



Brussels
 23-24 October

ICT BIO 2008 – Computer modelling and simulation for improving human health

Medical research at crossroads: combining the power of Information and Communication Technologies with Biomedical Sciences

Major diseases like cancer, neurological and cardiovascular diseases are complex in nature involving environmental, life style, ageing and genetic components. One of the future challenges is to integrate the knowledge of all these different components into robust and fully reliable computer models and "in silico" environments that will help the development and testing of new therapies for better prediction and prevention tools in healthcare.

An **integrative research approach** is therefore required to better understand the complex mechanisms behind human diseases. In this approach, all processes that occur at multiple levels from molecules to cells, organs and organisms are seen not as separate events but as parts of a **multi-scale system** which aims at improving the understanding of the human health and diseases.

To face this challenge a new generation of multidisciplinary science fields is emerging at the crossroads of Information Technology, Medicine and Biology that provide "in silico" multi-scale modeling and simulation in medicine and biology. For example, patient-specific computer models of human cells or organs can bring new understanding of disease, support discovery of new drugs or can help visualising the effects of different choices of treatments.

To realise this **ambitious vision** at the crossroads of Information and Communication Technologies and Biomedical Sciences, researchers from different disciplines must work together on virtually everything that can be observed and measured at multiple biological levels in relation to human physiological diseases. The European Commission is investing in this topic through complementary research programmes in Information and Communication Technologies and Health research.

The Directorate-General Information Society and Media (DG INFSO) supports this integrative research through funding of projects in the area of multi-scale modeling and simulation known as the "Virtual Physiological Human" (VPH) initiative. The Directorate-General Research (DG RTD) supports through funding of projects in the areas of health research and systems biology.

The conference will take place over two days. Each day will start with a plenary session featuring high-level policy speakers including EU Commissioners, Member of Parliaments, prominent scientists and international funding agency representatives from the EU, US and beyond.

In the afternoon, parallel sessions will focus on themes incorporating ICT and life sciences such as multi-scale modeling in cancer research, heart and cardiovascular diseases, muscular-skeleton systems, and ageing.

The conference website is updated regularly with the latest information on the sessions and exhibition.

Media events (press-conference, press release, demos to media) will communicate to non-specialists the importance of the synergy between ICT, Biomedical Sciences and Health research and the concrete benefits for all citizens in terms of better healthcare.

During both days **an exhibition** will be held at the conference venue showcasing amongst others **3D medical imaging and prototypes, interactive audiovisual and technical demonstrations**. These demos will be exhibited by on-going research projects showing **concrete results in this multidisciplinary research field**. The exhibition will be a great opportunity for the public to see the applications of the latest technologies and new tools that will help the development of novel therapies for a more predictive and preventive healthcare.

The ICT BIO '08 Conference (Oct. 23-24) will provide an insight into existing and future prospects on integrative research for complex human diseases at European and international levels.



The **Conference is free of charge** and **online registration is compulsory**, entrance will not be permitted without the confirmation letter.

Register <https://webgate.ec.europa.eu/fmi/scic/ICTBio08/Start.php>.

Please note that as the **number of seats in the meeting rooms is limited**, the Commission reserves the right to confirm, on a free selection basis, only as many registrations as seats available. The **confirmation of attendance letter** will be **sent** at the latest on **15th September**.

Have Your Say

Logged-in site visitors are able to use the site's 'Comment' function to show their interest in or comment on the event in one of two ways:

- * **suggest a contribution** - your idea will be forwarded to the session coordinator. If successful, you will be able to develop it further by adding documents;

- * **comment on a session** - relevant questions and comments will be communicated to the chairman of the session and potentially addressed during the session.

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Alongside the conference, the **1st Transatlantic Workshop on Multiscale Cancer Modelling** will take place at the same venue.

Computational and mathematical cancer modelling is already a driving force behind interdisciplinary cancer systems biology. Understanding cancer as a complex dynamic bio system requires finding ways to investigate and ultimately target its many constituents and their dynamic relationships across multiple scales in space and time – i.e., multi-scale modelling and simulation. Geared towards translation into clinical practice, long term goals of these modelling approaches include supporting patient specific treatment optimization.

In recognizing the significant contribution of teams on both sides of the Atlantic to this emergent field of in silico oncology, the US National Cancer Institute and the European Commission jointly support a workshop that is being co-organized by NCI's Center for the Development of a Virtual Tumor, CViT, and EC's Advancing Clinico Genomics Trials Program, ACGT.

This workshop aims to present cutting edge approaches, to demonstrate the field's potential and to discuss common challenges it faces in moving forward. The ideal outcome is facilitated interaction between the teams, increased visibility of the achievements beyond the nascent community and formulation of a shared vision that can be advanced into joint funding programs.

The following modelling and simulation topics will be addressed: carcinogenesis, prevascular and vascular progression, invasion and metastasis, tumour growth across spatiotemporal scales and clinically oriented tumour modelling. All major multilevel approaches i.e. bottom-up, top-down and middle-out will be delineated through carefully selected paradigms. Initiatives regarding translation of multiscale cancer models into the arena of clinical trials will be outlined and their potential will be discussed.

Programme is available at the ICT BIO conference website under the **Transatlantic Workshop** button.

Links:

ICT BIO 2008 Conference website: http://ec.europa.eu/information_society/events/ict_bio/2008/index_en.htm

ICT BIO 2006 website: http://ec.europa.eu/information_society/events/ict_bio_2006/index_en.htm

For further information:

Email: info-ictbio2008@ec.europa.eu

DG INFSO ICT for Health: http://ec.europa.eu/information_society/eHealth

DG RTD: <http://ec.europa.eu/research/index.cfm>