



# Frequently Asked Questions about Alpha-Gal Syndrome

## What is alpha-gal syndrome?

Alpha-gal syndrome (AGS) is not an infectious disease. Rather, it is a serious, potentially life-threatening type of food allergy that is associated with the bite of the lone star tick (*Amblyomma americanum*).

## How does someone develop alpha-gal syndrome?

Evidence suggests that alpha-gal syndrome is triggered after the bite of a lone star tick (other kinds of ticks have not been ruled out) in some individuals. Saliva proteins coated with galactose- α-1,3-galactose (alpha gal) are introduced into the host via a tick bite and trigger the host's immune system to produce antibodies against the alpha gal sugar molecule.

## What are the signs and symptoms of alpha-gal syndrome?

Signs and symptoms of alpha-gal syndrome vary from minor to severe allergic reactions following the ingestion of red meat (beef, pork, or lamb), dairy products, and/or gelatin. Symptoms may include hives, scaly skin, swelling, wheezing or shortness of breath, diarrhea, and/or vomiting. Severe anaphylaxis may occur in some individuals. Unlike other food allergies, reactions to alpha-gal may appear 3 – 6 hours after ingesting red meat, dairy, and/or gelatin. The delayed reaction is attributed to the rate of food adsorption after ingestion.

## Can I donate if I have alpha-gal syndrome?

Yes! You may donate blood if you are free of symptoms and meet all eligibility criteria. Alpha-gal syndrome is not an infectious disease and, therefore, cannot be spread through contact with blood or other bodily fluids. It should not be confused with diseases such as malaria (mosquito-borne parasitic disease) or babesiosis (tick-borne parasitic disease) that are known to be transmitted through blood transfusions. There is no known association between developing alpha-gal syndrome and blood transfusions.

## What, if any, are the concerns with alpha-gal syndrome and blood transfusion recipients?

There have been cases of anaphylactic transfusion reactions that are thought to be associated with alpha-gal syndrome. In these cases, however, the patient is the one suspected of having the syndrome and not the donor. In a case study report recently published in *Transfusion*, the authors discuss 3 cases of anaphylactic reaction that occurred when group O patients were transfused with group B platelets and/or plasma. Of the 3 cases, 2 of the patients had elevated levels of alpha-gal antibodies and were believed to have alpha-gal syndrome.

The group B antigen, Galα1-4(Fucα1,2)Gal, is analogous to the structure of the alpha-gal carbohydrate present in red meat. It is postulated that plasma products containing alpha-gal antigen introduced either through the absorption of the alpha-Gal oligosaccharide through consuming meat or as blood group B substance may trigger an anaphylactic response in recipients with alpha-Gal syndrome. However, further investigation is necessary.

An infrequent risk to transfusion is allergic or anaphylactic transfusion reaction. A recipient who is IgA deficient may develop an allergic sensitivity and subsequent IgA anaphylaxis. Likewise, blood recipients allergic to seafood or peanuts have suffered allergic reactions due to peanut or fish antigens contained in blood donated after a meal. The *Transfusion* article suggests alpha-Gal syndrome as an additional consideration when evaluating an allergic response to blood transfusion.

**For additional questions on blood donor eligibility, please contact your local community blood center, which you can find online at [AmericasBlood.org](http://AmericasBlood.org).**