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Emil J Freireich

Continuous-Flow Blood Cell Separator

U.S. PATENT NO. 3,489,145: Method and apparatus for continuous separation of blood in vivo

Inducted in 2025 Born: March 16, 1927 Died: Feb. 1, 2021

Primary Connections:

- The University of Texas MD Anderson Cancer Center: Co-founder and Chair of the Department of Developmental Therapeutics; Professor of Laboratory Medicine, 1965-2015
- National Institutes of Health (NIH) National Cancer Institute (NCI): Senior Investigator and Director of Leukemia Program, 1955-65
- Massachusetts Memorial Hospital: Hematology Fellowship

Education:

- University of Illinois Urbana-Champaign: Bachelor's Degree
- University of Illinois College of Medicine in Chicago: Medical Degree, 1949

Key Memberships/Awards:

- American Society of Clinical Oncology: Distinguished Achievement Award, 2021; David A. Karnofsky Memorial Award and Lecture, 1976
- American Association for Cancer Research: AACR Award for Lifetime Achievement in Cancer Research, 2019; Fellow, 2014
- Leukemia Society of America: 50th Anniversary Commemorative Award, 1999
- Charles F. Kettering Prize, 1983

Oncologist Emil J Freireich and engineer George Judson developed the first continuous-flow blood cell separator. Devices based on their invention have been vital for improving outcomes for leukemia patients and developing new approaches to treating cancer and other diseases.



Full Bio: <https://www.invent.org/inductees/emil-freireich>

Things You Should Know:

- Freireich was born in 1927 in Chicago.
- In "David and Goliath: Underdogs, Misfits, and the Art of Battling Giants," author Malcolm Gladwell described Freireich as a "David," noting that his early years during the Great Depression – his father died when he was 2 years old, and his mother worked in a sweatshop – provided him the will to push himself hard to achieve results.
- Freireich attended the University of Illinois Urbana-Champaign, where he earned his bachelor's degree, and the University of Illinois College of Medicine in Chicago, where he earned his medical degree.
- Freireich often commented that a major challenge with the cell separator prototype was developing seals to prevent blood from spraying when the centrifuge was spinning.
- After 50 years at The University of Texas MD Anderson Cancer Center, Freireich retired in 2015.
- Among his many honors were the Leukemia/Lymphoma Society Special Recognition Award in 2015, the National Cancer Institute Outstanding Investigator Award in 1985 and the Lasker Clinical Medical Research Award in 1972.
- "Humans cannot live without hope," he said. "Hopelessness is the greatest trauma a person has to suffer."
- Freireich had six U.S. patents.