

# IWBBIO 2019

INTERNATIONAL WORK-CONFERENCE ON  
BIOINFORMATICS AND  
BIOMEDICAL ENGINEERING

# PROGRAM

8-10 May, 2019  
Granada (SPAIN)

# IWBBIO 2019 Short Program

Wednesday, May 8th, 2019		
8:00-8:30	<b>REGISTRATION DESK</b> <i>(start at 8:00 but it is opened during all the conference)</i>	
8:30-10:00	<b>Session A.1: Bioinformatics for healthcare and diseases (Part. I)</b>	<b>Session B.1: Biomedical Engineering (Part. I)</b>
10:00-10:30	<b>COFFEE BREAK</b>	
10:30-11:30	<b>OPENING PLENARY LECTURE.</b> <b>Prof. Andrzej Kloczkowski</b>	
11:30-12:45	<b>Session A.2: Clustering and analysis of Biological Sequences with Optimization Algorithms</b>	<b>Session B.2: Telemedicine for Smart Homes and Remote Monitoring</b>
12:45-13:30	<b>Session A.3: High-throughput genomics: bioinformatics tools and medical applications (Part I)</b>	<b>Session B.3: Biomedicine</b>
13:30-15:00	<b>LUNCH &amp; COFFEE</b>	
15:00-17:00	<b>Session A.4: Omics data acquisition, processing, and analysis</b>	<b>Session B.4: Biomedical signal analysis</b>
17:00-17:30	<b>COFFEE BREAK</b>	
17:30-18:30	<b>PLENARY LECTURE.</b> <b>Prof. Yan Guo</b>	
18:30-20:00	<b>Session A.5: Bioinformatics approaches for analyzing cancer sequencing data</b>	<b>Session B.5: Biomedical image analysis (Part. I)</b>

## NOTES:

- All **Sessions A** will be held in Salón de Grados, Edificio Mecenaz (just 25 meters from the Facultad de Ciencias).
- All **Sessions B** will be held in Salón de Grados, Facultad de Ciencias.
- The **Poster Sessions** will be held in the Hall of Facultad de Ciencias.
- **Social event (departure):** Buses will be at the main entrance of Hotel Granada Center (9<sup>th</sup> May at 20:00 for the Gala Dinner at Hotel Alhambra Palace and 10<sup>th</sup> May at 16:30 for the visit to Alhambra).

**Thursday, May 9, 2019**

8:00-8:30	<b>REGISTRATION DESK</b> <i>(start at 8:00 but it is opened during all the conference)</i>	
8:30-10:00	<b>Session A.6: High-throughput genomics: bioinformatics tools and medical applications (Part II)</b>	<b>Session B.6: Biomedical image analysis (Part. II)</b>
10:00-10:30	<b>COFFEE BREAK</b>	
10:30-11:30	<b>PLENARY LECTURE.</b> <b>Prof. Julio Facelli</b>	
11:30-12:45	<b>Session A.7: Translational Bioinformatics</b>	<b>Session B.7: Biomedical Engineering (Part. II)</b>
12:45-13:30	<b>Session A.8: Computational genomics/proteomics</b>	<b>Session B.8: Computational Approaches for Drug Repurposing and Personalized Medicine</b>
13:30-15:00	<b>LUNCH &amp; COFFEE</b>	
15:00-16:30	<b>Session A.9: Next generation sequencing and sequence analysis</b>	<b>Session B.9: Biomedical Engineering (Part.III)</b>
16:30-17:00	<b>COFFEE BREAK</b>	
17:00-18:00	<b>PLENARY LECTURE.</b> <b>Dr. Luciano Cascione</b>	
18:00-19:30	<b>Session A.10/B.10: Poster Session.</b>	
20:00	<b>Gala Dinner at Hotel Alhambra Palace</b>	

**Friday, May 10, 2019**

8:00-8:30	<b>REGISTRATION DESK</b> <i>(start at 8:00 but it is opened during all the conference)</i>	
8:45-11:00	<b>Session A.11: Structural Bioinformatics and Function</b>	<b>Session B.11: Computational systems for modelling biological processes</b>
11:00-11:30	<b>COFFEE BREAK</b>	
11:30-13:00	<b>Session A.12: Bioinformatics for healthcare and diseases (Part. II)</b>	<b>Session B.12: Biomedical Engineering (Part. IV)</b>
13:00-14:00	<b>CLOSING PLENARY LECTURE.</b> <b>Dr. Valentina Cipriani</b>	
14:00-16:30	<b>FREE TIME</b>	
16:30	<b>Visit to the Alhambra</b>	

**Salón De Grados.**  
**SESSIONS A**  
**Edificio Mecenas**

**Salón De Grados.**  
**SESSIONS B**  
**Facultad de Ciencias**



**Hall**  
**POSTER SESSIONS**  
**Facultad de Ciencias**

**MAIN**  
**ENTRANCE**

**HOTEL**  
**GRANADA**  
**CENTER**

# IWBBIO 2019 FULL PROGRAM

Wednesday, May 8th 2019

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## Session A.1: Bioinformatics for healthcare and diseases (Part. I)

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**Chairman: Dr. Leon Bobrowski and Dr. Veska Gancheva**

Computer prediction of cardiovascular adverse effects of drug-drug interactions

*Sergey Ivanov, Alexey Lagunin, Dmitry Filimonov and Vladimir Poroikov*

Instrumented shoes for 3D GRF analysis and characterization of human gait

*João Santos, João Ferreira, Manuel Crisóstomo and A. Paulo Coimbra*

Levenberg-Marquardt variants in chrominance-based skin tissue detection

*Ondrej Krejcar, Ayca Kirimtat and Ali Selamat*

Adaptation to animal sources of *Salmonella enterica* subsp. *enterica* deciphered by Genome Wide Association Study and Gene Ontology Enrichment Analysis at the pangenomic scale

