


EXTRACELLULAR VESICLES
Joint Autumn Meeting
 28 - 29. November 2019
Hands-on Workshops

- EV Isolation & Characterization
- EV RNA Analysis

30. November 2019



Venue: TUM,
 Freising-Weihenstephan

Venue: TUM Campus Weihenstephan, 85354 Freising, Germany => <https://goo.gl/maps/nb4CWTApUsxV2w6w7>

Agenda

last update 18 November 2019

Thursday 28. November 2019

Session 1-3 @ Lecture Hall 16 (HS 16)

10:00 - 10:30 **Welcome**

- Michael Pfaffl
- ASEV & GSEV steering committees
- Introduction to the **Trillium EV Special Issue** by Gregor Fuhrmann

10:30 - 12:30 **Session 1) MISEV Guidelines & Characterization of Extracellular Vesicles**

Edit Buzás: Extracellular vesicles and the secretome (invited speaker 25+5 min)

Kenneth Witwer: Rigor and Standardization Efforts in the EV Research Community: MISEV and beyond (ISEV guest speaker 25+5 min)

Moderation: ASEV

4 Young Scientist Talks (each 10+5 min)

Elena Grueso Navarro: Decisive role of the tetraspanin Tspan8 in the recruitment of nuclear proteins to extracellular vesicles

Essi Eminger: Characterization of extracellular vesicle identity and purity by western blot

Gerald Stübiger: MALDI-MS Protein Profiling of Drug-induced Chemoresistance in Exosomes of Cancer Cells

Sandrine Louis: Development of purification and characterization methods for extracellular vesicles from bacteria used in fermented food

12:30 - 13:30 **Lunch Break**

13:30 - 15:00 **Session 2) EV Methods (methodological improvements, how to isolate pure EVs)**

Alain Brisson: EVs, Exosomes: lessons from 10 years cryo-EM studies (invited speaker 25+5 min)

Moderation: ASEV

4 Young Scientist Talks (each 10+5 min)

Ann-Kathrin Volz: Functional characterization of cilia-associated extracellular vesicles

Matz Liebel: Digital holography for single extracellular vesicle sizing and quantification

Marvin Droste: Comparison of EV isolation methods from urine for biomarker analysis in renal disease

Martin Auber: Contaminant or not? – or how to deal with defined medium supplements carrying miRNAs in RNA-Seq of extracellular vesicles

15:00 – 15:45 **Sponsor Talks** – moderation by GSEV steering committee (each 10+5 min)



Clemens Helmbrecht, Particle Metrix: Phenotyping of EVs by Multi-wavelength Fluorescent Nanoparticle Tracking Analysis (F-NTA)

Camille Roesch, Izon: Single Particle Measurement for confidence in Biology; New information on samples purification

Bogdan Mateescu, ETH Zürich: Deciphering the impact of RNA silencing pathway on extracellular RNAs
invited by Beckmann Coulter Life Science

15:45 – 16:00 **Presentation of the iGEM Munich 2019 Team (TUM & LMU)**

Joshua Hesse & Annika Elimelech: ALiVE - Analysis of Living cells via Vesicular Export

16:00 - 16:30 **Coffee Break**

16:30 - 18:00 **Session 3) Diagnostic EVs (novel and early EV biomarkers)**

Jens Simonsen: The use of liposomes in EV-based research (invited speaker 25+5 min)

Moderation: GSEV

3 Young Scientist Talks (each 10+5 min)

Katrin S. Reiners: Extracellular Vesicle as diagnostic markers: advantages and pitfalls of different enrichment strategies

Susann Allelein: Isolation and characterization of prostate-derived extracellular vesicles as liquid biopsy strategy in cancer

Kathrin Gärtner: Generation of novel monoclonal antibodies by using tumour-derived extracellular vesicles

Thursday Evening

Poster Session & Bavarian Evening & Poster Party @ Foyer

18:00 - 20:00 **Session 4) Poster Session** – moderation by Michael Pfaffl & GSEV & ASEV steering committees
Each author presents his or her poster, and GSEV & ASEV steering committee suggests three possible candidates for the „**Best Poster Prize**”. Poster format will be DIN A0 (portrait format = 120 cm/48 inch high x 90 cm/35 inch wide).

18:00 - 20:00 **Bavarian Evening** directly around the posters with finger food, pretzels, vegetarian and vegan food, different Bavarian beers from Weihenstephaner Brewery, red and white wine, soft drinks, etc.

