



Sixth Framework Programme for Quality of Life and
Management of Living Resources

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EMERALD

Empowering the Microarray-Based
European Research Area to Take a Lead
in Development and Exploitation

EU Deliverable: D1.7, D1.8

Due Date: November 2009

Delivery Date: November 2009

Version 1.0

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Work Package 1
Deliverable 1.7
Workshop report (MGED) on QC development
Due Date: November 2009
Delivery Date: November 2009

1.7.1. Introduction

The workshop took place at the MGED 12 conference in Phoenix on the 5th October 2009. The organizers, the audience, the agenda and summary of the workshop are provided below. Complete proceedings of the workshop are available at:

<http://compbio.dfci.harvard.edu/courses/bioconductor/mged.html>

The workshop on QC development was a part of a Bioconductor afternoon tutorial.

1.7.2. Organizers and audience

- Aedin Culhane, Dana Farber Cancer Institute, Boston, USA
- Misha Kapushesky, European Bioinformatics Institute, Cambridge, UK
- Audrey Kauffmann, European Bioinformatics Institute, Cambridge, UK

The attendees were an audience of 42 people coming both from academia and industry. Most were biologists and some were bioinformaticians.

1.7.3. Workshop Agenda

15:15 – 15:30 Aedin Culhane

"Bioconductor overview"

15:30 – 16:30 Audrey Kauffmann

"Assessing microarray data quality"

16:30 – 16:45 Questions/Break

16:45-17:45 Aedin Culhane

"Multivariate exploratory data analysis"

17:45 – 18:05 Misha Kapushesky

"Introducing the R/Bioconductor workbench"

18:05 – 18:15 Questions

1.7.4. Workshop Summary

The participants learned how to produce and interpret the diagnostic plots and metrics for assessing the quality of microarray datasets and how to handle outlier arrays. They learned how to use the Bioconductor package `arrayQualityMetrics` which is described in D1.5 and D1.8.

Work Package 1
Deliverable 1.8
QM software in Bioconductor
Due Date: November 2009
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1.3.1. Introduction

D1.8 specifies the development of software libraries encoding the metrics described in D1.2 and D1.3. The prototype was already described in D1.5. This report gives some more details about the arrayQualityMetrics package that has been developed to provide simple but thorough microarray data quality assessment.

1.3.2. arrayQualityMetrics

The arrayQualityMetrics package is available on Bioconductor. It provides a HTML report that contains all the plots and scores described in D1.2 and D1.3. It starts with a table summarizing the outliers that have been detected, then an index allowing the user to access different sections is shown. Then, the report contains MA plot, spatial distribution, boxplots of intensities by print-tips, boxplots and density plots per array on the intensities, heatmap and PCA, variance versus mean plot, RNA degradation, RLE boxplot, NUSE boxplot, QCStats and PM versus MM density plots. We have published a paper that describes the package in details (Kauffmann et al, 2009).

References

Kauffmann A, Gentleman R, Huber W.

[arrayQualityMetrics - a Bioconductor package for quality assessment of microarray data.](#)

Bioinformatics. 2009 Feb 1;25(3):415-6.