*Vila Nova Meryl, Kevin La, Kévin Durimel, Arnaud Felten, Philippe Bessières, Michel-Yves Mistou, Mahendra Mariadassou and Nicolas Radomski*

Non-linear Clustering in Olfactory Function Data Reflects Some Neurodegenerative Disorders

*Michael Sadovsky, Denis Pokhabov, Vladislav Abramov, Maria Tunik and Dmitry Pokhabov*

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## Session B.1: Biomedical Engineering (Part. I)

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**Chairman: Dr. Julian Gardner and Dr. Dundy Bastola**

Remote controlled drug release from biodegradable magnetic PLGA microspheres

*Diana Zahn, Andreas Weidner, Kathy Saatchi, Zeynab Nosratri, Urs O. Häfeli and Silvio Dutz*

Non-generalized analysis of the multimodal signals for emotion recognition: preliminary results

*Edwin Londoño Delgado, Carolina Duque, Cristian Mejia Arboleda, Andrés Eduardo Castro Ospina, Miguel Alberto Becerra Botero, Diego Hernán Peluffo-Ordoñez and Juan Camilo Zapata*

Classification of urine smell from CMOS based odour sensor array and artificial neural networks

*Julian Gardner and Yuxin Xing*

DYNLO: Enhancing Non-Linear Regularized State Observer Brain Mapping Technique by Parameter Estimation with Extended Kalman Filter

*Andrés Felipe Soler Guevara, Eduardo Giraldo and Marta Molinas*

A mini-review of Biomedical Infrared Thermography (B-IRT)

*Ondrej Krejcar, Ayca Kirimtat and Ali Selamat*

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## **PLENARY LECTURE: Prof. Andrzej Kloczkowski**

Principal Investigator in the Battelle Center for Mathematical Medicine in the Research Institute of the Nationwide Children's Hospital in Columbus, Ohio, and Tenured Professor of Pediatrics in the Department of Pediatrics of The Ohio State University

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### **Session A.2: Clustering and analysis of Biological Sequences with Optimization Algorithms**

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**Chairman: Dr. Miroslava Cuperlovic-Culf and Dr. Mohammad Soruri**

Efficient online Laplacian eigenmap computation for dimensionality reduction in molecular phylogeny via optimisation on the sphere

*Stephane Chretien and Christophe Guyeux*

Gene Expression High-Dimensional Clustering towards a Novel, Robust, Clinically Relevant and Highly Compact Cancer Signature

*Enzo Battistella, Théo Estienne, Marvin Lerousseau, Roger Sun, Maria Vakalopoulou, Charlotte Robert, Eric Deutsch and Nikos Paragios*

TADdistR: a Tool for Annotation of Genetic Signatures Based on Topologically Associating Domains

*Michela Verbeni, Carlos Cano and Paul Lizardi*

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### **Session B.2: Telemedicine for Smart Homes and Remote Monitoring**

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**Chairman: Dr. Juan A. Ortega, Dr. Natividad Martinez, Dr. Ralf Seepold and Dr. Viacheslav Antsiperov**

Positioning Method for Wearable Arterial Blood Pressure Monitoring Sensor

*Viacheslav Antsiperov and Gennady Mansurov*

Study of the detection of falls using the SVM algorithm, different datasets of movements and ANOVA

*José Antonio Santoyo Ramón, Eduardo Casilari Pérez and José Manuel Cano García*

Influence of illuminance on sleep onset latency in IoT based lighting system environment

*Mislav Juric, Maksym Gaiduk and Ralf Seepold*

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### **Session A.3: High-throughput genomics: bioinformatics tools and medical applications (Part II)**

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**Chairman: Dr. Gonzalo Claros, Dr. Javier Pérez Florido and Dr. Francisco M. Ortuño**

Computational analysis of metabolic changes in Alzheimer diseases development and progression through genome scale modeling and machine learning analysis of metabolite-protein interactions

*Miroslava Cuperlovic-Culf, Anuradha Surendra and Nabil Belacel*

Fragment-based Drug Design to Discover Novel Inhibitor of Dipeptidyl Peptidase-4 as a Potential Drug for Type 2 Diabetes Therapy

*Eka Gunarti Ningsih, Muhammad Fauzi Hidayat and Usman Sumo Friend Tambunan*



Discovery of Novel Alpha-Amylase Inhibitors For Type II Diabetes Mellitus Through The Fragment-Based Drug Design

*Yulianti, Agustinus Kantale and Usman Sumo Friend Tambunan*

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### **Session B.3: Biomedicine**

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**Chairman: Dr. Ondrej Krejcar and Dr. Mark Wass**

Development of smart-technology for prediction drug properties based on modified algorithms of artificial immune systems and ontological models

*Galina Samigulina, Zarina Samigulina and Timur Samigulin*

Estimation of Lung Properties Using ANN-Based Inverse Modeling of Spirometric Data

*Adam Polak, Dariusz Wysoczanski and Janusz Mroczka*

Synthesis of New Analogues of the Bengamides to encapsulate in magnetic nanoparticles

*Cristina Porras Alcalá*

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### **Session A.4: Omics data acquisition, processing, and analysis**

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**Chairman: Dr. Jan Urban**

Dependency Model for Visible Aquaphotomics

*Vladyslav Bozhynov, Pavel Soucek, Antonin Barta, Pavla Urbanova and Dinara Bekkozhaeva*

Image based individual identification of Sumatra barb (*Puntigrus tetrazona*)

*Dinara Bekkozhaeva, Mohammademehdi Saberioon and Petr Cisar*

Alignment of Sequences Allowing for Non-Overlapping Unbalanced Translocations of Adjacent Factors

