

OPATHY Third Annual Meeting & Summer School

26th August – 1st September 2018 València, Spain



HOSTING
INSTITUTIONS

BIOTECHVANA

VNIVERSITAT
ID VALÈNCIA

CSIC
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS

Institute for Integrative Systems Biology
I²SysBio

Applied bioinformatics and post-genomics techniques for clinical omics

Location:

Institute for Integrative Systems Biology, The University of Valencia Science Park, 46980 Paterna, València, Spain

Chairs:

- Toni Gabaldon
Head of the Comparative Genomics Group & OPATHY's coordinator, Centre for Genomic Regulation (CRG)
- Carlos Llorens
CEO/CSO of Biotechvana SL & OPATHY's partner

Organiser contact:

Mireia Tomàs

Biotechvana SL

Labs 15-16, Viver empresarial Parc Científic Universitat de València
C. Catedràtic José Beltrán, 2
46980 Paterna, València, Spain

+34 963 543 839

mireia.tomas@biotechvana.com

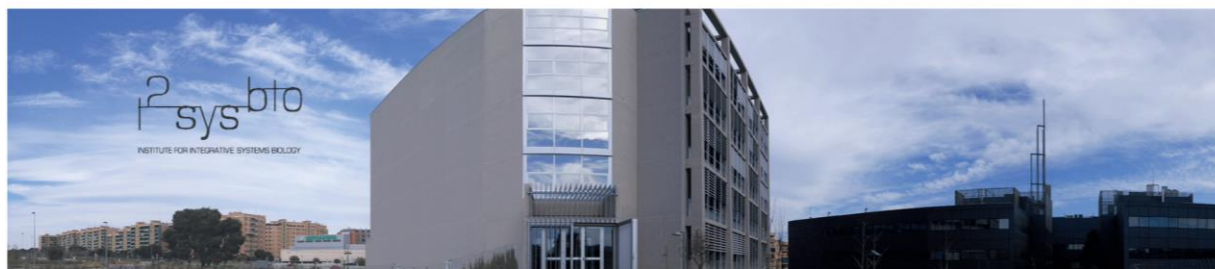
OPATHY
CRG-Centre for Genomic Regulation
Doctor Aiguader, 88
08003 Barcelona, Spain
opathyitn@gmail.com

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 642095



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Programme Committee

- Maria Iranzo (The University of Valencia Science Park)
- Patrick Wincker (Genoscope, France)
- Ole Schulz-Trieglaff (Illumina, United Kingdom)
- Ahmed Hafez (Biotechvana)
- Ricardo Futami (Biotechvana)
- Verónica Mixão (CRG)
- Hrant Hovhannisyan (CRG)
- Markus Kostrzewa (Bruker, Germany)
- Geraldine Butler (University College Dublin, Ireland)
- Edward Dolk (QVQ, Netherlands)
- Angelo Gámez (Biomedica Molecular Medicine & Hospital U. La Paz, Spain)
- Andrea Rubert (European University of Valencia)
- Leticia Bagán (University of Valencia)
- Inmaculada Noguera (University of Valencia)
- Jose E Perez Ortin (University of Valencia)
- Ricardo Ramos (Madrid Science Park, Spain)
- Francisco Roig (Biotechvana)
- Lucía Trilla (Biomedica Molecular Medicine, Spain)
- Jose Maria Sempere (Universitat Politècnica de València)
- Joaquin Panadero (Health Research Institute Hospital La Fe, València)
- Beatriz Soriano (Biotechvana)
- Guillermo Prado (Biomedica Molecular Medicine & Hospital U. La Paz, Spain)
- Juan Manuel Rosa (Hospital Ramon y Cajal, Spain)

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Programme

SUNDAY, AUGUST 26: ARRIVAL AND ACCOMMODATION

20:00 – 22:30 Welcome Dinner (See Locations & Maps in the ANNEX)

MONDAY, AUGUST 27: ANNUAL MEETING

Room: Seminari

09:00 – 09:15 Introduction by Carlos Llorens and Toni Gabaldon

09:15 – 11:00 ESR projects presentations ESR1-6 (10 min each)

11:00 – 11:30 Coffee Break

11:30 – 13:30 ESR projects presentations ESR7-13 (10 min each)

13:30 – 15:00 Lunch Break

Room: Sala multiusos

15:00 – 16:00 General Assembly (only PIs)

