

ACCEPTED POSTERS (in alphabetical order of presenting author)

Palok Aich

School of Biological Sciences, National Institute of Science Education and Research (NISER), Odisha, India.

**“An integrative approach to estimate stress level of individuals and association of biomarkers”**

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Andreia Carvalho<sup>1,2,3</sup>, Diego Barcena Menendez<sup>1,2</sup>, Vivek Raj Senthivel<sup>1,2</sup>, Timo Zimmermann<sup>2</sup>, Luis Diambra<sup>4</sup> and Mark Isalan<sup>1,2,5</sup>

<sup>1</sup>EMBL/CRG Systems Biology Research Unit, Centre for Genomic Regulation, Barcelona, Spain; <sup>2</sup>Universitat Pompeu Fabra (UPF), Barcelona, Spain; <sup>3</sup>Pasqual Maragall Foundation & Barcelona Brain Research Centre, Barcelona, Spain; <sup>4</sup>Centro Regional de Estudios Genómicos, Universidad Nacional de La Plata, La Plata, Argentina; <sup>5</sup>Department of Life Sciences, Imperial College London, London UK

**“A genetically-encoded sender-receiver system in 3D mammalian cell culture”**

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Joan Planas Iglesias<sup>1</sup>, Jaume Bonet<sup>1</sup>, Javier Garcia Garcia<sup>1</sup>, Manuel A. Marín López<sup>1</sup>, Elisenda Feliu<sup>2</sup>, Baldo Oliva<sup>1</sup>

<sup>1</sup>Universitat Pompeu Fabra. Experimental and Life Sciences, Barcelona, Spain. <sup>2</sup>University of Copenhagen, Mathematical Sciences, Copenhagen, Denmark

**“Understanding protein protein interactions using local structural features”**

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Dall'Olio Giovanni Marco<sup>1</sup>, Bertranpetit Jaume<sup>1</sup>, Wagner Andreas<sup>2,3,4</sup>, Laayouni Hafid<sup>1</sup>

<sup>1</sup>Institut de Biologia Evolutiva (CSIC-Universitat Pompeu Fabra), 08003 Barcelona, Catalonia, Spain. <sup>2</sup>Institute of Evolutionary Biology and Environmental Studies, University of Zurich. <sup>3</sup>The Swiss Institute of Bioinformatics, Bioinformatics, Quartier Sorge, Batiment Genopode, 1015 Lausanne, Switzerland. <sup>4</sup>The Santa Fe Institute, 1399 Hyde Park Road, Santa Fe, NM 87501, USA

**“Human Genome Variation and the concept of Genotype Networks”**

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Davila-Velderrain Jose<sup>1,2</sup>, Alvarez-Buylla Elena<sup>1,2</sup>

<sup>1</sup> Instituto de Ecología, Universidad Nacional Autónoma de México, Cd. Universitaria, México, D.F. 04510, México. <sup>2</sup> Centro de Ciencias de la Complejidad (C3), Universidad Nacional Autónoma de México, Cd. Universitaria, México, D.F. 04510, México

**“From Gene Regulatory Networks to Epigenetic Landscapes: Insights to Cellular Differentiation and Reprogramming Control”**

Miquel Duran-Frigola<sup>1</sup>, Patrick Aloy<sup>1,2</sup>

<sup>1</sup>Institute for Research in Biomedicine, Joint IRB-BSC Program in Computational Biology, Barcelona, 08028, Spain, <sup>2</sup>Institució Catalana de Recerca i Estudis Avançats, ICREA, Barcelona, 08010, Spain

**“Blending biology and chemistry to explore the bases of drug side effects”**

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Pau Formosa-Jordan<sup>1,2</sup>, Marta Ibañes<sup>1</sup>, Saúl Ares<sup>2,3</sup> and José María Frade<sup>4</sup>

<sup>1</sup>Department of Structure and Constituents of Matter, Faculty of Physics, UB, Spain. <sup>2</sup>Department of Biological Physics, MPI-PKS, Dresden, Germany. <sup>3</sup>Logic of Genomic Systems Laboratory, Spanish National Biotechnology Centre CNB-CSIC, Madrid, Spain; and GISC. <sup>4</sup>Department of Molecular, Cellular and Developmental Neurobiology, Cajal Institute, IC-CSIC, Madrid, Spain.

