

Deconstructing lupus—could some of its makeup be part of its cure?

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University of Houston biomedical engineer Chandra Mohan is examining the protein ALCALM to find a cure for lupus and its complications. Credit: University of Houston

Chandra Mohan, Hugh Roy and Lillie Cranz Cullen Endowed Professor of biomedical engineering, has received a \$600,000 Target Identification in Lupus grant from the Lupus Research Alliance to address fundamental questions in lupus research, remove barriers to new treatments and possibly find a cure for lupus and its complications.

Only seven [lupus](#) researchers across the country were chosen to carry out these tasks.

It's a big ask. Lupus is a complex autoimmune disease that is difficult to diagnose, treat and defeat. Only one treatment has been approved in nearly 60 years.

But Mohan knows exactly where to start. He will examine a protein called ALCALM (activated leukocyte cell adhesion molecule), which is important for activating T cells. ALCALM is also

present in several kidney diseases and in the urine of [patients](#) with lupus kidney disease. He likens it to a bad guy being caught at the scene of several crimes.

"Lupus patients may have increased ALCALM in both their immune systems and their kidneys, and this probably plays a major role in activating the immune system and causing the [kidney](#) disease in [lupus patients](#)," said Mohan.

While healthy people need ALCALM to activate their T cells to fight off foreign microbes in the body, in patients with an autoimmune disease, the activated T [cells](#) end up just fighting the patient's own tissues, rather than a foreign body.

Mohan will continue tracking ALCALM to confirm its presence in the kidneys of lupus patients rather than just the urine, while also investigating whether the increased ALCALM is indeed driving the disease. His research will also include treating lupus by testing an antibody that blocks ALCALM.

If the antibody does block lupus, then he could move onto translational studies and clinical trials, said Mohan, alluding to possible new drug therapies for the disease.

"We began this study looking for biomarkers and we think ALCALM is a good biomarker, meaning we may be able to track the [disease](#) by looking at the levels of ALCALM in the urine. But now we are finding that ALCALM may be a therapeutic target, too," he said.

Provided by University of Houston

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