

Symposia Synopsis

Plenary Lecture I

Adipose Tissue Plasticity and Metabolism

Apr. 21st (Mon), 14:30-15:10, Room 325

Adipose tissue plays a vital role in metabolic regulation, with different fat depots exhibiting distinct characteristics. This session explores the heterogeneity and plasticity of adipose stem and progenitor cells (ASPCs) in visceral epididymal adipose tissue (EAT) and subcutaneous inguinal adipose tissue (IAT). Using single-cell RNA sequencing and transplantation models in both lean and obese mice, the speaker will highlight how intrinsic and environmental factors shape ASPC identity. The session will also shed light on the conserved molecular signatures across species and the impact of epigenetic regulation on adipose tissue aging. This talk will offer valuable insights into the dynamic biology of fat and its implications for metabolic health.

Plenary Lecture II

Discovery of Novel Degraders and Development of New Approaches to Target Undruggable Proteins

Apr. 22nd (Tue), 13:00-13:40, Room 325

Targeting “undruggable” proteins remains one of the most pressing challenges in modern drug discovery. Dr. Jian Jin’s laboratory is at the forefront of this field, pioneering breakthroughs in targeted protein degradation (TPD), stabilization (TPS), and acetylation (TPA). In this session, Dr. Jin will present recent advancements in the development of novel small-molecule degraders aimed at previously inaccessible oncoproteins. Additionally, new technological platforms that expand the therapeutic potential of TPD, TPS, and TPA will be introduced. This talk promises to deliver cutting-edge strategies that may revolutionize how we approach difficult targets in cancer and beyond.



Special Symposium

Research Ethics and Integrity in the Artificial Intelligence Era

Apr. 21st (Mon), 13:00-14:20, Room 325

As AI technologies become increasingly integrated into academic research and drug development, they bring both exciting opportunities and significant ethical challenges. This symposium will explore not only the ethical responsibilities of researchers but also how AI is reshaping the process of drug discovery and development. Two expert speakers will share insights on research integrity, responsible AI use, and the future of pharmaceutical innovation in the AI era.

Luncheon Symposium

Pioneering the Future of Data Analytics and Digital Transformation

Apr. 22nd (Tue), 11:50-12:30, Room 324

As industries accelerate digital transformation, data analytics is revolutionizing biopharma and manufacturing by enabling real-time monitoring, predictive modeling, and optimized decision-making. Leveraging Digital Twin, Multivariate Data Analysis (MVDA), and Process Analytical Technology (PAT), companies can integrate hybrid modeling—combining mechanistic and data-driven insights—to enhance scalability, improve process efficiency, and drive innovation. This session explores how AI, automation, and data-driven strategies are shaping the next generation of smart manufacturing and biopharmaceutical advancements.

Symposium 1

Latest Trends and Future Strategies in GLP-1 Agonist Drug Development

Apr. 21st (Mon), 15:20-17:20, Room 325

Glucagon-like peptide-1 (GLP-1) receptor agonists have become a key therapeutic class for managing metabolic disorders such as diabetes and obesity. As research advances, the development of next-generation GLP-1 therapeutics focuses on optimizing efficacy, extending duration of action, and improving patient adherence through innovative drug delivery approaches. This symposium will begin with an overview of the current landscape and future directions in GLP-1-based peptide drug development. Following this, experts will present recent advancements in long-acting injectable formulations for obesity treatment, transdermal delivery strategies using microarray patch technology, and pharmacokinetic optimization approaches to enhance therapeutic performance. Through these discussions, the symposium will provide a comprehensive perspective on the latest trends and future strategies shaping the evolution of GLP-1 receptor agonist therapies.

Symposium 2

Shaping the Future: Digital Twin Innovations in the Pharma and Biotech Landscape

Apr. 21st (Mon), 15:20-17:00, Room 324

The biopharmaceutical industry is undergoing a significant transformation driven by digitalization and advanced computational technologies. Among these advancements, digital twin technology is reshaping the drug development process by enhancing efficiency and precision at every stage. In drug discovery, it enables more accurate molecular modeling and target identification through advanced computing techniques like quantum computing. As drugs move into clinical trials, digital twins help refine study designs and support regulatory decision-making, ultimately improving trial outcomes. In pharmaceutical manufacturing, they optimize production processes and strengthen quality control, ensuring consistency and scalability. By integrating digital twins across these stages, the biopharmaceutical industry is accelerating innovation and advancing more effective treatments. In light of these advancements, this symposium will bring together experts to explore the current applications and future potential of digital twin technology in the biopharmaceutical industry. Through interdisciplinary discussions, the symposium aims to explore how digital twins can revolutionize pharmaceutical development and regulatory strategies.



Symposium 3

Non-Apoptotic Cell Death: Pharmacological Insights and Strategies

Apr. 21st (Mon), 15:20-17:00, Room 323

This symposium explores cutting-edge research on non-apoptotic cell death mechanisms and their pharmacological implications. Distinguished speakers will present diverse perspectives on this emerging field. The program features groundbreaking research on mechanosensitive regulation of cell death and metabolism in liver tissues, environmental toxin benzopyrene's effects on mitochondrial dynamics and mitophagy in astrocytes, the role of PANoptosis in antiviral immunity, and metabolic regulation of ferroptosis in cancer contexts. This comprehensive symposium aims to bridge fundamental mechanistic insights with potential therapeutic applications, offering attendees valuable perspectives on non-canonical cell death pathways that could inform novel pharmacological strategies for conditions ranging from liver disease to viral infections and cancer.

