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Min-Review

The Protease Activity of Soy Trypsin Inhibitor, Soy Antigen Proteins, Virus Antigen Protein and Hormones

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Abstract

The protease inhibitors in soy protein, such as trypsin inhibitors and soy antigen proteins, are key endogenous hydrolytic enzymes, protease A1, and peptidases, involved in soybean germination. When the anti trypsin inhibitor is combined with pepsin and trypsin, the former has higher proteolytic enzyme activity and stronger stress resistance, and can degrade animal digestive enzymes instead of being degraded by them. The capsid proteins of various viruses are proteases. After binding to membrane protein receptors, the capsid protein degrades the membrane protein, causing damage to cell integrity and initiating the endocytosis mechanism, or make a crack in the cell membrane. The destroyed membrane protein, including the virus, is internalized to form intracellular vesicles, initiating the virus infection mechanism. A virus is a protease encapsulated by DNA/RNA, which helps DNA/RNA enter host cells for replication and proliferation. The immune response is an enzymatic reaction that defends against internal proteases with viral proteases, and is a reaction between Ab proteases and Ag proteases, so the antibodies specificity appears to be high. Hormones like insulin works as protease too. Animal protease and virus protease are synthesized in the form of proenzymes. Animals and human beings themselves have almost no diseases. The diseases such as cancer, hypertension, stroke, diabetes and obesity may be caused by universal vaccination. Widespread vaccination leads to excessive activity of antibody proteases in the body, disrupting the normal mechanism of regulating protease levels. If vaccination is stop, as the source of infectious diseases is well controlled, humans will not have mass outbreaks of the above diseases. The article presents some insights into digestive physiology and preventive medicine.

Keywords: Protease; Protease inhibitor; Virus; Hormone; Vaccine; Pinocytosis

INTRODUCTION

Enzymatic activity is essentially the change in amino acid structure and the torque generated by changes, which can open up large molecules that were originally in a compound state and decompose them into small molecules. The intermolecular force of enzyme molecule changes is greater than the binding force of compounds [1-3]. We try to understand the anti nutritional factors of soybeans, the protease activity of viruses and hormones.

PROTEASE ACTIVITY OF SOYBEAN ANTI NUTRITIONAL FACTORS

The protease inhibitors in soy protein can inhibit the activity of trypsin and chymotrypsin in the intestine, thereby inhibiting protein digestion. Trypsin inhibitor is a harmful factor that affects the nutritional value of soybeans in animals. It is a mixture of several trace protein components that can be destroyed and eliminated under humid and hot conditions. This reveals the essence of improving the nutritional value of puffed and cooked soybean meal protein. Soybean seeds germinate after absorbing water, the endogenous protease activity is significantly enhanced. Endogenous germination hydrolases cause hydrolysis of seed storage proteins, and on the second day of germination, the storage proteins are almost completely degraded. In the fields of soybean science and feed science, peptidase and protease A1 play crucial roles as two key endogenous enzymes of germination hydrolases. They are actually different names for soy trypsin inhibitors and soy globulin, and this difference stems from knowledge barriers between different disciplines. Sprouting seeds can improve the digestion rate of pepsin. This is because the structure of the germinating hydrolytic protease itself decomposes during the germination process. The activity preservation rate and enzyme activity display of seed proteolytic enzymes in decomposing tissue proteins are the limiting conditions for soybean seed germination and the ability to preserve seed genes.

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In addition to trypsin inhibitors, there are also soy antigen proteins such as 11S soy globulin and 7S β- Paraglobulin. Antigen proteins mainly bind to intestinal cells in the gas intestinal tract, causing edema and increased secretion of mucin, leading to inflammation. Symptoms include decreased nutrient absorption, decreased digestion rate, accelerated chyme emptying, and increased diarrhea rate. Trypsin inhibitor and soy antigens are both proteases that act on pancreatic and intestinal cells, causing lesions. Trypsin inhibitor and the Enzyme-Linked Immunosorbent Assay (ELISA) technology for detecting immunoglobulin content and pancreatic allergy are both enzymatic reactions of defense proteases and soy proteases, which are reactions between proteases and proteases. Therefore, the specificity will appear to be high.

Antitrypsin inhibitors and soy antigen proteins are hydrolytic enzymes of soybean seed storage proteins, providing nutrients for soybean germination. They belong to glycoproteins/lipoproteins and have particularly strong resistance. They are also protected by activities such as abscisic acid, soy agglutinin, soy isoflavones, tannins, and phytic acid. These protective factors have strong activity in mature soybeans, which can cause the seeds to exhibit a dormant period. Even if all germination conditions are provided during the dormant period, the seeds still exhibit dormancy, and the activity of endogenous enzymes is not present. They are encapsulated proteases.

