

# Sirtuin-1 levels linked to lupus

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The Cardiometabolic and Kidney Risk Research Group, in collaboration with the Genomic and Genetic Diagnosis Unit of the Health Research Institute of Valencia's Hospital Clínico, INCLIVA, the Department of Biochemistry and Molecular Biology of Valencia University and the Hospital Clínico's Internal Medicine Department, have proven that the levels of messenger RNA and proteins of the enzyme Sirtuin-1 in urine are associated with the activity and characteristics of the lupus that affects kidneys, known as lupus nephritis.

Their work was published last February in the international journal *Clinical Science*.

Lupus is an autoimmune disease in which the immune system attacks healthy cells and tissue by mistake. It can affect joints, kidneys, the heart, lungs, blood vessels and the brain.

Although there are several types, [systemic lupus erythematosus](#) (SLE) is the most common, and can affect several parts of the body, in contrast to cutaneous or discoid lupus which only affect the skin, or the type that is caused by medicines which disappears as soon as the patient stops taking the medication that caused it.

Systemic lupus erythematosus has many symptoms and there is not a unique test to diagnose it, which often leads to misdiagnosis. It can appear at any age, although it is most commonly diagnosed between 30 and 50 years of age and prevails among women (at a 10:1 ratio compared to men). Its severe impact on the health service must not be understated

either, as it is a chronic [illness](#) which affects young people and treatments are lengthy and costly. Kidney impairment or [lupus nephritis](#) (LN) is one of the most severe and one of the first manifestations of SLE, representing one of the main causes of morbidity and mortality of the illness.

"Hence the importance of detecting the biochemical markers, such as Sirtuin-1 in this case, which are associated with the activity and histological features of these patients, which allow us to learn about the processes that affect the evolution of the illness and to establish new courses of action for a better therapeutic handling of the illness," says the head of internal medicine, Dr. María José Forner Giner.

"This study comes as a result of the undertaking of a new line of research on the analysis of the different molecular and cellular mechanisms that can affect the start and progress of an autoimmune illness such as systemic lupus erythematosus," adds Dr. Raquel Cortés Vergaz from the Cardiometabolic and Kidney Risk Study Group. "The study draws from the analysis of the messenger RNA and protein levels of Sirtuin-1, an enzyme which has protective effects against different illnesses which affect the kidneys, in the urinary sediment of patients with SLE. We found that higher levels of this enzyme are detected in patients whose kidneys are affected. Furthermore, Sirtuin-1 levels are associated with the levels of lupus activity, and with the severity of the [kidney's](#) histological characteristics," explains Dr. Raquel Cortés.

"These findings are of special clinical relevance because they provide new information on the pathophysiology of lupus nephritis, and highlight the clinical applicability of a non-invasive diagnosis and monitoring method such as detecting levels of Sirtuin-1 in urine," add the researchers.

**More information:** Dolores Olivares et al. Urinary levels of sirtuin-1

associated with disease activity in lupus nephritis, *Clinical Science* (2018). [DOI: 10.1042/CS20171410](https://doi.org/10.1042/CS20171410)

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