

RECEPTION AT CITY HALL

19:00 - 20:00 We proudly welcome those of you arriving a day in advance of the conference for a reception in the beautiful Leuven City Hall. The Mayor of Leuven will tell you a bit about the city and you will get to taste some of those famous Belgian beers.

The town hall is Leuven's pride and joy. Moreover, it's one of the best-known Gothic town halls worldwide. It took three architects and thirty years to build it. Leuven's 'Hall of Fame' features 236 statues, which were only added to the façade after 1850.

08:15 - 08:55 Registration & coffee

08:55 - 09:00 Welcome by Alex Botzki

Session 1

MICROBIAL & PLANT GENOMICS: FROM SIMPLE TO COMPLEX

Chair: Vera van Noort

09:00 - 09:05 Introduction by session chair

09:05 - 09:40 Strain tracking with metagenomics to understand pathogen transmission
Nick Loman, *Institute of Microbiology and Infection, University of Birmingham, UK*

09:40 - 10:15 The origin of complex cells
Thijs Ettema, *Wageningen University, NL*

10:15 - 10:45 Coffee break

10:45 - 11:20 Confounder-aware systems medical approaches
Sofia Forslund, *Experimental and Clinical Research Centre, DE*

11:20 - 11:55 Charting the genome landscape of western civilisation
Klaus Mayer, *Plant Genome and Systems Biology, Helmholtz Center Munich, DE*

11:55 - 12:30 Comparative analysis of the *Seminavis robusta* genome and transcriptome offer insights into the evolutionary adaptations of benthic diatoms
Klaas Vandepoel, *VIB-UGent Center for Plant Systems Biology, BE*

12:30 - 12:45 *Selected Talk*: Genetic analysis of plasmid-encoded *mcr-1* mediated resistance in Enterobacteriaceae
Miaomiao Zhou, *School of Life Sciences, Avans University of Applied Sciences, NL*

12:45 - 13:30 Lunch

13:30 - 14:30 Poster Session - odd numbers

Session 2

STRUCTURAL BIOINFORMATICS AND PROTEOMICS

Chair: Peter Tompa

14:30 - 14:35 Introduction by session chair

14:35 - 15:10 Integrative modelling of biomolecular complexes
Alexandre Bonvin, *Bijvoet Centre, Faculty of Science - Chemistry, Utrecht University, NL*

15:10 - 15:45 Dissecting context dependent cancer signalling processes using CRISPR-based approaches
Sumana Sharma, *EMBL-EBI, UK*

15:45 - 16:00 *Selected Talk*: Leveraging the biophysical context of amino acid residues to understand protein behaviour
Wim Vranken, *Vrije Universiteit Brussel, BE; VIB-VUB Center for Structural Biology, BE; Interuniversity Institute of Bioinformatics in Brussels, BE*

16:00 - 16:30 Coffee break

16:30 - 17:05 Components of reproducible quantitative mass spectrometry-based research: a statistician's perspective
Olga Vitek, *Northeastern University, US*

17:05 - 17:40 Probabilistic mapping of the sub-cellular proteome
Laurent Gatto, *De Duve Institute - UC Louvain, BE*

17:40 - 18:15 Extending the small molecule similarity principle to all levels of biology
Patrick Aloy, *Structural Bioinformatics and Network Biology lab, IRB Barcelona, ES*

18:15 - 19:00 Reception

19:00 - 19:45 Guided tour to the conference dinner restaurant

20:00 - 22:30 Conference dinner

08:45 - 09:15 Welcome coffee

Session 3

DATA INTEGRATION, MACHINE LEARNING AND NETWORKS

Chair: Klaas Vandepoele

- 09:15 - 09:20 Introduction by session chair
- 09:20 - 09:55 A FAIR Vocabulary Odyssey
Helen Parkinson, *EMBL-EBI, UK*
- 09:55 - 10:30 Inference of regulatory network dynamics in developmental and evolutionary lineages
Sushmita Roy, *Dept. of Biostatistics and Medical Informatics, Wisconsin Institute for Discovery, University of Wisconsin, US*
- 10:30 - 11:00 Coffee break
- 11:00 - 11:35 Matrix Factorization approaches for data integration. Towards better gene set and pathway analysis
Aedin Culhane, *Dana-Farber Cancer Institute, Harvard TH Chan School of Public Health, US*
- 11:35 - 11:50 Methplotlib: analysis of modified nucleotides from nanopore sequencing
Wouter De Coster, *VIB-UAntwerp Center for Molecular Neurology, BE*
- 11:50 - 12:05 *Selected Talk:* Integrated multiomics unravels metabolic diet-microbiota-host interactions
Maria Zimmermann-Kogadeeva, *EMBL Heidelberg, DE & Yale University, US*
- 12:05 - 13:15 Lunch
- 13:15 - 14:15 Poster Session - even numbers

