



2024
CNAPS
Circulating Nucleic Acids in Plasma and Serum



Med Uni
Graz

13th CNAPS International Symposium on
**Circulating Nucleic Acids
in Plasma and Serum**

Graz, Austria
March 4-6th, 2024

PROGRAMME

www.cnaps2024.org





Dear Friends and Colleagues,

It is my pleasure to invite you to attend the **13th International Symposium on Circulating Nucleic Acids in Plasma and Serum (CNAPS)**. The meeting will take place next year in the beautiful city of Graz, at the **CONGRESS Graz**, from **04-06 March 2024** and we will assemble an outstanding and diverse group of researchers at the forefront of research on circulating nucleic acids.

The CNAPS meetings take place every two years since 1997, at different locations around the world. Last meetings were hosted by Max Diehn and Steven Quake (Stanford University) in San Francisco (2022), Nitzan Rosenfeld (CRUK Cambridge) and Yuval Dor (Hebrew University Israel) in Jerusalem (2019), and Alain Thierry (Institute of Cancer Research) in Montpellier (2017).

This unique series brings together pioneers and leaders of the field with young researchers, **students, and biotech industry in a high-profile yet intimate setting.**

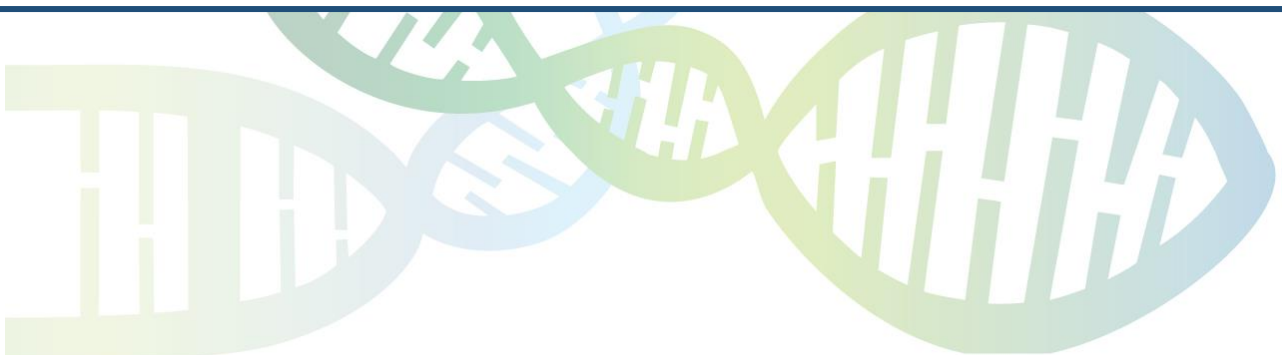
Profiling of circulating nucleic acids (CNAs) in the blood and other bodily fluids is one of the most interesting, dynamic and promising areas in molecular diagnostics. This field has expanded rapidly in various directions in the last few years. While some areas already reached routine clinical implementations such as non-invasive prenatal testing or various oncology applications, new possibilities for molecular diagnosis in early tumor stages or transplantation medicine are being explored. Recently significant progress in elucidating cell-free DNA (cfDNA) biology and physiology have been made and many biological features of cfDNA are incorporated into sophisticated bioinformatics approaches and machine learning (ML) applications.

CNAPS XIII will address many aspects including (i) new developments in the application transplant and infectious disease diagnostics, (ii) early cancer diagnostics and monitoring of cancer disease, (iii) maternal and fetal diagnostics, (iv) utilization of new approaches in epigenetics, fragmentomics and tissue deconvolution, and (v) discussion of future perspectives and emerging frontiers.

We are very much looking forward to welcoming you in Graz!

Sincerely,

Ellen Heitzer





ORGANISATION

CO-CHAIRS

Ellen Heitzer, Medical University of Graz, Austria
Claus Andersen, Aarhus University, Denmark

SCIENTIFIC COMMITTEE

Sarah-Jane Dawson, Peter MacCallum Cancer Centre, Australia
Iwijn De Vlamincck, Cornell University, USA
Max Diehn, Stanford University, USA
Yuval Dor, Hebrew University of Jerusalem, Israel
Isaac Garcia-Murillas, The Institute of Cancer Research, UK
Dennis Lo, The Chinese University of Hong Kong, Hong Kong
Stephen Quake, Stanford University, USA
Nitzan Rosenfeld, University of Cambridge, UK
Alain Thierry, Institute of Cancer Research of Montpellier, France
Kristina Warton, University of New South Wales, Australia

SPEAKER

Meet our confirmed conference speakers for the 2023 conference.

