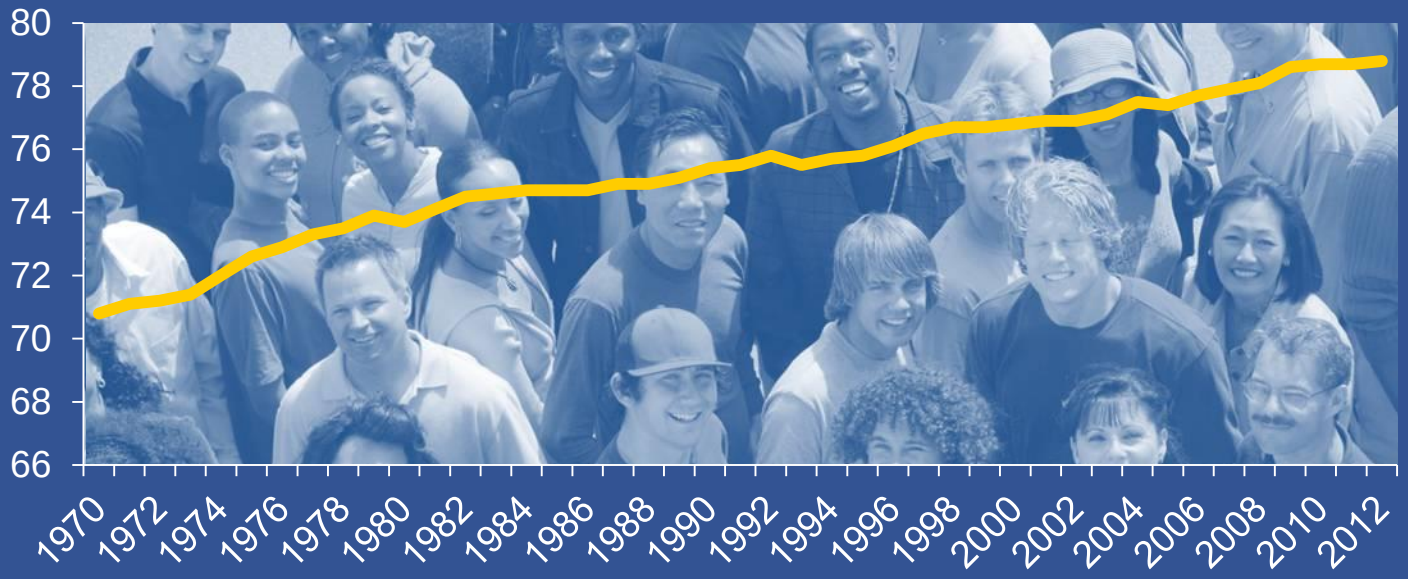
The NIH: Investing in a Healthier Future

Francis S. Collins, M.D., Ph.D.
Director, National Institutes of Health

Senate Appropriations L/HHS Subcommittee Hearing
October 7, 2015

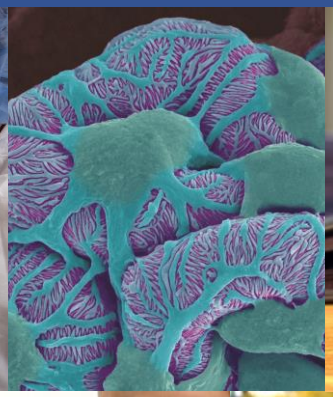
NIH's Impact on U.S. Health and Medicine