*Simone Faro and Arianna Pavone*

Probability in HPLC-MS metabolomics

*Jan Urban*

Deciphering Transcriptional Regulatory Patterns in Systemic Lupus Erythematosus

*Raul Dominguez Lopez, Daniel Toro Dominguez, Jordi Martorell, Christian Holland, Guillermo Barturen, Julio Saez-Rodriguez, Marta Eugenia Alarcon Riquelme and Pedro Carmona-Saez*

CoExp: a transcriptomics based resource for gene sets annotation based on co-expression networks

*Sonia García-Ruíz, Regina H. Reynolds, Federico Jurado, Juan A. Laguna, Mark Cookson, Paola Forabosco, Jana Vandrovцова, John Hardy, Mina Rytten and Juan A. Botía*

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**Session B.4: Biomedical signal analysis**

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**Chairman: Dr. Philippe Micheau and Dr. Stephane Chretien**

Technically correct visualization of biological microscopic experiments

*Ganna Platonova, Dalibor Štys, Pavel Soucek, Vladimír Kotal, Petr Macháček and Renata Rychtáriková*

Gender Differences identification from Brain Regions using Spectral Relative Powers of Emotional EEG

*Noor Al-Qazzaz, Mohannad K. Sabir, Sumaya Hamad Jafer and Karl Grammer*

Model of the mouth pressure signal during pauses in total liquid ventilation

*Jonathan Vandamme, Mathieu Nadeau, Julien Mousseau, Jean-Paul Praud and Philippe Micheau*

The Rise of IoT Technologies in Bioinformatics and Biomonitoring

*Antonín Bárta, Pavel Soucek, Vladyslav Bozhynov, Pavla Urbanová and Dinara Bekkozhaeva*

Volume-by-volume bioprinting of chondrocytes-alginate bioinks in high temperature thermoplastic scaffolds for cartilage regeneration

*Jose Manuel Baena*

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**PLENARY LECTURE:**

**Prof. Yan Guo**

Professor and director of Bioinformatics Shared Resources  
for the New Mexico Comprehensive Cancer Center

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**Session A.5: Bioinformatics approaches for analyzing cancer sequencing data**

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**Chairman: Dr. Jiayin Wang, Dr. Xuanping Zhang and Dr. Zhong-meng Zhao**

Classifying Breast Cancer Histopathological Images Using A Robust Artificial Neural Network Architecture

*Xianli Zhang, Xudong Wang, Xiaoyu Li, Buyue Qian, Yinbin Zhang, Qinghua Zheng, Lingyun Song, Changchang Yin, Liang Wang and Penggang Chen*

Spatial Attention Lesion Detection on Automated Breast Ultrasound

*Feiqian Wang, Xiaotong Liu, Rongjian Zhao, Buyue Qian, Litao Ruan, Jishang Wei, Changchang Yin, Na Yuan, Rong Wei, Xin Ma and Qinghua Zheng*

Essential Protein Detection from Protein-Protein Interaction Networks Using Immune Algorithm

*Xiaoqin Yang, Xiujuan Lei and Jiayin Wang*

Integrating multiple datasets to discover stage-specific cancer related genes and stage-specific pathways

*Bolin Chen, Chaima Aouiche and Xuequn Shang*

Protein Remote Homology Detection and Fold Recognition by Combining Profiles and Matrix Transformation Approaches

*Qing Liao, Mingyue Guo and Bin Liu*

Qualitative Comparison of Selected Indel Detection Methods for RNA-Seq Data

*Tamara Slosarek, Milena Kraus, Matthieu-P. Schapranow and Erwin Boettinger*

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**Session B.5: Biomedical image analysis (Part. I)**

**Chairman: Dr. Sebastien Mambou and Dr. Athanasios Nikolaidis (Tentative)**

Detection of static objects in an image based on texture analysis

*Frantisek Jabloncik, Libor Hargas, Jozef Volak and Dusan Koniar*

Automated BIRAD Scoring of Breast Cancer Mammograms

*Maryam Nasser, Timm Ellis and Jamshid Dehmeshki*

Predict breast tumor response to chemotherapy using a 3D deep learning architecture applied to DCE-MRI data

*Mohammed El Adoui, Stylianos Drisis and Mohammed Benjelloun*

Pipeline for Electron Microscopy Images Processing

*Paula Urbanova, Vladyslav Bozhynov, Dinara Bekkozhayeva, Petr Císar  
and Milos Zelezny*

Assessment of pain-induced changes in cerebral microcirculation by  
imaging photoplethysmography

*Alexei Kamshilin, Olga Lyubashina, Maxim Volynsky, Valeriy Zaytsev  
and Oleg Mamontov*

Production and Characterization of HA Coated G0/PCL 3D Printing  
Scaffold for Bone Tissue Engineering

*Sertan Ozen, Aysenur Topsakal, Burak Ozbek, Zeynep Ruya Ege,  
Nazmi Ekren, Umit Kemalettin Terzi, Hayriye Korkmaz, Faik Nuzhet  
Oktar and Oguzhan Gunduz*

Thursday, May 9th, 2019
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**Session A.6: High-throughput genomics: bioinformatics tools and medical applications (Part. II)**

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**Chairman: Dr. Gonzalo Claros, Dr. Javier Pérez Florido and Dr. Francisco M. Ortuño**

A Coarse-Grained Representation for Discretizable Distance Geometry with Interval Data

*Antonio Mucherino, Jung-Hsin Lin and Douglas Goncalves*

Compression of Nanopore FASTQ files

*Guillermo Dufort Y Álvarez, Gadiel Seroussi, Pablo Smircich, José Sotelo, Idoia Ochoa and Álvaro Martín*