Antitrypsin inhibitors can efficiently degrade proteins and have the ability to degrade animal proteins. They can continuously degrade pepsin and trypsin, and can resist the degradation of pepsin and trypsin in the digestive tract. They can degrade animal tissue proteins, especially pancreatic proteins, causing it to attack the inner capsule of cells. The protein structure on the damaged cell surface is disrupted, leading to endocystalization and the formation of intracellular vesicles. The

inactivation mechanism in the cytoplasm is activated, and inactivated substances such as tissue protease and peroxidase enter the vesicles, attempting to oxidize and eliminate the contents of the vesicles. However, their effect on large molecule proteases is limited. When vesicles are damaged, the released soy anti trypsin inhibitor protease can repeatedly attack and decompose other cell proteins, causing tissue ulceration. In the future, the process of visualization of this process can be studied, to determine the action site of the enzyme and to determine the amino acid bond characteristics.

Proteases have a reduced ability to degrade glycoproteins and phosphorylated proteins, while their ability to degrade exposed proteins increases significantly. When the pancreas secretes pancreatic juice, it exposes pancreatic tissue. The pancreas is the most exposed tissue in the digestive tract and is easily recognized and destroyed by soybean anti trypsin factors in chyme, causing lesions. The remaining pepsin in normal chyme is inactivated due to an increase in pH, while trypsin is mainly peptidase and has no significant destructive effect on the pancreas. However, soy anti trypsin factors are neutral proteases with strong destructive power, causing damage to pancreatic cells and tissues. Other gastrointestinal endothelial cells are glycoproteins, mucin proteins, and have strong resistance to soy proteases. The exogenous intake of proteases in food may be an important cause of pancreatic tissue lesions.

PROTEASE ACTIVITY OF VIRUSES

A virus is a protease encapsulated by DNA/RNA, which helps the virus DNA/RNA enter host cells for replication and proliferation. The virus DNA/RNA and capsid proteases protect themself mutually [1-3]. The capsid proteins of all viruses are proteases, such as Marek's diseases virus, foot-and-mouth disease, African swine fever, novel coronavirus, HIV [1-6]. Capsid protease can degrade the proteins that bind to them. When they undergoes degradation reactions with membrane proteins, it causes damage to the cell membrane, leading to the initiation of intracellular vesiculation [5-6]. Peroxide reaction occurs in the inner capsule to eliminate the virus, but it is ineffective, instead the virus DNA/RNA duplicate in cells, resulting in cell inactivation and death, virus ambush and spread, and the damage of the intestinal intimal layer. Bacteria invade, and pathogenic bacteria further cause inflammatory reactions and tissue lesions. Bacteria also secrete proteases to disrupt the integrity of blood vessels and intestinal walls, causing inflammatory tissue fluid leakage and bleeding [7,8].

APRc is a highly conserved retropepsin-type protease, suggested to act as a modulator of other rickettsial surface proteins with a role in adhesion/invasion. MIB-MIP has the ability to promote the dissociation of the antibody-antigen complex [9]. Caf1 and LcrV, were similar to the biochemical profiles of linear antibody epitope reactivity and protease sensitivity, suggesting that the role of structure in proteolysis was captured by the analysis of the crystal structures [10]. Antibody responses against enterovirus proteases are shorter-lived than against structural proteins and can differentiate between IgM positive and negative patients [11,12].

The virus genome also contains two proteases, a papain-like protease and a 3C-Like protease (3CLike). Serum antibody isotypes can develop against any viral antigen and an individual usually develops varying immune responses against a collection of presented antigens including S and NP proteins [13]. The Rosetta design protocol optimizes the sequence on the basis of the overall energy of the antigen antibody complex, so it can be a nice choice to check the protease interaction of the complex [14].

Cleavage of influenza virus Hemagglutinin (HA) by host proteases is essential for virus infectivity. HA of most influenza A and B (IAV/IBV) viruses is cleaved at a monobasic motif by trypsin-like proteases. TMPRSS4 is an IBV-activating protease in murine AECIIs and suggest that TMPRSS13, hepsin, and prostasin cleave H3 and IBV HA in mice [15].

Protease allergens were shown to cleave the protease sensor domain of IL-33 to produce a super-active form of the alarmin. The multiple innate immune mechanisms triggered by protease allergens that converge to initiate the allergic response [16].