**“Ligand expression ahead of differentiation wavefronts: a matter of robustness”**

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Mirko Francesconi

Ben Lehner's Lab, Systems Biology unit, Centre for Genomic Regulation (CRG) Barcelona, Spain.

**“The impact of genetic variation on gene expression dynamics in *C. elegans* development”**

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Marta Fructuoso, <sup>1</sup>Jose Espinosa-Carrasco, <sup>1</sup>Belén Sancristóbal, <sup>1</sup>Ionas Erb, <sup>2</sup>Aurelijus Burokas, <sup>2</sup>Elena Martín-García, <sup>2</sup>Rafael Maldonado, <sup>1</sup>Cedric Notredame, <sup>1</sup>Mara Dierssen

<sup>1</sup>Systems Biology and Bioinformatics Programs, Center for Genomic Regulation (CRG-UPF), 08003 Barcelona, Spain. <sup>2</sup>CEXS, University Pompeu Fabra, PRBB, 08003 Barcelona, Spain

**“Oscillatory temporal pattern driven by high-fat food consumption predicts obesity”**

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Marçal Gabaldà-Sagarra, Jordi Garcia-Ojalvo

Dynamical Systems Biology, Department of Experimental and Health Sciences, Universitat Pompeu Fabra

**“Reservoir Computing functionality of cellular regulatory networks”**

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Mariana Gomez-Schiavon<sup>1</sup> & Nicolas Buchler<sup>2</sup>

<sup>1</sup>Computational Biology and Bioinformatics PhD program, Duke University, <sup>2</sup>Duke Center for Systems Biology; Biology Department, Duke University

**“The adaptive origin of epigenetic switches in fluctuating environments”**

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Janet Piñero<sup>1,2,3</sup>, Laura I. Furlong<sup>1,2,3</sup>, Nuria Lopez-Bigas<sup>2,3,4</sup>, Abel Gonzalez-Perez<sup>2,3</sup>

<sup>1</sup>Hospital del Mar Medical Research Institute (IMIM) <sup>2</sup>Universitat Pompeu Fabra (UPF) <sup>3</sup>Research Programme on Biomedical Informatics (GRIB) <sup>4</sup>Institució Catalana de Recerca i Estudis Avançats (ICREA)

**“Deciphering cancer interactome modules”**

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Jayson Gutiérrez<sup>1,2</sup>, Steven Maere<sup>1,2</sup>

<sup>1</sup>Department of Plant Systems Biology, Evolutionary Systems Biology lab, VIB, Technologiepark 927, 9052 Ghent, Belgium. <sup>2</sup>Department of Plant Biotechnology and Genetics, Ghent University, Technologiepark 927, 9052 Ghent, Belgium.

**“Exploring multidimensional fitness landscapes of gene regulatory networks before and after genome duplication: An in silico evolution approach”**

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Esther Ibáñez and Tomás Alarcón

Centre de Recerca Matemàtica

**“Topology of robustness and evolvability in evolutionary systems with genotype-phenotype map”**

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Samira Jaeger<sup>1</sup>, Rodrigo Arroyo<sup>1</sup>, Patrick Aloy<sup>1,2</sup>

<sup>1</sup> Institute for Research in Biomedicine, Joint IRB-BSC program in Computational Biology. c/ Baldiri i Reixac 10-12. 08028 Barcelona, Spain. <sup>2</sup> Institució Catalana de Recerca i Estudis Avançats (ICREA). Pg. Lluís Companys 23. 08010 Barcelona, Spain

**“A network biology approach to identify breast cancer drug targets and drug combinations”**

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Alba Jimenez, James Sharpe

Multicellular Systems Biology, Systems Biology Program, Centre for Genomic Regulation, Barcelona ES

**“Phenotypic innovation in gene regulatory networks is determined by the dynamical mechanism”**

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Ivan Junier<sup>1</sup> and Olivier Rivoire<sup>2</sup>

<sup>1</sup>Centre for Genomic Regulation (CRG), Dr. Aiguader 88, 08003 Barcelona, Spain; <sup>2</sup>CNRS/Université Joseph Fourier - Grenoble 1, Laboratoire Interdisciplinaire de Physique (LIPhy), UMR 5588, 38402 Saint Martin d'Hères, France