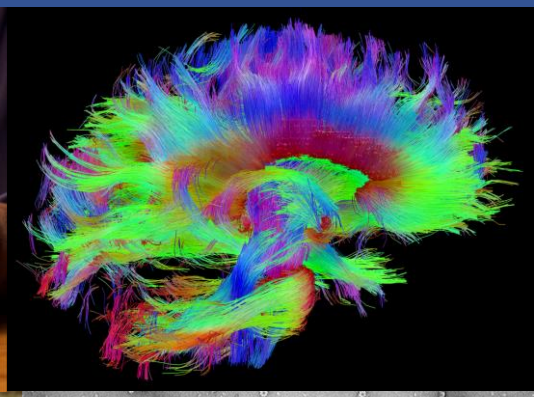
U.S. Life Expectancy



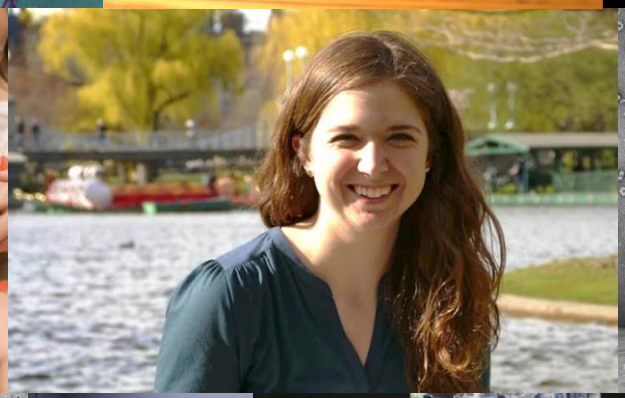
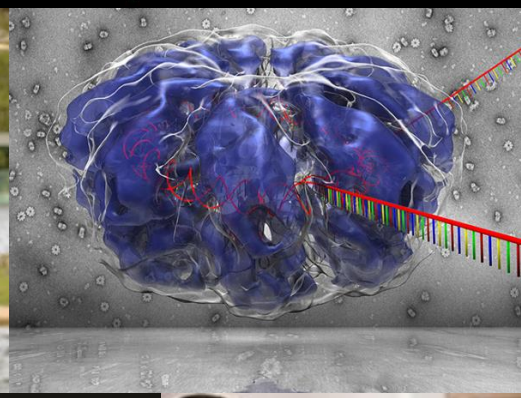
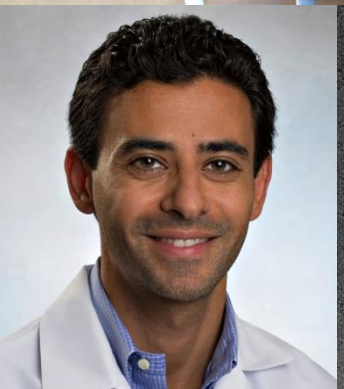
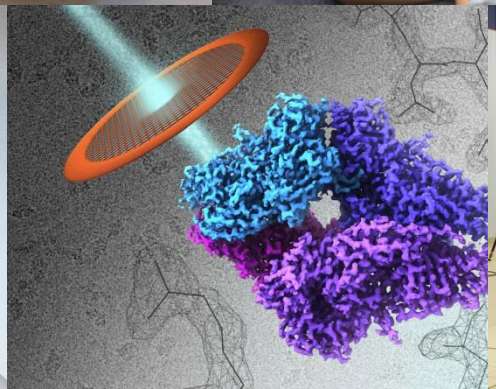
- Cardiovascular disease death rates have fallen more than 70% in the last 60 years
- Cancer death rates now falling more than 1% per year; each 1% drop saves ~$500 billion
- HIV therapies enable people in their 20s to live to age 70+

