CONCEPT CLEARANCE
NHGRI Advisory Council September 2004
Training Institutional Bioinformatics Resource Specialists

Purpose

The ability of students and researchers to utilize available bioinformatics tools and databases effectively has failed to keep pace with their development. Researchers are generally unaware of what resources are at their disposal, and even when introduced to available tools, are often unable to navigate them successfully. This gap between informatics technology and scientific awareness slows the forward progress of research. In response, the NHGRI proposes a career development program that will develop institutional or regional resource specialists (trainers) to accelerate the adoption of bioinformatics tools and the application of genomics in biomedical research. Such a program would train scientists both to use current tools and to teach others how to apply them to their own research, thereby spreading this knowledge throughout the biomedical research community.

Background

A major opportunity for, and challenge to, biomedical research is to capitalize on the field of genomics to improve human health and well-being. The NHGRI held a workshop in the Fall of 2003, Informatics Resources for the Human Genome, to address the question of whether new informatics resources are needed for effective exploitation of information about the human genome. One of the workshop's conclusions was that despite the availability of high quality genome informatics resources, most researchers in non-specialists labs are not effectively using them. The workshop strongly recommended an educational initiative that would train Ph.D.-level individuals to serve as institutional or regional resource specialists to assist and train local investigators in the effective use of genome bioinformatics resources.

The NHGRI supports training in genome informatics in both the extramural and intramural programs. The extramural program supports the development of courses that provide hands-on learning of the use of computational tools for analyzing genomic data. The intramural program has developed software packages that simplify the use of computational tools along with mini-courses covering current topics in genome analysis. The latter have been extremely popular with intramural investigators from many different Institutes.

Research scope and objectives

The NHGRI proposes an FY2005 initiative for a new career development program in genome informatics. The program will train individuals (nominated by their institutions) to become key sources of expertise in practical bioinformatics. This will involve spending time within the NHGRI Intramural Program developing a core curriculum for

their institution and then implementing it locally. Initially, the proposed curriculum would contain three modules: (1) Genome Sequence Analysis, (2) Expression Analysis, and (3) Functional Genomics. These modules will integrate laboratory- and computationally-based approaches that are necessary in order to do cutting-edge biological research in the future.

The awards will support the following activities:
- Release time to participate in the program.
- Attendance at training sessions at the NHGRI Division of Intramural Research (DIR).
- Implementation of the core curriculum at the institution.
- Travel funds in years two and three to participate in meetings for updating and evaluating the curricula.

Mechanism of Support
The K07 mechanism (Academic Career Awards) will be used to support individuals who have been identified by their institutions to learn and develop the above core curriculum in order to establish a bioinformatics training program/resource facility at the institution (or a local consortium of institutions). In addition, a contract mechanism will be used to support the development of a robust curriculum through the NHGRI DIR that can be exported to other institutions and program management for the training sessions.

Funds required
The cost for FY05 will be $1.3M, with a total cost of $5 M over the life of the initiative. Ten new awards, averaging $100K (total cost), are proposed each year for the next four years.