

Young Scientists: Moving Toward a Cure

Support the next generation

Innovation is exploding. This past year, of the 59 new medications approved by the FDA, 25 were for cancer or blood disorders. New technologies from CRISPER, that edits genes, to new immunotherapies like CAR-T cells, where genetically modified immune cell are taught to attack a cancer, have entered the clinic and are used daily around the world. Genetic testing in patients and families is elucidating not only new treatment paradigms but helping to determine risks for cancer in family members. Therapeutic modalities, like cell cycle inhibition to stop cancer cells from doubling, RNA inhibition of cancer cells, and nanotechnology where highly engineered molecules detect cancer cells and new delivery treatments are on the horizon.

This past year more than 2.5 million new

articles were published in science and engineering and nearly 250,000 were directly related to medical care. This is an explosion in information. Computer technologies are sorting through this mass of information with the intent of directing patients and their health care providers to the best possible treatment for their disease. The Memorial Sloan Kettering Cancer Center in NY is presently using IBM Watson to help with diagnosis and treatment options for their patients. Although the benefit is yet unclear, the use of AI will become standard in the near future.

All of this work requires money. The 2019 budget for the National Cancer Institute is \$5.74 billion, an increase of about \$79 million over 2018 (see the graph below), which is essentially flat since 2005. The

most recent data from 2017 indicated the NCI funded only 11.4 % of the proposed applications.

Cancer research is primarily funded by pharmaceutical companies who spend nearly \$50 billion annually. In addition, a little over \$1 billion is funded by private donors and charitable organizations annually. The majority of this funding is given to institutions and their senior faculty.

Very little money, however, is provided for the next generation of scientists and researchers whose careers are often ended prematurely because of the lack of funding. That's when the mission of Tower Cancer Research Foundation provides support. In our annual scientific committee meeting we look for worthy projects from young investigators who show promise and will likely be the next generation of scientists to discover new treatments that will help us all.

Please give for yourself, your family and your friends. We are moving forward, and new, important discoveries are being made every day.

NCI Funding for Cancer Research



1. Reflects the impact of inflation (using the Biomedical Research and Development Price Index) on NCI actual and projected funding.
 2. Reflects actual obligations through FY 2017, NCI's enacted budgets for FY 2018 and FY 2019, and projected budgets for FY 2020 and beyond consistent with the discretionary spending limits in the Bipartisan Budget Act of 2018.
 3. FY 2009 and FY 2010 include funding from the American Recovery & Reinvestment Act (ARRA) of 2009. FY 2017 through FY 2022 include Cancer Moonshot funding as authorized in the 21st Century Cures Act of 2016.

Source: NCI Office of Budget and Finance
cancer.gov



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