ELBELTAGY
THERAPEUTICS

EDUCATIONAL DAY

We are pleased to announce the launch of the Stem Cells and Extracellular Vesicles Educational Day, a distinguished scientific event held under the patronage of Mansoura University, Faculty of Pharmacy, and the Professional Master of Immunology and Regenerative Medicine. Organized by Elbeltagy Therapeutics, a biotech company that created the first dental pulp stem cell biobank Prototype in Egypt, and delivered in collaboration with the Healthcare Professionals Network for Egypt (HPNE), this special day brings together leading experts, pioneering researchers, and major industrial partners in the field. The event proudly hosts keynote speakers with extensive experience in stem cell science and extracellular vesicle technologies, offering attendees a rich and insightful educational experience.

PROF. BERND GIEBEL

Founder of the German Society for Extracellular Vesicles (GSEV).
Leads the Extracellular Vesicles research group at the Institute for Transfusion Medicine, University Hospital Essen, University of Duisburg-Essen (UDE)

His research focuses on unlocking the therapeutic potential of extracellular vesicles (EVs) derived from mesenchymal stem/stromal cells (MSCs). His group has demonstrated promising therapeutic effects in several disease models, including the successful treatment of a steroid-refractory graft-versus-host disease (GvHD) patient.
Case report: https://www.nature.com/articles/leu201441

To move EVs towards clinical application, Prof. Giebel's team is optimizing and standardizing MSC-EV production to meet clinical-grade and GMP requirements. They have also contributed key technologies to the field, including the early introduction of nanoparticle tracking analysis (2011) and imaging flow cytometry for EV characterization (2019).
Imaging flow cytometry paper: https://pubmed.ncbi.nlm.nih.gov/30949308/

To advance the EV community, Prof. Giebel:

- Served as the founding president of the German Society of Extracellular Vesicles (2023–2017)
- Currently chairs the Exosome Committee of the International Society for Cell and Gene Therapy (ISCT)
- Is an active member of ISEV
- Is one of the three co-initiators of the Mobility for Vesicles in Europe (MOVE) initiative, a federation of European national EV societies

Together with international experts in therapeutic EVs, he has coordinated and co-authored several influential white papers on translational EV research.

Learn more about his pioneering work:
https://transfusionsmedizin.uk-essen.de/giebel-lab/

Linked in link:
https://www.linkedin.com/in/bernd-giebel-23253213/?originalSubdomain=de

Google scholar :
https://scholar.google.com/citations?user=rksfUdkAAAAJ&hl=de

Laboratory Journal Ranking: Prof. Dr. Bernd Giebel ranks 4th among the most cited cell biologists
https://nachrichten.idw-online.de/25/06/2025/laborjournal-ranking-prof-dr-bernd-giebel-auf-platz-4-der-meistzitierten-zellbiologen

EXODUS IS A GLOBAL LEADER IN GMP

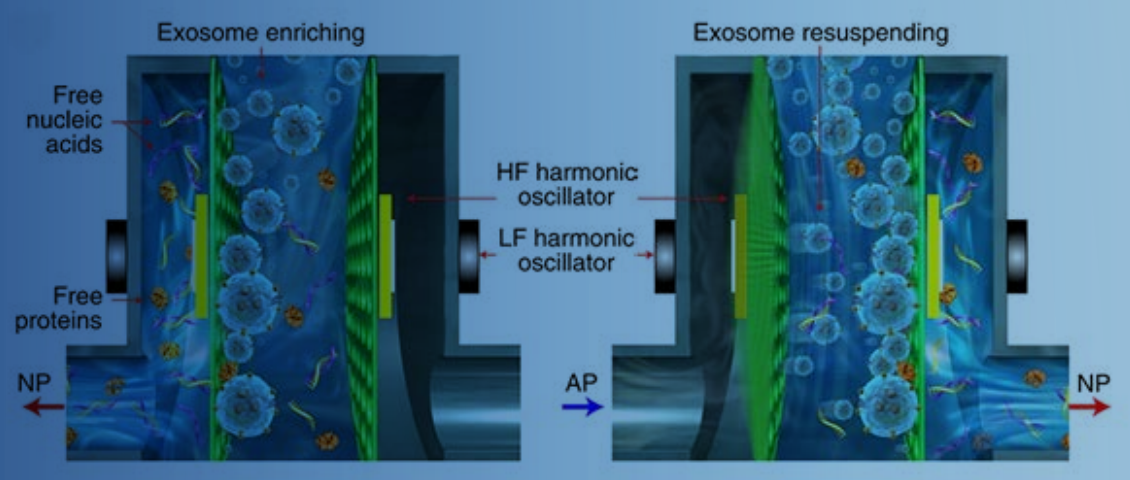
compliant EV isolation technologies, offering fully automated, clinical-grade platforms that enable scalable manufacturing of therapeutic exosomes. Their EXODUS T-2800 system is designed for large-scale GMP production, integrating sample pre-processing, ultrasonic nano-filtration–based EV isolation, and collection in one fully automated workflow—ensuring high purity, high yield, and batch-to-batch consistency for clinical use. For preclinical and research settings, the EXODUS H-600 provides automatic, label-free, high-efficiency EV isolation from multiple biofluids, preserving structural integrity and functionality.
Powered by ultrasonic nano-filtration technology, EXODUS systems combine negative pressure oscillation (NPO) and double-coupled harmonic oscillation (HO) to rapidly remove proteins, nucleic acids, and other impurities—producing ultra-pure, intact exosomes suitable for drug delivery, regenerative medicine, and diagnostic applications. Their technology represents a major step toward industrializing EV biomanufacturing and enabling the development of next-generation EV-based clinical products.