Secreted bacterial proteases involved in biofilm establishment and dispersal, and how they aid bacteria in immune evasion by degrading immunoglobulins and components of the complement system [17]. IdeS, a secreted proteinase of Streptococcus pyogenes, is bound to a nuclease at the bacterial surface where it inactivates opsonizing IgG antibodies [18].

The protease encoded by the HuNoV genome plays a critical role in virus replication by cleaving the polyprotein and is an excellent target for developing small-molecule inhibitors [19]. Novel discovery approaches are based on proteolytic activation. Antibody therapies targeting proteolytic activation. Activatable pro-forms of antibodies or effector proteins [20].

About 24 hours after an animal is infected with the virus, the nervous system issues instructions, causing an increase in body temperature to increase the antibody protease activities to clear the virus, and a systemic peroxidation/phosphorylation reaction. Cellular proteins transform into spasmodic stiffness hardening proteins, which are most pronounced in muscles. This reaction is to prevent the protease activity of viral protease and prevent cell damage. Neurotransmitters determine the process of spasms, which is the function of the central nervous system. During spasms, the nerves guide a tonic response, causing muscle fibers to tighten and lose their protease binding ability, making them unable to be degraded by virus proteases. ATP promotes the formation of myosin complexes, leading to muscle rigidity and loss of binding opportunities for proteases.

Many viruses are prone to multiple infections, especially in influenza viruses. Most viral proteases have low substrate specificity, which can lead to multiple infections and severe symptoms. Due to the poor specificity of proteases, almost all viral proteases have a degrading effect on all cell surface proteins. Therefore, in animal production practice, once certain viral infections occur, they often hide in body and lead to repeated infections. For example, foot-and-mouth disease, we had found in animal production that after vaccination according to the procedure, there will be frequently outbreaks of this disease. Even if the Ab protease can bind viral capsid proteases, they still cannot prevent recurrence of the disease. Therefore the vaccine RNA of foot-and-mouth disease doubtless is the cause of its transmission.

The traditional antigen antibody theory has a logical error, stating that the decomposition products of viral proteins can specifically induce human plasmocyte to produce corresponding specific antibodies. But the breakdown products of viral proteins are amino acids, how can we absorb protein nutrients from food? We should all have allergic reactions and immune diseases, if this theory holds true. Therefore, it is more likely that the levels of antibody proteases in the blood, naturally maintain a reasonable level. If the levels are lower than normal, the Abs will automatically generate to maintain normal levels.

The immunoglobulins in colostrum are repair proteins and proteasogens, and newborn calves have a low protein content, and fewer susceptible sites to infection. After a wave of viral infection, all exposed proteins sink into vesicles, preventing new infections from occurring. Easy to come into contact with limited susceptible areas of the virus. After the initial infection of the virus, a large amount of protective mucosal proteins such as mucin proteins are secreted in the susceptible areas, cutting off the route of virus infection. After the disease, it is easy for the previously infected virus to be released and reinfected, which lurks in the body. Immunomodulators alter the activity of viral proteases. Antibodies are defense proteases. So eliminating pathogens is the correct path to eradicating viral diseases.

Therefore, we believe that the functional components of human and animal defense against diseases include tissue repair proteins and defense proteins, and the properties of defense proteins are mainly proteases. It can degrade viral proteases that enter the body, as well as sedimentary proteins in blood vessels and inflammative tissues.

The programmed expression of defense protease genes is determined by time, expression product concentration, and nutritional level. Follow the principles of chemical reactions.

The concentration of nucleotides and mRNA content determine the occurrence and cessation of cell proliferation and Ab protease gene transcription; The concentration of amino acids and the concentration of blood defense proteases determine the occurrence and cessation of mRNA to defense protease translation reactions. The amount of viral protein is negligible and cannot affect proliferation and protein translation reactions.

The amount of amino acids produced by the enzymatic hydrolysis of viral proteases is very small and cannot induce antibody production. And the peptides and amino acids from virus proteins have no different from the amino acids generated by the breakdown of food proteins, and cannot regulate the expression of Ab protease genes.

There is really no logical evidence to support the signaling pathway that determines the specific expression of antibodies induced by antigen. Due to the poor specificity of proteases, almost all proteases have a degradation effect on all proteins, which is determined by the chemical properties of amino acids. Amino acids have strong forces due to their polar groups such as amino groups, which are determined by their chemical properties and charge. Therefore, antigen specifically induce antibody production is a mistake, we should abandon the antigen-antibody theory. The levels of antibody naturally maintain a normal and reasonable level. If the levels are lower than normal, or if exogenous proteases invade, chemical reactions will be initiated to generate and maintain normal levels. Because both the invasion of exogenous proteases or virus DNA/RNA are forms of injury and a consumption of defense protease, the vaccines for DNA or RNA encapsulated protease viruses should be banned. Instead, isolation and elimination of pathogens should be used.