De novo Transcriptome global assembly of *Solea senegalensis* v5.0 using TransFlow

*José Córdoba-Caballero, Pedro Seoane-Zonjic and M. Gonzalo Claros Díaz*

Towards personalized medicine in the Andalusian Health System (SAS)

*Javier Perez-Florido, Jose Luis Fernández-Rueda, Francisco Manuel Ortuno, Antonio Rueda, Francisco Javier López-Domingo, Ignacio Medina and Joaquín Dopazo*

Predicting Susceptibility to Symptomatic Respiratory Viral Infection

*Mehrad Mahmoudian, Riku Klén and Laura Elo*

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**Session B.6: Biomedical image analysis (Part. II)**

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**Chairman: Dr. Libor Hargas**

Novel Four Stages Classification of Breast Cancer Using Infrared Thermal Imaging and a Deep Learning Model

*Ondrej Krejcar, Jean Sebastien Mambou and Ali Selamat*

Detection of breast cancer using infrared thermography and deep neural networks.

*Francisco Javier Fernández Ovies, Edwin Santiago Alférez Baquero, Enrique Juan de Andrés Galiana, Ana Cernea, Zulima Fernández Muñiz and Juan Luis Fernández Martínez*

Artefacts Recognition and Elimination in Video Sequences with Ciliary  
Respiratory Epithelium

*Libor Hargas, Zuzana Loncova, Dušan Koniar, František Jablončík and  
Jozef Volak*

Effect of the Sintering Temperature on Hydroxyapatite Powder  
Synthesized by Sol-Gel Method

*Necdet Mekki Ergül, Oguzhan Gündüz, Mahir Mahirogullarr, Nazmi  
Ekren, Faik Nüzhet Oktar and Sertan Özen*

A Computer Based Blastomere Identification and Evaluation Method for  
Day 2 Embryos during IVF/ICSI Treatments

*Charalambos Strouthopoulos and Athanasios Nikolaidis*

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## PLENARY LECTURE:

**Prof. Julio Facelli**

Vice Chair, Department of Biomedical Informatics.  
University of Utah School of Medicine

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### Session A.7: Translational Bioinformatics

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**Chairman: Dr. Simone Faro and Dr. Antonio Mucherino**

When Mathematics Outsmarts Cancer

*Somnath Tagore and Milana Frenkel-Morgenstern*

Associating Protein Domains with Biological Functions: A Tripartite  
Network Approach

*Elena Rojano, Pedro Seoane, James Richard Perkins, Ian Sillitoe,  
Christine Orengo and Juan Antonio García Ranea*

Detection of Pools of Bacteria with Public Health Importance in  
Wastewater Effluent from a Municipality in South Africa using Next  
Generation Sequencing and Metagenomics Analysis

*Anthony Ayodeji Adegoke, Emmanuel Adetiba, Daniel T. Babalola,  
Matthew B. Akanle, Surendra Thakur and Olayinka Ayobami Aiyegoro*

Item response models for computer-aided systems in biomedicine

*Irene Garca, Merce Llabres, Antoni Crespı and Arnau Mir*

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### **Session B.7: Biomedical Engineering (Part. II)**

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**Chairman: Dr. Milena Georgieva and Dr. Roderick Melnik**

Web-based application for accurately classifying cancer type from microarray gene expression data using a support vector machine (SVM) learning algorithm

*Shrikant Pawar*

Comparative study of Feature Selection methods for Medical Full Text Classification

*Carlos Adriano Gonalves, Eva Lorenzo Iglesias, Lourdes Borrajo, Rui Camacho, Adrian Seara Vieira and Celia Talma Gonalves*

Synthesis and Characterization of Hydroxyapatite by Wet Chemical Precipitation at Different pH and Sintering Temperature

*Gizem Mahmutoglu, Aysenur Topsakal, Nilgun Kuskonmaz, Sibel Daglilar, Faik Nuzhet Oktar and Oguzhan Gunduz*

Definition of Organic Processes via Digital Monitoring Systems

*Svetlana Martynova*

Data Fusion for Improving Sleep Apnoea Detection from Single-lead ECG Derived Respiration

*Ana Jimenez Martın, Alejandro Cuevas Notario, J. Jesus Garcıa Domınguez, Sara Garcıa de Villa and Miguel Angel Herrero Ramiro*

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### **Session A.8: Computational genomics/proteomics**

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**Chairman: Dr. Agata Gawad and Dr. Michael Van Dyke**

Clustering of Klebsiella Strains Based on Variability in Sequencing Data

*Vojtech Barton, Marketa Nykrynova, Matej Bezdicek, Martina Langerova and Helena Skutkova*

Addition of pathway-based information to improve predictions in transcriptomics

*Daniel Urda, Francisco Veredas, Ignacio Turias and Leonardo Franco*

Epigenetic regulatory network identifies pathways in diabetic kidney disease using multi-centre cohorts

*Sam El-Osta*

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**Session B.8: Computational Approaches for Drug Repurposing and Personalized Medicine**

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**Chairman: Dr. Hesham H. Ali**

Influence of the stochasticity in the model on the certain drugs pharmacodynamics.

