TMF Workshop

Omics in Medical Research

The German Ministry of Education and Research (BMBF) is currently funding a long-term programme to promote the integration of data from clinical care and medical research, the so-called "National Medical Informatics Initiative". At the same time, the BMBF-initiated Forum Health Research recently proposed the establishment of a national infrastructure for Next Generation Sequencing technology as an essential prerequisite for internationally competitive biomedical research in Germany.

Undoubtedly, the timely and appropriate consideration of bioinformatics and systems biology issues will be a key requirement for both initiatives to be successful in the long run. To ensure that all relevant aspects of the two areas are adequately taken into account by key stakeholders, and in order to strengthen the dialogue between Medical Informatics and medically orientated Bioinformatics, TMF has organized a one-day workshop devoted to state-of-the-art "Omics in Medical Research".

Thematically, the workshop will cover the current omics perspectives of different human diseases. Aspects of data analytics (e.g. machine learning) and of the sharing of algorithms, methods and tools will be presented alongside lessons learned and best practice examples from the fields of data quality management and data governance. Most omics data are highly specific to the individual patient or proband and, potentially, to their close relatives. In particular, genomic privacy calls for new technological ways of data protection. To highlight their importance in the context of patient-driven omics research, ethics and data protection issues are therefore also addressed at the workshop.

After the workshop on the next day, the 6th Annual National Bio-banking-Symposium will be opened by "omics meets biobanking", due to its paramount importance for future biomedical research.

Further information:

- www.bmbf.de/de/medizininformatik-3342.html
- www.gesundheitsforschung-bmbf.de/de/forum-gesundheitsforschung-5787.php

TMF – Infrastructures for Medical Research

TMF is the umbrella organisation for networked medical research in Germany. It is a platform for interdisciplinary exchange, cross-project and multi-site collaboration – with the aim of identifying and resolving the organisational, legal/ethical and technological issues encountered in today's medical research. It makes a number of resources available free of charge to the general public – such as expert opinions, generic concepts, software applications, checklists, practical guides, training, and consulting services.
www.tmf-ev.de

TMF – Technology, Methods, and Infrastructure for Networked Medical Research

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TMF Workshop
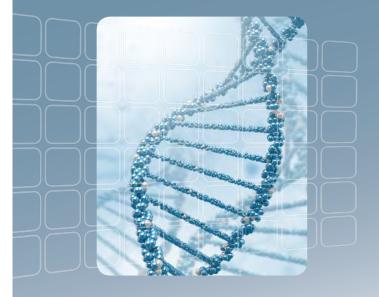
Omics in Medical Research

December 5, 2017 | Berlin

TMF – Technology, Methods, and Infrastructure for Networked Medical Research

TMF

Programme *(Last update: 04.12.2017)*

10:00 Welcome Note
Michael Krawczak (CAU Kiel), Jürgen Eils (DKFZ, Heidelberg), Roman Siddiqui (TMF, Berlin)

10:15 Perspectives of Integrating Omics-Approaches in Medicine
Chair: Jan Korbel (EMBL, Heidelberg)

- Omics – Clinical Relevance outside of Cancer: UK Genomics
Tim Hubbard (King's College London, UK)
- Inflammation Medicine: Microbiome-Variability in Susceptibility to Disease
Philip Rosenstiel (CAU Kiel)
- Oncology
Daniela Richter (NCT, Heidelberg) (tbc)
- Undiagnosed Pediatric Diseases
Christiane Zweier (FAU Erlangen)
- Psychiatric Diseases
Markus Nöthen (UKB, Bonn)

12:00 Lunch

13:00 Sharing of Algorithms, Methods and Tools
Chair: Holger Hennig (Systems Biology and Bioinformatics, Rostock)

- de.NBI Galaxy-Docker-Technology
Rolf Backofen (ALU Freiburg)
- Use Case Oncology
Sigve Nakken (University Hospital Oslo, Norway)
- Butler
Sergei Iakhnin (EMBL, Heidelberg)
- Use Case Germline Mutations in Oncology
Jan Korbel (EMBL, Heidelberg)

14:30 Translation of Machine Learning Based Diagnostics into Clinical Practice
Chair: Roman Siddiqui (TMF, Berlin)

- Diagnostic Potential of Machine Learning in Image Analysis
Holger Hennig (Systems Biology and Bioinformatics, Rostock)

- Deep Learning for better Phenotyping Rare Diseases
Peter Krawitz (FWU Bonn)
- Machine Learning Supporting Precision Medicine: Real-World Examples from Oncology
Matthieu Schapranow (HPI, Potsdam)

15:20 Coffee Break

15:40 Integration of Big Heterogenous Data Sets
Chair: Jürgen Eils (DKFZ, Heidelberg)

- Management and Provision of Extensive Genomic Data at DKFZ and the Role of de.NBI
Christian Lawerenz (DKFZ, Heidelberg)
- Data Repositories at EGA
Thomas Keane (EBI, Hinxton, UK)
- Managing Heterogeneous Data Sets within ELIXIR
N. N. (ELIXIR, Hinxton, UK)

16:45 Data Privacy and ELSI: Challenges and Technical Solutions/Answers
Chair: Michael Krawczak (CAU Kiel)

- Data Protection and Ethics in the Light of Omics in Medical Research
Eva Winkler (NCT, Heidelberg)
- Privacy in Genomics
Jean-Pierre Hubaux (EPF, Lausanne, Switzerland)
- Capability of Technical Data Protection for Omics
Jörn Müller-Quade (KIT, Karlsruhe)
- Getting Real: Merging Bioinformatics Standards and Crypto-State-of-the-Art
Kay Hamacher (TU Darmstadt)

18:40 Résumé
Jürgen Eils (DKFZ, Heidelberg), Michael Krawczak (CAU Kiel), Roman Siddiqui (TMF, Berlin)

19:00 End of Workshop and Get Together

Organisation

Date
December 5, 2017

Venue
Mercure Hotel MOA Berlin
Stephanstraße 41
10559 Berlin | Germany

Arrival
The hotel is located in Berlin's central Tiergarten district, in the Moabit quarter, about 1.2 miles (2 km) from Berlin main train station and 3.7 miles (6 km) from Tegel airport. The nearest U-Bahn station for line 9 (Birkenstraße) is a short walk from the hotel. The hotel is easily accessible by car via the A100 and the ring road.

You can use the Deutsche Bahn event offer for TMF workshops. For further information please check www.tmf-ev.de/Termine/DBTicket.

Scientific Organisation
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Registration
Participation is free of charge. Please register online at www.tmf-ev.de/anmelden.