
Fact Sheet: Open Science Champions of Change

Today, at a White House event honoring [13 “Champions of Change”](#) who are promoting and using open scientific data and publications to accelerate progress and improve our world, several Champions took the opportunity to announce new initiatives and commitments.

Among them:

Stephen Friend announced the launch of two new open science Big Data Challenges, the Rheumatoid Arthritis Responder Challenge, and the Alzheimer’s Disease Big Data Challenge.

The Rheumatoid Arthritis Responder Challenge will be co-led with the Arthritis Foundation and arthritis experts to look at why an important arthritis medication only works for 30% of patients. Feeding new patient data directly into the Challenge, leaders will amass the largest open data set ever for response to rheumatoid arthritis treatment and will ask the crowd of Challenge participants to generate predictive models that will help doctors know which patients are most likely to respond to treatment. The Challenge breaks molds on the typical prizes afforded to a “winner:” here the winner’s solution to the Challenge will be poised to drive a prospective clinical trial for validation. The premier scientific journal, Nature Genetics, has also taken a keen interest in the Challenge developing a new form of “Challenge assisted” scientific review suitable for Big Data projects that will lead to a publication featuring the Challenge.

The Alzheimer’s Disease Big Data Challenge will be co-led by Sage Bionetworks and the Global CEO Initiative on Alzheimer’s Disease. This is a first of its kind open science project for Alzheimer’s, featuring multiple layers of information such as whole-genome sequence and powerful imaging data that have been systematically amassed by the Alzheimer’s Disease Neuroimaging Initiative (ADNI). By making this tremendous data set openly available in a game-like setting, the Challenge will crowdsource teams of teams to build better classifiers and surpass both in the number of models generated as well as their creativity what individual investigators working in isolated labs have done so far.

Kathy Giusti and John Quackenbush announced that starting in September, the Multiple Myeloma Research Foundation (MMRF) will release the MMRF Research Gateway, an open-access platform that makes clinical research data available to the public along with advanced analytical tools. The Research Gateway will make accessible data from the MMRF CoMMpass study, launched in 2011, which will follow 1,000 patients for five years, and monitor their response to treatment, and sequence their cancer genomes. This \$40 million study unites competitors from the pharmaceutical and biotech industries, academic institutions, and community cancer centers to understand how cancer evolves under the selective pressure of drugs.

GenoSpace joined with MMRF to solve the problem of making the data from CoMMpass and other global efforts accessible and useful, thereby assuring the data sets are analyzed extensively, and lead to hypotheses to be tested in a clinical setting. Together, these organizations recognize that tools were needed that made the relevant data accessible to a diverse group of users – scientists, pharmaceutical companies, health care organizations, physicians, and the patients themselves.

In addition, MMRF and Genospace announced a new, more broad-reaching initiative to launch a new community gateway for multiple myeloma patients – the MMRF Community Gateway – which will bring together and support myeloma patients while allowing them to better understand and interpret their disease, their genetics, and their treatments.

Drew Endy and the BioBricks Foundation announced that DNA2.0, Inc. of Menlo Park, CA has contributed free-to-use fluorescent proteins to the public domain using the BioBrick Public Agreement. Fluorescent proteins are workhorses of biotechnology research, providing readouts of everything from gene expression to cell division. Many thousands of patents cover various uses of particular fluorescent proteins, making it previously impossible for industry to standardize on a common set of genetic measurement tools.

The BioBrick Public Agreement is itself a free-to-use tool that allows researchers everywhere to work together to create an open language for programming DNA. Recently, researchers from BIOFAB.org have contributed best available DNA parts for programming gene expression. Stanford researchers just contributed the first set of amplifying Boolean logic gates encoded in DNA. The BioBricks Foundation salutes these world-leading contributions and invites all researchers to now work together in building a public language for engineering biology.

Eric Kansa and the Open Context team is delighted to have announced plans to launch a training program aimed at equipping the next generation of researchers with the technical skills and theoretical background needed to understand the rich and growing open data sources that document the human experience. The training program will prepare students not only to manage data with Web technologies, but also to better understand the biases and assumptions inherent in data.

Jeremiah P. Ostriker announced that starting next month, the Sloan Digital Sky Survey (SDSS) will make publically available its Tenth Data Release, which will include the first data of the Apache Point Observatory Galactic Evolution Experiment (APOGEE), with high-resolution spectroscopy from tens of thousands of stars. These data will unlock important new information about the chemical composition and motions of stars, and about the evolution of our own Milky Way galaxy. The release will also provide an update on the BOSS cosmology program, which is expected to help determine the most precise cosmological model yet established.

In addition, support for the Large Synoptic Survey Telescope (LSST) is now included in the President's proposed FY 2014 budget and is expected to lead to the construction of an 8.2-meter, wide-angle telescope to be situated at a superb viewing site in Chile. When completed, this instrument will reach to the edges of the observable universe and allow scientists to find transient and variable phenomena in the heavens. The resulting data will be immediately available to scientists and the general public, giving, for example, schoolchildren the opportunity to be the first to discover a new supernova in a distant galaxy, imaged only the night before.

William Noel announced a multispectral dataset of images of an erased, unique ancient text. The text is a medieval manuscript, a Syriac translation of a text by the ancient doctor Galen, "On the mixtures and powers of simple drugs" (abbreviated as "On simple drugs"). A group of international scholars is working on the data, which are presented in a similar fashion to those of the famous Archimedes Palimpsest. Dr. Noel is inviting image processors from around the world to help process the images in order to bring out the undertext.

Jack Andraka announced the launch of an organization "Teens Against Scientific Paywalls." This group of teenagers is launching an effort to get teens involved in the issue of increasing access to scientific publications. The goal is to help teens have a voice in their government and provide input on future legislation and policies on open access to scientific research.

For more information about the Champions of Change for Open Science event, please see: http://www.whitehouse.gov/sites/default/files/microsites/ostp/openscience_release_6-18-13.pdf