Sean Agbor Enoch	Dennis Lo	Jakob Skou Pedersen
Claus Linbjerg Andersen	Mira N Moufarrej	Naureen Starling
Allen Chan	Florent Moulière	Alain Thierry
Dineika Chandrananda	Muhammed Murtaza	Jeanne Tie
Ros Cutts	Nickolas Papadopoulos	Victor Velculescu
Iwijn De Vlamincck	Robert Patton	Joris Vermeesch
Luis Diaz	Heather Pearson	Kristina Warton
Max Diehn	Alexandre Pellan Chang	Alexander W. Wyatt
Yuval Dor	Stephen Quake	Hui Zhao
Remond Fijneman	Nitzan Rosenfeld	Bernhard Zimmermann
Isaac Garcia-Murillas	Efrat Shema	
Tommy Kaplan	Erik Sistermans	

Registration Fees	Early (until 21st December 2023)	Regular (until 31st January 2024)	Late (from 1st February 2024)
Regular	€ 400,-	€ 450,-	€ 500,-
Pre-doctoral student*	€ 250,-	€ 300,-	€ 350,-

**** * For employees of the Medical University Graz, members of the Research area "Cancer Research" or members of the Univ. CCC Graz, a limited number of day passes (reduced fees) can be issued. ** ***

If you are interested please contact ellen.heitzer@medunigraz.at!

PROGRAMME AT A GLANCE

	MONDAY March 04, 2024	TUESDAY March 05, 2024	WEDNESDAY March 06, 2024
08:30-09:00			
09:00-09:30			
09:30-10:00			
10:00-10:30	Opening and Registration	Session 4: Nucleosomes & open chromatin	Session 8: Clinical trials
10:30-11:00			
11:00-11:30	Welcoming Address		
11:30-12:00	Session 1: Cell-free DNA composition and biology	Session 5: Oncology - Early Detection	Session 9: Bioinformatics approaches for cfDNA analyses
12:00-12:30			
12:30-13:00			
13:00-13:30	Coffee break & Poster viewing	Lunch & Poster viewing	Lunch & Poster viewing
13:30-14:00			
14:00-14:30	Session 2: Fragmentomics & cfDNA fragments	Session 6: Oncology - MRD	Session 10: Emerging Frontiers
14:30-15:00			
15:00-15:30			
15:30-16:00	Poster Session 1	Poster Session 2	Announcements of Poster Prize Winner and Venue of Next CNAPS
16:00-16:30			
16:30-17:00			
17:00-17:30	Session 3: cfDNA in physiological and pathological conditions	Session 7: Oncology - Monitoring	
17:30-18:00			
18:00-18:30			
18:30-19:00			
19:00 - o.e.		Welcome Reception / Speaker Dinner	CNAPS Networking Evening

Monday, March 04, 2023

10:00 – 11:00	Opening and Registration
11:00 – 11:15	Welcoming Address - The Organizing Committee

11:15 - 13:00: Session 1 - Cell-free DNA composition and biology

11:15 – 11:40	Invited Talk (20 + 5 min)	Yuval Dor , Hebrew University of Jerusalem, Jerusalem, Israel DNA methylation-based liquid biopsies
11:40 – 12:05	Invited Talk (20 + 5 min)	Florent Mouliere , Amsterdam UMC, Amsterdam, The Netherlands Ultra short fragments
12:05 – 12:30	Invited Talk (20 + 5 min)	Kristina Warton , University of New South Wales, Sydney, Australia Influence of lifestyle factors on cfDNA
12:30 – 12:40	Selected talk (8 + 2 min)	Jasper Linthorst , Amsterdam UMC, Amsterdam, The Netherlands Unraveling the genetics of cell-free DNA biology using GWAS
12:40 – 12:50	Selected talk (8 + 2 min)	Ben Berman , Volition America, Calsbad, USA Elucidating the origins of circulating DNA in diverse cancer types using Nanopore whole-genome sequencing
12:50 – 13:00	Sponsored talk (8 + 2 min)	TBD , Illumina, San Diego, USA TBD

