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Objectives

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Key Note Speaker

Alfonso Valencia

Head of Life Science Department, BSC

Personalised Medicine as a Computational Challenge

Abstract:

Personalized Medicine represents the adoption of Genomics and other –omics technologies to the diagnosis and treatment of diseases. PerMed is one of the more interesting and promising developments resulting from the genomic revolution.

The treatment and analysis of genomic information is tremendously challenging for a number of reasons that include the diversity and heterogeneity of the data, strong dependence of the associated metadata (i.e experimental details), very fast evolution of the methods, and the size and confidentiality of the data sets. Furthermore, the lack of a sufficiently developed conceptual framework in Molecular Biology makes the interpretation of the data extremely difficult.

In parallel, the work in human diseases will require the combination of the –omics information with the description of diseases, symptoms, drugs and treatments: The use of this information, recorded in Electronic Medical Records and other associated documents, requires the development and application of Text Mining and Natural Language processing technologies.

These problems have to be seen as opportunities, particularly for students and Post Docs in Bioinformatics, Engineering and Computer Sciences. During this talk, I will introduce some of the areas in which the Life Sciences Department works, from Simulation to Genome Analysis, including text mining, pointing to what I see as the most promising future areas of development.

Short Bio:

Alfonso Valencia is the founder and President of the International Society for Computational Biology and Co-Executive Director of the main journal in the field (Bioinformatics of Oxford University Press). During the last ten years, Valencia has been the Director of the National Institute of Bioinformatics (Salud Carlos III Institute platform (INB-ISCIII) and node of ELIXIR the European Infrastructure of Bioinformatics), worked in the National Oncology Research Center, CNIO, where he was also the Vice-Director of Basic Research and Director of the Structural Biology and BioComputing Program.

Alfonso Valencia´s research is in the area of Bioinformatics and Computational Biology. Particularly, the application of Computational Methods for Genome Analysis to Precision Medicine. Alfonso Valencia is a Member of the Scientific Advisory Committee of the Swiss Institute of Bioinformatics, EBI chemical and protein domain databases, IRB, UPF_DCEX, Greek ELIXIR-Node, amongst others; Associate Editor of eLIFE, PeerJ, FEBS Letters, and co-leader of the new journal f1000 "Bioinformatics, Biomedical Informatics & Computational Biology". In addition to being a member of the European Molecular Biology Organisation (EMBO) and Founder of the BioCreative challenge in text mining.

In the opinion of the new head of the Life Sciences Department, "Facing the enormous biomedical challenges of the future will only be possible with the coordination of the incredible scientific and technical resources of the BSC, in the rich scientific environment of Barcelona, and in combination with both National (INB-ISCIII) and European scientific infrastructures (ELIXIR)"

[Further information](#)

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The final program will be defined once the presenters are selected. It will be availabale under the AGENDA section.

Please note that the training sessions are **limited to 40 attendees** and will be assigned on a first come, first served basis; preference will be given to Presenters and Volunteers.

Recommended Accomodation

Barcelona Supercomputing Center - Centro Nacional de Supercomputación

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