

Damon Runyon Scientists Paved the Way for the 2025 Nobel Prize in Physiology or Medicine

This 2025 Nobel Prize was awarded for discoveries regarding how the immune system is kept from harming the body.

January 5, 2026 By [Damon Runyon Cancer Research Foundation](#)

In October, the 2025 Nobel Prize in Physiology or Medicine was awarded to Mary E. Brunkow, PhD, Fred Ramsdell, PhD, and Shimon Sakaguchi, MD, PhD, for their groundbreaking discoveries concerning peripheral immune tolerance, which keeps the immune system from attacking the body's own issues. Together, the laureates identified and defined the “security guards” of the immune system, known as regulatory T cells (T_{reg}).

The Nobel Assembly highlighted how this landmark work stood upon decades of foundational discoveries—many made by Damon Runyon scientists.

Among those recognized in the Nobel background report was Susumu Tonegawa, PhD (Damon Runyon Fellow '69-'70), who explained how immune cells generate a highly diverse repertoire of antigen receptors through the recombination of three gene segments, known as V, D, and J. This discovery, which earned him the 1987 Nobel Prize, established a conceptual framework for understanding how T cells identify self from non-self—a cornerstone of later studies on T_{reg} function.

Building upon that foundation, Mark Davis, PhD (former Fellowship and Innovation Award Committee member and sponsor to five Fellows), helped locate the V, D, and J gene segments within the genome, revealing the molecular basis for antigen recognition in T cells.

Philippa Marrack, PhD (Damon Runyon Fellow '71-'73 and former Fellowship Award Committee member), provided key experimental evidence that self-reactive T cells are eliminated in the thymus through a process known as negative selection. Her work helped clarify how immune tolerance begins during T cell development.

Later, Craig Thompson, MD (Damon Runyon Emeritus Board member, former Fellowship Award Committee member, and sponsor to multiple Fellows and Clinical Investigators), showed that T cell receptors could be induced in the presence of new antigens, a discovery central to understanding

how T cells are activated and how their activity is kept in balance.

Finally, Alexander Rudensky, PhD (former Fellowship Award Committee member, and sponsor to two Damon Runyon Fellows), made pivotal contributions that directly linked the gene Foxp3 to regulatory T cell identity. In mouse models, his team showed that loss of Foxp3 function causes severe autoimmune disease, cementing the gene's causal role in immune regulation.

Today, that scientific lineage continues: Dr. Rudensky's mentee, current Damon Runyon Fellow Ariën Schiepers, PhD, is working to elucidate the role of Foxp3 in regulatory T cell function.

The cancer immunotherapies that patients rely on today would not exist without these decades of fundamental research into immune system function. We celebrate this Nobel-winning work, and every brick in the foundation on which it rests.

Read the full Nobel Prize press release [here](#).

[This post](#) was originally published by [Damon Runyon Cancer Research Foundation](#). It is republished with permission.

© 2026 Smart + Strong All Rights Reserved.

<http://beta.docker.cancerhealth.com/blog/damon-runyon-scientists-paved-way-2025-nobel-prize-physiology-medicine>