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Headline: Network Verification Challenge Opens to All

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The latest challenge from the sbv IMPROVER project has launched. The Network Verification Challenge opened last week for submissions from the global scientific community.

The Network Verification Challenge is the third challenge in the sbv IMPROVER project (systems biology verification: Industrial Methodology for PROcess VErification in Research), a collaborative initiative by IBM Research and Philip Morris International R&D which is designed to develop a robust, transparent and practical process for assessing complex scientific data (see, sbv IMPROVER Launches Species Translation Challenge).

Along with IBM and PMI, the Network Verification Challenge also involves Selventa. "The sbv IMPROVER project is a truly unique initiative which is addressing some of the most fundamental issues facing the scientific community today, including: how can we cope with the explosive growth of data confidently, thoroughly and practically," said David De Graaf, President and CEO of Selventa. "By providing high-quality data sets to any scientist who wishes to look at them, openly and for free, and then asking them to scrutinize that data as part of the crowd, we are helping to forge the way towards a more transparent, collaborative and robust framework in which scientific research is conducted."

Participants in the Network Verification Challenge have the opportunity to work on 50 biological networks based on 75,000 individual pieces of scientific evidence. In total, the networks comprise approximately 2,000 nodes and 2,500 edges.

The Challenge consists of five phases:

1) Initial biological network models (related to human lung disease) are constructed based on literature and data-driven hypotheses. These models are encoded in Biological Expression Language (BEL), a human-readable and machine-computable language that captures causal and correlative relationships between biological entities.

2) Challenge participants are asked to enhance and/or verify the network models using a high-performance online platform. This process is set-up as a collaborative competition where points are awarded for various actions which contribute to the improvement of the models.
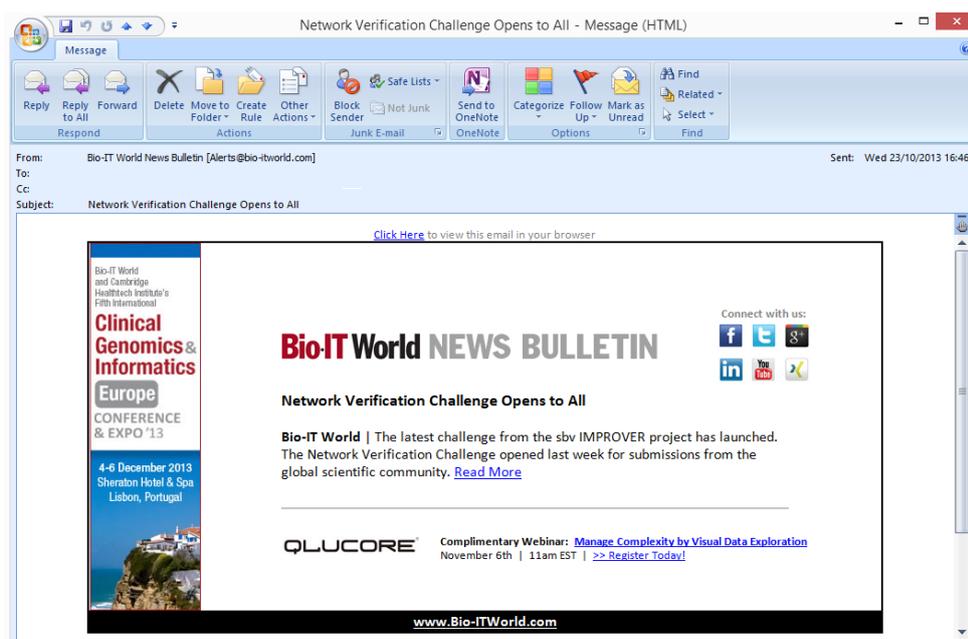
3) The contributions made by the participants will be carefully reviewed by the sbv IMPROVER project team against the supporting evidence provided. The most controversial edges (i.e., those that did not obtain a consensus from the community in phase two) will be selected for further review and discussion in phase four – a networking jamboree.

4) The participants that contributed most effectively in phase two will be invited to participate in an international   networking jamboree session (planned for 18-20 March 2014 in Montreux, Switzerland). This will enable discussion of controversial edges and a simultaneous review of the scientific evidence with recognized experts. The objective of the jamboree is to reach a consensus among the experts of how best to formulate the network models.

5) The verified networks models are then shared with the scientific community.

Challenge participants can benefit from enhanced recognition among their peers by gaining points based on the submission of actions which are then verified by other challenge participants. Participants will also have early access to curated network models of signaling pathways, downloadable networks for participants who perform a certain number of actions (which are likely to help scientists generate new hypotheses for their own research) and early expertise in BEL, which is increasingly being adopted as a biological syntax conducive to computational manipulation. There is no financial reward for this challenge, although top participants may be eligible to receive a travel bursary to attend the jamboree session to discuss controversial edges. Travel bursaries will be funded by Philip Morris International.

The Network Verification Challenge is open to scientists from commercial entities as well as academic and research institutions. Submissions will be accepted through to February 2014. To take part and for more information about the sbv IMPROVER project, please visit http://www.sbvimprover.com.

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