Session 4

SINGLE-CELL BIOINFORMATICS

Chair: Laurent Gatto

- 14:15 - 14:20 Introduction by session chair
- 14:20 - 14:55 Mapping the temporal and spatial dynamics of the human endometrium
Roser Vento-Tormo, *Sanger Institute, UK*
- 14:55 - 15:30 Spatial and temporal transcriptomics reveal microglia-astroglia crosstalk in the amyloid- β plaque cell niche of Alzheimer's disease
Ashley Lu, *VIB-KU Leuven Center for Brain & Disease Research, BE*
- 15:30 - 16:00 Coffee break
- 16:00 - 16:15 *Selected Talk:* Single-cell aging clock
Sumeet Singh, *IRIBHM, ULB, BE*
- 16:15 - 16:50 High-throughput single-cell proteomics quantifies the emergence of macrophage heterogeneity
Nikolai Slavov, *Northeastern University, US*
- 16:50 - 17:00 Closing remarks and #useGalaxy Poster Prize ceremony

POSTER ABSTRACTS

Abstracts ordered by first author. Presenting authors are highlighted in orange.

| # | Name | Institute |
|----|----------------------|---|
| 01 | Josu Aguirre Gómez | Vall d'Hebron Research Institute (VHIR), ES |
| 02 | Alessio Albanese | University of Trento, IT; SARA ENVI MOB S.r.l., IT |
| 03 | Luca Alessandri | University of Torino, IT |
| 04 | Esra Munire Aydogmus | Marmara University, TR |
| 05 | Miriam Badia | Institut d'Investigacions Biomèdiques August Pi i Sunyer, ES |
| 06 | Linda Bakker | Wageningen University & Research, NL |
| 07 | Hande Beklen | Marmara University, TR |
| 08 | Marijn Berg | University of Groningen, University Medical Center Groningen, NL |
| 09 | Carlo Bertinetto | Institute for Molecules and Materials, (Analytical Chemistry), Radboud University, NL |
| 10 | Lena Best | Institute of Experimental Medicine, Christian-Albrechts-University, Kiel, DE |
| 11 | Diksha Bhalla | Centre of Microbial and Plant Genetics, KU Leuven, BE |
| 12 | Alexander Biehler | Turku Bioscience Centre, University of Turku and Åbo Akademi University, FI |
| 13 | Till Birkner | ECRC (Collaboration of MDC and Charité Berlin), DE |
| 14 | Dries Boers | Amsterdam UMC, VU Amsterdam, Cancer Center Amsterdam, NL |
| 15 | John Boldt | UFPR, BR |
| 16 | Marion Buffard | ICM, INSERM, CNRS, U. Montpellier, FR |
| 17 | James Burgess | Gen-X B.V., Amsterdam, NL |
| 18 | Bing Cheng | Crop Production and Biostimulation Laboratory, Université libre de Bruxelles, BE |
| 19 | Lu Cheng | Cardiff University, UK |
| 20 | Maryna Chepeleva | Luxembourg Institute of Health, LU |
| 21 | Frederik Coppens | VIB-UGent Center for Plant Systems Biology, BE |
| 22 | Wouter De Coster | VIB Center for Molecular Neurology, BE |
| 23 | Laura de Rooij | VIB-KU Leuven Center for Cancer Biology, BE |
| 24 | Thomas Depuydt | Department of Plant Systems Biology, VIB, BE |
| 25 | Matthew Dyer | Memorial University of Newfoundland, CA |
| 26 | Sema Elif Eski | IRIBHM, Université Libre de Bruxelles, BE |
| 27 | Camilla Ferrari | VIB Center for Plant System Biology, BE |
| 28 | Songzhe Fu | Dalian Ocean University, CN |