20:00 - 24:00 **Poster Party** Music, dancing, fun, and various international drinks ☺

Friday 29. November 2019

Session 5-7 @ Lecture Hall 16 (HS 16)

09:00 - 11:00 **Session 5) Therapeutic EVs - the new potential of EVs**

Mario Gimona: Manufacturing of MSC-derived therapeutic vesicular secretome fractions: from preclinical research to first-in-human application (invited speaker 25+5 min)

Moderation: ASEV

6 Young Scientist Talks (each 10+5 min)

- Alexander Otahal: miRNAs enriched in extracellular vesicles in plasma- and serum-based autologous blood-derived products for osteoarthritis therapy
- Adriana Torres Crigna: Comparative analysis of the immunomodulatory properties of different mesenchymal stromal cells (MSC) and their extracellular vesicles
- Ambra Costa: Exploiting human amniotic fluid stem cells-extracellular vesicles to unlock endogenous mechanisms of cardiac repair and regeneration
- Martin Wolf: Proteomic analysis reveals angiogenic and immunomodulatory function for placental stromal cell-derived extracellular vesicles
- Priyanka Singh: Extracellular vesicles as a complex model membrane reveals new functions of antimicrobial peptides
- Christien M. Beez: Immunomodulation by extracellular vesicles (EVs) from human cardiac-derived (CardAP) cells

11:00 - 11:30 **Coffee Break**

11:30 - 12:30 **Sponsor Talks** – moderation by GSEV steering committee (each 10+5 min)



- Peter Rhein, Luminex: Amnis Imaging Technology for the Functional Analysis of Extracellular Vesicles
- Sadamu Ozaki, Fujifilm: Characteristics on PS Affinity for Isolation and Detection of EVs: Advantages Clarified from Comparison with Conventional Methods
- Julia Millieux, Ines Ferreira, Hiss Diagnostics: Purification of high-quality exosomes using Exo-spin™ from Cell Guidance Systems: A novel application overview and new product announcement
- Johannes Grillari, Evercyte: From cellular senescence to an EV toolbox: a journey

12:30 - 13:30 **Lunch Break**

13:30 - 15:00 **Session 6) EVs in Physiology - biology, release, uptake, and effects of EVs**

Dirk Michiel Pegtel: Biology and clinical applications of exosomes in cancer (invited speaker 25+5 min)

Moderation: GSEV

4 Young Scientist Talks (each 10+5 min)

- Sandra Polaschek: Tumor EVs modulate progression of PDAC and distant metastasis
- Dagmar Quandt: Studies on breast cancer-derived Extracellular Vesicles cargo and visualization
- Alexandra Brahmmer: The exercise-triggered release of extracellular vesicles into the circulation
- Jaana Schneider: Evaluation of functional transfer of extracellular vesicles between endothelial and adipose-derived stromal cells during vascular network formation

15:00 - 15:30 **Coffee break in Foyer**

15:30 - 16:45 **Session 7) EVs in Physiology -- Bacterial EVs**

María Yáñez-Mó: Tetraspanins and EVs, biogenesis and biotechnological potential (invited speaker 25+5 min)

Moderation: GSEV

3 Young Scientist Talks (each 10+5 min)

Astrid Digruher: Extracellular vesicles of *Bacillus cereus*: First insights into their potential role in pathogenicity

Mina Mehanny: Extracellular membrane vesicles from *Streptococcus* alter the cytokine release of immune cells

Aline Koch: Host-induced gene silencing involves transfer of dsRNA-derived siRNA via extracellular vesicles

16:45 - 16:55 **Best Poster Prize**

16:55 - 17:00 **Farewell** by Michael Pfaffl and ASEV & GSEV steering committees
Announcement of **next year's meetings** by Gregor Fuhrmann

Saturday 30. November 2019

Two parallel, hands-on EV workshops @ Seminar Rooms S1 & S2

Both workshops are intended for beginners and intermediate EV scientists who are willing to improve their skills in: **EV Isolation from Biofluids (WS 1)** with focus on plasma samples and cell culture supernatant; **EV RNA Analysis (WS 2)** including the basics of working with RNA, RNA isolation techniques from EVs, and quality control of RNA.

09:00 - 17:00 **Workshop No. 1 - EV isolation from Biofluids @ Seminar room S1**

Kick-off speaker Jens Simonsen: Methodological challenges related to EV research

Moderation: Irina Nazarenko and Fabia Fricke (GSEV)

In this workshop, you will ...

