

DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH

Fiscal Year 2014 Budget Request

Statement for the Record

Senate Subcommittee on Labor-HHS-Education Approp 398.59 Tm(-)JTJETBTSi-9(BBT1

Mr. Chairman and Members of the Committee:

Budget request for the National Cancer
Institute (NCI) of the National Institutes of Health (NIH). The fiscal year (FY) 2014
NCI budget of \$5,125,951,000 includes an increase of \$63,189,000 over the comparable
FY 2012 level of \$5,062,762,000.

CANCER DEATHS CONTINUE TO DECLINE

The 2013 Report to the Nation on the Status of Cancer shows that overall cancer death rates continued to decline in the United States among both men and women, among all major racial and ethnic groups, and for all of the most common cancer sites, including lung, colon and rectum, female breast, and prostate. However, death rates continued to increase for melanoma of the skin (among men) and for cancers of the liver, pancreas, and uterus. The Report also emphasizes the importance of human papilloma virus (HPV) infection as a cause of the growing number of cancers, and shows that incidence rates are increasing for HPV-associated oropharyngeal and anal cancers. Also noted was that HPV vaccination coverage remains disappointingly low, falling

The two major genomics initiatives, involving hundreds of investigators nation-wide, are The Cancer Genome Atlas (TCGA) and the Therapeutically Applicable Research to Generate Effective Treatments (TARGET) initiative, focused on adult and pediatric cancers respectively. TCGA recently completed a study of lung squamous cell carcinoma that identified several potential therapeutic targets related to the initiation and progression of that disease. Another study examined nearly 400 endometrial (uterine) cancers and identified four new subtypes with several possible therapeutic targets. This study also found genomic similarities between endometrial and other cancers, including breast, ovarian, and colorectal. A TARGET study identified a subclass of acute lymphoblastic leukemia with high risk of recurrence associated with novel chromosomal translocations; these translocations represent exploitable therapeutic targets. Another TARGET study found few recurrent mutations among 240 cases of high-risk neuroblastoma, suggesting a limited number of targets for this pediatric disease.

In 2011, one of several noteworthy achievements was FDA approval of a new class of drug, vemurafenib, for the treatment of metastatic melanoma. The drug targets mutant forms of the BRAF protein, which is mutated in about 60 percent of these patients, leading to inhibition of a key growth pathway in the tumor cell, the MAPK pathway. Although the drug can increase the lifespan of these patients, almost all patients eventually develop drug resistance and relapse. Recent observations from several research groups have indicated that drug resistance can arise by any of several mechanisms. Some resistance is attributable to activation of the MAPK pathway, which can result

These findings are now leading to clinical trials testing the hypothesis that combining the BRAF inhibitor with drugs that have been shown in preclinical models to reduce development of these resistance mechanisms will lead to longer therapeutic responses.

A potentially exciting therapeutic advance has come from immunotherapy research for B cell lymphoma being conducted at several institutions. The approach is to use genetic engineering to construct a chimeric antigen receptor (CAR)

diagnosis and treatment of cancer and AIDS. NCI is poised to launch a large-scale project targeting RAS, an oncogene known for decades to drive the development of many types of cancers and about a quarter of all cancers in the U.S., including more than 90 percent of pancreatic adenocarcinomas. However, despite that information, the cancer research community has

Harold Varmus, M.D.

Director, National Cancer Institute

Harold Varmus, co-recipient of a Nobel Prize for studies of the genetic basis of cancer in 1989, became Director of the National Cancer Institute on July 12, 2010, after 10 years as President of Memorial Sloan-Kettering Cancer Center, following six years as Director of the National Institutes of Health. He is a member of the U.S. National Academy of Sciences and the Institute of Medicine and is involved in initiatives to promote science in developing countries. The author of more than 350 scientific papers and five books, including a recent memoir titled, *The Art and Politics of Science*, he was a co-founder and Chairman of the Board of the Public Library of Science, and chair of the Scientific Board of the Gates Foundation Grand Challenges in Global Health. In 2001, he received the National Medal of Science.