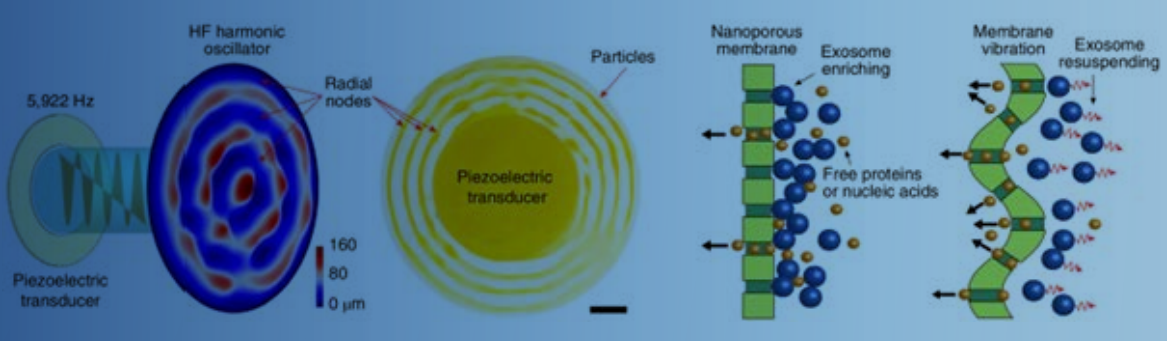
https://www.exodusbio.com/

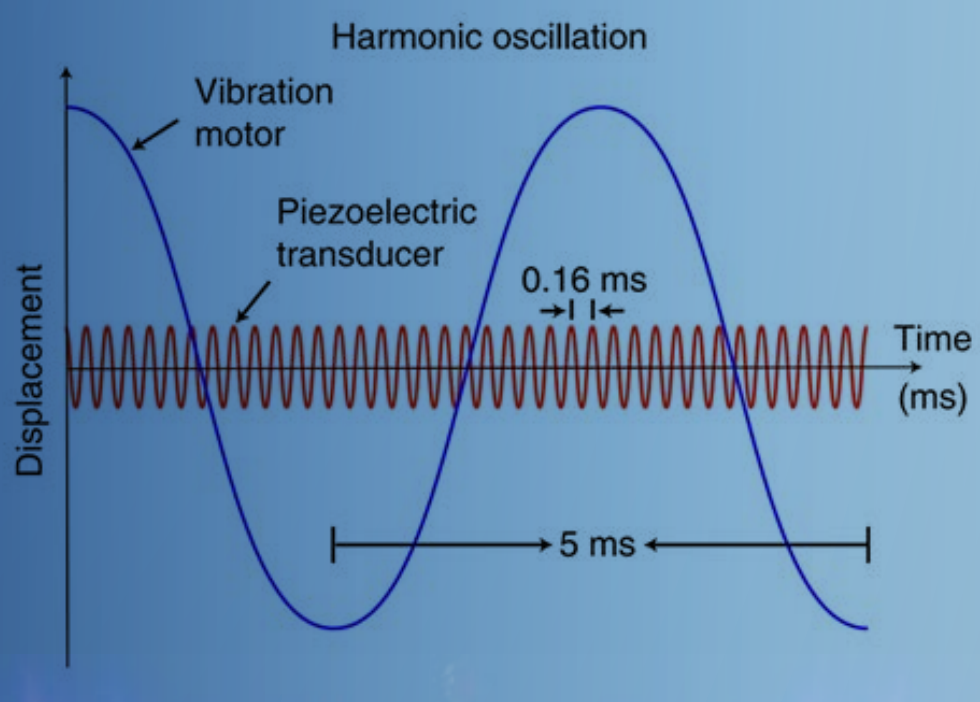
The revolutionary exosome isolation technique, powered by ultrasonic nano-filtration technology, offers significant advantages over traditional membrane separation methods. This innovative approach combines negative pressure oscillation (NPO) with double-coupled ultrasonic harmonic oscillation (HO). Together, these mechanisms work synergistically within the nano-filtration device to efficiently and rapidly remove impurities such as free nucleic acids and proteins, enabling the extraction of ultra-pure exosomes. The choice of exosome enrichment and purification consumables is tailored to match the specific sample volume needs, sample type, and intended application.

