**What is Mast Cell Activation?**

Mast cells are "master regulators" of the immune system. They come from bone marrow and go into all tissues of the body. Each mast cell contains secretory granules (storage sacs), each containing powerful biologically active molecules called mediators. These can be secreted when mast cells are triggered, leading to allergic and inflammatory diseases.

Mast cells are found in connective tissue, including the skin, the linings of the stomach, intestine and other sites and play an important role in helping defend these tissues from disease. Mast cells release chemical “alarms” such as histamine and attract other key players of the immune defense system to areas of the body where they are needed.

There are two main forms of mast cell disorders: [Mastocytosis](http://en.wikipedia.org/wiki/Mastocytosis%22%20%5Ct%20%22_blank), where the body produces too many mast cells, and [Mast Cell Activation Syndrome (MCAS)](http://www.ncbi.nlm.nih.gov/pubmed/23179866), where even the normal number of mast cells are too easily activated by a trigger to release their contents, called mediators. These mediators can cause a variety of unpredictable symptoms in both children and adults, including, skin rashes, flushing, abdominal pain, bloating, nausea, vomiting, headache, bone pain and skeletal lesions, and anaphylaxis. Triggers can be heat, cold, stress (physical or emotional), perfumes or odors, medications, insect stings, and foods. These symptoms are treated with medications including antihistamines, mast cell stabilizers, and leukotriene inhibitors, while anaphylaxis is a medical emergency requiring epinephrine.

Mastocytosis can affect skin and internal organs such as the bone marrow, gastrointestinal tract, liver, and spleen. Most patients with mastocytosis have cutaneous (skin) or indolent (benign) systemic forms, but aggressive disease can occur, which may require chemotherapy.

Mast cells play a major role in many physiologic processes but, for reasons that are unclear, they may become an aggressive force which can damage the natural biologic balance.

A significant challenge is early recognition of mast cell involvement in conditions and diseases which may present with a multitude of symptoms that are often misdiagnosed. In addition, there are currently limited methods available in order to identify and diagnose these conditions so more research is necessary.

For more information:

<https://ehlers-danlos.com/2014-annual-conference-files/Anne%20Maitland.pdf>

<https://my.clevelandclinic.org/health/articles/mastocytosi>s