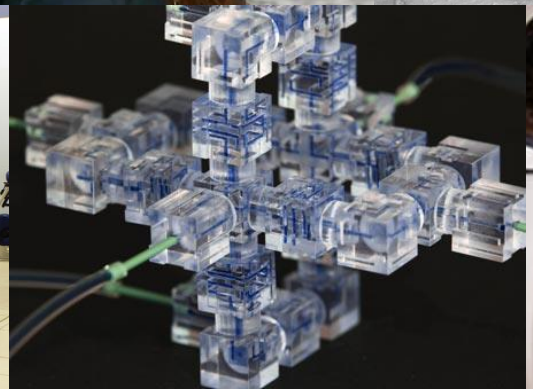
Landscape of Medical Opportunities

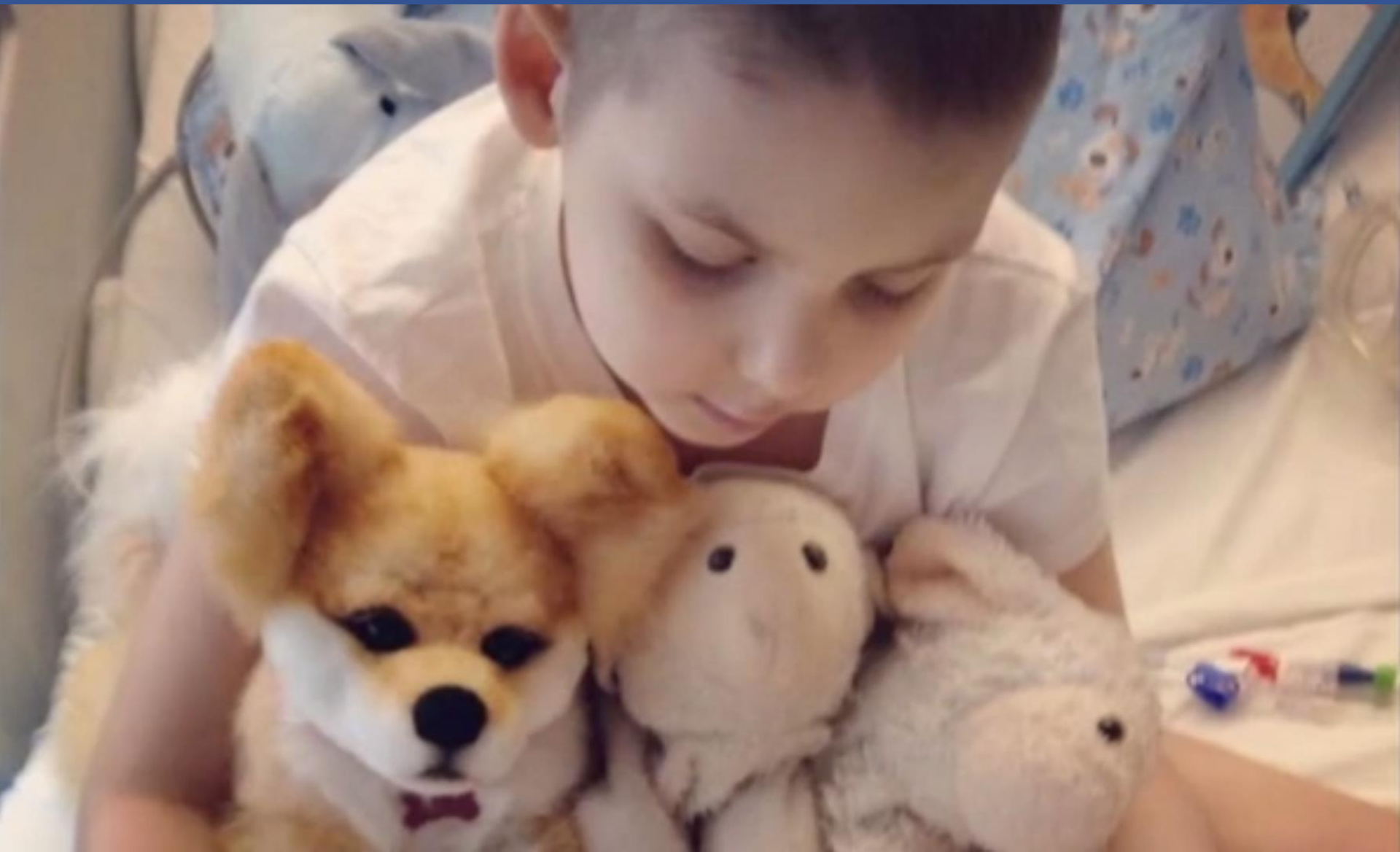







Emily’s Story



Origins of Cancer Immunotherapy

VOL. XIV, NO. 3. SEPTEMBER, 1891.

