

# systems medicine disease maps

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The 3rd Disease Maps Community Meeting (DMCM2018) is hosted by the [Computational Systems Biology of Cancer group](#), Institut Curie.

**The programme and the abstract booklet are available [here](#)**

## Objectives

The objective of the 3rd DMCM is to consolidate efforts around the disease map projects and extend the Disease Maps Community. The 3rd DMCM will expose progress of the projects from the Disease Maps Community and beyond. The representative examples of network maps generation, their applications for disease data analysis, disease comorbidity, drug response prediction, advances in tools development and modelling approaches will be presented.

## Topics

Among others, the following topics will be discussed: biocuration of prior knowledge related to different human diseases; creation and maintenance of disease network maps following common standards; sharing sub-maps with mechanisms implemented into different human diseases; providing technical solutions for network maps complexity management, mathematical modelling of maps and web-tools for explorations in maps. **Topic-specific roundtable discussions** will be organised to identify bottleneck problems and ways to overcome them.

## Hands-on tutorials

Part of the meeting will be dedicated to **demos and hands-on tutorials** on major tools supporting the disease maps. **The downloadable materials are available at the tutorial description in the meeting programme.**

## Programme

21 June

Amphithéâtre BDD

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**08:30 - 09:00 Arrival and registration**

**09:00 - 09:05 Opening session and welcome**

[Emmanuel Barillot](#), Institute Curie, Paris, France

[Reinhard Schneider](#), Luxembourg Centre for Systems Biomedicine, Belval, Luxembourg

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**09:05 - 09:15 Aims and perspectives of the DMCM2018 meeting**

[Alexander Mazein](#), European Institute for Systems Biology and Medicine, Lyon, France

[Inna Kuperstein](#), Institute Curie, Paris, France

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**Session 1: Disease maps resources**

**09:15 - 09:30 Integrating disease maps using a graph database approach**

[Irina Balaur](#), European Institute for Systems Biology and Medicine, Lyon, France

[Abstract](#)

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**09:30 - 09:45 A disease map for the blood pressure and glomerular filtration regulatory network on which antihypertensive and analgesic drugs act**

[Francisco J. Lopez Hernandez](#), University of Salamanca, Salamanca, Spain

[Abstract](#)

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**09:45 - 10:00 Towards a molecular map of cystic fibrosis mechanisms**

[Catarina Pereira](#) and [Andre Falcao](#), University of Lisbon, Lisbon, Portugal

[Abstract](#)

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10:00 - 10:30 *Coffee break at BDD Hall*

**Session 2: Disease maps resources II**

**10:30 - 10:45 The AsthmaMap: computational representation of disease mechanisms using domain expert knowledge**

[Alexander Mazein](#), European Institute for Systems Biology and Medicine, Lyon, France

[Abstract](#)

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**10:45 - 11:00 A multiscale signalling network map of immune response in cancer reveals signatures of cell heterogeneity and functional polarization**

[Maria Kondratova](#), Institute Curie, Paris, France

[Abstract](#)

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**11:00 - 11:15 Parkinson's disease map facilitated gene expression analysis reveals new insights in PD pathogenesis**

[Stephan Gebel](#), Luxembourg Centre for Systems Biomedicine, Belval, Luxembourg

[Abstract](#)

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**11:15 - 11:30 Computational systems biology approach for the study of rheumatoid arthritis: from a molecular map to a dynamical model**

[Anna Niarakis](#), Université d' Evry Val d' Essonne, Evry Val d' Essonne, France

[Abstract](#)

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**11:30 - 12:30 Invited talk: WikiPathways: curation, visualization and analysis of biological pathways**

[Martina-Summer Kutmon](#) Maastricht University, Maastricht, the Netherlands

[Abstract](#)

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12:30 - 13:30 *Lunch and collaborations discussion at BDD Hall*

**13:30 - 15:00 Hands-on tutorials: parallel sessions**

Time/Place	Amphi BDD	Annexes 1-3 BDD
13:30 - 14:10	Tutorial 1	Tutorial 3
14:10 - 14:15	Break	Break
14:15 - 14:55	Tutorial 2	Tutorial 4

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**Tutorial 1: Constructing and visualizing pathways with web-based SBGN editor Newt**

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Ugur Dogrusoz, Bilkent University, Ankara, Turkey

[Abstract](#)

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**Tutorial 2: MINERVA for visualization of disease maps**

Piotr Gawron, Marek Ostaszewski, Luxembourg Centre for Systems Biomedicine, Belval, Luxembourg

[Abstract](#)

