



EMERALD



Enhancing microarray data quality

The European Union FP6 Coordination Action (CA) EMERALD aims to establish and disseminate quality metrics (QM), microarray standards and best laboratory practices throughout the European microarray community. This will allow microarray data production to take full advantage of QA/QC, thereby significantly enhancing the quality of microarray data and setting a precedent for other array-based technologies. Data quality and meta data (documentation) are key to all microarray data generation and analysis, to ensure that maximum information can be extracted from the data. The need to reanalyse and reproduce data spawned a 'grassroots movement', now the MGED Society, that established guidelines for experiment description (MIAME) and a structured data exchange model (MAGE-ML). MGED initiatives have been predominantly focused on data context, and its scope has only recently been extended to include data content. Quality and integrity of microarray data compendia (e.g. in ArrayExpress) are major determinants for information and extraction model building. High quality data will constitute one of the pillars of systems biology. This CA is designed to structure and amalgamate ongoing efforts across the European community, in close association with MGED and the ERCC.

News

EMERALD project period extended

The EMERALD project period is extended with 6 months and the closing date is now 30.04.2010.

Relevant conference

EMERALD closing session at Integrative Bioinformatics 2010

EMERALD will team up with the Integrative Bioinformatics meeting 2010 (Cambridge, UK), where we will host an Emerald symposium on March 22nd. The focus of this "project closing session" is to discuss and illustrate the importance of microarray data quality and will sum up the work done by the project over a three and a half year period. Presentations will highlight efforts on the implementation of quality metrics and standards, and how experience from this project can be applied to new high throughput array technologies. For updated information about the Integrative Bioinformatics meeting and the EMERALD session please visit the Integrative Bioinformatics meeting web page: <http://www.rothamsted.bbsrc.ac.uk/bab/conf/ib2010/>

Tentative Agenda for the EMERALD session at 22nd of March 2010

10.00 - 10.05	Welcome Martin Kuiper, NTNU, Norway
10:05 - 10.30	Progress on transformation and normalization ontology James Malone, EBI, UK
10.30 - 11.00	NIST SRM 2374: A Certified Reference Material Designed to Support Confidence in Gene Expression Measurements Marc Salit, NIST, US
11.00 - 11.30	Microarray Quality Metrics Audrey Kauffmann, European Bioinformatics Institute, UK
11.30 - 12.00	What have we learned from the EMERALD project and how can this knowledge be used for "new" high throughput technologies (Minimum Information about a High-throughput Sequencing Experiment – MINSEQE) Alvis Brazma, European Bioinformatics Institute, UK

Recent

Publications

Here is a list of recent publication relevant to the EMERALD project:

- Kauffmann A & Huber W. "Microarray data quality control improves the detection of differentially expressed genes." *Genomics*. 2010 Jan 12. [Epub ahead of print]
- Kapushesky M et al. "Gene expression atlas at the European bioinformatics institute." *Nucleic Acids Res*. 2010 Jan;38:D690-8.
- Kauffmann A. et al. "Importing ArrayExpress datasets into R/Bioconductor." *Bioinformatics*. 2009 Aug 15;25(16):2092-4.
- Brazma A. "Minimum Information About a Microarray Experiment (MIAME) - successes, failures, challenges." *ScientificWorldJournal*. 2009 May 29;9:420-3.
- Kauffmann A. et al. "arrayQualityMetrics - a bioconductor package for quality assessment of microarray data." *Bioinformatics*. 2009 Feb 1;25(3):415-6.
- J PA. Ioannidis et al. "Repeatability of published microarray gene expression analyses." *Nature Genetics* 41, 149-155, 2009.
- Parkinson H. et al. "ArrayExpress update - from an archive of functional genomics experiments to the atlas of gene expression." *Nucleic Acids Res*. 2009 Jan;37:D868-72.