ANNALS

OF

SURGERY

A MONTHLY REVIEW OF SURGICAL SCIENCE AND PRACTICE

EDITED BY

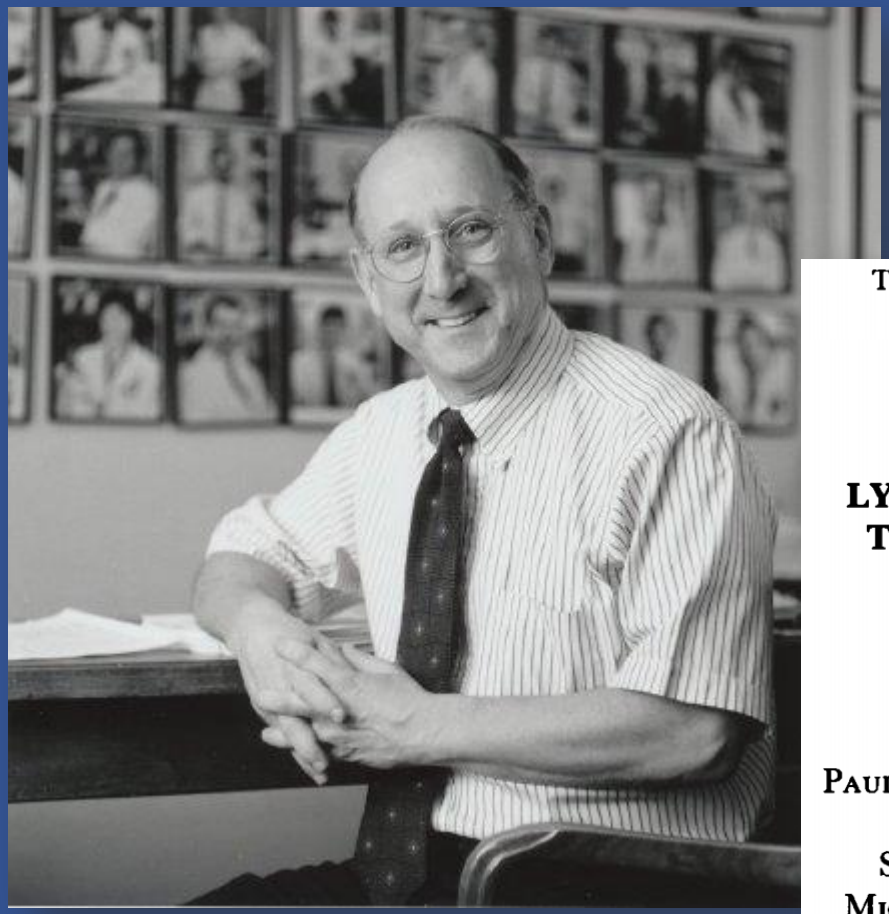
L. S. PILCHER, A.M., M.D., AND C. B. KEETLEY, F.R.C.S.,

CONTRIBUTION TO THE KNOWLEDGE OF SARCOMA.[1]

By WILLIAM B. COLEY, M.D.,

OF NEW YORK.

