The Metabolomics Standards Initiative

To the editor:
The standards papers that Nature Biotechnology hosted online as part of a community consultation (http://www.nature.com/nbt/consult/index.html), in particular those by the Human Proteome Organization Proteomics Standardization Initiative (HUPO-PSI) and the Functional Genomics Experiment (FuGE) working groups, represent an important first step toward permitting the sharing of high-quality, structured data. We particularly applaud the open consultation solicited by Nature Biotechnology and advocate the early-community-involvement approach taken by HUPO-PSI, FuGE and the other working groups in the development of such guidelines and standards. These are the most effective ways to ensure that the output generated is pragmatic and the standards are both useful and widely accepted by the community.

As representatives of the nascent Metabolomics Standards Initiative (MSI), we are following closely the work of the FuGE and the PSI working groups, leveraging on their work where commonality exists, such as the mass...
spectrometry and the sample preparation domains. MSI combines and thereby strengthens several preexisting groups and initiatives (including Standard Metabolic Reporting Structure (SMRS), ArMet and MIAMET)\(^5\)\(^7\) in a concerted effort under the aegis of the Metabolomics Society\(^8\). As with other functional genomic approaches, we envisage a great deal of commonality in terms of experimental description.

The MSI working groups have drafted a series of manuscripts, outlining the work to date, and we intend to work closely with PSI working groups towards the development of common or interoperable standards. It is our view that reporting standards (checklists), syntax (format) and semantics (controlled vocabulary or ontology) should be reused across the functional genomics and systems biology standards communities, where applicable. This would benefit the entire scientific community by facilitating publication and dissemination of the results and simplifying the job of data integration.\(^9\)

From a technical perspective, it will be necessary to both remove redundancies and fill gaps between the domains that are covered by checklists, exchange formats and terminologies developed. These are certainly difficult but not insurmountable tasks and FuGE, developed and endorsed by many communities to ‘unify’ the exchange formats, is the first good exemplar project.

We would also like to highlight that the sociological barriers involved in these large-scale open standards efforts, such as PSI, can be extremely challenging, and thus will require extensive liaison between communities. With our experience in MSI, we are aware that managing this process of consensus building from start to finish takes time, resources and expertise. The time invested in these efforts to build commonalities and synergies among initiatives (e.g., between PSI and MSI) is often little, or at least not as continuous as it should be, due to lack of resources.

For these reasons, we express our appreciation for the efforts that each individual has put into the work behind FuGE and PSI guidelines. We take this opportunity also to encourage individuals or groups to join these initiatives, bringing with them their requirements, suggestions or critiques, and contributing to the development process in a constructive manner.

COMPETING INTERESTS STATEMENT

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MSI Board Members: Susanna-Assunta Sansone\(^1\), Basil Nikolau\(^2\), Ben van Ommen\(^3\), Bruce S Kristal\(^4\)\(^5\), Chris Taylor\(^6\)\(^7\), Don Robertson\(^7\), John Lindon\(^8\), Julian L Griffin\(^9\), Lloyd W Summer\(^10\), Mariet van der Werf\(^3\), Nigel W Hardy\(^11\), Norman Morrison\(^5\)\(^12\), Pedro Mendes\(^12\)\(^13\)\(^14\), Rima Kaddurah-Daouk\(^15\), Roy Goodacre\(^14\), Teresa Fan\(^16\) & Oliver Fiehn\(^17\)

\(^1\)EMBL-European Bioinformatics Institute, Wellcome Trust Genome Campus, Hinxton, Cambridge, CB10 1SD, UK. \(^2\)Iowa State University, 2210 Molecular Biology Building Ames, Iowa 50011-1061, USA. \(^3\)TNO Quality of Life, PO Box 360, 3700 AJ Zeist, the Netherlands and the European Nutrigenomics Organization (NuGO), Bomenweg 2, 6703 HD Wageningen, The Netherlands. \(^4\)Department of Neurology and Neuroscience and Department of Biochemistry, Weill Medical College of Cornell University, New York, New York 10021,
CORRESPONDENCE

USA. 2Dementia Research Service, Burke Medical Research Institute, White Plains, New York 10605, USA. 6NERC Environmental Bioinformatics Centre, Oxford Centre for Ecology and Hydrology, Mansfield Road, Oxford, OX1 3SR, UK. 7Molecular Profiling, Pfizer Global Research and Development, 2800 Plymouth Road, Ann Arbor, Michigan 48105, USA. 8Imperial College London, Department of Biomolecular Medicine, Sir Alexander Fleming Building, Exhibition Road, South Kensington, London SW7 2AZ, UK. 9Department of Biochemistry, Tennis Court Road, University of Cambridge, Cambridge, CB2 1QW, UK. 10The Samuel Roberts Noble Foundation, 2510 Sam Noble Parkway, Ardmore, Oklahoma 73410, USA. 11Department of Computer Science, University of Wales, Aberystwyth, Ceredigion, SY23 3DB, Wales, UK. 12School of Computer Science, Kilburn Building, University of Manchester, Oxford Road, Manchester M13 9PL, UK. 13Virginia Bioinformatics Institute, Virginia Tech, Washington St, 0477, Blacksburg, Virginia 24061, USA. 14School of Chemistry and Manchester Interdisciplinary Biocentre, University of Manchester, 131 Princess Street, Manchester M1 7DN, UK. 15Duke University, Department of Psychiatry and Behavioral Sciences, Duke University Medical Center, Durham, North Carolina 27710, USA. 16Department of Chemistry, University of Louisville, 2320 South Brook Street, Louisville, Kentucky 40292, USA. 17University of California, Davis, Genome Center, 1 Shields Avenue, Davis, California 95616, USA. e-mail: sansone@ebi.ac.uk. [AU: Affiliation 4 had two affiliations and has been renumbered as 4 and 5. The affiliations following have been renumbered. Please check]