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Nobel Prize in Medicine 2025 to trio for groundbreaking discoveries of immune system

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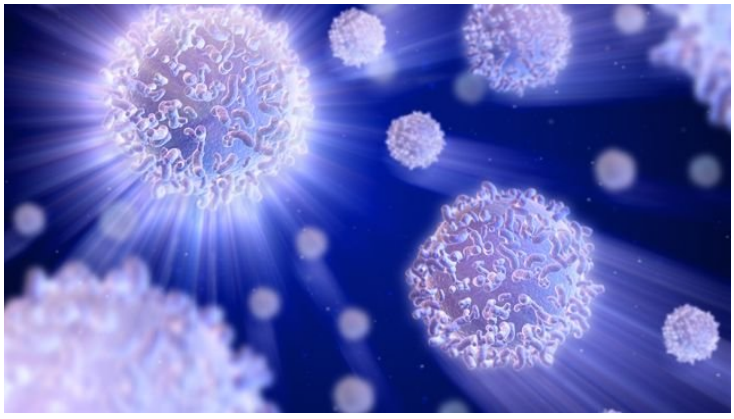
11 million Swedish kronor, to be shared equally between the laureates



The Nobel Assembly at Karolinska Institutet has decided to award the Nobel Prize in Physiology or Medicine 2025 to: Mary E. Brunkow Institute for Systems Biology, Seattle, USA; Fred Ramsdell Sonoma Biotherapeutics, San Francisco, USA; and Shimon Sakaguchi Osaka University, Osaka, Japan ”for their discoveries concerning peripheral immune tolerance”

Mary Brunkow and Fred Ramsdell made the other key discovery in 2001, when they presented the explanation for why a specific mouse strain was particularly vulnerable to autoimmune diseases. They had discovered that the mice have a mutation in a gene that they named Foxp3. They also showed that mutations in the human equivalent of this gene cause a serious autoimmune disease, IPEX.

Two years after this, Shimon Sakaguchi was able to link these discoveries. He proved that the Foxp3 gene governs the development of the cells he identified in 1995. These cells, now known as regulatory T cells, monitor other immune cells and ensure that our immune system tolerates our own tissues.

The laureates’ discoveries launched the field of peripheral tolerance, spurring the development of medical treatments for cancer and autoimmune diseases. This may also lead to more successful transplantations. Several of these treatments are now undergoing clinical trials.