13:00 – 13:30: Coffee break & poster viewing

13:30 – 15:40: Session 2 - Fragmentomics & cfDNA fragments

13:30 – 13:55	Invited Talk (20 + 5 min)	Dennis Lo , The Chinese University of Hong Kong, Hong Kong Expanding the spectrum of cfDNA fragmentomics
13:55 – 14:20	Invited Talk (20 + 5 min)	Alain Thierry , Institute of Cancer Research of Montpellier, France ctDNA fragmentomics
14:20 – 14:45	Invited Talk (20 + 5 min)	Muhammed Murtaza , University of Wisconsin, USA Plasma DNA fragment ends
14:45 – 15:10	Invited Talk (20 + 5 min)	Victor Velculesco , Johns Hopkins University, USA Early detection of cancer using cfDNA fragmentomes
15:10 – 15:20	Selected talk (8 + 2 min)	Jan Müller , Fraunhofer Institute for Interfacial Engineering and Biotechnology, Stuttgart, Germany A novel approach for DNA footprinting using short double-stranded cell-free DNA from plasma
15:20 – 15:30	Selected talk (8 + 2 min)	Qing Zhou , Centre for Novostics, Hong Kong Science Park, Hong Kong Fragmentomics-based methylation analysis (FRAGMA) of urinary DNA enables detection and localization of cancer in urinary system

15:30 – 17:00: Poster Session 1

15:20 – 16:00	Flash presentations of poster award candidates
16:00 – 17:00	Coffee break & Poster viewing

17:00 – 19:00 pm Session 3 - cfDNA in physiological and pathological conditions

17:00 – 17:25	Invited Talk (20 + 5 min)	Iwijn De Vlamincck , Cornell University, Ithaca, USA cfDNA and infectious disease
17:25 – 17:50	Invited Talk (20 + 5 min)	Sean Agbor Enoh , Johns Hopkins, Baltimore, USA cfDNA and transplantation
17:50 – 18:15	Invited Talk (20 + 5 min)	Bernhard Zimmermann , Natera, Austin, USA NIPT update
18:15 – 18:40	Invited Talk (20 + 5 min)	Mira N Moufarrej , Stanford University, Stanford, USA NIPT using cfDNA and cfRNA: Advances, Challenges and Possibilities
18:40 – 18:50	Selected talk (8 + 2 min)	Megan E. McNamara , Georgetown University, Washington, USA Circulating, cell-free methylated DNA indicates source of allograft injury post-liver transplant
18:50 – 19:00	Selected talk (8 + 2 min)	Ekaterina Pisareva , Montpellier Cancer Research Institute, Montpellier, France Production and origin of circulating DNA and its diagnostic potential in inflammatory diseases

19:00 – 21:00: Welcome reception

Tuesday, March 05, 2023

08:30 – 10:35: Session 4 dedicated to Michael Speicher - Nucleosomes & open chromatin

08:30 – 08:55	Invited Talk (20 + 5 min)	Efrat Shema , Weizmann Institute of Science, Rehovot, Israel EPINUC: Single-molecule, multi-modal, analysis of the Epigenetics of Plasma Isolated Nucleosome
08:55 – 09:20	Invited Talk (20 + 5 min)	Robert Patton , Fred Hutchinson Cancer Center, Seattle, Washington. Nucleosome Patterns in ctDNA Reveal Transcriptional Regulation of Advanced Prostate Cancer Phenotypes
09:20 – 09:45	Invited Talk (20 + 5 min)	Dineika Chandrananda , Peter MacCallum Cancer Centre, Melbourne, Australia TSS profiling to understand response to therapy
09:45 – 10:15	Invited Talk (20 + 5 min)	Presentation of Michael Speicher's work
10:15 – 10:25	Selected talk (8 + 2 min)	Roni Schwartz , The Hebrew University of Jerusalem, Jerusalem, Israel High-resolution maps of human nucleosomes from circulating cell-free DNA
10:25 – 10:35	Selected talk (8 + 2 min)	Andrew Johnston , Integrated Diagnostics, New South Wales, Westmead Australia Universal cell-free DNA Breakpoints in Cancer Patients: Unravelling Chromatin State Nucleosome Dynamics for Advanced Liquid Biopsy Detection