Symposium 4

Targeting Neurological Disorders: New Frontiers in Drug Discovery

Apr. 21st (Mon), 15:20-17:15, Room 322

This session will cover the latest trends in identifying innovative therapeutic targets for brain and neurological disorders and developing new drugs based on these discoveries. Experts in neuroscience pathophysiology and pharmaceutical sciences will gather to introduce novel targets and mechanisms that can overcome the limitations of existing treatments. Additionally, the session will explore how these new therapeutic strategies can be applied in clinical practice.

Symposium 5

Integrated Medication Management and Community Care Initiative: The Future Strategy for Specialist Pharmacists and Community Care

Apr. 21st (Mon), 15:20-17:00, Room 321

This symposium aims to establish and strengthen the role of pharmacists in community care ahead of the implementation of the Integrated Medication Management Specialist Pharmacist system, which is set to begin in 2027. To achieve this, it seeks to refine the system, present key domestic strategies, and facilitate discussions and knowledge sharing. Notably, experts from countries where such systems are already in place—such as Australia—will be invited to share case studies and insights from pioneering models. Through their expertise and guidance, the symposium will serve as a valuable platform for discussions on adapting and localizing these systems. There will be a key focus on how to effectively leverage pharmacists' expertise as essential professionals in comprehensive and integrated community care. Ultimately, this symposium seeks to lay the groundwork for pharmacists to play an active role in promoting public health and enhancing community healthcare management.

Symposium 6

Convergent Research on Biomacromolecular Structure and Nano Drug Delivery Technologies

Apr. 21st (Mon), 15:20-17:00, Room 306A

The structural elucidation of biomacromolecules involved in disease treatment and the development of targeted nano-drug delivery systems are intricately connected, spanning from the initial stages of drug discovery to final therapeutic application. While these fields may seem distinct, they are fundamentally complementary, reinforcing each other as integral components of modern drug design. This symposium will explore the synergy between structural studies of biomolecular assemblies and advancements in drug delivery technologies. Key topics include the influence of formulation variables on the pharmacokinetics and injection site reactions of long-acting injectables, the application of nanodisc technology in elucidating RAS assembly on membranes, the development of self-assembled nanoparticles for cytosol and organelle-targeted drug delivery, and the design of lipid nanoparticulate systems to enhance the therapeutic efficacy of anti-inflammatory drugs. By integrating these diverse perspectives, this symposium aims to foster interdisciplinary collaboration, facilitate the exchange of innovative ideas, and uncover novel strategies to enhance drug efficacy and precision targeting. Through these efforts, we seek to drive transformative advancements in disease treatment and contribute to the next generation of therapeutic development.

Symposium 7

Data-Driven Strategies for Discovering New Natural Products

Apr. 22nd (Tue), 09:50-11:30, Room 325

Recent advancements in computational biology, big data analytics, and machine learning are revolutionizing the quest for novel natural products. This symposium, hosted by Natural Product Sciences, will feature cutting-edge approaches that integrate diverse data sources to discover and optimize bioactive compounds from plants, microorganisms, and other natural resources. Through data mining, predictive modeling, and high-throughput screening, researchers can rapidly identify promising leads and enhance their therapeutic potential. By highlighting the latest breakthroughs and challenges in data-driven strategies, this event aims to foster interdisciplinary collaboration and accelerate the development of innovative, sustainable solutions in natural product research.



Symposium 8

Open Innovation in Pharmacy & Biotechnology

Apr. 22nd (Tue), 09:50-11:30, Room 324

In the “Open Innovation in Pharmacy & Biotechnology” session, experts from various fields will discuss AI-driven drug discovery, next-generation cancer immunotherapy, drug repurposing and platform technologies, gene therapy, and drug delivery innovations. Key topics include a B2B AI cloud platform for drug and functional material discovery, the development of RNA-based macrophage-activating cancer immunotherapy NRT-YHD, and the AI-driven gene therapy platform S.Core Genetica, which optimizes antisense oligonucleotide (ASO) and siRNA sequences to enhance therapeutic efficacy. Additionally, the session will cover the development of polymer-based implants for sustained drug delivery, targeting ophthalmic diseases such as glaucoma, dry eye syndrome, age-related macular degeneration (AMD), diabetic retinopathy, and uveitis, along with drug efficacy screening platforms utilizing these implants. Through this session, we aim to explore the latest advancements and future directions in innovative drug development driven by open collaboration.