- Learn about strategies to overcome challenges in vesicle purification
- Sensitize your awareness of potential contaminants that might influence your preparation
- Be taught good practices for isolating and analysing EVs isolated from biofluids
- Discover different techniques for characterization of EV preparations: NTA, ELISA, protein and lipid content
- Work with fluorescently labelled spike-in controls
- Obtain the chance to discuss your questions and concerns about EV isolation and characterization with experienced EV scientists and industry partners in a relaxed atmosphere

09:00 - 17:00 **Workshop No. 2 -- EV RNA analysis @ Seminar room S2**

Kick-off speaker Christian Preußner: RNA in EVs - quirks, and pitfalls

Moderation: Dominik Buschmann and Christian Preußner (GSEV)

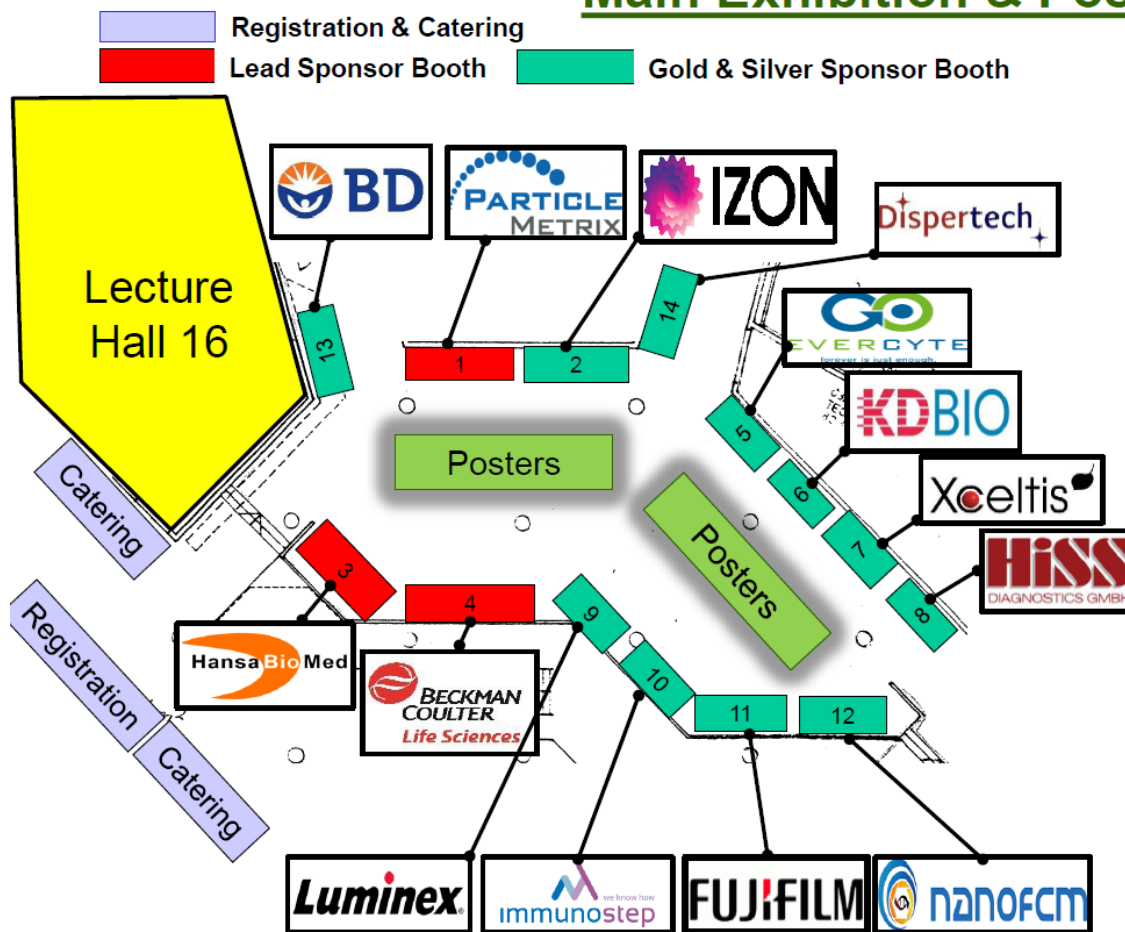
In this workshop, you will ...

- Be taught good practices for working with RNA
- Discover different analytical techniques for (mi)RNAs
- Extract, quantify and characterize RNA from EV samples
- Analyse the expression of specific miRNAs in your RNA samples by real-time PCR
- Calculate differences in miRNA expression between different samples
- Substantiate circular RNAs in your EV RNA
- Get the chance to chat with experienced EV RNA researchers to discuss your problems and toss around ideas

12:00 - 13:00 **Lunch & Drinks**

Industrial Exhibition in the Foyer

Main Exhibition & Poster Area



Poster Presentations

Poster Session Thu 18:00 – 20:00, moderation by GSEV & ASEV steering committees. Each author presents his or her poster, and GSEV & ASEV steering committee suggests three possible candidates for the „**Best Poster Prize**“. Poster format will be DIN A0 (portrait format = 120 cm/48 inch high x 90 cm/35 inch wide).