*Krzysztof Puszynski*

Graph Model for the Identification of Multi-Target Drug Information for Culinary Herbs

*Suganya Chandrababu and Dhundy Kiran Bastola*

Analysis of gene expression data highlights candidates for drug repositioning in Ulcerative Colitis patients

*Suyeon Kim, Ishwor Thapa, Ling Zhang and Hesham Ali*

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**Session A.9: Next generation sequencing and sequence analysis**

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**Chairman: Dr. Jung-Hsin Lin and Dr. Usman Sumo Friend Tambunan**

Reads in NGS are distributed over a sequence very inhomogeneously

*Michael Sadovsky, Victory Kobets, Georgy Khodos, Dmitry Kuzmin and Vadim Sharov*

Analysis of gene regulatory networks inferred from ChIP-seq data

*Eirini Stamoulakatou, Carlo Piccardi and Marco Masseroli*

Entropy-based detection of genetic markers for bacteria genotyping

*Marketa Nykrynova, Denisa Maderankova, Vojtech Barton, Matej Bezdicek, Martina Lengerova and Helena Skutkova*

Flexible and Efficient Algorithms for Abelian Matching in Genome Sequences

*Simone Faro and Arianna Pavone*

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**Session B.9: Biomedical Engineering (Part.III)**

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**Chairman: Dr. Seongho Jang and Dr. Juan Jesús García Domínguez**



Analysis of the behavior of the red blood cell model in a tapered microchannel

*Mariana Ondrušová and Ivan Cimrák*

A novel approach for evaluation of potential candidates for cancer therapy

*Milena Georgieva, Bela Vasileva, Dessislava Staneva, Borislava Kukurina, George Miloshev, Kamelia Hristova-Panusheva, Milena Keremidarska-Markova, Tonya Andreeva, Giorgio Speranza, Dayong Wang and Natalia Krasteva*

Radiofrequency Ablation for Treating Chronic Pain of Bones: Effects of Nerve Locations

*Sundeeep Singh and Roderick Melnik*

Detection of Subclinical Keratoconus Using Biometric Parameters

*Jose Sebastián Velázquez-Blázquez, Francisco Cava-Martínez, Jorge Alió Del Barrio, Daniel G Fernández-Pacheco, Francisco J.F. Cañavate, Dolores Parras-Burgos and Jorge Alió*

Relations Between Maximal Half Squat Strength and Bone Variables in a Group of Young Overweight Men

*Antonio Pinti, Anthony Khwaja, Patchina Sabbagh, Jacques Prioux, Georges El Khoury and Rawad El Hage*

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## PLENARY LECTURE:

**Dr. Luciano Cascione**

Bioinformatics researcher. Institute of Oncology Research (IOR), Switzerland

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**Session A.10/B.10: Poster Session.**

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**Chairman: Dr. Daniel Castillo and Dr. Fernando Rojas**

Therapeutic effects of melittin on atopic dermatitis in vivo and in vitro

*Hyun-Jin An, Jung-Yeon Kim, Mi-Gyeong Gwon, Hyemin Gu, Hyun-Ju Kim and Kwan-Kyu Park*

TGF-B1 and Smad oligodeoxynucleotide suppressed kidney fibrosis via regulation of epithelial/endothelial to mesenchymal transition in animal model of unilateral ureteral obstruction

*Mi-Gyeong Gwon, Hyun-Jin An, Jung-Yeon Kim, Hyemin Gu, Hyun-Ju Kim and Kwan-Kyu Park*

Bioinformatics analysis for predictions miR-15b, miR-22a, miR-20b, miR27b, miR-126, miR-130a, miR-210, miR-221, miR-222, miR-296 and Let-7f target genes and their relation with obesity and type 2 diabetes.

*Adriana Mariel Gentile and Rajaa El Bekay Rizky*

Interaction of biological systems with protein coated magnetic nanoparticles

*Andreas Weidner, Christine Gräfe, Paul Warncke, Moritz von der Lühne, Dagmar Fischer, Joachim H. Clement, Felix H. Schacher and Silvio Dutz*

Correlations between sample entropy as well as atrial fibrillatory rate and CHA2DS2-VASc score in patients with atrial fibrillation

*Rattapong Sunnoon and Narawudt Prasertwitayakij*

Lantanide based liver-specific ultra-high field MRI T2 contrast agent

*Hee-Kyung Kim, Ah Rum Baek, Bo Kyung Sung, Taekwan Lee, Soyeon Kim, Md. Kamrul Islam and Yongmin Chang*

A Biomechanical Model Implementation for Upper-Limbs Rehabilitation Monitoring Using IMUs

*Sara García de Villa, Ana Jiménez Martín and Juan Jesús García Domínguez*

Characterization of the envelope Zika virus (ZIKV) protein through molecular mimicry and structural similarity analysis

*Andrea Montero, Vinicio Armijos and Miguel Angel Mendez*

Neural response of deep brain structures to odorants: A manganese-enhanced MRI study

*Mun Han, Byungmok Kim, Jang Woo Park, Jongmin Lee, Hui Joong Lee, Yongmin Chang and Jiung Yang*

Moderate exercise improves brain efficiency for executive functions in young adults

*Huijin Song, Jin Gu Kim, Kyung Eun Jang, Hyunsil Cha, Sechang Kwon, Hyeonwook Jeong, Eunji Kim, Jinsu Park, Seungho Kim and Yongmin Chang*

DNA Sequence Alignment Method Based on Trilateration

*Veska Gancheva and Hristo Stoev*

Thermoresponsive magnetic nanoparticles as target drug delivery for cancer treatment

*Alicia Ortega Rodríguez*

Orphan Transcription Factor Discovery by the Selection Method REPSA

*Michael Van Dyke*

Interactive Alkaptonuria Database: investigating clinical data to improve patient care

*Ottavia Spiga, Vittoria Cicaloni and Annalisa Santucci*

Platform for Adaptive Knowledge Discovery and Decision Making Based on Big Data Analytics

*Veska Gancheva, Plamenka Borovska and Ivailo Georgiev*

Expression change correlations between transposons and adjacent genes in lung cancer reveal a genomic location dependence and highlights cancer-significant genes

*Macarena Arroyo, Rafael Larrosa, M. Gonzalo Claros and Rocio Bautista*

Next generation sequencing of blood mRNAs for the development of a risk stratification algorithm in coronary artery disease.