Early Cancer Immunotherapy



Samuel J. Heyman
SERVICE to AMERICA MEDALS

THE NEW ENGLAND JOURNAL OF MEDICINE

Dec. 22, 1988

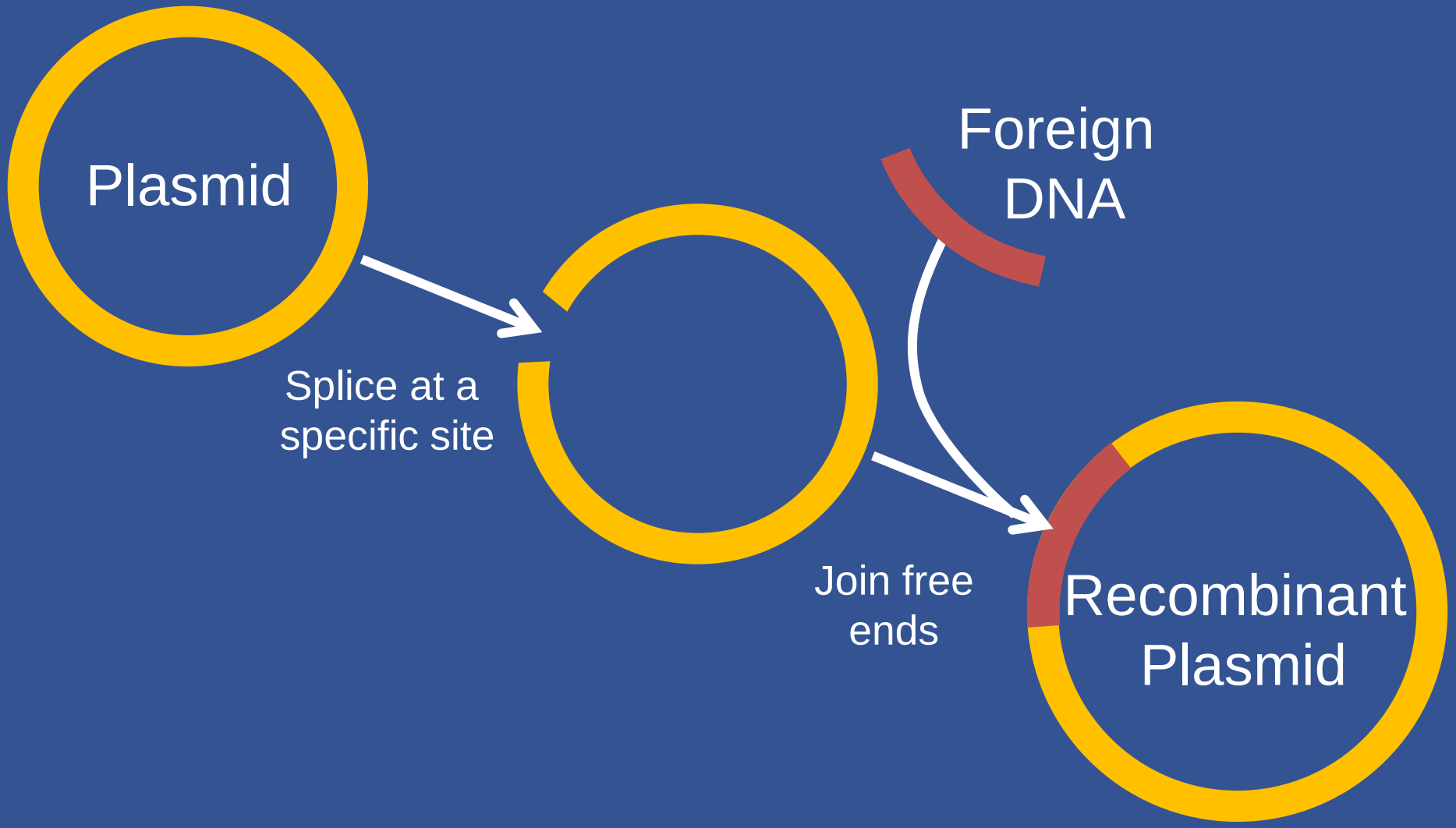
SPECIAL REPORT

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

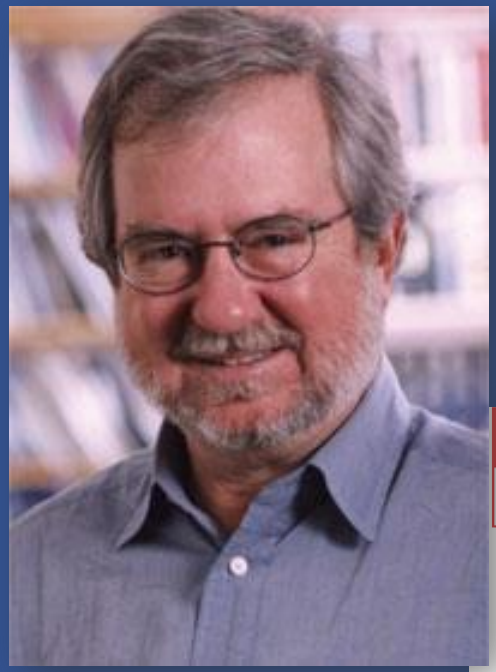
A Preliminary Report

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



Monoclonal Antibodies for Cancer Immunotherapy



James P. Allison

Science
AAAS

SCIENCE • VOL. 271 • 22 MARCH 1996

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.

