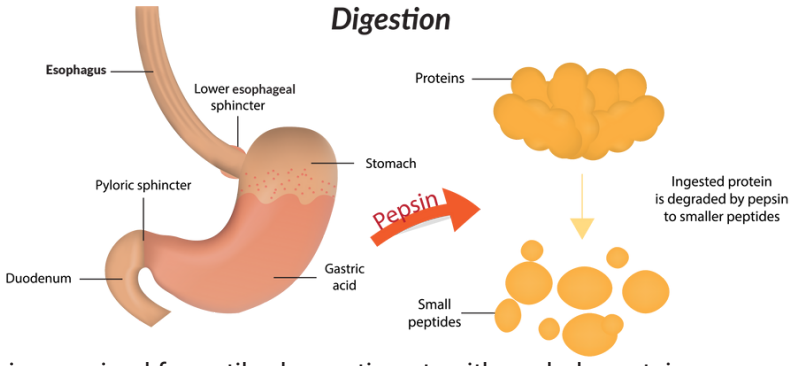
Peptide vs Whole Protein:
Food Sensitivity Testing

VibrantWellness

Whole proteins

Proteins are made up of one or more chains of amino acids linked together by peptide bonds.

Proteins from foods enter the gastrointestinal tract and begin to undergo digestion in the hydrochloric acid of the stomach, where bonds are broken to yield larger polypeptides.



When testing for food sensitivities, the patient's blood is examined for antibody reactions to either whole proteins or extracts from the foods. These extracts contain proteins as well as traces of carbohydrates and fats. The test determines if the patient has antibodies against the undigested forms of these foods. It's important to note that only protein-based molecules can bind with antibodies, not carbohydrates or lipids.

Whole protein sensitivity testing only assesses the water-soluble components of proteins. This means it doesn't detect reactions to peptides or protein fragments that aren't water-soluble, like gluten.

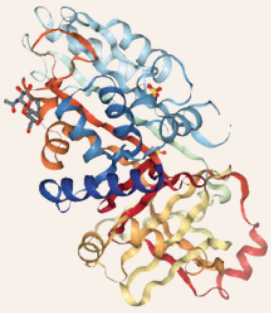
Peptides

In the small intestine, enzymes break down large polypeptides into smaller peptides. These smaller peptides are further digested into individual amino acids.

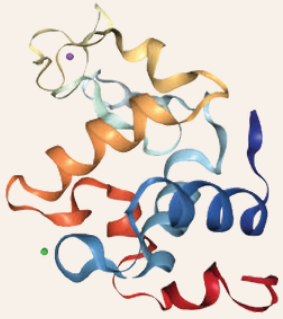
At this stage, if there are irregularities in the immune response, these peptides and amino acids can be mistakenly identified as foreign invaders. This can trigger immune reactions, either locally within the intestinal lining or throughout the body, leading to symptoms like joint pain, migraines, or skin rashes.

Ideally, when the immune system is functioning correctly, these smaller peptides and amino acids are absorbed through the intestinal lining and enter the bloodstream. They are then utilized by the body. However, when the intestinal barrier is compromised or "leaky", this optimal absorption might not take place.

To detect antibodies against every part of a protein, it's essential to test at the peptide level. This method offers a high-quality synthesis of long mer peptides, presenting the purest form of an antigen. This precision cannot be achieved when testing at the extract or whole protein level.