The essence of allergic reactions is the occurrence of linking reactions within blood vessels. Antibody proteases have degeneration reactions with blood cells, forming blood clots and blocking blood vessels. The integrity of the digestive tract endothelium and vascular inner wall decreases, the density of the digestive tract intima and vascular intima decreases, and leakage occurs. After the absorption of macromolecular substances, stimulation induces a large amount of repair proteins to repair, and coagulation reactions occur outside the repair site, preventing foreign substances from entering the body.

The growth and development of healthy adult human cells have been completed, and the protein intake in the diet is mainly composed of synthetic defense proteases and tissue repair proteins, which repair cellular and tissue loopholes caused by viral and pathogenic diseases. This type of cellular tissue damage problem is more severe in urban areas, with high work intensity, and aging populations, and is a physiological cause of anxiety and stress that troubles people.

The antigen-specific sites overlap completely with the active sites of deubiquitinase and protease, indicating that both of viral proteins and antibodies are proteases. The specific relationship between antigens and antibodies is the specific relationship between viral protease and defense protein enzymes.

Doctors and scientists do not lie because there is a misleading illusion that vaccines do have a short-term effect in preventing reinfection. The mechanism is the action of proteases. After the virus protease enters the bloodstream, it quickly degrades its matching defense protein, which is the antibody of doctors. And it degrades the cell surface matching receptors, allowing the cytoplasm to enter the cell. The newly introduced virus of the same species, due to the loss of the protease work site, cannot exhibit viral activity and no longer exhibit symptoms. This is the protective principle of vaccines. Widespread vaccination leads to excessive activity of antibody proteases in the body, disrupting the normal mechanism of regulating protease levels.

Anti snake venom serum, anti rabies serum, and anti neurotoxin serum, because they contain tissue repair proteins and defense proteases that can repair the integrity of the nervous system, rehabilitation serum can specifically save lives. Rabies virus protein and snake venom have neurophosphatase activity, and neurotoxin enzymes have a fast onset and short course of disease. New enzyme specific matching tissue repair proteins and defense proteins cannot be synthesized or reacted in time, so they are only effective in the serum of recovered individuals.

Cross-presentation of antigens by fibroblasts involved the lysosomal protease cathepsin S. Cathepsin S expression by CAFs was detected in situ in human CRC tissue, was upregulated in ex vivo cultured CRC-derived CAFs and showed increased expression in normal fibroblasts after exposure to CRC-conditioned medium. Cognate interaction between CD8+ T cells and cross-presenting CAFs suppressed T cell function, reflected by decreased cytotoxicity, reduced activation (CD137) and increased exhaustion (TIM3, LAG3 and CD39) marker expression [21].

In situ labeling with an AZP incorporating S16 revealed a potential role of metalloproteinase dysregulation in proliferative, pre-malignant Hi-Myc prostatic glands. Systemic administration of an in vivo imaging probe incorporating S16 perfectly classified diseased and healthy prostates, supporting the relevance of ex vivo activity assays to in vivo translation [22].

Killing of bronchial epithelial and renal cortical cells with low FOLR1 expression is prevented compared to the parental FOLR1-TCB. Immunoglobulin A provides a major line of defence against pathogens and plays a key role in the maintenance of the commensal microbiota in the intestinal tract. Having been shown to be more effective at tumour cell killing than IgG and strongly active against pathogens present in the mucosae [23].

The interaction of the Fc region of therapeutic antibodies and antibody-drug conjugates with Fcγ receptors (FcγRs) can lead to unpredictable and severe side effects. Upon demasking by a tumor-associated protease, the Fc-activated antibodies demonstrated restored FcγR-binding, c1q-binding and the ability to induce potent ADCC activation [24,25].