Current Immunotherapy

Cancer Immunol Res; 3(5) May 2015

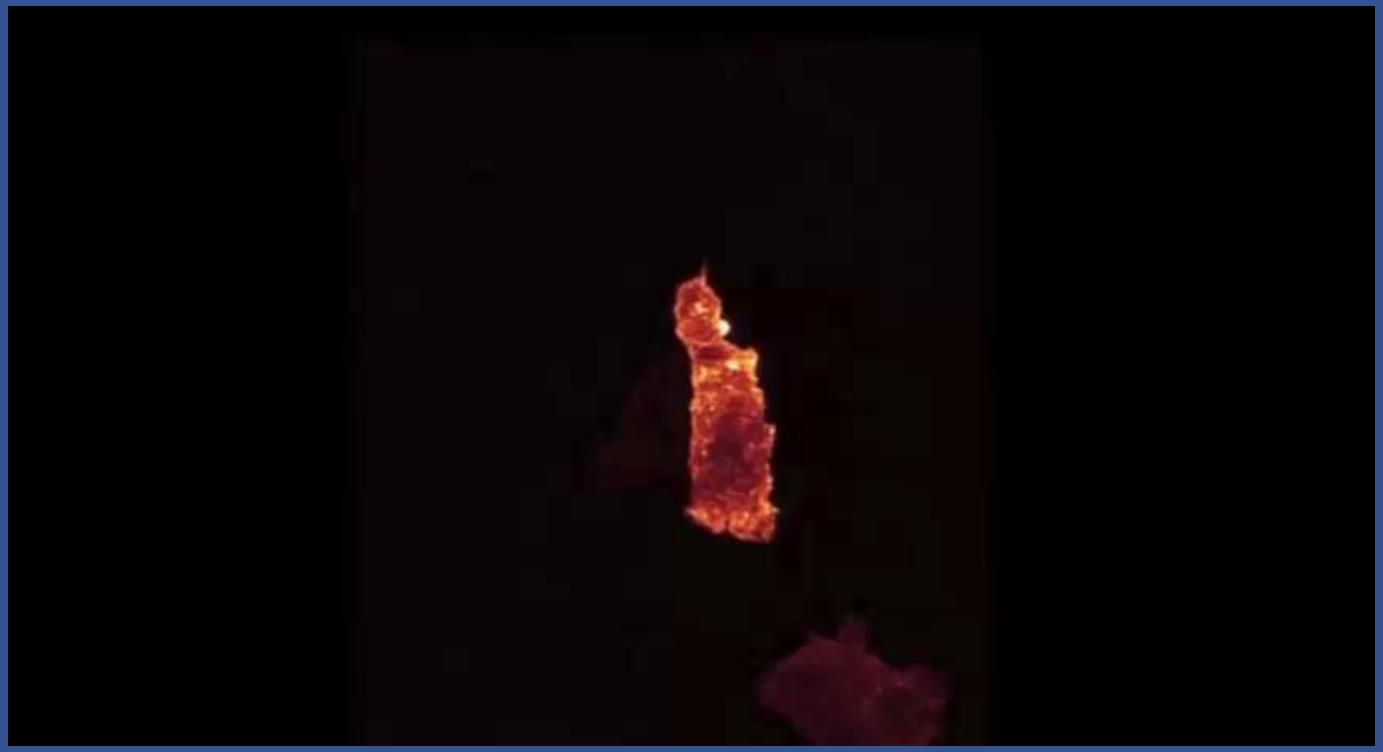
Commentary

Cancer Immunology Research

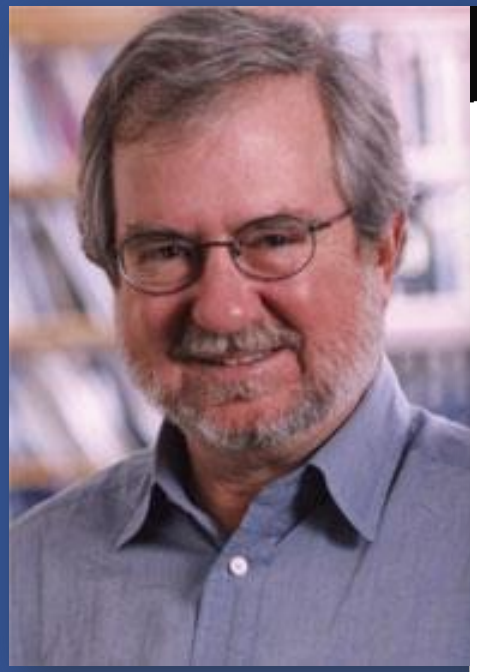
Serial Killers and Mass Murderers: Engineered T Cells Are up to the Task

Carl H. June

Cytotoxic T-Cells



Monoclonal Antibodies for Cancer Immunotherapy



