

The Italian Network for Oncology Bioinformatics: goals, methodology and achievements

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Motivation

Oncology research and clinics depend more and more on bioinformatics tools and expertise for data integration and in-silico computation. Genomics and proteomics analyses depend on high-throughput technologies that largely rely on automatic data analysis. New research areas, like Clinical Bioinformatics, that studies correlations between molecular and clinical information with the aim of orienting diagnosis and treatments towards personalized medicine, are intrinsically based on the integration of heterogeneous and distributed information. Italian Comprehensive Cancer Centers did not yet develop adequate structures and acquire needed expertise and skills. The need is felt for a coordination of activities and for a mutual transfer of methodologies and skills. The Italian Network for Oncology Bioinformatics (Rete Nazionale Bioinformatica Oncologica - RNBIO) was set up with above aims in mind. The concrete objectives of the network refer to staff training, service provision, inter-institutional collaboration, identification of new ideas and projects, both for basic and for translational research, development of collaborations with other bioinformatics networks and infrastructures.

Methods

The methodology for the carrying out of network activities is mainly based on the web site, that is seen as a mean for a collaborative development of activities, and on the creation of working groups on special interests. Working groups are meant to be an important component of the network: they put together expertise and skills of researchers and clinicians with various backgrounds and constitute a place for discussion, confrontation, and brainstorming in a multidisciplinary frame. Partners are involved in the selection of topics for which groups can be set up and, indeed, they can define their aims, concrete goals and activities. Groups was defined according to the following criteria: relevance to the scope of the network, interest for partners or for their Institutes, opportunity for a transfer of skills and expertise between partners, chance for new research projects or tools, possible links with international projects and initiatives. The web site was designed with the aim of supporting both the promotion of the network and the activities of the project. For this reason, a tool allowing for collaborative development was needed and the Plone Open Source Content Management System (<http://plone.org/>) was selected. Our implementation also includes a wiki extension, based on ZWiki (<http://zwiki.org/>), allowing for an improved development of collaborative documents. In order to further extend inclusion of contributions from all partners, they were provided of a personal account allowing them to add or modify the contents of the site. Finally, the web site was designed to include a public and a private area, respectively devoted to the promotion of network activities and to their development/implementation. In order to achieve the goals of the network telecommunication tools, e.g. teleconference led by using skype, and mailing lists, to be used for discussion, announcements and activity of working groups, we also planned. A public Newsletter is finally meant to promote the network and its achievements.

Results

The web site of the network is available on-line at <http://www.rnbio.it/>. Its public area is devoted to the presentation of network members, documents produced by the network, including the Newsletter, information on training activities and software developed by members. Two 'smart folders' referring to network news and events are also publicly available. Finally, one more folder is devoted to collaborative development of texts by means of the Wiki approach. The private area includes folders for the development of working groups documents. Mailing lists were created for discussion among members, for announcements on bioinformatics events, jobs and tools, both internal and external to the network, and for the promotion of the Newsletter. Partners agreed to set up working groups on the following topics: automation of in-silico data retrieval and analysis processes, statistical methods for the analysis of molecular profiles, oncogenomics, next-generation sequencing, oncoproteomics, structural bioinformatics. Groups already started their activity and will soon promote their activities on the web site. Training activities

have been designed according to two main education lines: development of good bioinformatics programming skills and proficient use of innovative bioinformatics tools. The first course was an introduction to the R language, an open source for statistical computing and graphics. The course was mainly intended for the partners of the network, but other researchers from partners' Institutes were welcome. Two tutorials are being organized and will be held in the sphere of the next annual meeting of the Bioinformatics Italian Society (BITS 2009). The first issue of the RNBIO Newsletter has been published and is available on-line.

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