

Dendritic cells affect onset and progress of psoriasis

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Different types of dendritic cells in human skin have assorted functions in the early and more advanced stages of psoriasis report researchers in the journal *EMBO Molecular Medicine*. The scientists suggest that new strategies to regulate the composition of dendritic cells in psoriatic skin lesions might represent an approach for the future treatment of the disease.

"We urgently need new ways to treat [psoriasis](#), treatments that will deliver improved benefits to patients and reduce the incidence of known side effects for existing drugs," says EMBO Member Maria Sibilina, a Professor at the Medical University of Vienna in Austria, and one of the lead authors of the study. "Our experiments have revealed that increases in the number of [plasmacytoid dendritic cells](#) are important early triggers of the disease while other types of dendritic cells, the Langerhans cells, help to protect the balance of the immune response that is established during inflammation of the skin."

Psoriasis is an autoimmune disease that affects around 125 million people worldwide. Symptoms, which include the formation of red inflamed lesions that appear on the skin, vary from mild to severe. The disease is often associated with other serious health conditions such as diabetes, heart disease and depression.

The researchers observed an increase in the accumulation of plasmacytoid dendritic cells in the psoriatic lesions of patients as well as in mice that are model organisms for the study of the disease.

Plasmacytoid dendritic cells are a specific type of immune cell that can infiltrate damaged tissue during the early phase of psoriasis. In contrast, the levels of another type of dendritic cells known as Langerhans cells, were significantly decreased in the lesions compared to healthy skin in humans and mice. If the levels of plasmacytoid dendritic cells in mice were decreased during the early stages of the disease then the symptoms of psoriasis were quelled. A similar decrease in Langerhans cells at an early stage of the disease had no effect. If the levels of Langerhans cells were reduced at advanced stages of the disease, the symptoms of psoriasis were exacerbated.

"The changes in the severity of symptoms we have observed related to changes in the composition of dendritic [cells](#) most likely impact the balance of inflammatory mediators at the site of disease. It may well be that by inducing favourable compositions of [dendritic cells](#) at the early stages of psoriasis we may be able to help reduce the effects of psoriasis by achieving a better balance of these mediators at the site of the [disease](#). Further work is needed before we can say with any certainty if such an approach will lead to a viable clinical treatment for psoriasis."

More information: Specific roles for dendritic cell subsets during initiation and progression of psoriasis, [DOI: 10.15252/emmm.201404114](#)

Provided by EMBO

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