

The Lectin Connection

"I am afraid that Peter's merits are not estimated enough in the scientific world. Therefore it seems to me necessary, not only to promote his concept here in Europe, but also to tell him that I acknowledge him as one of the most creative scientists in the Western world."

Gerhard Uhlenbruck, PhD, MD

Professor, Institute of Immunobiology University of Cologne and world-famous lectin researcher

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Lectins: The Diet Connection

A chemical reaction occurs between your blood and the foods you eat. This reaction is part of your genetic inheritance. It is amazing but true that today, in the twenty first century, your immune and digestive systems still maintain favoritism for foods that your blood type ancestors ate.

We know this because of a factor called **lectins**. Lectins, abundant and diverse proteins found in foods, have agglutinating properties that affect your blood and the lining of your digestive tract. Lectins are a powerful way for organisms in nature to attach themselves to other organisms in nature. Lots of germs, and even our own immune systems, use this super glue to their benefit. For example, cells in our liver's bile ducts have lectins on their surfaces to help snatch up bacteria and parasites. Bacteria and other microbes have lectins on their surfaces as well, which work rather like suction cups, so that they can attach to the slippery mucosal linings of the body. Often the lectins used by viruses or bacteria can be blood type specific, making them a stickier pest for people of that blood type.

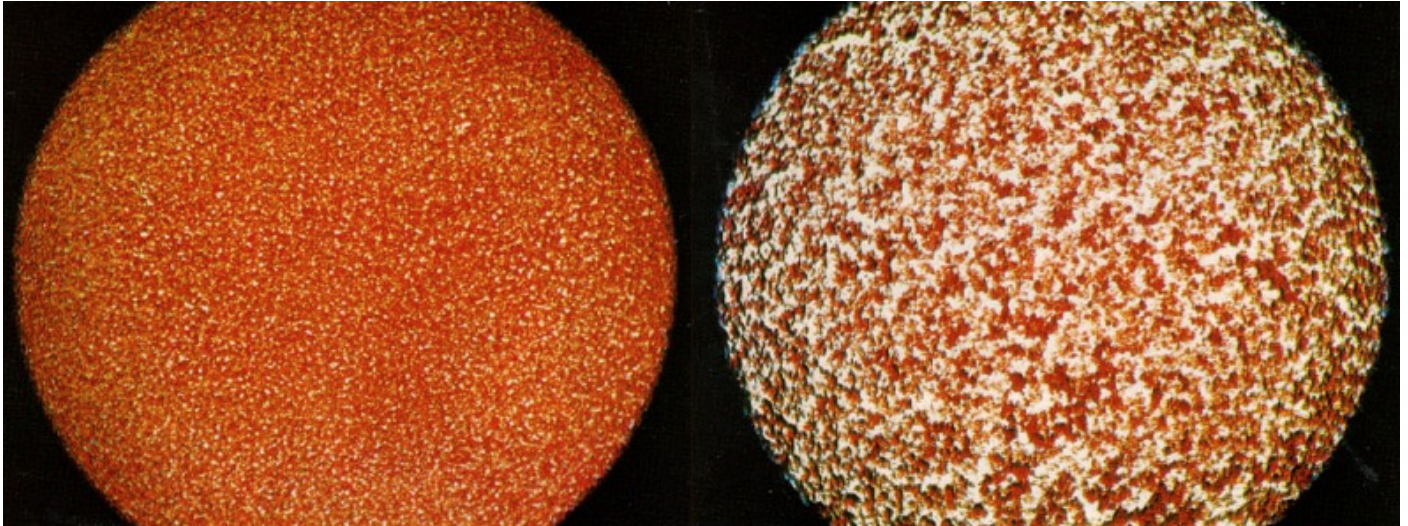
So, too, with the lectins in food. Simply put, when you eat a food containing protein lectins that are incompatible with your blood type antigen, the lectins target an organ or bodily system (kidneys, liver, gut, stomach, etc.) and can begin to interact with the tissues in that area.

Here's an example of how a lectin agglutinates in the body. Let's say a Type A person eats a plate of lima beans. The lima beans are digested in the stomach through the process of acid hydrolysis. However, the lectin protein is resistant to acid hydrolysis. It doesn't get digested, but it stays intact. It may interact directly with the lining of the stomach or intestinal tract, or it may get absorbed into your blood stream along with the digested lima bean nutrients. Different lectins target different organs and body systems.

Once the intact lectin protein settles someplace in your body, it literally has a magnetic effect on the cells in that region. It clumps the cells together and they are targeted for destruction, as if they, too, were foreign invaders. This clumping can cause irritable bowel syndrome in the intestines or cirrhosis in the liver, or block the flow of blood through the kidneys – to name just a few of the effects. Lectins can also act as 'fake hormones,' latching onto the receptor for a hormone and either blocking the normal action of the hormone (this is called an 'antagonist') or revving up the hormone receptor non-stop (termed an 'agonist'.)

Lectins: A Dangerous Glue

You may remember the bizarre assassination of Georgi Markov in 1978 on a London Street. Markov was killed by an unknown Soviet KGB agent while waiting for a bus. Initially, the autopsy could not pinpoint how it was done. After a thorough search, a tiny gold bead was found embedded in Markov's leg. The bead was found to be permeated with a chemical called ricin, which is a toxic lectin extracted from castor beans. Ricin is so potent an agglutinin that even an infinitesimally small amount can cause death by swiftly converting the body's red blood cells into large clots which block the arteries. Ricin kills instantaneously.