Room: Seminari

15:00 – 16:30 An introduction to Audiovisual Communication: Preparing the Opathy Movie (only ESRs)

Teacher **Maria Iranzo** (The University of Valencia Science Park Communication Team)

19:30 – 22:30 Joint Dinner

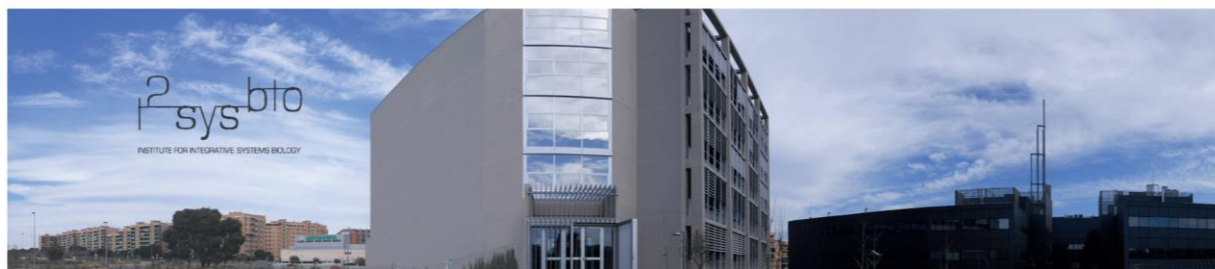
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TUESDAY, AUGUST 28: ANNUAL MEETING AND SUMMER SCHOOL

Room: Seminari

- 09:00 – 11:00 **Individual talks between ESRs and their supervisors** (20 min each)
See schedule in the ANNEX
- 11:00 – 11:30 Coffee Break
- 11:30 – 12:30 **Sequencing and genome analysis**
Speaker **Patrick Wincker** (Genoscope, France)
- 12:30 – 13:30 **From Bases to Basespace Sequence Hub: Bioinformatics research at Illumina**
Speaker **Ole Schulz-Trieglaff** (Illumina, United Kingdom)
- 13:30 – 14:30 Lunch Break

Room: Sala multiusos

- 14:30 – 16:00 **Introductory session to Python Programming based on the Anaconda package management system**
TEACHERS:
Ahmed Hafez (Biotechvana), **Verónica Mixão** (CRG) and **Hrant Hovhannisyan** (CRG)
TEACHING SUPERVISOR: **Ricardo Futami** (Biotechvana)
The general purpose of this session is to let students not familiarized with bioinformatics acquire the essential skills in programming and Linux commands, while students with Python skills at expert level will be trained in teaching supervised by Ricardo Futami.
- 16:00 – 16:30 Coffee break
- 16:30 – 17:30 **Programming competition game** (3 teams, each one led by an ESR who acted as teacher in Anaconda training)
TEACHERS:
Ahmed Hafez, **Verónica Mixão** and **Hrant Hovhannisyan**
TEACHING SUPERVISOR AND GAME REFEREE:
Ricardo Futami

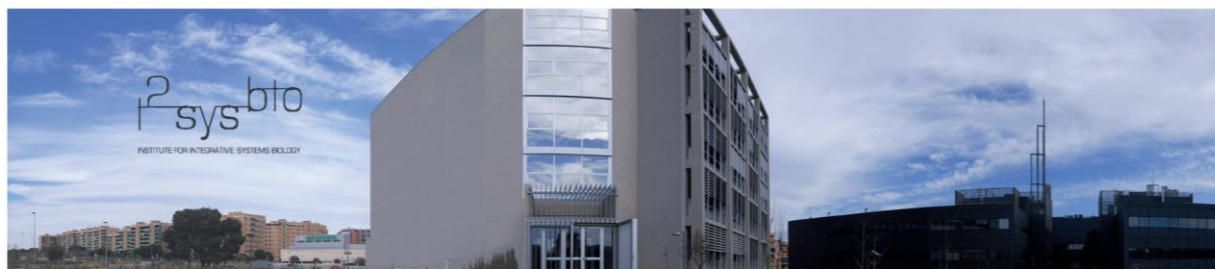
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WEDNESDAY, AUGUST 29: SUMMER SCHOOL

