UK-China collaboration to establish new computational resources for metabolomics

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A partnership between the University of Birmingham, BGI, the world's largest genomics organisation, and its open-access journal, *GigaScience*, has received funding from the Natural Environment Research Council (NERC) to develop a software platform for the analysis of large-scale environmental metabolomics data.

Metabolomics involves the detection and quantification of small molecules (metabolites) in living organisms and can provide an indication of their cellular condition and health. The toxicological responses of organisms to pollutants can be studied using environmental metabolomics, enabling researchers to discover diagnostic markers for monitoring and risk assessment of our environment. Research at Birmingham focuses extensively on the metabolic responses of the freshwater model organism, *Daphnia*, to both pollutants and engineered nanomaterials.

Sophisticated computational analyses must be performed on metabolomics data in order to measure the abundances of the metabolites. However, this typically requires expert knowledge in computer programming and biostatistics, restricting the usefulness of metabolomics to specialised laboratories. This project will develop a new software platform to make it much easier for non-specialist scientists to analyse their metabolomics datasets.

As the first metabolomics project in the recently announced joint BGI-University of Birmingham Environment & Health Centre, the funding will enable a developer from the University's School of Biosciences, to travel to Hong Kong and work with *GigaScience* in developing the popular Galaxy workflow system for use in metabolomics data analyses.

Dr. Peter Li, Data Organisation Manager at *GigaScience*, commented, "This funding from NERC will enable a synergistic exchange of skills in the curation and automated analysis of large-scale data that we have in *GigaScience* with the University of Birmingham's expertise in metabolomics". He continued "This is an area of the life sciences that is of great interest to BGI as they move and broaden their expertise from being a major genomics organization into more integrative research in the life sciences".

Professor Mark Viant from the University of Birmingham added, "This collaboration with BGI aligns perfectly with one of our major goals at Birmingham, to develop tools and resources to facilitate the wider use of metabolomics by environmental scientists, and subsequently to provide training in these tools".

The project is funded by the UK NERC under the Mathematics & Informatics for Environmental Omic Data Synthesis programme.

Notes to Editors

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