THE PROTEASE ACTIVITY OF HORMONES AND GROWTH FACTORS

After glandular cells generate hormones, they secrete hormones at a uniform rate when they are in a mature state. When there is a control hormone secreted by the hypothalamus, it carries protease activity and binds with surface proteins to break down proteins, inducing cellular endocytosis and promoting accelerated hormone secretion. Hormonal endocrinology is the process in which protein hormones exert their protease activity to stimulate the cleavage, secretion, and growth metabolism of glandular target tissues, as well as the apoptosis of mature cells in endocrine glands. The specific binding of protein hormones and growth factors to receptors is essentially the specific binding of proteases and substrates. Insulin is a proteolytic enzyme secreted by the pancreas. When it is secreted into the intestinal cavity, it is also secreted into the blood and tissue fluid. It binds with cell receptors in the intestinal cavity, blood, and quickly causes pinocytosis, absorbing nutrients from both the intestinal cavity and blood, including glucose and amino acids, into the cells. The action mode and mechanism of insulin in tissues and organs such as the intestinal cavity and liver and muscles in the body are consistent. There are many cells in the human body that produce proteases, including

antibodies and hormones. There should be a mechanism in the human body that can maintain the activity of proteases at an appropriate level, at a relatively low level, just like maintaining a low concentration of blood sugar. Moreover, this mechanism of maintaining low protease activity is superior to maintaining low blood sugar levels. When the mechanism that maintains low levels of protease is damaged, hormones produced in the human body, such as insulin, are quickly eliminated, making it unable to transport blood sugar in a timely manner and individuals unable to maintain normal blood sugar levels. This is how diabetes occurs.

Humoral immunity is protease immunity. The level of blood protease must be low before insulin can play its role, otherwise insulin will be rapidly degraded and diabetes will occur. Cellular immunity is the process by which cells engulf and decompose proteases and their conjugates, removing active proteases from blood and tissues, and eliminating their destructive effects. Cellular immunity can ensure that humoral immunity is at a relatively low normal level, that is, the homeostasis of blood proteases.

Human and animal diseases are not caused by a large number of viral pathogens, but by a small amount entering the body and successfully replicating and reproducing, the concentration of viral pathogens in the body quickly increases, and it plays a pathological role. During this process, the newly generated virus protease causes a rapid decrease in the level of antibody protease in the body. After one to several rounds of virus and pathogen reproduction, as well as the generation and interaction of antibodies in the body, both Ag and Ab are in a silent state, showing no symptoms and low antibody levels. Some people are sensitive to viruses or have low tissue integrity. Their replication rate of viruses is always high, and the antibody level in their body is also high. The long-term high protease state in the body will show diseases such as diabetes and cancer. These diseases are characterized by the high level of antibody protease in the body. This high level protease is induced mainly by pathogenic virus, bacteria, and vaccines. Due to the high vaccination rate, the main cause of this high blood protease is vaccines. Because of the imbalance of the antibody level induced by the vaccine, the antibody protease is on the high level, and the rapid degradation of insulin leads to diabetes. High levels of viral protease can also lead to excessive proliferation of organ tissues that produce protease, namely cancer, including glandular carcinoma and epithelial cell carcinoma. Reduce the induction of antibody production, and diabetes and cancers will disappear.

Osteoblast growth factor reaches the surface of bone cells, exerts protease activity, forms an inner capsule, and enters cells together with calcium ions, leading to apoptosis and death of bone cells. Calcium phosphate forms bone growth. When the tissue repair protein is severely insufficient, people develop various neurodegenerative diseases, including central and peripheral neurodegenerative diseases, such as demyelinating neuropathy, Alzheimer's disease, Parkinson's disease, and stroke, all of which belong to organic lesions and are related to damage to the integrity of the nervous system cells. Symptoms may be mild, including hallucinations, delusions, impulsive behavior, sleep disorders, decreased memory and life ability, depression and anxiety, and in severe cases, it can lead to hand tremors and hemiplegia. Neurodegenerative diseases often complicated by vascular diseases, which are the result of tissue integrity damage developing into the blood vessels and nervous system. Nutritional technology products can prevent and cure them.

In short, life follows the principle of simplicity and responds to various challenges in a unified and consistent manner, including endocytosis, rigidity mechanisms, peroxidation, and apoptosis mechanisms. The temperature inside human and animal bodies is generally between 0-40°C, with atmospheric pressure. The changes in temperature and pressure are not as significant as those in plants and microorganisms. Therefore, only normal enzymatic biochemical reactions occur in the body, and no special chemical reactions occur. The metabolic products in animal bodies are not as diverse as those in plants and microorganisms, and their life activities follow protease mechanisms.

CONFLICTS OF INTEREST

I declare that I have no financial and personal relationships with other people or organizations that might inappropriately influence my work, and there is no professional or other personal interest of any nature or kind in any product, service and/or company that could be construed as influencing the content of this paper.

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