Room: Seminari

- 09:00 – 10:00 **Bioinformatic approaches for microorganism identification, typing, and resistance testing by MALDI-TOF MS**
Speaker **Markus Kostrzewa** (Bioanalytical Development & Clinical Mass Spectrometry Group, Bruker, Germany)
- 10:00 – 10:30 Coffee Break
- 10:30 – 11:30 **Methods and bioinformatic protocols for RNAseq**
Speaker **Geraldine Butler** (University College Dublin, Ireland)
- 11:30 – 12:30 **Comparative Genomics on fungal pathogens**
Speaker **Toni Gabaldon** (Comparative Genomics Group, CRG)
- 12:30 – 13:30 **Bioinformatic tools in applications of VHH antibodies oriented to diagnostics**
Speaker **Edward Dolk** (QVQ, Netherlands)
- 13:30 – 14:30 Lunch Break
- 14:30 – 15:30 **Network based multi-omics analyses in the clinical setting**
Speaker **Angelo Gámez** (Biomedica Molecular Medicine & Hospital Universitario la Paz, Spain)
- 15:30 – 16:15 **Ethical use of human samples**
Speaker **Andrea Rubert** (European University of Valencia)
- 16:15 – 16:45 Coffee break
- 16:45 – 17:30 **Biosafety aspects, legislation and ethical aspects of scientific publishing**
Speaker **Leticia Bagán** (University of Valencia)

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THURSDAY, AUGUST 30: SUMMER SCHOOL

Room: Seminari

- 09:00 – 10:00 **Ethical aspects of the use of animals in clinical research experiments**
Speaker **Inmaculada Noguera** (SCSIE, University of Valencia)
- 10:00 – 10:30 Coffee Break
- 10:30 – 11:30 **Microarray technology: fundamentals and applications**
Speaker **Jose E Perez Ortin** (University of Valencia)
- 11:30 – 12:30 **Probe design and optimization**
Speaker **Ricardo Ramos** (Genomics Unit, Madrid Science Park, Spain)
- 12:30 – 13:30 **Validating expression patterns by qPCR analysis**
Speaker **Ricardo Ramos**
- 13:30 – 14:30 Lunch Break

Room: Sala multiusos

- 14:30 – 15:30 **Practical training Session with GPRO Suite: RNAseq and differential expression protocols (Part I)**
Teachers **Francisco Roig** and **Ahmed Hafez** (Biotechvana)
- 15:30 – 16:00 Coffee break
- 16:00 – 17:30 **Practical training Session with GPRO Suite: RNAseq and differential expression protocols (Part II)**
Teachers **Francisco Roig** and **Ahmed Hafez**

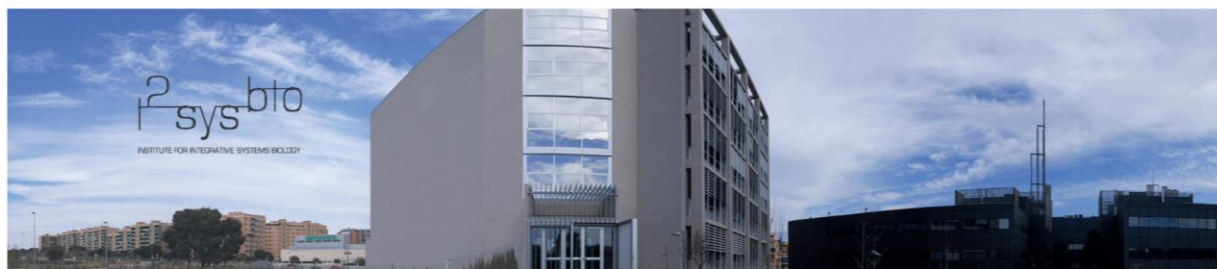
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FRIDAY, AUGUST 31: SUMMER SCHOOL

Room: Sala multiusos

- 09:00 – 10:00 **Computational Metabolic Models, a tool with clinical applications**
Speaker **Lucía Trilla** (Biomedica Molecular Medicine, Spain)
- 10:00 – 10:30 Coffee Break
- 10:30 – 12:30 **Artificial Intelligence and Biocomputation for the omic sciences**
Speaker **Jose Maria Sempere** (Department of Information Systems and Computation, Universitat Politècnica de València)
- 12:30 – 13:30 **Fungal metagenomics and diversity analyses based on 18S/ITS**
Speaker **Joaquin Panadero** (Head of Bioinformatics, Genomics Unit, Health Research Institute Hospital La Fe, València)
- 13:30 – 14:30 Lunch Break
- 14:30 – 16:00 **Practical session: Protocols for de novo assembly gene prediction and annotation with GPRO Suite (Part I)**
Teachers **Carlos Llorens** and **Beatriz Soriano** (Biotechvana)
- 16:00 – 16:30 Coffee break
- 16:30 – 17:30 **Protocols for de novo assembly gene prediction and annotation with GPRO Suite (Part II)**
Teachers **Carlos Llorens** and **Beatriz Soriano**
- 20:00 – 22:00 Informal dinner and fun in Barrio del Carmen in Valencia

