DID YOU KNOW…?

The share of research funds going to younger scientists is declining. The average age when a medical researcher receives his or her first major grant increased from 38 to more than 45 between 1980 and 2013. The increasing gap has led to young scientists leaving academia, and in some cases, leaving science fields altogether.


Related to the data regarding declining funding to younger scientists, JAMA just released a gloomy study, "The Anatomy of Medical Research: U.S. and International Comparisons," which shows how a steady decline in research funding and nearly stagnant growth in medical investment in the United States have eroded its lead in global biomedical research.


Scientists at Yale and Harvard have published research showing how to prevent modified organisms from spreading out of a lab setting into the rest of the world. The technique involves modifying the organisms to depend on unnatural amino acids available only in the lab.

http://www.nature.com/articles/nature14095.epdf?referrer_access_token=sOfvYcBx6r17pij5P_iUOqVdRgN0jAjWel9jmR3ZoSv0O623Mc4Mw8-
GV01edtzAunBZypF3w1vSDLTBIzSNsNezp4x8x5QrCP9j7xjW
B-0y2JhHoq7gO3aX9g42CnKh

http://www.nature.com/articles/nature14121.epdf?referrer_access_token=kKPCPaCiZBOKve4vmMvySnRQn0jAjWel9jmR3ZoSv0O4Qk
S1gya9wHkJZpoDXPPP0cDj48wUvuOZMT-
7KbTZXjKgyAGPDdILkmnDzXrTWZ_stz86V04Dcsy9IxtC2

Research findings published recently in Nature on a potential new type of antibiotic highlighted a promising field of study in microbes found in dirt—more specifically, "dirt from a grassy field in Maine." The antibiotic appears to have potential in fighting infections such as MRSA and drug-resistant TB. It is still a couple years away from clinical trials.

http://www.nature.com/articles/nature14098.epdf?referrer_access_token=A-
0UPyGyrJQI4gbSt55M9RgN0jAjWel9jmR3ZoSv0PvwA6rMnye
nymQkZOBp85kiLj6cTh7j_4Ow8h3qTF6Et93LC17o_PXhKntj8I
9nFW8Eit11NDJdcvTMGyvN

MEASLES

The United States is now experiencing what promises to be one of the worst outbreaks of measles since the virus was declared eliminated from the country in 2000. Measles, caused by a paramyxovirus from the genus Morbillivirus, is one of the most contagious diseases in the world, infecting more than 90% of susceptible hosts that come in contact with an afflicted individual. In the absence of widespread vaccination, the average person with measles will infect an average of 12 to 18 other people. Children, in particular, are more likely to experience complications as a result of a measles infection. Although the overall mortality rate for children who get measles is one out of every 20 children will also develop pneumonia. The disease symptoms can be managed with common anti-inflammatory drugs, hydration, and rest, but like many other viral illnesses, there is no cure and antibiotics will have no effect. Death rates are much higher in developing countries. (continued on page 2)
The NIH has released application and award summary data for fiscal year 2014. Dr. Sally Rockey, NIH Deputy Director for Extramural Research notes: “These data are of particular interest for all of us this year, considering the historic low of the success rate last year, and the reduction of NIH’s budget in fiscal year 2013, due to sequestration.” Hence, the summary includes both FY 2013 and FY 2012 data for comparison purposes.

A summary of applications, awards, and success rates from 1998 through 2014 is shown below.

Measles virus is spread from person to person through the air in coughed-out aerosolized droplets that are inhaled. The virus typically first comes in contact with host lung tissue, where it infects immune cells called macrophages and dendritic cells. From there, the infected cells migrate to the lymph nodes where B and T cells become infected. The infected B and T cells then migrate throughout the body releasing virus particles into the blood. The spleen, lymph nodes, liver, thymus, skin, and lungs are eventual destinations for the virus. The virus can cross the blood-brain barrier and cause dangerous swelling of the brain. CDC reported 644 cases from 23 separate outbreaks during 2014; between 2001 and 2013, no single year saw more than 250 cases. (Because measles was declared “eliminated” in the United States in 2000, outbreaks have been triggered by virus “imported” from other countries, which then finds an unvaccinated person.) With 84 people infected already in 2015, things are not off to the best start. Part of the reason for the resurgence is a rise in the number of parents who refuse to vaccinate their children against the virus. Despite an overwhelming amount of scientific and medical evidence demonstrating both the safety and efficacy of the measles vaccine, some parents refuse to vaccinate their children for reasons of personal belief.

http://www.cdc.gov/measles/cases-outbreaks.html
FUNDING OPPORTUNITIES

**Weekly NIH funding opportunities:** [http://grants.nih.gov/grants/guide/WeeklyIndex.cfm](http://grants.nih.gov/grants/guide/WeeklyIndex.cfm)

Information on hundreds of non-federal sources of grant and fellowship support is available on the URL below. This is provided, with permission, by the Albert Einstein College of Medicine. [http://www.einstein.yu.edu/administration/grant-support/funding-opportunities.aspx](http://www.einstein.yu.edu/administration/grant-support/funding-opportunities.aspx)

Proposal CENTRAL is an e-grantmaking website shared by many government, non-profit, and private grant-making organizations. [https://proposalcentral.altum.com/](https://proposalcentral.altum.com/)

Additional funding information can be found on the SUNY-RF website. You will need to login with your SUNY RF user name and password. [https://portal.rfsuny.org/portal/page/portal/The%20Research%20Foundation%20of%20SUNY/Archive%20-%20RF%20public%20Website%20November%202014/Find_Funding/Sponsored_Program_Funding](https://portal.rfsuny.org/portal/page/portal/The%20Research%20Foundation%20of%20SUNY/Archive%20-%20RF%20public%20Website%20November%202014/Find_Funding/Sponsored_Program_Funding)
A UC Davis exhibit, "Sketches of Science: Photo Sessions With Nobel Laureates," invited Nobel prize winners to pose with large crayon drawings they made of their landmark discoveries. Who says brilliant scientists aren’t good at coloring?