Genomics for health

Arbeitsgemeinschaft für Gen-Diagnostik e.V.

Program of the Annual AGD Meeting 2020, Dec. 17–18

Thursday, December 17

12:00–13:30 New tools in genomics – Sponsors' Satellite Session

Session Chair: Udo Schimmel, Member of the Program Committee

- 12:00–12:15 **Udo Schimmel** (Alphametrix Biotech GmbH, Rödermark, Germany)
  Welcome and introduction into the virtual meeting space
- 12:15–12:30 **Hannes Arnold** (10x Genomics B.V., Leiden, The Netherlands)
  "10x Genomics Chromium multiomics single cell analysis"
- 12:30–12:45 **Peter Mouritzen** (Samplix ApS, Herlev, Denmark)
  "XdropTM Technology for targeted enrichment of genomic regions for long- and short-read sequencing"
- 12:45–13:00 **Xiangyu Rao** (Integrated DNA Technologies)
  "Reliable detection of low-frequency variants in highly degraded DNA and RNA samples"
- 13:00–13:15 **Jochen Seggewiß** (TWIST Bioscience)
  "Uniformity is the key - Twist Bioscience´s superior flexible NGS solutions"
- 13:15–13:30 **Daniel Liber** (Takara Bio Europe)
  "SMARTer™ICELL8®: The Open Platform for Single-Cell Genomics"

13:30–14:00 Coffee Break

The following companies' sponsorship is gratefully acknowledged

10x Genomics	Molecular Health GmbH
Bionano Genomics Inc.	Samplix ApS
Illumina GmbH	Takara Bio Europe, Takeda/Shire
Integrated DNA Technologies	TWIST Bioscience

Venue – Virtual Meeting, Tel. 0228-287 14799
Registration – Online at http://www.agdev.de/anmeldung.html, on-site registration will not be possible this year!
Fees – AGD Members and Students 35 €, Non AGD Members 75 €.

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Thursday, December 17

14:00–14:15 **Welcome and Opening of Symposium**

Peter Nürnberg, President of AGD e.V.
Peter Krawitz, Chair of the Program Committee

14:15–16:30 **Session 1 – The power of genomics in the COVID-19 combat**

Session Chair: *Peter Nürnberg, Cologne Center for Genomics, Germany*

- 14:15–14:30 **Joachim Schultze** (DZNE e.V., Bonn, Germany)
  "Deutsche COVID-19 OMICS Initiative (DeCOI)"
- 14:30–15:00 Viral genome and microbiome sequencing
  Stephan Ossowski (Tübingen): Estimating the mutation rate in a host's SARS-CoV2 population by ultra-deep sequencing with unique molecular barcodes
  Jonathan Schmid-Burgk (Bonn): Scalable SARS-CoV-2 Diagnostics Using LAMP-Seq
- 15:00–15:30 Analyzing the immune response by functional genomics approaches
  Joana Bernardes (Kiel): Single cell transcriptomics and COVID-19 disease trajectories
  Anna Aschenbrenner (Bonn): Disease severity-specific neutrophil signatures in blood transcriptomes stratify COVID-19 patients
- 15:30–16:00 Identification of host genetics factors of disease susceptibility and clinical course
  Andre Franke (Kiel): Genetic risk and protection in COVID-19 disease
  Alex Hoischen (Nijmegen): Rare TLR7 variants in young men with severe COVID-19
- 16:00–16:30 Recent improvements in speed and accuracy for NGS data analysis
  Rami Mehio (San Diego, Illumina)

16:30–17:00 **Coffee Break**

17:00–19:00 **Session 2 – Polygenic risk scores (PRS)**

Session Chair: *Peter Krawitz, University Hospital Bonn, Germany*

- 17:00–17:30 **Barbara Domingues Bitarello** (Perelman School of Medicine, Pennylvania, USA)
  "Investigating the lack of transferability of PRS in cohorts with mixed ancestry"
- 17:30–18:00 **Julian Hecker** (Harvard Medical School, Boston, USA)
  "Gene-environment interaction testing using flexible statistical learning approaches and robust statistics"
- 18:00–18:30 **Patrick Turley** (Broad Institute, Boston, USA)
  "Imprint of assortative mating on the human genome"
- 18:30–19:00 **Carlo Maj** (University Hospital Bonn, Bonn, Germany)
  "Combining polygenic risk scores with gene-based burden scores"

19:00–19:45 **Keynote lecture by Martina Schüßler-Lenz** (Paul-Ehrlich-Institut)
"Marketing authorisations of gene and cell therapies in the EU"

20:15–21:30 **Soheil Nasseri plays piano sonatas by Ludwig van Beethoven**

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Friday, December 18

8:30–10:30 Session 3 – New disease mechanisms

Session Chair: Peter Nürnberg, Cologne Center for Genomics, Germany

- 08:30–09:00 **Christian Gilissen** (Radboud, Nijmegen, Netherlands)
  "*De novo* mutations in neurodevelopmental disorders"
- 09:00–09:30 **Malte Spielmann** (Institutes of Human Genetics Lübeck/Kiel, Germany)
  "The effect of non coding mutations during embryonic development at single cell resolution"
- 09:30–10:00 **Hans Clevers** (Hubrecht Institute, Utrecht, The Netherlands)
  "Modeling hereditary and malignant disease in human organoids"
- 10:00–10:30 **Alex Hoischen** (Radboud UMC, Nijmegen, The Netherlands (for Bionano))
  "Next generation cytogenetics – optical mapping for comprehensive structural variant detection"

10:30–11:00 Coffee Break

11:00–13:00 Session 4 – Genome diagnostics and health data security

Session Chair: Udo Schimmel, Alphametrix Biotech GmbH, Rödermark

- 11:00–11:30 **Kai Grunenberg** (ITSG GmbH, Heusenstamm, Germany)
  "Security of high volume data transfer and storage in German health networks"
- 11:30–12:00 **Peter Krawitz** (University Hospital Bonn, Germany)
  "TNAMSE as a blueprint for Genome Diagnostics in Germany"
- 12:00–12:30 **Oliver Kohlbacher** (Eberhard Karls Universität, Tübingen, Germany)
  "The German Human Genome-Phenome Archive (GHGA) – A national data infrastructure for human omics data"
- 12:30–13:00 **Ulrike Ziehm** (Molecular Health GmbH, Heidelberg, Germany)
  "Comparing performance and robustness of two TCGA-inspired risk-stratification strategies for endometrial cancer on a DNA sequencing platform"

13:00–13:30 Oral presentations of poster prize winners

13:30–14:30 Lunch Break

14:30–16:00 AGD General Assembly

16:00 End of Meeting

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