1. AIMS

The Center for BioMedical Computing (CBMC) was established in 2006 as a joint initiative of the University of Verona and the Fondazione Cariverona with the purpose to respond to the increasing interest for multidisciplinary research in the field of Systems Biology.

Systems biology is emerging as one of the most important development in life and information science. Its goal is to approach the study of the complexity of biological phenomena by means of a unique combination of high-throughput experimental technologies, informatics, and mathematics to unveil the inner logic governing biological events. The final goal is to generate mathematical and computational models of biological regulatory mechanisms in order to identify the emergent properties controlling cell and organism behavior.

In medical science the systematic integration of high-throughput genomic and proteomic technologies with bioinformatics will help to accelerate drug discovery and to develop more personalized therapies. The challenge of Systems Biology is two fold: the acquisition of a completely new mentality in experimental biology and the development of high-throughput and bioinformatics platforms to obtain and analyze large experimental data-sets.

The goal of CBMC is to promote the integration of the human and technological resources in medical, mathematical and computational disciplines, by facilitating collaborations between physicians, biologists, mathematicians, and computer scientists. The CBMC supports teaching as well as multidisciplinary research projects in the specific field of Systems Biology and Natural Computing and is open to international cooperation with other institutions already advanced in this field.

2. DEPARTMENTS

1) Computer Science
2) Neurological, Neuropsychological, Morphological and Movement Science
3) Pathology and Diagnostics

Date: April 24, 2013.
3. SCIENTIFIC COMMITTEE

Prof. Giorgio Berton, Dept. of Pathology and Diagnostics (Univ. Rector Representative)
Prof. Mario Rosario Buffelli, Dept. of Neurol., Neuropsychol., Morph. and Mov. Sciences
Prof. Carlo Laudanna, Dept. of Pathology and Diagnostics (Former President)
Prof. Vincenzo Manca, Dept. of Computer Science (President)

4. POST-DOC FELLOWSHIPS

Dr. Alberto Castellini (2009)
Dr. Michele Ettorre (2011)
Dr. Luca Marchetti (2007)
Dr. Alessio Montresor (2010)
Dr. Giovanni Scardoni (2007)
Dr. Simone Zorzan (2010)

5. FORMER FELLOWSHIPS

Dr. Luca Bianco (2007-2008)
Dr. Michele Petterlini (2007-2008)
Dr. Giuditta Franco (2006-2007)
Dr. Cinzia Giagulli (2008-2010)
Dr. Rosario Lombardo (2011-2012)

6. MEMBERS

Prof. Giorgio Berton (2012)
Dr. Manuele Bicego (2013)
Dr. Giacomina Bruttomesso (2006, Administrative Assistant)
Prof. Mario Rosario Buffelli (2006)
Mr. Francesco Maria Cirigliano (2009, Computer technician)
Dr. Gabriela Constantin (2013)
Prof. Roberto Corrocher (2006-2012, Former Univ. Rector Representative)
Prof. Lucia De Franceschi (2013)
Dr. Daniele Dell’Orco (2012)
Dr. Alessandro Farinelli (2013)
Dr. Giuditta Franco (2011)
Dr. Alejandro Giorgetti (2013)
Dr. Francesco Giovannucci (2006-2010, Former Cariverona Representative)
Prof. Carlo Laudanna(2006)
Dr. Zsuzsanna Liptak (2013)
Dr. Rosario Lombardo (2013)
Prof. Vincenzo Manca (2006)
Prof. Gloria Menegaz (2013)
Prof. Romeo Rizzi (2013)
Dr. Lara Toffali (2013)

7. SCHOOLS, CONFERENCES, INVITED LECTURES

Prof. V. Manca 2006 (PhD course)
Prof. C. Laudanna 2006 (PhD Course)
Prof. Haiming Chen 2007 (Manca)
Prof. M. Campanella 2007 (Laudanna)
Prof. S. Baranzini 2007 (Laudanna)
Prof. N. Jonoska 2007 (Manca)
Dr. Gheorghe Paun 2007 (Manca)
Prof. G. Ciobanu 2008 (Manca)
Prof. Y. Suzuki 2009 (Manca)
Prof. M. Perez Jimenez 2010 (Manca)
Prof. R. Barbuti 2011 (Manca)
Prof. R. Giancarlo 2012 (Manca)
Prof. G. Rozenberg 2012 (Manca)
Prof. I. Zelinka 2013 (Manca)

8. POST-DOC CONFERENCE AND SCHOOL PARTICIPATIONS

Manca’s Team
Laudanna’s Team
Buffelli’s Team
Master Business Intelligence (A. Castellini)

9. PROJECTS

(See Links in the CBMC site for details)

Tech Services: SERVICES DELIVERED BY CBMC (High-Throughput Tecnologies and Computers)
Supervisors: Dr. Alberto Castellini, Prof. Carlo Laudanna, Dr. Giovanni Scardoni, Dr. Alessio Montresor, Dr. Lara Toffali