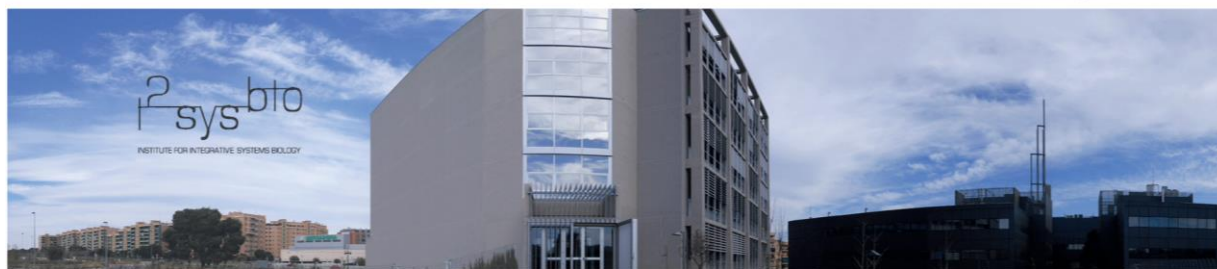
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SATURDAY, SEPTEMBER 1: SUMMER SCHOOL

Room: Seminari

- 09:00 – 10:00 **Assessing different layers of molecular information in omics datasets**
Speaker **Guillermo Prado** (Biomedica Molecular Medicine & Hospital Universitario la Paz, Spain)
- 10:00 – 10:30 Coffee Break
- 10:30 – 11:30 **Methods and tools for calling and annotation of clinically relevant variants (SNPs/Indels) from genome or exome NGS data**
Speaker **Juan Manuel Rosa** (Hospital Ramon y Cajal, Spain)
- 11:30 – 12:30 **Hands-on work practical session: Reviewing and assessing variant calls with the IGV Browser**
Teacher **Juan Manuel Rosa**
- 12:30 – 13:30 Final Wrap up
- 13:30 – 15:00 Sandwich party & Farewell lunch

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ANNEX

Individual talks between ESRs and their supervisors - TUESDAY, AUGUST 28

	corner 1		corner 2		corner 3	
09:00	Elise		Verónica			
09:20	Geraldine	Bernhard	Toni	Teun		
09:25	João		Aimi		Giuseppe	
09:45	Geraldine	Bernhard		Teun	Carol	Markus
09:50	Marina		Amir		Ahmed	
10:10	Geraldine	Bernhard	Markus	Teun	Carlos	Toni
10:15	Hrant		Mansoureh		Antonio P.	
10:35	Toni	Bernhard	Markus	Teun		Mario
10:40			Frank		Antonio R.	
11:00			Edward	Teun	Toni	Mario

Locations & Maps

Pls Accommodation at *Hotel Eurostars Gran Valencia* (<https://www.eurostarshotels.com/>)

Address: C. de la Vall d'Aiora 3, 46015 València.

Phone: +34 963 05 08 00.

Metro station: BENIFERRI (3-min walk).

From the airport:

25 min by Metrovalencia. You can take L3 or L5 from AEROPORT station to ÀNGEL GUIMERÀ station, and change to L1 or L2 to reach BENIFERRI station.

12 min by taxi.

For Metrovalencia, please check timetables in http://www.metrovalencia.es/page.php?page_id=1

ESRs Accommodation at *Burjassot Residence* (<http://residenciauniversitariacampus.com/en/>)

Address: Avd. del Primer Maig 11 acc., 46100 Burjassot (València).

Phone: +34 963 16 00 92 / +34 622 09 39 54

For check-in other than 9h30-14h and 16h-18h, please call.

Metro station: BURJASSOT-GODELLA (9-min walk).

From the airport:

45 min by Metrovalencia. You can take L3 or L5 from AEROPORT station to ÀNGEL GUIMERÀ station, and change to L1 to reach BURJASSOT-GODELLA station.