**“Synteny in Bacteria: A Universal Law Shaped by Positive Selection”**

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M. Ángeles Serrano<sup>1</sup>, Manuel Jurado<sup>2</sup> and Ramon Reigada<sup>2</sup>

<sup>1</sup>Departament de Física Fonamental, Universitat de Barcelona, Martí i Franquès 1, 08028, Barcelona, Spain

<sup>2</sup>Departament de Química Física, Universitat de Barcelona, Martí i Franquès 1, 08028, Barcelona, Spain

**“Negative-feedback self-regulation contributes to robust high-fidelity transmembrane signal transduction”**

Christina Kiel<sup>1,2</sup>, Erik Verschueren<sup>1,2</sup>, Jae-Seong Yang<sup>1,2</sup>, Luis Serrano<sup>1,2,3</sup>

<sup>1</sup>EMBL/CRG Systems Biology Research Unit, Centre for Genomic Regulation (CRG), Dr. Aiguader 88, 08003 Barcelona, Spain. <sup>2</sup>Universitat Pompeu Fabra (UPF), 08003 Barcelona, Spain. <sup>3</sup>Institució Catalana de Recerca i Estudis Avançats (ICREA), Pg. Lluís Companys 23, 08010 Barcelona, Spain.

**“Three-dimensional reconstruction of the ErbB signaling network together with protein abundances suggests a high level of competition”**

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Meng-Ching Ko<sup>\*1,2</sup>, Carolina Frankl-Vilches<sup>1</sup>, Antje Bakker<sup>1</sup>, Manfred Gahr<sup>1</sup>.

<sup>1</sup>Max Planck Institute for Ornithology, Seewiesen, Germany. <sup>2</sup>IMPRS for Organismal Biology, Germany.

**“Transcriptomic Profiling Adult Female Canary Brain During the Emergence of Testosterone-induced Singing Behavior”**

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Juan Camilo Luna<sup>1</sup>, Pau Formosa-Jordan<sup>1</sup>, Jelena Petrovic<sup>2</sup>, Gina Abelló<sup>2</sup>, Joana Neves<sup>2</sup>, Fernando Giraldez<sup>2</sup> and Marta Ibañes<sup>1</sup>

<sup>1</sup> Departamento de Estructura y Constituyentes de la Materia, Universidad de Barcelona. <sup>2</sup> Developmental Biology Unit, CEXS, Universitat Pompeu Fabra, Parc de Recerca Biomèdica de Barcelona (PRBB)

**“Study of competition in intercellular signaling during the development of sensory organs”**

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Seán M. Murray<sup>1,3</sup>, Gaël Panis<sup>2,3</sup>, Coralie Fumeaux<sup>2</sup>, Patrick H. Viollier<sup>2</sup> and Martin Howard<sup>1</sup>

<sup>1</sup>Computational and Systems Biology, John Innes Centre, Norwich Research Park, Norwich NR4 7UH, UK

<sup>2</sup>Department of Microbiology & Molecular Medicine, Institute of Genetics & Genomics in Geneva (iGE3), Faculty of Medicine / CMU, University of Geneva, Rue Michel Servet 1, 1211 Geneva 4, Switzerland

**“Computational and Genetic Reduction of a Cell Cycle to Its Simplest, Primordial Components”**

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Bàrbara Negre, Elisa Beltran, Damjan CicinSain, Johannes Jaeger

EMBL/CRG Research Unit in Systems Biology, Centre de Regulació Genòmica (CRG), Barcelona, Spain.