*Silvia Rocchiccioli, Moritz Shuette, Christine Voigt, Bobo Lange, Nikolaos Tachos, Eleni Georga, Antonios Sakellarios, Jeff Smit, Arthur Scholte, Dimitrios Fotiadis and Gualtiero Pelosi*

Determination of enantioselectivity of selected enzyme – in silico study.

*Magdalena Lugowska and Artur Góra*

Signal processing based CNV detection in bacterial genomes

*Robin Jugas, Martin Vitek, Denisa Maderankova and Helena Skutkova*

Subtype Specific Drug Repositioning for Breast Cancer via Multi-Omic Data Interpretation

*Beste Turanli, Kubra Karagoz, Raghu Sinha, Michael L. Gatz, Adil Mardinoglu and Kazim Yalcin Arga*

Visualization and Cognitive Graphics in Medical Scientific Research

*Olga Berestneva, Olga Marukhina, Konstantin Sharopin and Elena Berestneva*

BrightCNV: A visualisation tool for NIPT and CNV NGS Analysis Data

*Didier Croes, Dorien Daneels, Ann Van Den Bogaert, Pieter Verdyck, Sonia Van Dooren and Maryse Bonduelle*

Adjusting for systematic technical biases in risk assessment of gene signatures in transcriptomic cancer cohorts

*Adria Caballe, Toni Berenguer and Camille Stephan Otto Attolini*

Identification of key transcription factors in the adult human pacemaker of the heart

*Halina Dobrzynski and Maria Petkova*

chroGPS2: differential analysis of epigenome maps in R

*Oscar Reina, Fernando Azorin and Camille Stephan-Otto Attolini*

Binary Data Storage in DNA

*Fabio de Oliveira, Raquel Barbosa and Marcelo Fernandes*

Prediction of thermophilic proteins using voting algorithm

*Jing Li, Pengfei Zhu and Quan Zou*

Differential Interactome Analysis to Identify Systems Biomarkers in Cancer Diagnosis, Prognosis and Therapy

*Kazim Yalcin Arga, Gizem Gulfidan and Beste Turanli*

Text mining algorithm to extract biological knowledge from full scientific articles

*Faouzi Mhamdi and Azza Abidi*

GY MEDIC: Analysis and Rehabilitation System for Patients with Facial Paralysis

*Gissela M. Guanoluisa and Jimmy A. Pilatasig*

Conformational Structural Stability of G-Quadruplex Nucleic Acids

*Miguel Mendez S. and Daniela Barragan R.*

The Observation of Effects of rGO and GO in Cell Growth on PCL/Ch 3D Printing Scaffolds

*Aysenur Topsakal, Zeynep Ruya Ege, Hasan Ege, Burak Ozbek, Sertan Ozen, Nazmi Ekren, Umit Kemalettin Terzi, Osman Kilic, Faik Nuzhet Oktar and Oguzhan Gunduz*

Uncovering JAZ-MYC biochemical and structural interactions

*Samara Oña, Sebastián Ayala, Stephany Gallardo and Miguel Méndez*

Mirror neuron system and motor performance

*Deanna Anderlini and Guy Wallis*

Proposed Dedicated Hardware for Acceleration of Algorithms Associated with Genetic Sequence Alignment

*Wysterlânia Barros, Maria Coutinho, Raquel Barbosa and Marcelo Fernandes*

Wireless active dry-electrode electroencephalographic system in extreme outdoor conditions: an application in military live-fire training

*Carolina Diaz-Piedra, Andrés Catena, José Miguel Morales, Antonio Candido, Ignacio Martín, Samuel Romero and Leandro Luigi Di Stasi*

liqDB: data and tools for reanalysis of liquid biopsy miRNA-seq samples

*Ernesto Luis Aparicio Puerta, David Jaspez, Juan Antonio Marchal, Danijela Koppers-Lalic and Michael Hackenberg*

Mathematical Modeling and Docking of Medicinal Plants and Synthetic drugs to determine their effects on Abnormal Expression of Cholinesterase and Acetyl Cholinesterase Proteins in Alzheimer

*Shaukat Iqbal Malik, Anum Munir and Ghulam Mujtaba Shah*

Semantic Segmentation of Peripheral White Blood Cells using Deep Neural Networks

*Pavel Baykalov and Santiago Alférez*

Hybrid Leaf Recognition Model for Plant Classification using Convolutional Neural Network Crafted Features

*Jules Kala and Emmanuel Adetiba*

Immunoinformatic design for the development of a contraceptive multi-epitope subunit vaccine

*Camila Cubas, Pedro Aponte and Miguel Mendez*

Structural Equation Modeling (SEM) in Biostatistics : Hypertension and diabetes coexistence case study.

*Amine Amar and Fatima Zahrae Taik*

Anemia in women of reproductive aged in Ecuador: data from a national survey

*Andrea Sosa Moreno and Miguel Angel Mendez*

Fast Exhaustive Search Algorithm of Relevant Association Rules

Cell adhesion modelling and computer implementation

*Isabelle Mazza Guimaraes, Ivan Cimrak*

Construction of Artificial Blood Vessels with 3D Printing using PCL/Chitosan/Hydrogel Biocomposites

*Songul Ulag, Cevriye Kalkandelen, Faik Nuzhet Oktar, Muhammet Uzun, Yesim Muge Sahin, Betul Karademir, Sema Arslan, Osman Kilic, Nazmi Ekren and Oguzhan Gunduz*

Core-shell structured hyaluronic acid nanofibers for wound dressing

*Sena Su, Mehmet Eroglu, Cevriye Kalkandelen, Nazmi Ekren, Faik Nuzhet Oktar, Osman Kilic and Oguzhan Gunduz*