12 min by taxi (around 15€).

For Metrovalencia, please check timetables in http://www.metrovalencia.es/page.php?page_id=1

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UNIVERSITAT DE VALÈNCIA **CSIC** Institut de Biologia Integrativa de Sistemes (i2sysbio)

Welcome Dinner (Aug-26th) at *Restaurante Voltereta* (<https://www.voltereta.com/>)

Address:
Avd. Corts Valencianes 26, 46015 València.

Metro station:
BENIFERRI (2-min walk).

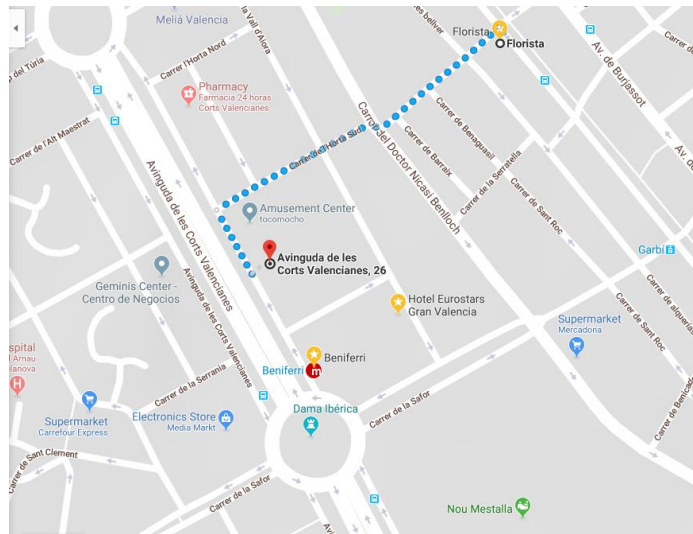
Tram station:
FLORISTA (6-min walk).

- 3-min walk from Hotel Eurostars Gran Valencia.
- From Burjassot Residence:

Metro L1 from BURJASSOT-GODELLA to BENIFERRI (ca. 16 min, check timetables)

or

Tram L4 from VICENT ANDRÉS ESTELLÉS to FLORISTA (ca. 23 min, remember to check timetables) or 6 min by taxi.



Institute for Integrative Systems Biology (<http://i2sysbio.uv.es/>)

Address: Parc Científic de la Universitat de València, 46980 Paterna, València.
Tram station: Santa Gemma-Parc Científic UV.



- 10-min walk from Burjassot Residence.
 - From Hotel Eurostars Gran Valencia:
- Tram L4 from FLORISTA to SANTA GEMMA-PARC CIENTÍFIC UV (12 min, every 30 min)
Please check timetables in http://www.metrovalencia.es/page.php?page_id=1

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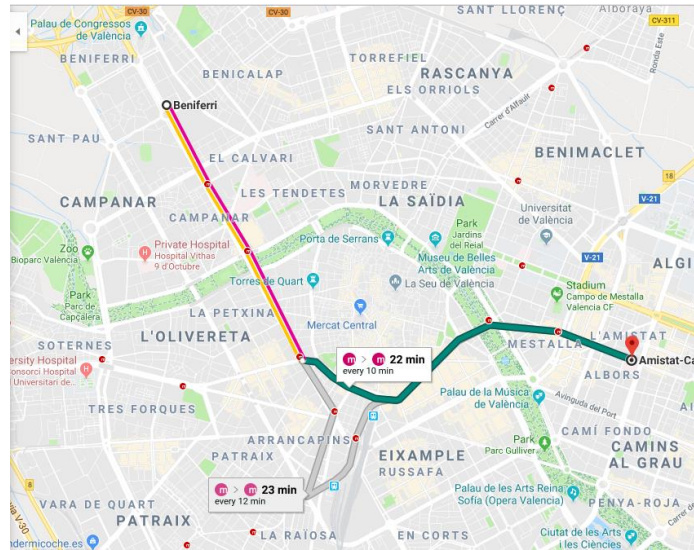
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Joint Dinner (Aug-27th) near AMISTAT Metro station

To reach AMISTAT, you can

take the Metro L1 or L2 (from BURJASSOT-GODELLA or BENIFERRI) to ÀNGEL GUIMERÀ and then change to L5 to reach AMISTAT (ca. 30 min).

16 min by taxi either from the residence or from the Hotel Eurostars Gran Valencia.



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