**“Unravelling the thorax patterning network: a systems approach”**

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Jana Nemcova, Mihaly Petreczky, Jan H. van Schuppen

(1) Institute of Chemical Technology, Prague, Czech republic, (2) Ecole des Mines de Douai, Douai, France, (3) Delft University of Technology, Delft, The Netherlands and Van Schuppen Control Research, Amsterdam, The Netherlands

**“Semi-algebraic analytic models of biochemical reaction networks”**

Palau-Ortin, David and Ibañes, Marta

Department of Structure and Constituents of Matter, Faculty of Physics, University of Barcelona (UB)

**“The dynamics of cellular decision making and its phase space structure”**

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Puig-Oliveras, A.<sup>1,2\*</sup>, Ramayo-Caldas, Y.<sup>3</sup>, Corominas, J.<sup>1</sup>, Fernández A.I.<sup>4</sup>, Ibáñez-Escriche N.<sup>5</sup>, Ballester, M.<sup>1</sup>, and Folch, J.M.<sup>1,2</sup>

<sup>1</sup>Centre de Recerca en Agrigenòmica, CSIC-IRTA-UAB-UB, edifici CRAG, Campus UAB, Bellaterra, 08193, Barcelona, Spain. <sup>2</sup>Departament de Ciència Animal i dels Aliments, Facultat de Veterinària, Campus UAB, Bellaterra, 08193, Barcelona, Spain. <sup>3</sup>National Institute of Agronomic Research (INRA), UMR1313 Génétique Animale et Biologie Intégrative (GABI), 78352 Jouy-en-Josas, France. <sup>4</sup>Departamento de Genética Animal, Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria (INIA), 28040 Madrid, Spain. <sup>5</sup>Genètica i Millora Animal, Institut de Recerca i Tecnologies Agroalimentàries (IRTA), 25198 Lleida, Spain.

**“A co-association network analysis of the genetic determination of pig growth and shape”**

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Carlota Rubio Pérez<sup>1</sup>, Emre Guney<sup>2,3</sup>, Janet Piñero<sup>1</sup>, Laura Inés Furlong<sup>1</sup> and Baldomero Oliva<sup>1</sup>.

<sup>1</sup>Research Unit on Biomedical Informatics, Department of Experimental and Health Science, Universitat Pompeu Fabra/IMIM, Barcelona, Spain. <sup>2</sup>Center for Complex Network Research, Northeastern University, Boston. <sup>3</sup>Center for Cancer Systems Biology, Dana Farber Cancer Institute, Boston.

**“Investigating disease comorbidity via protein interaction networks using gene prioritization algorithms”**

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Caroline Schneider, Louis Mahadevan, Marta Kwiatkowska

Nuclear Signaling Laboratory, Department of Biochemistry, University of Oxford

**“Quantitative regulation of inducible gene transcription: comparing the characteristics of on/off against continuously variable switches”**

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M.Àngeles Serrano

Departament de Física Fonamental, Universitat de Barcelona, Martí i Franquès 1, 08028 Barcelona

**“Mapping metabolic networks to hidden metric spaces”**

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Hana Susak, Rubayte Rahman, Oliver Drechsel, Luis Zapata, Stephan Ossowski

Genomic and Epigenomic Variation in Disease Group, Centre for Genomic Regulation (CRG) and UPF, Barcelona, Spain.

**“Mutation Enrichment Analysis in Protein-Protein Interaction Networks Reveals Causal Biological Functions Complex Diseases”**

Manu Uzkudun, Luciano Marcon, James Sharpe.

Multicellular Systems Biology, Systems Biology Program, Centre for Genomic Regulation, Barcelona ES

**“Modelling PD patterning during vertebrate limb development”**

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Berta Verd Fernandez, Johannes Jaeger

Comparative Analysis of Developmental Systems, EMBL/CRG Research Unit in Systems Biology, Centre for Genomic Regulation, Barcelona ES

**“Development in Phase Space: Dynamic Behaviour for Gap Gene Expression”**

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Marc Weber and Javier Buceta

Parc Científic de Barcelona, Barcelona, Spain.

**“Dynamics of the Quorum Sensing Switch: Stochastic and Non-Stationary Effects”**

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Roni H. G. Wright<sup>1</sup>, Thomas Cokelaer <sup>2</sup>, Julio Saez-Rodriguez <sup>2</sup> and Miguel Beato <sup>1</sup>.

1. Gene Regulation Stem Cells and Cancer Program, Center for Genomic Regulation (CRG), Barcelona, Spain. 2. EMBL Outstation–European Bioinformatics Institute, Cambridge, UK.

**“Integrating Dynamic multi-experimental data to model Global Signalling Networks and Chromatin Modifications in Breast Cancer Cells”**

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