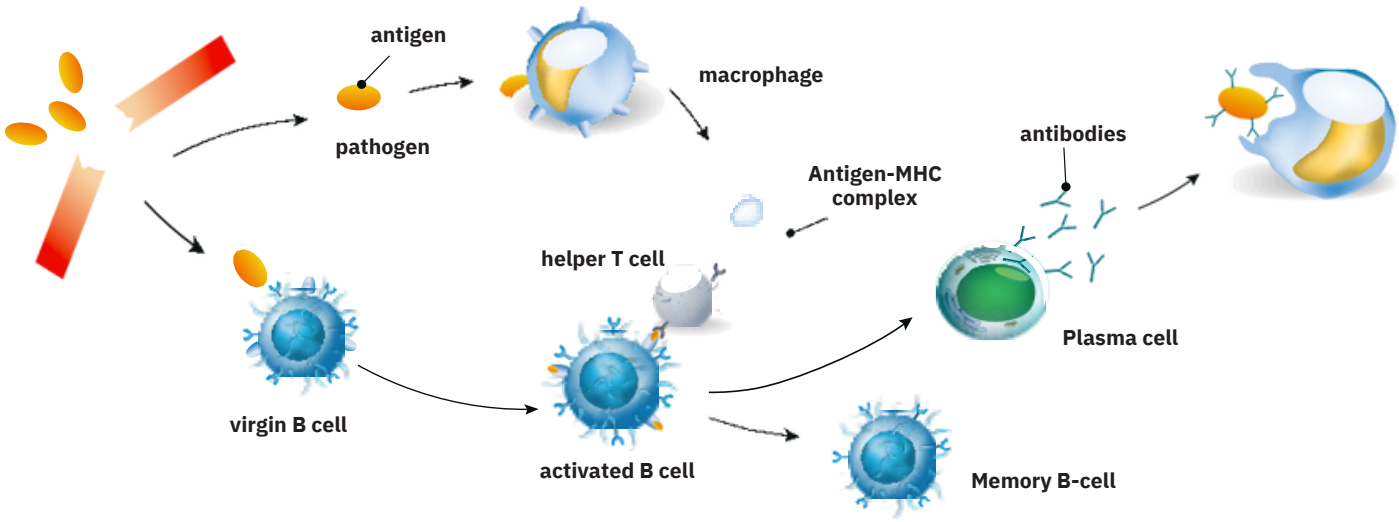
Structure of ovalbumin 1UHG.
From AS Rose, AR Bradley, Y Valasatava, JM Duarte, A Prlić and PW Rose. Web-based molecular graphics for large complexes. ACM Proceedings of the 21st International Conference on Web3D Technology (Web3D '16): 185-186, 2016. doi:10.1145/2945292.2945324



Structure of hen's egg lysozyme 5WRB peptide.
From AS Rose, AR Bradley, Y Valasatava, JM Duarte, A Prlić and PW Rose. Web-based molecular graphics for large complexes. ACM Proceedings of the 21st International Conference on Web3D Technology (Web3D '16): 185-186, 2016. doi:10.1145/2945292.2945324

Lysozyme and ovalbumin are both peptides present in egg white protein, but they have significantly different structures or conformations. As a result, distinct antibodies would bind to each of these peptides. Moreover, antibodies that recognize and bind to the broader egg white protein would have a different shape compared to those that specifically bind to either ovalbumin or lysozyme peptides.

Immune Response Basics



Clinical Application

Even if peptides are components of a whole protein, antibodies specific to that whole protein won't recognize or bind to these individual peptides.

For example, if someone has antibodies against beta-casein, it necessitates the elimination of all cow's milk products. This is even if there's no sensitivity to the entire cow's milk protein. When digested, cow's milk protein breaks down into several peptides, including beta-casein.

Testing for food sensitivities at the peptide level provides a more accurate picture and removes uncertainties related to factors influencing digestion.

Other Benefits of Peptide-Level Food Sensitivity Testing

Increased Sensitivity and Reduced Cross-Reactivity	Testing food sensitivities at the peptide level increases the accuracy of the test. This is because peptides are highly specific to their source food and cannot be mistaken by the immune system for proteins from other foods, preventing any cross-reactivity.
Raw vs Cooked	The detection of sensitivities at the peptide level occurs after whole proteins are digested into peptides. Therefore, whether the food is cooked or raw doesn't influence the accuracy of the test results.
Digestive Insufficiency	Normally, whole proteins should not be found in the small intestine, and they certainly shouldn't pass through the tight junctions, even in the case of a 'leaky gut.' Having multiple antibodies to reactive foods might be more indicative of inadequate digestive function, such as hypochlorhydria (low stomach acid), achlorhydria (absence of stomach acid), or a lack of digestive enzymes.

Regulatory Statement:

This information is provided for educational purposes only. Vibrant Wellness does not diagnose, treat or prescribe for any health condition. This test has been laboratory developed and its performance characteristics determined by Vibrant America, a CLIA-certified laboratory performing the test. The test has not been cleared or approved by the U.S. Food and Drug Administration (FDA). Although FDA does not currently clear or approve laboratory-developed tests in the U.S., certification of the laboratory is required under CLIA to ensure the quality and validity of the tests.

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