The ABRF MARG Microarray Survey 2005: Taking the Pulse of the Microarray Field

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ABSTRACT

Bioinformatics continues to present challenges as noted in the MARG 2001, MARG 2003 and current (Fig. 1) MARG surveys. Array technologies have become more mature and reliable over the past 2 years. However, many labs are now focusing on issues involved in linking high density data to meaningful conclusions. This increased focus on data analysis is time intensive and structured by each individual. Therefore, respondents still represent a significant “bottleneck” in the array process.

We here report some relevant findings from the MARG 2005

Bioinformatic Survey

- Responding to this section: 148/150 (99%)
- When analyzing the data: 99% (67%) (99%) (67%)
- (486 questions)

Quality Control:
• 78% of the respondents do not use any quality control schemes for microarray experiments run in-house, whereas 82% use quality control schemes for microarray experiments run externally.

Data Analysis:
• 72% use Affymetrix data analysis software
• 81% use Agilent Bioanalyzer (118 of 120 respondents)

Custom Array Section:
- Number of respondents: 73
- 73% has been in operation more than 3 years
- 81% has been in operation more than 3 years

Protein Microarray Section:
- Home made protein arrays: 12 respondents use homemade protein arrays, while 72% have at least one scanner in their facilities.

SUMMARY

Bioinformatics continues to be the primary challenge area for MA users.
In-house generated and freeware MA analysis and management software are being used as much as the commercially available programs.
Users seem to be very satisfied with their Affymetrix System but less satisfied with the software and its support.

- 90% of all array lab applications the most interested in is CIST and splice variant arrays.
- For all-novel array applications human tissue is the primary source.
- Array of array laboratories is only of interest to 49% of the groups.
- Most laboratories use 1-300 labs per year to use this technology.
- Human SfM is used by over 50% of laboratories with linkage analysis as the primary source of data analysis.
- 50% of all array labs are preparing to offer clinical diagnostic services.

METHODS

Survey Development: A survey was designed to capture information concerning instrumentation, protocols, staffing, funding, and throughput in a microarray facility. The survey consisted of 7 sections: General (22 questions), Custom Array (28 questions), Affymetrix (3 questions), Agilent (7 questions), RMA (8 questions), Array Facility (49 questions), Array Facility (3 questions). The survey was completed by a third party who removed any information identifying the participant prior to making the data available to the MARG for analysis. Thus, all participants have remained anonymous.

Survey Dissemination and Participation: The survey was distributed electronically on 10-22-2004 to microarray centers, protocols, incentives that were included in the survey. The survey was announced on October 26, 2004 by the ABRF MARG Committee. The survey was closed on January 7, 2005. In addition to laboratories that after acceptance to the publicly available microarray technologies were also invited to participate. Participants were sent out 2 reminders to ensure whether they were affiliated with the ABRF. Furthermore, the participants were only asked if the sections of the survey that related to microarray operating conditions and survey data was analyzed to build a current profile of microarray analysis laboratories

RESULTS AND DISCUSSION

Presented enhancement to previous challenges as noted in the MARG 2001, MARG 2003 and current (Fig. 1) MARG surveys. Array technologies have become more mature and reliable over the past 2 years. However, many labs are now focusing on issues involved in linking high density data to meaningful conclusions. This increased focus on data analysis is time intensive and structured by each individual. Therefore, respondents still represent a significant “bottleneck” in the array process.

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