

## Autoimmune Disease: A Major Challenge for Effective Treatment

Shibani Basu<sup>1\*</sup> and Bimal K Banik<sup>2#</sup>

<sup>1</sup>Department of Chemistry and Biochemistry, Boise State University, University Drive, Boise, Idaho, USA

<sup>2</sup>Community Health Systems of South Texas, Edinburg, Texas, USA

# Equally Contributed

### Abstract

Our body immune system is a multipart system of cells and organs which protects the body from external intruders. An autoimmune disease is a disorder rising from an irregular immune response to healthy cells. Globally, autoimmune diseases are common which may lead to disability and death.

**Keywords:** Immune system; Autoimmune diseases; Rheumatoid arthritis; Multiple sclerosis

### Introduction

An autoimmune disease progresses when body's own immune system, which protects body against disease, selects healthy cells as foreign and undesired cells. An error can create the body to understand the difference between self and foreign cells, which makes autoantibodies. The autoantibodies then attack normal cell which causes the harm to body parts, known as autoimmune disease. An autoimmune disease can disrupt one or several types of body tissue where body's own immune system attacks healthy cells. Autoimmune disease can attack-nearly any portion of the body, as well as the brain, nerves, heart, joints, lungs, skin and eyes. For example, type 1 diabetes can affect kidneys, eyes, glands, muscles, etc. where SLE (systemic lupus erythematosus) can affect skin, blood vessels, heart, kidneys, joint, etc. There is no particular evidence what causes autoimmune diseases. Some immune diseases can be activated by infections (bacteria, virus, drugs, chemical irritants, etc.) or other environmental factors. On the other hand some autoimmune diseases have a genetic trend to progress which can be activated by outside intruder. There are over 80 types of autoimmune diseases. Many of them have similar symptoms which makes it hard to know if there are any possibilities of this disease. The common symptom of an autoimmune disease is inflammation, which can produce fever, fatigue, swelling, pain and redness. Symptoms for an autoimmune disease depend on what body part has been targeted. As for example, in Graves' disease, the targeted body part is thyroid which causes weight gain, muscle aches and tiredness. In systemic lupus erythematosus (SLE), systemic sclerosis and vitiligo, the affected part is skin and causes color changes, blisters and rashes. At present clinical practice, cure for autoimmune diseases emphasizes on relieving symptoms and preventing difficulties as there is no useful therapy. Examples of most common autoimmune disease: An individual may have more than one autoimmune disorder at the same time Common disorders include.

### Rheumatoid Arthritis

Human body immune system creates antibodies which attack to the joints. This attack causes inflammation, redness, swelling, warmth and pain. The symptoms of Rheumatoid arthritis can vary from mild to severe and usually they are not persistent. Rheumatoid arthritis can cause permanent joint damage, if not properly treated from the beginning [1]. The joint damage that Rheumatoid arthritis causes usually effects on both sides of the body. Therefore, if one joint of arms or legs is affected, the same joint of other arm or leg will also be affected.

### Type 1 Diabetes Mellitus

Type 1 diabetes mellitus occurs when insulin-producing cells of the

pancreas are destroyed by body's own autoimmune response. Insulin is a hormone produced by the beta cells in the pancreas. Insulin helps to transfer glucose into cell from blood and lack of sufficient amount of insulin results high blood sugar level. The exact cause of type 1 diabetes mellitus is still unknown. Most probably, it is an autoimmune disorder where immune system attacks healthy cell of own [2]. Type 1 diabetes mellitus produces when immune system attacks beta cell and damage the system to produce insulin. This trend to develop type 1 diabetes mellitus can be passed down through heredity. Type 1 diabetes mellitus is a chronic disease in with high level of glucose in the blood which requires lifelong clinical approaches to keep a good health. Type 1 diabetes mellitus can be diagnosed at any age and most regularly diagnosed in adults, teenagers or children [3].

### Autoimmune Thyroid Disease

The thyroid gland is a very significant organ of the body system which is located at the front of the neck. The thyroid gland controls body metabolism by releasing thyroxine and triiodothyronine hormone. Excess amount of thyroid hormone release results hyperthyroidism and lower amount of thyroid hormone release produces hypothyroidism [4]. When body's own immune system attacks thyroid tissue causes Graves' disease (hyperthyroidism) and Hashimoto's thyroiditis (hypothyroidism). Symptoms of these both conditions are fatigue, nervousness, weight gain or loss, intolerance to cold or heat. These diseases affect as many as 10% of the population and some symptoms are nonspecific and can develop quickly [5].

### Multiple Sclerosis

In Multiple sclerosis, body's own immune system attacks central nervous system. The fiber sheath (myelin) of central nervous system is damaged by the immune system and results communication problems of brain with rest of the body. Eventually, this disease deteriorates brain activity and results permanent damage of central nervous system [6]. Like other autoimmune disease, the particular cause of multiple sclerosis is still unknown and there are no cures for this disease.

**\*Corresponding author:** Shibani Basu, Department of Chemistry and Biochemistry, Boise State University, 1910 University Drive, Boise, Idaho 83706, USA, Tel: 83725-1520; E-mail: [meetbasu.shibani@gmail.com](mailto:meetbasu.shibani@gmail.com)

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Symptoms of multiple sclerosis not well defined where patients suffer from blindness, slurred speech, paralysis and premature death [7].

### Systemic Lupus Erythematosus

This autoimmune disease results when body's immune system attacks healthy cells by mistake in many part of the body like skin, kidneys, joints and other organs. Symptoms of Systemic lupus erythematosus are fever, swollen joints, hair loss, chest pain, fatigue, swollen lymph nodes and skin rash [8]. Symptoms vary between mild to severe and often difficult to diagnose the disease due to its broad symptoms [9].

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