James P. Allison

The Washington Post

To Your Health

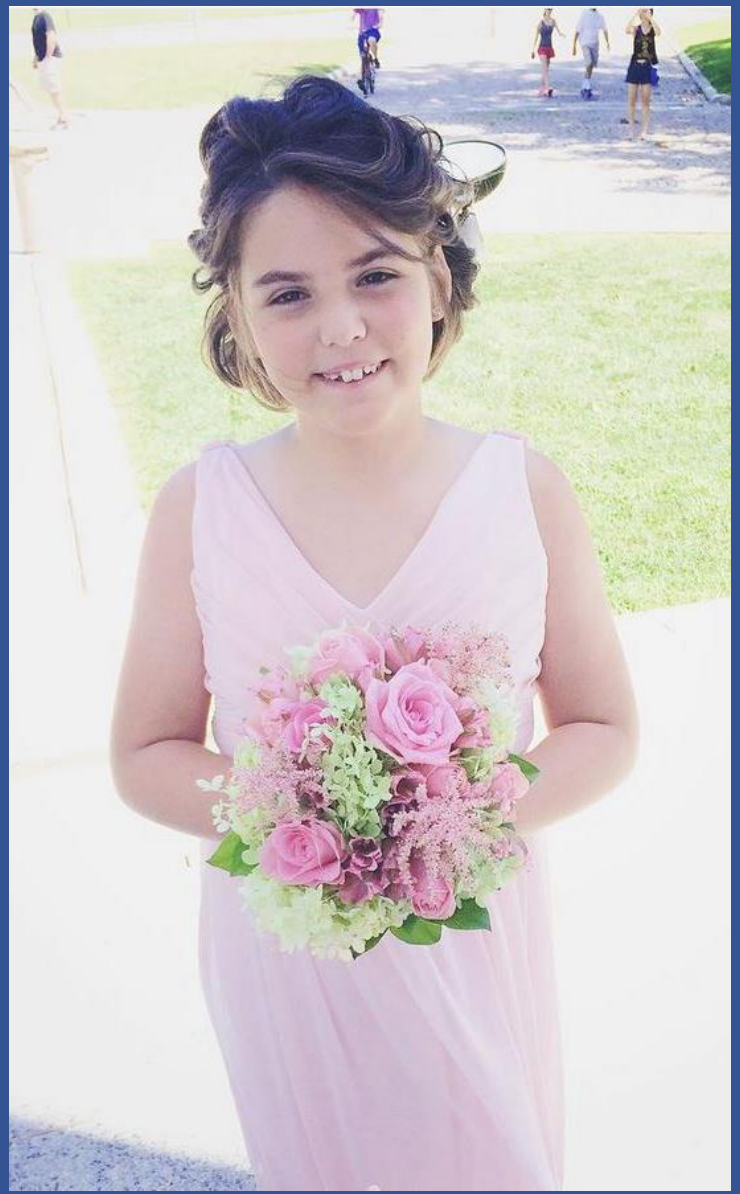
7,000 scientists. 100 years. One lifesaving treatment.

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.

Emily Today



Many Success Stories & More to Come









NIH… Turning Discovery Into Health

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