| # | Name | Institute |
|----|----------------------|---|
| 29 | Mateusz Garbulowski | Computational Biology and Bioinformatics, Uppsala University, SE |
| 30 | Ravindra Garde | Max Planck Institute for Chemical Ecology, DE; Friedrich Schiller University Jena, DE |
| 31 | Thies Gehrman | Leiden University Medical Center, NL |
| 32 | Jorge Guío Martínez | Universidad de Zaragoza, ES; BIFI, ES |
| 33 | Gizem Gülfidan | Marmara University, TR |
| 34 | Kaja Gutowska | Poznan University of Technology, PL; Polish Academy of Sciences, PL |
| 35 | Samuel Haberman | Department of Molecular and Microbial Systems, KU Leuven, BE |
| 36 | Tim Herpelinck | KU Leuven, BE |
| 37 | Heba Ibrahim | Université de Toulouse, INRA, CNRS, FR; Faculty of Agriculture, Cairo University, EG |
| 38 | A. Kakoichankava | Vitebsk State Medical University, BY; Vitebsk Regional Hospital, BY |
| 39 | Tony Kaoma | Luxembourg Institute of Health, LU |
| 40 | Byeollee Kim | Sunmoon University, KR |
| 41 | Ki-Hwa Kim | Sunmoon University, KR |
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| 43 | Tamas Lazar | VIB-VUB Center for Structural Biology, BE; Vrije Universiteit Brussel, BE |
| 44 | Shir Mandelboun | Tel Aviv University, IL |
| 45 | Juliette Martin | MR 5086 MMSB CNRS/Université Lyon, FR |
| 46 | Péter Mendik | Department of Medical Chemistry, Semmelweis University, Budapest, HU |
| 47 | Pablo Mier | Johannes Gutenberg University Mainz, DE |
| 48 | Corentin Molitor | Cranfield University, UK |
| 49 | Rachel Moore | The Wellcome Trust Sanger Institute, UK; EMBL-EBI, UK; University of Cambridge, UK |
| 50 | Mohamed Mysara | University of Antwerp, BE; Belgian Nuclear Research Center (SCK-CEN), BE |
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| 55 | Marie Pazoutova | NEBION AG, CZ |
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DRAFT PROGRAM

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|----|--------------------------|--|
| 57 | Gaurav Sablok | Viikki Plant Science Centre & Finnish Museum of Natural History (Botany), FI |
| 58 | Aurora Savino | Molecular Biotechnology Center, Turin, IT |
| 59 | Andreas Schüttler | Helmholtz-Centre for Environmental Research, DE |
| 60 | Victoria Shabardina | Institute of Evolutionary Biology CSIC-UPF, ES |
| 61 | Yadollah S. Dizaji | Technical University of Munich, DE |
| 62 | Farhad Shakeri | University Hospital of Bonn, DE; University of Bonn, DE |
| 63 | Adam Soffer | Ben-Gurion University of the Negev, IL |
| 64 | Chrystian C. Sosa Arango | Pontificia Universidad Javeriana Cali, CO; Universidad del Quindío, CO |
| 65 | Nikolina Sostaric | KU Leuven, Centre for Microbial and Plant Genetics, BE |
| 66 | Aleksandra Swiercz | Poznan University of Technology, PL |
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| 68 | Chong Tang | UCLouvain, BE |
| 69 | Wim Thiels | Centre of Microbial and Plant Genetics, KU Leuven, BE |
| 70 | Gerjen Tinnevelt | Radboud University, NL |
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| 72 | Simon van Heeringen | Radboud University, Dept. of Molecular Developmental Biology, NL |
| 73 | Kristel Van Steen | BIO3 - Systems Medicine, KU Leuven, BE |
| 74 | Christophe Vanderaa | UCLouvain, BE |
| 75 | Gilda Varliero | Univeristy of Bristol, UK |
| 76 | V. Vermeirssen | Ghent University, BE |
| 77 | Haleluya Wami | Institute of Hygiene, Universitätsklinikum Münster, DE |
| 78 | Laura Witjes | Ghent University, BE |
| 79 | Stijn Wittouck | University of Antwerp, BE |
| 80 | Quan Xu | Radboud Institute for Molecular Life Sciences, Radboud University, NL |
| 81 | Gözde Yıldız | Canakkale 18 Mart University, TR |
| 82 | Sara Younes | Uppsala University, SE |
| 83 | Pooya Zakeri | VIB-KU Leuven Center for Brain & Disease Research, BE; KU Leuven, BE |