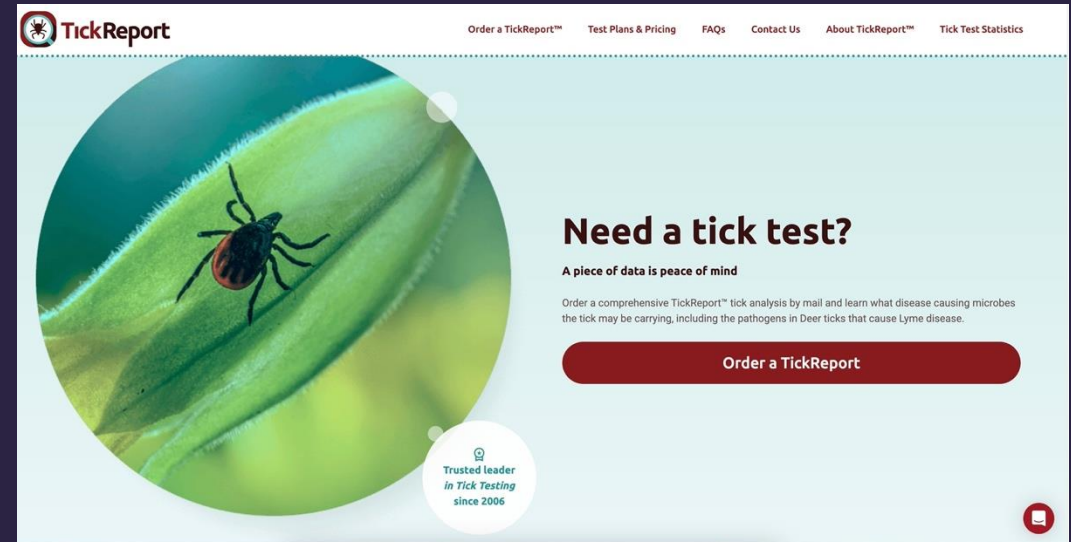
To ID your tick



The screenshot shows the TickEncounter website. At the top, there's a header with the name "TickEncounter" and social media icons. Below that is a breadcrumb trail: "URI > TickEncounter > Found A Tick? > Submit to TickSpotters". A navigation bar includes links for "Home", "About", "TickSmart", "Field Guide", "Found A Tick?", "TickTesting", and "Blogs". The main heading is "Submit to TickSpotters". To the left is a red tick icon with a white dot on its back. To the right, the text reads: "Upload your tick photo — **top side up** — and answer a few questions to get started. Please **only upload JPG files**, no PNG files. Click our **photo tips** below to learn how to take your best tick photo ever! Also, please only submit **one** tick per submission. And it helps us if you take the tick out of any bag, tape or other container."

Tick Report

To test your tick



The screenshot shows the TickReport website. The header includes the "TickReport" logo and navigation links: "Order a TickReport™", "Test Plans & Pricing", "FAQs", "Contact Us", "About TickReport™", and "Tick Test Statistics". The main visual is a large circular image of a red-tipped black tick on a green leaf. To the right of the image, the heading is "Need a tick test?" followed by the tagline "A piece of data is peace of mind". Below this, a paragraph states: "Order a comprehensive TickReport™ tick analysis by mail and learn what disease causing microbes the tick may be carrying, including the pathogens in Deer ticks that cause Lyme disease." A prominent red button says "Order a TickReport". At the bottom right, a circular badge reads "Trusted leader in Tick Testing since 2006".

Resources

❖ Alpha-gal Information: guide for farmers and ranchers with AGS

- Slides & link to webinar
- Brochures
 - Avoiding tick bites
 - Alpha-gal syndrome patient factsheet
- Link to support group

❖ Two Alpha gals

- Tips for joyful living with AGS
- Mentorship program
- Instagram account

