NIH’s Impact on U.S. Health and Medicine

U.S. Life Expectancy

- Cardiovascular disease death rates have fallen more than 70% in the last 60 years
- Cancer death rates now falling more than 1% per year; each 1% drop saves ~$500 billion
- HIV therapies enable people in their 20s to live to age 70+
Landscape of Medical Opportunities
CONTRIBUTION TO THE KNOWLEDGE OF SARCOMA.¹

BY WILLIAM B. COLEY, M.D.,
OF NEW YORK.
THE NEW ENGLAND JOURNAL OF MEDICINE
Dec. 22, 1988

SPECIAL REPORT

USE OF TUMOR-INFILTRATING LYMPHOCYTES AND INTERLEUKIN-2 IN THE IMMUNOTHERAPY OF PATIENTS WITH METASTATIC MELANOMA

A Preliminary Report

Steven A. Rosenberg, M.D., Ph.D.,
Beverly S. Packard, Ph.D.,
Paul M. Aebersold, Ph.D., Diane Solomon, M.D.,
Suzanne L. Topalian, M.D.,
Stephen T. Toy, Ph.D., Paul Simon, Ph.D.,
Michael T. Lotze, M.D., James C. Yang, M.D.,
Claudia A. Seipp, R.N., Colleen Simpson, R.N.,
Charles Carter, Steven Bock, M.D.,
Douglas Schwartzentruber, M.D.,
John P. Wei, M.D., and Donald E. White, M.S.
Recombinant DNA Technology

Plasmid → Splice at a specific site → Recombinant Plasmid

Foreign DNA → Join free ends
Monoclonal Antibodies for Cancer Immunotherapy

James P. Allison

Enhancement of Antitumor Immunity by CTLA-4 Blockade

Dana R. Leach, Matthew F. Krummel, James P. Allison*

One reason for the poor immunogenicity of many tumors may be that they cannot provide signals for CD28-mediated costimulation necessary to fully activate T cells. It has recently become apparent that CTLA-4, a second counterreceptor for the B7 family of costimulatory molecules, is a negative regulator of T cell activation. Here, in vivo administration of antibodies to CTLA-4 resulted in the rejection of tumors, including preestablished tumors. Furthermore, this rejection resulted in immunity to a secondary exposure to tumor cells. These results suggest that blockade of the inhibitory effects of CTLA-4 can allow for, and potentiate, effective immune responses against tumor cells.
Serial Killers and Mass Murderers: Engineered T Cells Are up to the Task

Carl H. June
Cytotoxic T-Cells
Monoclonal Antibodies for Cancer Immunotherapy

James P. Allison

To Your Health

7,000 scientists. 100 years. One lifesaving treatment.

By Brady Dennis  September 24

Here’s the CliffsNotes version of how most drugs go from idea to reality: Basic academic research provides the foundation for a series of clinical trials, first in animals and then in humans, which eventually tell us whether a new treatment is safe and effective.

But a study published Thursday in the journal Cell details how the reality of drug development is rarely that linear or precise. Rather, the path to creating a life-saving treatment can be an extremely long, labor-intensive effort that involves thousands of scientists over many decades.