**Requirements and downloads:** To follow this tutorial, is recommended to install [CellDesigner](#). All tutorial files are available [here](#). Additionally, all files will be available on [LCSB's ownCloud](#) (Password: DMCM2018)

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**Tutorial 3: rROMA, a tool for module activity calculation from omics data and networks**

Luca Albergante, Urszula Czerwinska, Andrei Zinovyev, Loredana Martignetti, Institute Curie, Paris, France

[Abstract](#)

**Requirements and downloads:** To follow this tutorial, is recommended to install [R](#) or [R Studio](#) and to download these [files](#)

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**Tutorial 4: COBRA toolbox for visualisation and map manipulation through CellDesigner and MatLab environment**

Jennifer Modamio, Ronan Fleming, Luxembourg Centre for Systems Biomedicine, Belval, Luxembourg

Nicolas Sompairac, Andrei Zinovyev, Inna Kuperstein, Institute Curie, Paris, France

[Abstract](#)

**Requirements and downloads:** To follow this tutorial, is recommended to install [MATLAB](#) (Paying license needed), [CellDesigner](#) and the [COBRAToolBox](#). The files for the tutorial can be downloaded [here](#)

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**Session 3: Maps of biological processes and disease**

**15:00 - 15:10 The adult neurogenesis map**

Rupert Overall, German Center for Neurodegenerative Diseases, Dresden, Germany

[Abstract](#)

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**15:10 - 15:20 The Ras/Raf/Mek/Erk Signaling Pathway - Attention to Details**

Maria Dost, Humboldt-Universität zu Berlin, Berlin, Germany

[Abstract](#)

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**15:20 - 15:30 Is cellular senescence a prerequisite for tumor invasion?**

Mathieu Boissan, Centre de recherche St-Antoine, Paris, France

[Abstract](#)

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15:30 - 16:00 *Coffee break at BDD Hall*

**Session 4: Maps for drug assessment and disease comorbidity**

**16:00 - 16:10 Comprehensive signaling network of regulated cell death: comparison of cell death modes in Alzheimer's neurodegenerative disease and cancer**

Cristobal Monraz, Institute Curie, Paris, France

[Abstract](#)

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**16:10 - 16:20 Predicting personal activation potential of CD4 T cells**

Feng He, Luxembourg Institute of Health, Luxembourg, Luxembourg

[Abstract](#)

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**16:20 - 16:30 Reconstruction of integrated maps for drug efficacy assessment**

Tatiana Serebriyskaya, Moscow Institute of Physics and Technology, Moscow, Russia

[Abstract](#)

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**16:30- 16:40 Metabolic and signalling network map integration: application to cross-talk studies and omics data analysis in cancer**

Nicolas Sompairac, Institute Curie, Paris, France

[Abstract](#)

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16:45- 17:00 *Group photo*

17:00 - 18:15 *Marie Curie museum and garden visit*

<http://musee.curie.fr>

**22 June**

Amphithéâtre BDD

**Session 5: Methods resources and models****09:00 - 09:15 Access and Discover Biological Pathway Information from Pathway Commons**

Augustin Luna, Dana-Farber Cancer Institute/Harvard University, Boston, United States

[Abstract](#)**09:15 - 09:30 Community resources connecting chemistry and toxicity knowledge to environmental observations**

Emma Schymanski, Luxembourg Centre for Systems Biomedicine, Belval, Luxembourg

Antony Williams, National Center for Computational Toxicology, Office of Research and Development, U.S. Environmental Protection Agency, Durham, USA

[Abstract](#)**09:30 - 09:45 Differential metabolic activity and discovery of therapeutic targets using summarized metabolic pathway models**

Joaquin Dopazo, Fundación Progreso y Salud, Sevilla, Spain

[Abstract](#)**09:45 - 10:00 A computational model of the circadian clock and its application to understanding renal disease**

Tom Freeman, The University of Edinburgh, Edinburgh, United Kingdom

[Abstract](#)*10:00 - 10:30 Coffee break at BDD Hall***Session 6: Large Reconstructions and integrations****10:30 - 10:45 Status report: parameter estimation of a large-scale mechanistic model for mast cells in asthma**

Thomas S. Ligon, Ludwig-Maximilians-Universitat, Munich, Germany

Jan Hasenauer, Helmholtz Zentrum Munchen, Munich, Germany

[Abstract](#)**10:45 - 11:00 Application of disease maps to rare diseases: as muscular dystrophies**

Cecilia Jimenez Mallebrera, Hospital Sant Joan de Deu, Barcelona, Spain

[Abstract](#)**11:00 - 11:15 Maps of influence and interactions of infectious and cancer diseases from Wikipedia networks**