ISOLATION PRINCIPLES

EXODUS has been developed using a dual-membrane nanofiltration system that integrates periodic negative pressure oscillation (NPO) and double-coupled ultrasonic harmonic oscillations (HO). EXODUS can rapidly remove free nucleic acid and protein impurities from the sample, resulting in the efficient purification and enrichment of exosomes. The exosomes are precisely intercepted by a nanoporous membrane, allowing for a highly targeted isolation process.







www.nature.com/nmeth / February 2021 Vol.18 No.2

nature methods

A high-efficiency exosome isolation system

PROF. DR. BASANT KUMAR THAKUR

PD Dr. Basant Kumar Thakur – Group Leader, Cancer Exosome Research Lab
Department of Pediatrics III, University Hospital Essen (University of Duisburg-Essen), Germany

Research focus (Extracellular Vesicles & EV-associated DNA)

- Identification, purification, and characterization of cancer-specific EVs carrying dsDNA with biomarker and functional relevance.
- Mechanisms governing EV-associated dsDNA transfer into recipient cells.
- Functional consequences of EV-DNA transfer in the tumor microenvironment and metastatic progression (including innate DNA-sensing pathways).

Selected contributions and methods

- Development and application of enrichment strategies to isolate homogeneous EV sub-populations for downstream molecular analysis.
- Translational EV-biomarker work in pediatric leukemia models, supporting sensitive detection of leukemia-associated signals in EV fractions.
- Advanced EV analytics spanning single-particle/high-resolution microscopy and multi-parameter characterization approaches.

Learn more

- ZMB profile:
https://www.uni-due.de/zmb/members/basant-kumar-thakur.php

- Group page:
https://kinderklinik3.uk-essen.de (Cancer Exosome Research Lab)

BIOTHRUST DEVELOPS THE COMFYCELL™ PLATFORM

a new generation of bionic bioreactors designed for scalable cultivation of shear-sensitive cells and EV production. During the event, BioThrust will share insights into bubble-free bioreactor operation and how gentle, foam-free gassing can support robust, scalable cell and EV manufacturing.

This partnership strengthens our international collaboration between HPNE Egypt, Elbeltagy Therapeutics, and leading technology providers to accelerate EV-based translation and manufacturing capacity.

Learn more about BioThrust:
https://www.biothrust.com/

Explore the ComfyCell™ platform:
https://www.biothrust.com/product

TECHNICAL ANNOUNCEMENT

BioThrust to Contribute Bioreactor Scale-Up Expertise for Sensitive Cells & EV Manufacturing

We are pleased to confirm BioThrust as an industrial partner for the Stem Cells & Extracellular Vesicles Educational Day. BioThrust is a Germany-based biotechnology startup developing the ComfyCell™ platform, built around a Membrane Stirrer concept that combines mixing and gas transfer in a bubble-free format to minimize shear stress and foaming.