Lectins are a type of molecular Velcro. On the left is a slide of a normal blood smear. On the right a blood sample after agglutination.

Fortunately, most lectins found in the diet are not quite so life threatening, although they can cause a variety of other problems, especially if they are specific to a particular blood type. For the most part our immune systems protect us from lectins. Ninety-five percent of the lectins we absorb from our typical diets are sloughed off by the body. But at least 5 percent of the lectins we eat are filtered into the bloodstream, where they react with and destroy red and white blood cells. The actions of lectins in the digestive tract can be even more powerful. There they often create a violent inflammation of the sensitive mucous of the intestines, and this agglutinative action may mimic food allergies. Even a minute quantity of a lectin is capable of agglutinating a huge number of cells if the particular blood type is reactive.

Signs that you might be experiencing problems from lectins in your diet:

- Bloating and flatulence after meals
- Changes in bowel habits
- Achy joints and muscles
- Hormonal fluctuations
- Skin eruptions
- Fatigue and tiredness

This is not to say that you should suddenly become fearful of every food you eat. After all, lectins are widely abundant in legumes, seafood, grains, and vegetables. It's hard to bypass them. The key is to avoid the lectins that agglutinate your particular cells—determined by your blood type. For example, wheat germ agglutinin, the most common lectin found in wheat, binds to the lining of the small intestine, causing substantial reactions and irritation in some blood types – especially Type O.

Lectins vary widely, according to their source. For example, the lectin found in wheat has a different shape from the lectin found in soy, and attaches to a different combination of sugars; each of these foods is dangerous for some blood types, but can sometimes be beneficial for others. In the case of blood type A and soy, the lectin in soy can actually help the immune system keep guard against cellular changes that could go on to be problematic.

Many people with joint problems feel that avoiding the nightshade vegetables such as tomatoes, eggplant, and white potatoes seem to help their symptoms. That's not surprising, since most nightshades are very high in lectins.

Common Foods to Avoid For Each Blood Type That Contain Harmful Lectins

Type O	Type A	Type B	Type AB
<ul style="list-style-type: none">• Wheat	<ul style="list-style-type: none">• Lima bean	<ul style="list-style-type: none">• Chicken	<ul style="list-style-type: none">• Chicken
<ul style="list-style-type: none">• Soybean oil	<ul style="list-style-type: none">• Tomato	<ul style="list-style-type: none">• Corn	<ul style="list-style-type: none">• Corn
<ul style="list-style-type: none">• Peanut	<ul style="list-style-type: none">• Eggplant	<ul style="list-style-type: none">• Soy	<ul style="list-style-type: none">• Banana
<ul style="list-style-type: none">• Kidney bean	<ul style="list-style-type: none">• Garbanzo bean	<ul style="list-style-type: none">• Lentil	<ul style="list-style-type: none">• Fava bean

Lectins: A Summary

Lots of information on lectins can be found on the internet. Unfortunately, the great majority of it is either extremely technical or just wrong to some degree or another. One common misconception is that all lectins in foods are inactivated either by heating, or through the process of digestion. This is true, but only to a certain degree. Some lectins, such as the lectins from beans, are usually rendered inactive by slow and long cooking, but this may not result in all lectins being inactivated. Studies have shown that a percentage does tend to resist destruction, despite heating. Other lectins, such as the lectin from bananas, actually become more potent after heating. Digestive juices can inactivate lectins, but many people simply do not have the levels of stomach acid to do this. If you currently suffer from digestive problems, it is more than likely that you have some degree of lectin sensitivity, and following the diet prescribed for your blood type is the best way to start the healing.

Many molecules, including quite a few that are not found in foods, but rather manufactured by the body itself, can be categorized as lectins. These can be commonly found in the liver (galectins), with the immune (mannose binding protein) and in the serum (C-reactive protein). I have built a tool than you can use to explore various lectins and their classifications (<https://www.datapunk.net/visualizations/lectins/lectin.pl>), if you wish to explore deeper.

Lots of nutrition books now talking about lectins. 'Eat Right' was the first, over twenty years ago. Nice to see they're catching up, but most conveniently don't mention that lectin specificity is often to a particular blood type antigen, or the fact that my work in lectins preceded theirs by over two decades. Giving dietary advice about lectins but not including blood type specificity is like giving just your city and state to someone who is asking for your mailing address. The letter is very unlikely to ever arrive!

Lectin Blocking with Deflect

Deflect is a natural product I designed composed of 'blocking sugars' designed to interfere with the adherence of troublesome dietary lectins. Since many lectins are ABO blood type specific, there are four different Deflect formulas: one for each blood type. The blocking sugars in Deflect can be considered 'sacrificial molecules' that attach to carbohydrate receptors on the lectins, rendering them unable to bind to the cells of the body. The Deflect formulas provide a source of free blocking amino sugars, which bind and block lectins before they can attach to the cells. Since each blood type is susceptible to lectins with different carbohydrate specificities, I designed formulas to block lectins by using mono and polysaccharides specific for each blood type.

To learn more about Deflect, Click Here. (<https://www.4yourtype.com/deflect-lectin-blocker/>)

To read a more technical paper about lectins, Click Here. (https://dadamo.com/science_lectins_mitogens.htm/)

Click Here (https://dadamo.com/media/helpful_articles.html) to read more helpful articles about the Blood Type Diet.

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SPOTLIGHT