Dima Shepelyansky, Laboratoire de Physique Theorique CNRS, Universite Paul Sabatier, Toulouse, France

[Abstract](#)**11:15 - 11:30 Integrating ontological representation and reasoning into a disease map: application to Alzheimer's disease**

Vincent Henry, ICM Brain and Spine Institute, Paris, France

[Abstract](#)**11:30 - 12:30 Invited talk: Reactome multi-scale pathway visualization**

Henning Hermjakob, Molecular Systems services EMBL-EBI, Cambridge, United Kingdom

[Abstract](#)*12:30 - 13:30 Lunch and collaborations discussion at BDD Hall***13:30 - 15:00 Hands-on tutorials: parallel sessions**

Time/Place	Amphi BDD	Annexes 1-3 BDD
13:30 - 14:10	Tutorial 5	Tutorial 7
14:10 - 14:15	Break	Break
14:15 - 14:55	Tutorial 6	

**Tutorial 5: From interaction maps to dynamical models with Cell Collective: a hands-on tutorial**

Tomas Helikar, University of Nebraska-Lincoln, Lincoln, United States

[Abstract](#)**Requirements and downloads:** To follow this tutorial, is recommended to create a free account on the [Cell Collective website](#)**Tutorial 6: mEPN and yEd: a graphical and computational modelling platform for biological pathways**

Tom C. Freeman, University of Edinburgh, Edinburgh, UK

[Abstract](#)**Requirements and downloads:** To follow this tutorial, is recommended to download and install [yEd](#) and [Graphia Professional](#)

**Tutorial 7: A tutorial of hipathia, a mechanistic model of pathway activity**

[Martha R Hidalgo](#), Centro de Investigación Principe Felipe, Valencia, Spain

[Joaquin Dopazo](#), Fundación Progreso y Salud, Sevilla, Spain

[Abstract](#)

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**15:00 - 15:30 Invited talk: Share FAIR – Data management and standards for Systems Medicine**

[Martin Golebiewski](#), Heidelberg Institute for Theoretical Studies, Heidelberg, Germany

[Abstract](#)

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15:30 - 16:00 Coffee break at BDD Hall

**Session 7: Visualization and modeling frameworks****16:00 - 16:10 Instantiation of patient-specific network-based logical models with multi-omics data allows clinical stratification of patients**

[Jonas Beal](#), Institute Curie, Paris, France

[Abstract](#)

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**16:10 - 16:20 Visual analytics of biological networks using VANTED and its SBGN-ED add-on**

[Hanna Borlinghaus](#), University of Konstanz, Konstanz, Germany

[Abstract](#)

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**16:20 - 16:30 MINERVA API and plugin architecture: new data visualization interfaces for disease maps**

[Piotr Gawron](#), Luxembourg Centre for Systems Biomedicine, Belval, Luxembourg

[Abstract](#)

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**16:40 - 17:15 Thematic discussion groups (suggested topics):**

Integration of maps in a shared repository

Tools for maps generation

Applications of disease maps in research and clinics: what is missing to close the gap?

Maps to models: curation standards to allow easy transformation of networks into executable models

Maps' complexity management approaches

Disease pathways vs. healthy pathways: how different are they?

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**17:15 - 17:30 Conclusions and closing session**

[Emmanuel Barillot](#), Institute Curie, Paris, France

[Reinhard Schneider](#), Luxembourg Centre for Systems Biomedicine, Belval, Luxembourg

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## Abstract submission

Submit abstracts (up to 400 words) via [the submission link](#) for oral presentations and/or posters. Indicate 4 keywords to allocate it into the suitable session.

## Registration

The registration is free but mandatory. Fill in the [registration form here](#).

## Location

**Batiment de biologie du developpement et cancer (BDD building)**

11 rue Pierre et Marie Curie

75005, Paris

France



## Accommodation

Recommended hotels:

[Les Jardins Du Luxembourg](#)

5 Impasse Royer-Collard, 75005 Paris, France

[Hotel Elysa-Luxembourg](#)

6 Rue Gay Lussac, 75005 Paris, France

[Hotel du Brésil](#)

10 rue Le Goff, 75005 Paris, France

[Hotel Michelet Odeon](#)

6 Place De L Odeon, 75006 Paris, France

[Hotel de l'Avenir](#)

65 rue Madame, 75006 Paris, France

[Hôtel Des Mines](#)

125 Bd Saint Michel, 75005 Paris, France

## Contact

[disease-maps-coord@googlegroups.com](mailto:disease-maps-coord@googlegroups.com)

## Organisers

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## Disease Maps Project Coordinators

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