

Stanley Riddell, M.D.



FACULTY MEMBER

Stanley Riddell, M.D.

Professor, Program in Immunology
Clinical Research Division, Fred Hutch

Burke O'Reilly Family Endowed Chair in Immunotherapy
Fred Hutch

Phone: 206.667.7025

Email: sriddell@fredhutch.org

Fax: 206.667.7983

Mail Stop: S2-204

Dr. Stan Riddell is a world leader in developing immunotherapies, which harness the power of the immune system to fight cancers and dangerous infections. His research focuses on detailing the complex biology of immune cells called T cells and pioneering therapies that use genetically reprogrammed T cells to specifically recognize and destroy diseased cells. These therapeutic T cells zero in on specific protein targets known as antigens, using either natural molecules called T-cell receptors or synthetic molecules called chimeric antigen receptors. Chimeric antigen receptors, also known as CARs, combine elements from T-cell receptors and from other immune cell-produced antibody molecules. His team's breakthroughs are helping researchers make progress for patients who need better therapies.

Other Appointments & Affiliations

Professor
University of Washington School of Medicine
Attending Physician
Fred Hutchinson Cancer Center

Education

Fellow, Hematology, University of Manitoba, 1985

Resident, Internal Medicine, University of Manitoba, 1983

M.D., University of Manitoba, 1979

Clinical Expertise

Dr. Riddell is an expert in using hematopoietic (blood-forming) stem cell transplantation (HCT) to treat patients with leukemias, lymphomas and other blood-related cancers, and in treating graft-versus-host disease (GVHD) that can occur when a donor's immune T cells attack normal tissues as well as the malignancy. Based on his extensive clinical experience and laboratory investigations, Dr. Riddell has developed innovative therapies that use T cells to treat various viral infections and cancers. He was the principal investigator on the first human trial of transferred therapeutic T cells, to prevent dangerous cytomegalovirus infections after HCT, and on four subsequent clinical trials of 'adoptive' T cell therapy, including the first using leukemia-reactive T cells to treat relapsed leukemia post-transplant and the first using CAR-engineered T cells of defined subset composition.

Research Focus

Dr. Riddell's early studies demonstrated the potential to augment T cell immunity by the adoptive transfer of antigen-specific T cells and uncovered mechanisms by which virally-infected cells evade immune recognition. These findings provided insights into similar mechanisms that tumors use to escape T cell immunity and that might be therapeutically targeted to improve patient outcomes. More recently, the Riddell team identified the subset of T cells that can best survive and function after transfer to patients and found that using clearly defined combinations of T-cell types can make the therapy even more effective. They have developed critical techniques for the isolation, expansion, genetic modification and reinfusion of therapeutic T cells, and for monitoring patient safety as well as T cell persistence, migration and function post-infusion. Many of these powerful methods are now broadly used in developing adoptive immunotherapies, including state-of-the-art ways to identify the tumor antigens recognized by T cells and to rapidly multiply the number of disease-fighting T cells.

Current Laboratory Projects

Dr. Riddell's research group continues to make new discoveries to enable the development of effective T cell therapies for more patients. They are:

- Detailing the mechanisms involved in the beneficial anti-cancer effects of donor T cells versus their role in potentially dangerous GVHD, and addressing these processes to increase the safety and relapse-preventing efficacy of HCT,
- Using clinical samples and animal models to dissect how cancers can evade T cell immune responses and evaluate strategies to achieve effective antitumor immunity by overcoming immune evasion,
- Identifying tumor antigens that can be recognized by T cells and developing engineered TCRs or CARs using emerging principles of synthetic biology, and
- Elucidating intrinsic T cell properties that are important for effective adoptive T cell therapy, including qualities of particular T cell subsets.

SPOTLIGHT

"We're at the starting line—but I think we're at the starting line where we know that we're in a race that we actually can win."

—Dr. Stanley Riddell

For the Media

The Media Relations team at Fred Hutch is available to assist members of the news media who would like to arrange interviews with faculty.

Email media@fredhutch.org or call 206.667.2210

Fred Hutchinson Cancer Center is an independent organization that serves as UW Medicine's cancer program.

© 2023 Fred Hutchinson Cancer Center, a 501(c)(3) nonprofit organization

Fred Hutch is proud to be an Equal Employment Opportunity (EEO) and Vietnam Era Veterans Readjustment Assistance Act (VEVRAA) Employer. We are committed to cultivating a workplace in which diverse perspectives and experiences are welcomed and respected. We do not discriminate on the basis of race, color, religion, creed, ancestry, national origin, sex, age, disability (physical or mental), marital or veteran status, genetic information, sexual orientation, gender identity, political ideology, or membership in any other legally protected class. We are an Affirmative Action employer. We encourage individuals with diverse backgrounds to apply and desire priority referrals of protected veterans.