Production of Amoxicillin Loaded Polymethylsilsesquioxane (PMSQ) Microbubbles Using Microfluidic V-junction Device

*Sumeyye Cesur, Faik Nuzhet Oktar, Nazmi Ekren, Ahmet Talat Inan, Osman Kilic and Oguzhan Gunduz*

Characteristic properties of 3D Printed Polycaprolactone/Polivinilpirolidon/Chitosan Constructs for Cartilage Tissue Engineering

*Evren Isa Uzgur, Songul Ulag, Faik Nuzhet Oktar, Osman Kilic, Nazmi Ekren and Oguzhan Gunduz*

Machine Learning Approach of Classification of knee osteoarthritis using Hip-knee cyclogram

*Seongho Jang and Shi-Uk Lee*

Isolation and Molecular Characterization of bacteria from West African soft cheese (wara) produced from sheep milk using 16s rRNA gene

*Ayodele Ogunlade, Victor Oyetayo and Anthony Ojokoh*

Lipidome improves predictive ability of subclinical atherosclerosis over traditional risk factors: The Cardiovascular Risk in Young Finns Study.

*Pashupati Mishra*

The diagnosis accuracy of modern transcutaneous bilirubinometers: a systematic review and meta-analysis

*Anežka Hadravová and Gleb Donin*

Acoustic Imaging on a Mobile

*A Xue and Lili Qiu*

Interaction of ZIKV NS5 and STAT2 explored by Molecular Modeling, Docking, and Simulations Studies

*Gerardo Armijos-Capa, Paúl Pozo-Guerrón, Javier Torres and Miguel Méndez*

Friday May 10, 2019
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**Session A.11: Structural Bioinformatics and Function**

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**Chairman: Dr. Michael Sadovsky**

Function vs. taxonomy: the case of fungi mitochondria ATP synthase genes

*Michael Sadovsky, Julia Putintseva, Anna Kolesnikova, Victory Fedotovskaya and Tatiana Shpagina*

Non-Coding Regions of Chloroplast Genomes Exhibit a Structuredness of Five Types

*Michael Sadovsky, Maria Senashova, Inna Gorban and Vladimir Gustov*

Triplet Frequencies Implementation in Total Transcriptome Analysis

*Michael Sadovsky, Vladislav Birukov and Tatiana Guseva*

A hierarchical and scalable strategy for protein structural classification

*Vinício Frago Mendez, Cleiton Rodrigues Monteiro, Giovanni Ventorim Comarela and Sabrina de Azevedo Silveira*

Protein structural signatures revisited: geometric linearity of main chains are more relevant to classification performance than packing of residues

*João Arthur Gadelha Campelo, Cleiton Rodrigues Monteiro, Carlos Henrique da Silveira, Sabrina de Azevedo Silveira and Raquel Cardoso de Melo-Minardi*

Structural and functional features of glutathione reductase transcripts from olive (*Olea europaea* L.) seeds.

*Elena Lima-Cabello, Isabel Martínez-Beas, Estefanía García-Quirós, Rosario Carmona, M. Gonzalo Claros, Jose Carlos Jimenez-Lopez and Juan De Dios Alche*

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**Session B.11: Computational systems for modelling biological processes (Part. I)**

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**Chairman: Dr. Arnau Mir Torres (Tentative)**

HIV Drug Resistance Prediction with Categorical Kernel Functions

*Elies Ramon, Miguel Pérez-Enciso and Lluís Belanche-Muñoz*

Low resolution electroencephalographic-signals-driven semantic retrieval:  
Preliminary results

*Miguel A. Becerra, Edwin Londoño, Cristian Mejia, Oscar Botero-Henao, Diana Marin and Diego H. Peluffo-Ordoñez*

Study of Use of Convolutional Neural Networks for Red Blood Cell  
Trajectory Prediction in Simulation of Blood Flow

*K. Bachratá, M. Chovanec, H. Bachraty and K. Jasencáková*

Simulation Approaches to Stretching of Red Blood Cells.

*Alzbeta Bohinikova and Katarina Bachrata*

Describing sequential association patterns from longitudinal microarray  
data sets in humans

*Augusto Anguita-Ruiz, Alberto Segura-Delgado, Rafael Alcala,  
Concepción Maria Aguilera and Jesus Alcala-Fernandez*

Modelling intestinal microbiota growth in R

*Luis A Rubio, Helen Kettle, Petra Louis, Grietje Holstrom, Sylvia H  
Duncan and Harry J Flint*

## **Session A.12: Bioinformatics for healthcare and diseases(Part.II)**

**Chairman: Dr. Leon Bobrowski and Dr. Heekyung Kim**

Deciphering the role of PKC in calpain-CAST system through formal  
modeling approach

*Javaria Ashraf, Jamil Ahmad and Zaheer Ul-Haq*

Feature (Gene) Selection in Linear Homogeneous Cuts

*Leon Bobrowski and Tomasz Lukaszuk*

The new algorithm for the global alignment of two sequences, the basic  
tool in bioinformatics

*Beteringhe Adrian, Nicolae Marian, Florescu Geanina, Petculescu  
Nicole-Livia, Nicolae Floarea and Nicolae Ion*

Lipidome modules underlying osteoporosis and atherosclerosis  
comorbidity: The Cardiovascular Risk in Young Finns Study.

