



Dr. Benjamin Freedman, PhD

Dr. Benjamin Freedman, PhD, has studied stem cells for twenty years, at four prestigious universities. Dr. Freedman first became fascinated with stem cells as a Vagelos Life Sciences Scholar at the University of Pennsylvania, where he studied skin and muscle regeneration in 'superhealer' mice. He earned his doctorate in Molecular and Cell Biology from the University of California at Berkeley, in the laboratory of Dr. Rebecca Heald, PhD, where he studied how DNA structure and composition can be reprogrammed by egg cytoplasm.

Dr. Freedman became interested in nephrology because several members of his family were suffering from kidney disease. As a postdoctoral fellow, he trained with Dr. Joseph Bonventre, a world leader in kidney stem cells, at Harvard Medical School. Dr. Freedman developed innovative protocols to change human pluripotent stem cells into kidney organoids, microscopic structures that resemble kidney tissue. Combining this with CRISPR genome editing, he showed that these organoids could show signs of genetic kidney disease.

Supported by CRF, Dr. Freedman has turned his attention to cystinosis. His group has recently developed human pluripotent stem cells with cystinosis, which can be changed into diverse human tissues to test new therapies. He has furthermore shown the ability of transplanted kidney organoids to engraft into the kidneys of living mice, as a step towards kidney replacement using cells from our own bodies.

Dr. Freedman has received numerous honors, recently the 2023 Donald A. Seldin Young Investigator Award from the American Society of Nephrology. Dr. Freedman is currently an Associate Professor of Medicine at the University of Washington, where his group is combining stem cells, bioengineering, and genome editing to model disease and regenerative therapy. He lives in Seattle and enjoys exploring the beautiful surroundings with his wife Dr. Hongxia Fu and their 6-year old son Bruce.