WHY BIOTHRUST MATTERS FOR EV TRANSLATION

• Gentle, bubble-free aeration supports cultivation of shear-sensitive producer cells (e.g., MSCs, iPSCs, immune cells) while reducing foam-related handling issues.

• High gas transfer enables stable operation without conventional sparging — supporting process intensification and more reproducible manufacturing conditions.

• ComfyCell™ can integrate with standard upstream workflows (batch, fed-batch, and perfusion concepts), facilitating translation from lab runs to scalable production.

OUR JOINT PROGRESS WITH COMFYCELL™
(MSCS AND OTHER SENSITIVE CELLS)

Within our collaboration, the ComfyCell™ platform is being used to advance cultivation conditions for MSCs and other sensitive cell types relevant to EV production. The focus is on establishing reproducible operating windows (mixing, oxygenation, and harvest routines) that protect cell health and support downstream EV isolation workflows. These learnings directly support the project goal of building a scalable, cost-effective manufacturing pathway compatible with future GMP translation.

Learn more

• BioThrust website: https://www.biothrust.com/

• ComfyCell™ product overview:
https://www.biothrust.com/product

PROF. DR. HOLM ZÄHRES

Stem Cell Engineering

Ruhr University Bochum | Institute of Anatomy | Department of Anatomy and Molecular Embryology
(Bochum, NRW, Germany)
Member of the Stem Cell Network NRW

Academic leadership (Stem Cell Medicine)

- Academic contributor and content contact for the international Master of Science in Stem Cell Medicine (Ruhr University Bochum).
- Module coordination and teaching across stem cell engineering/regenerative medicine topics within the program.
- Active development of interdisciplinary stem-cell curricula including the iSTEM/Stem Cell Biology training line).

Research focus (pluripotent stem cells & disease modeling)

- Reprogramming somatic cells into induced pluripotent stem (iPS) cells and studying mechanisms that govern pluripotency.
- iPS-based differentiation and functional modeling in neural and muscle systems.
- Genome editing-enabled disease models, including neurodegenerative and skeletal muscle disorders.

Selected approaches and expertise

- Stem cell engineering workflows spanning reprogramming, lineage differentiation, and in vitro disease models.
- Integration of developmental biology concepts into translational training and experimental design.
- Bridging academic training and networked research through the Stem Cell Network NRW.

Learn more

RUB Anatomy / Stem Cell Engineering profile:
https://www.anatomie.ruhr-uni-bochum.de/en/zaehres/

MSc Stem Cell Medicine program:
https://international-academy.rub.de/program/stem-cell-medicine/

Stem Cell Network NRW – Stem Cell Engineering group:
https://www.stammzellen.nrw.de/en/research/research-groups/stem-cell-engineering

TAmiRNA is a Vienna

based biotech company specializing in RNA biomarker discovery, validation, and diagnostics, with a strong focus on precision medicine for age-associated and complex diseases such as liver disease, cardiovascular disease, osteoporosis, and more. Tamirna - stability for life+2Tamirna - stability for life+2

Leveraging 11+ years of expertise in transcriptomics, TAmiRNA offers both targeted (RT-qPCR) and untargeted (NGS-based) RNA-analysis workflows — covering microRNAs, mRNAs, long non-coding RNAs (lncRNAs), circular RNAs (circRNAs) — from a wide range of sample types including serum, plasma, urine, saliva, tissues, and importantly EVs / exosomes.
Tamirna - stability for life+1

In the context of extracellular vesicles (EVs), TAmiRNA provides a fully integrated "one-stop-shop" service: EV/exosome purification, quantification, size-distribution analysis, cargo profiling (RNA, protein, lipid), and — for RNA cargo — absolute quantification using their in-house small-RNA sequencing protocols that include proprietary spike-in controls (miND®), as well as whole-transcriptome sequencing for mRNAs, lncRNAs, circRNAs. Tamirna - stability for life+1

This robust EV-focused platform enables high-quality and reproducible data generation positioning TAmiRNA as a key partner for projects aiming at biomarker discovery or therapeutic development based on EV-associated RNA or protein cargo.
Tamirna - stability for life+1

At the Educational Day, TAmiRNA will share insights specifically on in-depth transcriptomics profiling of EVs: how comprehensive RNA-cargo analysis can support biomarker discovery, improve disease stratification, and potentially accelerate EV-based therapeutic development.