10:35 – 11:00: Coffee break & poster viewing

11:00 – 12:45: Session 5 – Oncology / Early detection

11:00 – 11:25	Invited Talk (20 + 5 min)	Allen Chan , The Chinese University of Hong Kong, Hong Kong Early detection nasopharyngeal cancer
11:25 – 11:50	Invited Talk (20 + 5 min)	Nickolas Papadopoulos , Johns Hopkins University, Baltimore, USA cfDNA early cancer detection
11:50 – 12:15	Invited Talk (20 + 5 min)	Joris Vermeesch , KU Leven, Leven, The Netherlands Early cancer detection in pregnancy
12:15 – 12:25	Selected talk (8 + 2 min)	Anja Lisa Riediger , German Cancer Research Center; Heidelberg University Hospital, Germany Complementary analysis of epigenetic and genetic features in plasma und urinary cell-free DNA at first diagnosis of prostate cancer for early detection and risk stratification
12:25 – 12:35	Selected talk (8 + 2 min)	Nadia Øgaard , Department of Molecular Medicine, Aarhus University Hospital, Aarhus, Denmark Circulating Tumor DNA Shedding and Risk of Recurrence in Asymptomatic and Symptomatic Colorectal Cancer Patients: A Comparative Study
12:35 – 12:45	Sponsored talk (8 + 2 min)	TBD, Clearnote Health TBD

12:45 – 14:00: Lunch break & Poster viewing

14:00 – 15:35: Session 6 – Oncology / MRD

14:00 – 14:25	Invited Talk (20 + 5 min)	Claus Andersen , Aarhus University, Aarhus, Denmark ctDNA for MRD Detection and Risk-Stratified Recurrence Surveillance
14:25 – 14:50	Invited Talk (20 + 5 min)	Heather Parsons , Dana-Farber Cancer Institute, Boston, USA MRD in breast cancer
14:50 – 15:15	Invited Talk (20 + 5 min)	Alexandre Pellan Cheng , Cornell University, Ithaca, USA WGS for sensitive ctDNA cancer monitoring
15:15 – 15:25	Selected talk (8 + 2 min)	Sara Bristow , Natera, Inc., Austin, USA Association between tumor driver mutations and the presence of post-surgical circulating tumor DNA: Insights into tumor biology
15:25 – 15:35	Selected talk (8 + 2 min)	Itai Rusinek , Ultima Genomics, Newark, USA Balanced-strand whole genome sequencing enables efficient and scalable rare variant detection in cell free DNA

15:35 – 16:45: Poster Session 2

15:35 – 15:55	Flash presentations of poster award candidates
15:55 – 17:00	Coffee break & Poster viewing

16:45 – 18:20: Session 7 – Oncology / Monitoring

16:45 – 17:10	Invited Talk (20 + 5 min)	Luis Diaz , Memorial Sloan Kettering Cancer Center, New York, USA tDNA & MMR
17:10 – 17:35	Invited Talk (20 + 5 min)	Alexander W. Wyatt , University of British Columbia, Vancouver, Canada Treatment-dependent evolution of ctDNA (epi-)genomic features in metastatic prostate cancer
17:35 – 17:55	Invited Talk (15 + 5 min)	Remond J.A. Fijneman , Netherlands Cancer Institute, Amsterdam, The Netherlands Monitoring treatment response in patients with metastatic colorectal cancer
17:55 – 18:05	Selected talk (8 + 2 min)	Sarah Tadhg Ferrier , Department of Pathology, McGill University, Montreal, Canada HPV-ctDNA correlates with disease stage in multiple liquid biopsy analytes in cervical cancer and dysplasia patients
18:05 – 18:15	Selected talk (8 + 2 min)	Satoshi Nishizuka , Iwate Medical University, Yahaba, Japan Tumor-informed frequent ctDNA monitoring confirms the clinical validity in advanced cancer therapy