*Binisha Hamal Mishra*



Dyslexia classification using feature selection and Machine Learning Techniques

*Yolanda Garcia-Chimeno, Begonya Garcia-Zapirain, Ibone Saralegui and Begonya Fernandez-Ruanova*

## Session B.12: Biomedical Engineering (Part. IV)

**Chairman: Dr. Oguzhn Gunduz and Dr. Manuel Crisóstomo**

Production and characterization of hexagonal boron nitride doped three-dimensional scaffolds for bone tissue engineering

*Deniz Aki, Oguzhan Gunduz, Seden Cengiz, Songul Ulag, Semra Unal, Osman Kilic, Faik Nuzhet Oktar and Nazmi Ekren*

Comparison of numerical and laboratory experiment examining deformation of red blood cell

*K. Kovalčíková, Ivan Cimrák, K. Bachratá and Hynek Bachratý*

Hyaluronic acid-modified bacterial cellulose scaffolds for three-dimensional glioblastoma model

*S. Unal, S. Arslan, B. Karademir, O. Gunduz and F. N. Oktar*

Development of an ECG Smart Jersey based on Next Generation Computing for Automated Detection of Heart Defects among Athletes

*Emmanuel Adetiba, Onosenema N. Ekpoki, Victor Akande, Joy N. Adetiba, Jules R. Kala and Folarin Olaloye*

Brain Hematoma Segmentation Using Active Learning and an Active Contour Model

*Heming Yao, Craig Williamson, Jonathan Gryak and Kayvan Najarian*

Investigation of Polycaprolactone/Polivinilpirolidon based Biocomposite Constructs for Cartilage Impairment by using 3D Plotting

*Muhammet S. Izgordu, S. Ulag, F. Nuzhet Oktar, O. Kilic, N. Ekren and O. Gunduz*

## CLOSING PLENARY LECTURE:

**Dr. Valentina Cipriani**

Senior Bioinformatics Research Fellow. School/Institute:

William Harvey Research Institute. Queen Mary

## University London, United Kingdom

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**Virtual Session**

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**Chairman: Dr. Olga Valenzuela**

Identification of Immunoglobulin Gene Usage in Immune Repertoires  
Sequenced by Nanopore Technology

*Roberto Ahumada-García, Jorge González-Puelma, Diego*

*Álvarez-Saravia, Ricardo J. Barrientos, Roberto Uribe-Paredes, Xaviera  
A. López-Cortés and Marcelo A. Navarrete*

Estimation of the equilibrium GC content of human genome

*Jian-Hong Sun, Hong-Jun Luo, Shi-Meng Ai and Bo Gao*

Differential Expression Analysis of ZIKV Infected Human RNA Sequence  
Reveals Potential Genetic Biomarkers

*Almas Jabeen, Nadeem Ahmad and Khalid Raza*

Interaction of ZIKV NS5 and STAT2 explored by Molecular Modeling,  
Docking, and Simulations Studies

*Gerardo Armijos-Capa, Paúl Pozo-Guerrón, Javier Torres and Miguel  
Méndez*

In Vitro Skin Cancer Treatment By PCL/Gelatine/ Moringa Oleifera  
Nanofiber Dressings

*Zeynep Ceren Topsakal, Hasan Ege, Zeynep Ruya Ege, Yusuf Kadir  
Develi, Gokce Erdemir, Sertan Ozen, Nazmi Ekren, Faik Nuzhet Oktar  
and Oguzhan Gunduz*

Production and Characterization of PCL/Gelatin/Hypericum Perforatum  
Electrospun Scaffolds for Wound Dressing

*Gunce Ataseven, Hasan Ege, Zeynep Ruya Ege, Aysenur Topsakal,  
Gokce Erdemir, Faik Nuzhet Oktar and Oguzhan Gunduz*

Identification of hypertension subgroups through topological analysis of  
symptom-based patient similarity

*Jingjing Wang, Yifei Wang and Xuezhong Zhou*

Cross Modality Microscopy Segmentation via Adversarial Adaptation

*Yue Guo, Qian Wang, Oleh Krupa, Jason Stein, Guorong Wu, Kira  
Bradford and Ashok Krishnamurthy*

Polymerase Chain Reaction based Point of Care Diagnostic Devices: A Comparison

*Imran Aziz and Rabia Jamshaid*

Integrated detection of copy number variation based on assembly of NGS and 3GS data with deep learning

*Feng Gao and Jingyang Gao*

Common Gene Regulatory Network for Anxiety Disorder using Cytoscape: Detection and Analysis

*Md. Rakibul Islam, Md. Liton Ahmed, Bikash Kumar Paul, Sayed Asaduzzaman and Kawsar Ahmed*

A Mutual Exclusion Mining Algorithm for Cancer Mutation Data

*Zhongmeng Zhao, Chunyan Yang, Tian Zheng, Xuanping Zhang, Xiao Xiao and Jiayin Wang*

PROcket, an efficient algorithm to predict Protein Ligand Binding Site

*Rahul Semwal, Imlimaong Aier, Pritish Kumar Varadwaj and Slava Antsiperov*

Analysis of finger thermoregulation by using signal processing techniques

*María Henao Higueta, Macheily Hernández Fernández, Delio Aristizabal Martínez and Hermes Fandiño Toro*

Developing a DEVS-JAVA model to simulate and pre test changes to emergency care delivery in a safe and efficient manner

*Shrikant Pawar and Aditya Stanam*

Perturbation Monte Carlo Methods for the Inverse Problem of Frequency-Domain Optical Coherence Tomography

*Yan Wang and Li Bai*

Fatigue Analysis of Microarchitecture of a Human Vertebra by Micro-Imaging

*Hacene Ameddah and Hammoudi Mazouz*

Insight about nonlinear dimensionality reduction methods applied to protein molecular dynamics

*Vinicius Carius de Souza, Priscila Capriles Goliatt and Leonardo Goliatt*

A simpler command of motor using BCI

*Yacine Fodil and Salah Haddab*

Brain Hematoma Segmentation Using Active Learning and an Active  
Contour Model

*Heming Yao, Craig Williamson, Jonathan Gryak and Kayvan Najarian*

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