Poster -- EV Methods:

- 1) Alex Hildebrandt: miREV: A tool for reference miRNAs of human blood EV studies with different experimental setups
- 2) Christian Grätz: Characterisation of membrane vesicles in bacterial sepsis pathogens
- 3) Dapi Menglin Chiang: Single step galectin-based glycan recognition particles, EXÖBead® for extracellular vesicles (EV) isolation with low lipoprotein contamination
- 4) Komal Rani: Development of exosomes based non-invasive technique for early detection of Parkinson's disease
- 5) Liliia Paniushkina: Comparative analysis of different subtypes of Extracellular Vesicles-released in 2D and 3D culture conditions: the next step towards EV-based diagnostic
- 6) Mussack Veronika: Identifying appropriate urinary extracellular vesicle purifications for downstream transcriptomics
- 7) Nicole Barwinski: Analysis of extracellular vesicles (EVs) in blood plasma as diagnostic biomarkers for early detection of cancer in patients with heritable retinoblastoma
- 8) Tobias Tertel: Amnis ImageStream - Analysis of individual extracellular vesicles by imaging flow cytometry
- 9) Venkatesh Kumar Murugasan: Diagnostic utility and functional analysis of Extracellular Vesicles from the different stages of Head and Neck Cancer (HNC)

- 10) Carla Trispiciano: Identification of Specific Protein Contaminants in Platelet-derived Extracellular Vesicles Enriched by Differential Centrifugation
- 11) Jakub Soukup: Comparison of methods for analysis of extracellular vesicles from cord blood by standard flow cytometry
- 12) Madhusudhan Reddy Bobbili: Recombinant Tetraspanins for Tissue-Specific Extracellular Vesicle Isolation
- 13) Mastrototaro Lucia: Isolation of circulating exosomes before and after chronic exercise intervention in human insulin resistance and type 2 diabetes

Poster -- EV Therapeutics:

- 14) Fabiola Nardi Bauer: Immunomodulatory potentials of extracellular vesicles derived from mesenchymal stromal cells
- 15) Reem Al Khayer: The role of HSP70-positive extracellular vesicles from tumor cells for the function of macrophages and NK cells within the ovarian cancer microenvironment
- 16) Samer Al-Hakami: Exosomes: New Players in Cancer Diagnostics and Cancer Therapy
- 17) Yanis Mouloud: Immortalization strategies for human mesenchymal stromal cells
- 18) Andrea De Luna: Effects of extracellular vesicles from blood derivatives on osteoarthritic chondrocytes
- 19) Mariangela Garofalo: Extracellular Vesicles as delivery carriers of oncolytic viruses and therapeutic agents for cancer treatment
- 20) Viviane Ponath: Priming NK cell activity with exosomes
- 21) René Weiss: Hypoxia conditioned mesenchymal stem cell-derived extracellular vesicles induce increased in vitro vascular tube formation

Poster -- EV Biology:

- 22) Heide-Marie Binder: AML-derived Extracellular Vesicles transmit immunomodulatory potential
- 23) Marie Mosbach: Sequence-specific release of EV-associated RNAs
- 24) Kerstin Miebach: Mouse-models studying glia to neuron transfer of extracellular vesicles
- 25) Elmo Neuberger: Association of Circulating cell-free DNA released during physical exercise with extracellular vesicles
- 26) Birgit Fendl: Influence of Extracellular Vesicles on the Monocyte Subset Distribution
- 27) Beate Rinner: Shedding light on Chordoma – Insights into communication between chordoma and lymphoblastoid cells
- 28) Dennis Gerloff: Melanoma derived exosomal miR-125b-5p educates tumor associated macrophages (TAMs) by targeting lysosomal acid lipase A (LIPA)
- 29) Elena Grueso Navarro: Tetraspanin Tspan8 as a regulator of protein and nucleic acid cargo of tumor extracellular vesicles
- 30) Kendra Maass: Pediatric ependymoma exosomes harbor proteins important for hypoxia resistance
- 31) Meike J. Saul: Extracellular miR-574-5p induces osteoclast differentiation via Toll-like receptor 7/8 in rheumatoid arthritis
- 32) Mona Langer: The importance of extracellular vesicles in liver cirrhosis and acute-on-chronic liver failure
- 33) Johannes Oesterreicher: Influence of Conditioning Time and Cell Confluence on the Release of Endothelial Extracellular Vesicles
- 34) Julia Wellstein: The role of sEV-derived miR-574-5p in the tumor microenvironment of non-small cell lung cancer

Poster -- Late Breaking:

- 35) Ihor Arkhypov: Induction of immunosuppressive myeloid cells by tumor-derived extracellular vesicles
- 36) Liudmila Lobastova: Targeting of CD30-negative tumor cells in DLBCL with Brentuximab-Vedotin through CD30-positive extracellular vesicles, in vitro