Metabolomics in Panthetine pharmacology
Supervisors: Dr. Gabriela Constantin

Phosphonetwork analysis of B-chronic lymphocytic leukemia (B-CLL) Supervisors: Prof. Carlo Laudanna, Dr. Simone Zorzan, Dr. Giovanni Scardoni, Dr. Alessio Montresor

Interference - Virtual experimental topological network analysis Supervisors: Prof. Carlo Laudanna, Dr. Giovanni Scardoni
HOMECAT for consensus homology mapping to integrate knowledge and functional genomic data Supervisors: Dr. Simone Zorzan, Prof. Mario Rosario Buffelli

Alzheimer Disease Pathological Processes Investigation By Systems Biology Approach Supervisors: Prof. Mario Rosario Buffelli

Systems Biology of Survival and Axonal Regeneration of Central and Peripheral Nervous System Supervisors: Prof. Mario Rosario Buffelli

MP solutions of Dynamical Inverse Problems Supervisors: Prof. Vincenzo Manca, Dr. Luca Marchetti

MP Modeling of Biological Dynamics Supervisors: Prof. Vincenzo Manca, Dr. Luca Marchetti

CentiScaPe: Centralities for Cytoscape Supervisors: Prof. Carlo Laudanna, Dr. Giovanni Scardoni

Info-genomic Supervisors: Prof. Vincenzo Manca, Dr. Giuditta Franco, Dr. Alberto Castellini

Modularity in signaling networks regulating cell trafficking Supervisors: Prof. Carlo Laudanna, Dr. Giovanni Scardoni, Dr. Gabriela Constantin, Dr. Alessio Montresor

The MetaPlab project Supervisors: Prof. Vincenzo Manca, Dr. Alberto Castellini, Dr. Luca Marchetti

10. HIGH-THROUGHPUT TECHNOLOGIES AND COMPUTERS

ImageStream, Amnis corp., Seattle, USA

VictorTM X5 four injectors, Perkin Elmer, USA

Bio-Flux 200TM Fluxion Biosciences, USA (EuroClone, Italia)

StepOnePlus Real-Time PCR System, Applied Biosystems, USA

Central Server Poweredge R510 (Dell) hosting CBMC web pages, Web services, Genomic databases and prototypal software) + 4 Work station + 12 PC
11. PUBLICATIONS

More than 50 Publications in international journals and volumes (see site):
Bioinformatics
Biosystems
BMC Genomics
Cancer Research
Fundamenta Informaticae
Int. J. of Computers, Communication, Control
Int. J. of Computer Mathematics
Int. J. of Foundation of Computer Science
Int. J. of Natural Computing Research
J. of Automata, Languages and Combinatorics
J. of Logic and Algebraic Programming
Lecture Notes in Computer Science, Springer
Mathematical Biosciences
Molecular Biosystems
Molecular Cancer
Natural Computing
Nature Immunology
Oxford Manual Series, Oxford University Press
PLoS-ONE
Progress in Natural Sciences
Proteomics
Scholarpedia
Soft Computing
Theoretical Computer Science
Theory of Computing Systems

12. SCIENTIFIC COMMITTEES

30 Program Committee and/or Steering Committee participations In Natural Computing and Computational Systems Biology Conferences (Manca, Franco, Castellini)

13. SOFTWARE

4 platforms of public-domain software for biomedical data analysis (see site):

CentiScape
HOMECAT
Infogenomics
MetaPlab.
14. INTERNATIONAL COOPERATIONS

1) Karmanos Cancer Institute, USA, National Institute of Biology (Dr. A. Bollig-Fisher, Data of gene expressions in breast cancer - V. Manca and L. Marchetti)

2) Department of Biotechnolog and Systems Biology, Ljubljana - Slovenia (Dr. Kristina Gruden, Computational analysis of potato genome - V. Manca and L. Marchetti)

3) Faculty of Life Sciences, The University of Manchester (Dr. Jean-Marc Schwartz, Time series of gene expression in primate AIDS syndrome - V. Manca and L. Marchetti)

4) Faculty of Electrical Engineering and Computer Science, Department of Computer Science Ostrava-Poruba Czech Republic (Prof. Ivan Zelinka, Infobiotics: Information in biotic systems - V. Manca and L. Marchetti).

15. TEACHING

Members of CBMC are involved in Bachelor, Master, and PhD courses of the University of Verona (L31 Bioinformatics and LM9 Bioinformatics and Biomedical technologies)

16. PLACE

University of Verona
Department of Pathology and Diagnostics, Block A
Strada le Grazie 8 - 37134, Verona - Italy EU

Administrative Assistant: Dr. G. Bruttomesso - Dept. Computer Science - Ca’ Vignal 2 - Strada Le Grazie 15 - 37134, Verona - Italy - tel. 045 8027071 - fax 045 8027068.

17. ROOMS

Conference Room + Computer Laboratory Room + Buffelli’s and Laudanna’s lab sections + Server Security Room and Administrative Assistant Room at Department of Computer Science.

18. SITE

www.cbmc.it

19. PICTURES
Figure 1. CBMC Logo

Figure 2. CBMC Imagestream
Figure 3. CBMC VictorTM X5 four injectors

Figure 4. CBMC Conference room