We believe that TAmiRNA's participation will add significant scientific value — combining state-of-the-art RNA biomarker technologies with EV biology — and we look forward to a fruitful exchange with researchers and clinicians attending the event.

DR. AYMAN REFAIE

Chief of the Nephrology & Transplantation Unit and Vice Director of the Urology & Nephrology Center, Mansoura University

Dr. Refaie is a leading clinician-scientist and a key member of Prof. Dr. Mohamed Ghoneim's team, working on innovative stem cell–based approaches for the treatment of diabetes mellitus and its complications. Over the past 15 years, their group has contributed pioneering clinical and translational work, helping to bridge the gap between experimental stem cell therapies and real-world patient care.

Learn more about
Dr. Ayman Refaie:

Google Scholar:
https://scholar.google.com/citations?user=i3kPwV4AAAAJ&hl=en

SARTORIUS

a global leader in bioprocessing and laboratory solutions, will share their extensive expertise in extracellular vesicle (EV) manufacturing, from process development to pilot-scale production. Their presentation, titled "Extracellular Vesicle Manufacturing – From Process Development to Pilot Scale", will provide valuable insights into optimizing EV production workflows, emphasizing scalability and efficiency for seamless transitions to pilot manufacturing.

Sartorius's contribution to the event will offer attendees a comprehensive understanding of the latest strategies for scaling up EV production and their applications in regenerative medicine.

BECKMAN COULTER

Beckman Coulter Life Sciences is a global leader in flow cytometry, particle analysis, and automated laboratory solutions. The company's innovations, including the CytoFLEX and CytoFLEX Nano platforms, enable high-sensitivity detection and advanced characterization of extracellular vesicles, cells, and nanoparticles. Beckman Coulter supports researchers worldwide in accelerating discoveries across immunology, oncology, regenerative medicine, and translational science.

Learn more
about Beckman Coulter:
https://www.beckmancoulter.com

CYTEK BIOSCIENCES

Cytek Biosciences is a global pioneer in spectral flow cytometry and imaging-based cellular analysis, delivering high-parameter systems that enable deep immune profiling and nanoscale extracellular vesicle research. With platforms like the Aurora™, Northern Lights™, and Amnis® ImageStream®, Cytek empowers scientists to achieve higher resolution, sensitivity, and throughput in both basic and translational research.

Learn more
about Cytek Biosciences:
https://cytekbio.com/

PARTICLE METRIX GMBH

Particle Metrix GmbH is a German company

specializing in high-sensitivity nanoparticle characterization with a strong focus on Nanoparticle Tracking Analysis (NTA). The company develops and manufactures the ZetaView® platform, which enables simultaneous measurement of particle size, concentration, and zeta potential in liquid samples. Their instruments are widely used for the analysis of extracellular vesicles, exosomes, viruses, liposomes, and other nanoscale particles in biomedical and nanotechnology research. Particle Metrix combines hardware innovation with advanced software to deliver robust, user-friendly workflows suitable for both routine measurements and complex R&D applications. By offering optimized reagents, application support, and training, they help laboratories implement reliable, reproducible nanoparticle characterization. Through continuous development and close collaboration with the EV and nanoparticle research community, Particle Metrix contributes to advancing quality standards in nanoscale analytics.

PROF. KHALID B. SELIM

Vice Dean for Graduate Studies
& Scientific Research
Faculty of Pharmacy
Mansoura University

DR. MIRHAN N. MAKLED

Associate Professor of Pharmacology and Toxicology
Director of Professional Master of immunology and regenerative medicine
Faculty of Pharmacy
Mansoura University

ELBELTAGY THERAPEUTICS

Elbeltagy Therapeutics is a biotechnology startup based in Mansoura, Egypt, dedicated to advancing regenerative medicine through dental-derived mesenchymal stem cells and engineered extracellular vesicles (EVs), with a clear focus on clinical translation. The company is co-leading Egypt's first Dental Pulp Stem Cell (DPSC) Biobank initiative and is developing scalable -ready platforms for stem cell and EV-based therapeutics.

