

## Toxicogenetics Challenge winners announced

By Ernie Hood

The winning teams for the [NIEHS-NCATS-UNC DREAM Toxicogenetics Challenge](#), a competition involving crowdsourced computational challenges to find better ways to predict the toxicity of chemicals, were announced in Toronto Nov. 8 at the Sixth Annual RECOMB/ISCB [Conference](#)

(<http://www.iscb.org/recomb-regsystgen2013>)

on Regulatory and Systems Genomics, with DREAM Challenges. NIEHS Deputy Director Richard Woychik, Ph.D., chaired the meeting's Challenge session and introduced the speakers from the winning teams.

The competition June 11-Sept. 15 was co-sponsored by NIEHS, the National Center for Advancing Translational Sciences ([NCATS](#)),

(<http://www.ncats.nih.gov/>)

the [Carolina Center for Computational Toxicology](#)

(<http://comptox.unc.edu/>)

at the University of North Carolina at Chapel Hill, [DREAM](#)

(<http://www.the-dream-project.org/>)

(Dialogue for Reverse Engineering Assessments and Methods), and [Sage Bionetworks](#).

(<http://sagebase.org/>)

The sponsors provided data for two related subchallenges - (1) to develop a model that accurately predicts individual responses to compound exposure based on genomic information, and (2) to develop a model that accurately predicts how a particular population will respond to certain types of chemicals. Teams were free to submit to one or both of the subchallenges.

Subchallenge 1 generated 99 submissions from 34 teams. Subchallenge 2 received 85 submissions from 24 teams.

### The envelopes, please

Teams from the Quantitative Biomedical Research Center ([QBRC](#))

(<http://qbrc.swmed.edu/>)

at the University of Texas Southwestern Medical Center (UTSW) were named best performer in both of the subchallenges. Team Yang Lab, represented in Toronto by Ph.D. student Tao Wang, took the honors for subchallenge 1. Team QBRC, also



Winners and representatives of some of the sponsoring organizations of the Toxicogenetics Challenge posed for a celebratory photo at the conference. Left to right: Ivan Rusyn, M.D., Ph.D., UNC; Wang; Federica Eduati, Ph.D., European Bioinformatics Institute; Woychik; Xie; Fred Wright, Ph.D., North Carolina State University. (Photo courtesy of Lisa Murzin)



Bernard, center, received the second best performer award for Team Cassis. She is flanked by Woychik, left, and Gustavo Stolovitzky, Ph.D., from the IBM Computational Biology Center. Stolovitzky represented DREAM, one of the challenge organizers. (Photo courtesy of Lisa Murzin)

represented in Toronto by Tao Wang, on behalf of assistant professor Hao Tang, Ph.D., came in first in subchallenge 2. Associate professor Yang Xie, Ph.D., was also there to accept the award. The second best performer for subchallenge 1 was Team Cassis from the [Centre for Computational Biology](http://cbio.ensmp.fr/) (<http://cbio.ensmp.fr/>) in Paris, which was represented at the conference by team member Elsa Bernard, a Ph.D. student at the [Institut Curie](http://curie.fr/), (<http://curie.fr/>) one of the Centre's joint laboratory member institutions.

### Challenge-focused seminar

NIEHS will hold a seminar "Crowdsourcing Tox21 Qualitative High Throughput Screening Data" Dec. 2 from 10:30 a.m.-12:00 p.m., which will focus on the challenge. The event will feature presentations that describe the Tox21 study that generated the data leading to the Challenge, and the prediction models that won the two subchallenges. Part 1, "The 1000 genomes toxicity screening project: Utilizing the power of human genome variation for population-scale *in vitro* testing," will be presented by Nour Abdo, a doctoral student at the University of North Carolina at Chapel Hill (UNC). Part 2, "Estimating population-scale toxicities for environmental chemicals from genomic and chemical information," will be presented by Tang. There will be a live webcast of the seminar.

(Ernie Hood is a contract writer with the NIEHS Office of Communications and Public Liaison.)



*Woychik chaired the session devoted to the Toxicogenetics Challenge at the meeting, and had the pleasure of presenting the results and announcing the winners of the two subchallenges. (Photo courtesy of Lisa Murzin)*

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