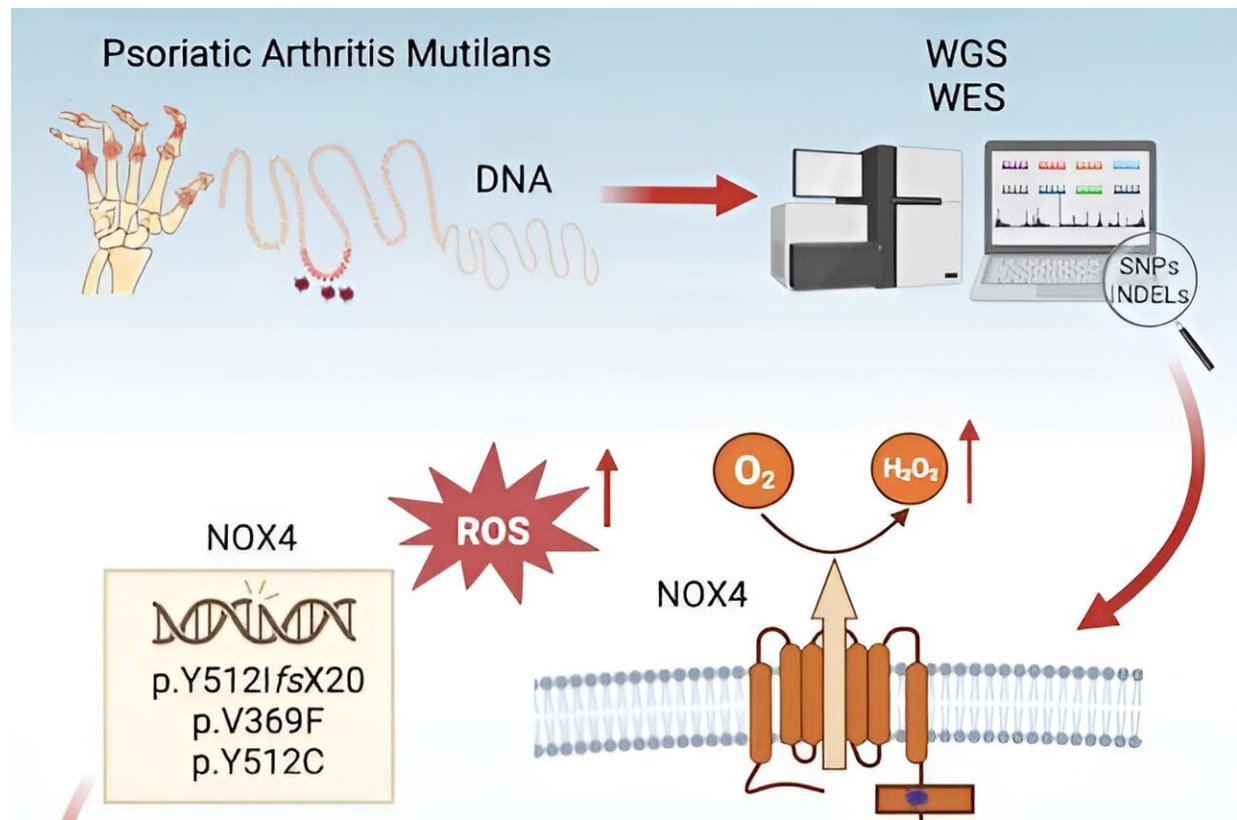


New discovery could lead to better treatment for severe psoriatic arthritis

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Credit: *EMBO Molecular Medicine* (2024). DOI: 10.1038/s44321-024-00035-z

Researchers at Karolinska Institutet have discovered a link between a rare and severe form of psoriatic arthritis and an enzyme that produces oxygen radicals. The [study](#), published in the journal *EMBO Molecular*

Medicine, reveals new ways to slow down or stop the disease progression.

Psoriatic arthritis mutilans is a rare and very serious form of joint disease in psoriasis characterized by the breakdown of bone tissue and joint structures in small joints of fingers and toes. Despite its severity, no genetic risk factors for PAM have been identified before.

The PAM study was initiated more than 10 years ago by Mona Ståhle, KI, as a collaboration between dermatologists and rheumatologists in the Nordic countries. The clinical and epidemiological background has been described in several publications.

In the new study, researchers analyzed the genome of 61 patients with PAM in the Nordic countries. They found that four of the patients had rare gene variants of NADPH oxidase 4 (NOX4), an enzyme that produces [oxygen radicals](#) in the body. Oxygen radicals are reactive molecules that can cause damage to cells and tissues. NOX4 is also involved in the formation of so-called osteoclasts, cells that break down bone tissue.

The researchers' hypothesis is that the identified NOX4 variants in people with PAM lead to increased production of oxygen radicals, which in turn results in increased breakdown of bone [tissue](#) and joints.

"The study is the first to link high levels of oxygen radicals to the development of PAM and gives hope for new treatment options for these severely ill patients," says Isabel Tapia-Paez, researcher at the Department of Medicine, Solna, Karolinska Institutet, who led the study.

More information: Sailan Wang et al, Rare coding variants in NOX4 link high ROS levels to psoriatic arthritis mutilans, *EMBO Molecular Medicine* (2024). [DOI: 10.1038/s44321-024-00035-z](https://doi.org/10.1038/s44321-024-00035-z)

Provided by Karolinska Institutet

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