18:30 – 01:00: Social event

18:30 – 01:00	18:30 Reception 19:00 Klaus Pantel: <i>Michael Speicher Memorial Lecture</i> 19:20 Dinner 21:00 DJ Harvey Miller at the Sky Bar
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Wednesday, March 06, 2023

08:30 – 10:30: Session 8 - Clinical trials

08:30 – 08:55	Invited Talk (20 + 5 min)	Naureen Starling , Royal Marsden Hospital, London, UK TRACC trial (CRC)
08:55 – 09:20	Invited Talk (20 + 5 min)	Isaac Garcia-Murillas , The Institute of Cancer Research, London, UK <i>ctDNA analysis in breast cancer trials</i>
09:20 – 09:45	Invited Talk (20 + 5 min)	Jeanne Tie , Peter MacCallum Cancer Centre, Melbourne, Australia ctDNA guiding adjuvant chemotherapy in localised colorectal cancer: the DYNAMIC trial and beyond
09:45 – 10:10	Invited Talk (20 + 5 min)	Erik Sistermans , Amsterdam UMC, Amsterdam, The Netherlands The Dutch TRIDENT studies; lessons learned and future developments
10:10 – 10:20	Selected talk (8 + 2 min)	Tim Blauwkamp , Karius, Duke University, Durham, USA Microbial Cell-free DNA Sequencing of Plasma with the Karius Test for Diagnosis of Pneumonia in Immunocompromised Patients
10:20 – 10:30	Selected talk (8 + 2 min)	Kai Sohn , Fraunhofer IGB, Stuttgart, Germany Potential impact of microbial cfDNA-based metagenomic identification of pathogens on outcome for patients suffering from septic shock

10:30 – 11:00: Coffee break & poster viewing

11:00 – 13:00: Session 9 – Bioinformatics approaches for cfDNA analyses

11:00 – 11:25	Invited Talk (20 + 5 min)	Tommy Kaplan , Hebrew University of Jerusalem, Israel A DNA methylation atlas of normal human cell types
11:25 – 11:50	Invited Talk (20 + 5 min)	Hui Zhao , Cancer Research UK Cambridge Institute, UK cfDNA WGS as a community tool
12:50 – 12:15	Invited Talk (20 + 5 min)	Ros Cutts , Institute of Cancer Research, UK Novel AI/ML based approaches for ctDNA analysis
12:15 – 12:40	Invited Talk (20 + 5 min)	Jakob Skou Pedersen , Aarhus University, Denmark Improving ctDNA detection by statistical modeling of sequencing errors
12:40 – 12:50	Selected talk (8 + 2 min)	Alex Frankell , Early Cancer Institute, University of Cambridge, Cambridge, UK Comprehensive longitudinal tracking of lung cancer evolutionary clonal dynamics during therapy using circulating tumour DNA
12:05 – 13:00	Selected talk (8 + 2 min)	Carolyn Sauer , EMBL-EBI Cambridge, UK Application of Nanopore sequencing for liquid biopsy analysis in children with cancer

13:00 – 14:00: Lunch break & Poster viewing

14:00 – 16:00: Session 10 – Emerging Frontiers

14:00 – 14:25	Invited Talk (20 + 5 min)	Nitzan Rosenfeld , University of Cambridge, UK Accessible and frequent testing using cell-free DNA from dried blood spots
14:25 – 14:50	Invited Talk (20 + 5 min)	Max Diehn , Stanford University, USA TBD
14:50 – 15:15	Invited Talk (20 + 5 min)	Chris Mason , Weill Cornell Medicine, USA Cell-Free DNA Dynamics of Human Spaceflight
15:15 – 15:25	Selected talk (8 + 2 min)	Conor Loy , Weill Cornell University, USA Characterization of pediatric Multi-System Inflammatory Syndrome in Children by liquid biopsies
15:15 – 15:35	Selected talk (8 + 2 min)	Daniel Hagey , Karolinska Institutet, Stockholm, Sweden Dynamic size and association profiles of tumour-derived DNA during pancreatic cancer progression

15:35 – 16:00: Closing remarks

15:35 – 15:50	Announcements of Poster Prize Winner
15:50 – 16:00	Announcements of next CNAPS meeting