More information
https://elbeltagytherapeutics.com/

OSAMA MAHMOUD MD

Board Chair and President : Healthcare Professional Network for Egypt (HPNE)

Assistant Professor of Medicine, University of Tennessee Health Science Center.
Advanced Heart Failure and Transplant Cardiologist, Baptist Memorial Hospital.
Co-founder, Baptist Comprehensive Pulmonary Hypertension Center United States

The **Healthcare Professionals Network for Egypt (HPNE)** was established to create a unified platform where healthcare professionals can collaborate and drive meaningful, lasting improvements in Egypt's healthcare system. HPNE is a growing initiative committed to connecting and empowering Egyptian healthcare professionals around the globe and aspires to foster collaboration, professional excellence, and innovation in healthcare delivery and policy.

STEM CELLS &
EXTRACELLULAR VESICLES EDUCATIONAL DAY

Clinical-Grade and Advanced Technologies — From Bench to Bedside

Event Date: 15 December 2025

Format: Online Webinar (Zoom)

Time Zones:

Germany (CET): 08:40 - 15:05

Egypt (EET): 09:40 - 16:05

Opening Ceremony

08:40 - 08:45 CET / 09:40 -9:45 EET
Prof. Khalid B. Selim, Vice Dean, Faculty of Pharmacy, Mansoura University
Opening Ceremony Speech

08:45 - 08:55 CET / 09:45 - 09:55 EET
Dr. Mirhan N. Makled, Director, Professional Master of Immunology & Regenerative Medicine
Introduction to the Professional Master Program

08:55 - 09:00 CET / 09:55 - 10:00 EET
Elbeltagy Therapeutics representative
Event Introduction

Morning Scientific Sessions

09:00 - 09:40 CET / 10:40 -10:00 EET
Prof. Bernd Giebel, Institute of Transfusion Medicine, University Hospital Essen, Germany
Clinical Potential of MSC-EVs and Translational Challenges

09:40 - 10:05 CET / 10:40 - 11:05 EET
Dr. Peter Rhein, Cytek Biosciences
Shedding Light on Extracellular Vesicles with Imaging and Spectral Flow Cytometry

10:05 - 10:45 CET / 11:05 - 11:45 EET
Prof. Basant Kumar Thakur, Cancer Exosome Research Lab
Department of Pediatrics III, University Hospital Essen, Germany
DNA in extracellular vesicles: Potential functional biomarker to cell to cell communicators in Cancer

10:45 - 11:10 CET / 11:45 - 12:10 EET
Dr. Andreas Wicovsky, Beckman Coulter
CytoFLEX nano – Innovative Flow Cytometry for Counting and Characterization of Extracellular Vesicles

11:10 - 11:35 CET / 12:10 - 12:35 EET
Dr. Simon Staubach, Sartorius
Advanced EV Manufacturing from Process Development to Pilot Scale

11:35 - 12:00 CET / 12:35 - 13:00 EET
Mecking Magdalena, TAmiRNA
Advanced Transcriptomics Expertise for EV Characterization

Midday Scientific Sessions

12:00 - 12:40 CET / 13:00 - 13:40 EET
Prof. Dr. Holm Zähres, Institute of Anatomy, Ruhr University Bochum
Skeletal Muscle Organoids to Model Human Development and Disease

12:40 - 13:05 CET / 13:40 - 14:05 EET
Zoey Wang, Exodus Bio
From Bench to Scale: EVs Isolation with Exodus H600 and T-2800

13:05 - 13:45 CET / 14:05 - 14:45 EET
Prof. Dr. Ayman F. Refaie, Consultant at Urology and Nephrology Center Mansoura University, Egypt
Stem Cell Research for Treatment of Diabetes Mellitus at Mansoura Urology and Nephrology Center: A 15-Year Journey

13:45 - 14:10 CET / 14:45 - 15:10 EET
Dr. Patrick Bongartz / Dr. Yasemin van Heuvel, BioThrust
A Bionic Bioreactor for Unlimited MSC Cultivation at Scale

14:10 - 14:30 CET/ 15:10 - 15:30 EET
Ingrid Bloss, Sales & Product Mangement Support, Particle Metrix GmbH, Germany
Next level Nanoparticle Tracking Analysis: The new ZetaView® Evolution

14:30 - 14:55 CET / 15:30 - 15:55 EET
Elbeltagy Therapeutics Scientific Consultant
Bioprocess Development and Quality by Design for Cell and Gene Therapies

Closing Ceremony

14:55 - 15:05 CET / 15:55 - 16:05 CET
Dr. Osama Mahmoud, Cardiologist & Founder of HPNE
Closing Remarks