Symposium 9

Novel Insights and Therapeutic Strategies in Metabolic Inflammation

(Women’s Bioscience Forum (WBF))

Apr. 22nd (Tue), 09:50-11:30, Room 323

Metabolic inflammation is a condition arising from the disruption of metabolic homeostasis coupled with an imbalance in immune system regulation, playing a central role in the pathophysiology of various chronic diseases. Recent advancements in research have provided novel insights into the intricate interactions between metabolic pathways and immune responses, paving the way for the development of innovative therapeutic approaches. This symposium aims to enhance the understanding of metabolic inflammation-associated diseases by elucidating the molecular mechanisms underlying metabolic inflammation and exploring their potential clinical applications to identify effective therapeutic strategies.

Symposium 10

Value-based pricing and policies: Fundamentals and Latest Trends

Apr. 22nd (Tue), 09:50-11:30, Room 322

This session will explore the foundational theories of reimbursement decision-making, the pricing negotiation process, and the diverse post-drug pricing policies from both government and industry perspectives. The first presenter will outline the fundamental principles, guidelines and use cases of value-based pricing, grounded in relevant laws and enforcement. The second presenter will address the various strategies and policies surrounding generic drug pricing, with a focus on promoting the use of generics. The third presenter will introduce the performance assessment system for high-priced medicines, leveraging real-world data and evidence to guide pricing decisions. The symposium will also feature a panel discussion with experts from academia, industry, government and law, offering diverse insights into the evolving landscape of value-based pricing.

Symposium 11

Advances and Insights in Pharmaceutical Sciences from Leading University-Based Research Institutes

(Key Research Institutes)

Apr. 22nd (Tue), 09:50-11:30, Room 321

Currently, eight university-based research institutes are designated as “Key Research Laboratories”, funded by Korean government. This symposium will bring together promising representatives from four of these institutions-Korea University, Sungkyunkwan University, Yonsei University, and Chung-Ang University-to share the exciting research projects currently underway at their institutes. Each presentation will share the unique focus areas of these institutes, covering from drug discovery and innovative delivery systems to pharmaceutical technologies. Attendees will have the opportunity to hear directly from the researchers about the challenges, breakthroughs, and the impact their work may have on the future of pharmacy. Through this session, we hope to spark meaningful conversations, inspire collaboration, and shed light on the ongoing advancements that will shape the next generation of pharmaceutical sciences.



Symposium 12

Shaping the future of drug: Gene therapy and advanced drug delivery

Apr. 22nd (Tue), 09:50-11:30, Room 306A

Recent advances in gene therapy, nanomedicine, and precision drug delivery are expanding treatment options for intractable diseases. This symposium will explore key developments in AAV-based gene therapy, mitochondrial genome editing, nanomedicine, and CNS-targeted drug delivery. Featuring early-career researchers from the Future Pharmacy Association and external experts, it aims to foster collaboration in cutting-edge drug development. By integrating genome engineering with advanced drug delivery, the symposium will provide a platform for discussing innovative therapies and their clinical applications. Through knowledge exchange and interdisciplinary cooperation, we seek to accelerate pharmaceutical innovation and the development of next-generation therapeutics.

Symposium 13

Next-Generation Therapeutics Driven by Targeted Protein Degradation

Apr. 22nd (Tue), 13:50-15:30, Room 325

Targeted Protein Degradation (TPD) is revolutionizing drug discovery by providing innovative strategies to eliminate disease-associated proteins that were previously considered undruggable. By harnessing endogenous cellular mechanisms, TPD enables precise and selective protein degradation, expanding therapeutic possibilities beyond conventional inhibition approaches. This symposium will explore recent advancements in TPD, including novel methods to leverage endogenous metabolic pathways for enhanced protein degradation, the discovery of covalent E3 ligase ligands for tissue-specific targeting, and the development of PROTACs for autoimmune disease treatment. Additionally, emerging chemical platforms such as AUTOTAC will be discussed, highlighting their potential in neurodegenerative disease therapy and their progress toward clinical translation. Through this session, attendees will gain insights into cutting-edge research driving the next generation of therapeutics, showcasing the broad applicability of TPD in addressing various unmet medical needs.

Symposium 14

Recent Advances in Protein Structure-Based Drug Development

Apr. 22nd (Tue), 13:50-15:30, Room 324

Over the past decade, the field of protein structure research has advanced rapidly. In particular, innovations in cryo-electron microscopy (CryoEM), an experimental structural analysis technique, have enabled the elucidation of protein structures that were previously difficult to determine. In recognition of these achievements, researchers in this field were awarded the 2017 Nobel Prize in Chemistry. Furthermore, recent advancements in artificial intelligence have opened new possibilities for protein structure prediction, and the pioneers of this breakthrough were honored with the 2024 Nobel Prize in Chemistry. This symposium aims to delve into the latest developments in protein structure research and explore trends in drug development utilizing these advancements.

Symposium 15

Real-World Data-Based Drug Safety Research and Clinical Application

Apr. 22nd (Tue), 13:50-15:30, Room 323

Real-world data (RWD) plays a crucial role in drug safety assessment and the enhancement of pharmacovigilance, with increasing research efforts focused on its application in clinical practice. Considering the interconnectedness of these research areas, we are co-hosting a symposium in collaboration with the Korean Society for Pharmacoepidemiology and Risk Management. This symposium will focus on the utilization of RWD in drug safety research and its clinical applications, providing a platform for discussing innovative methodologies and real-world case studies. In particular, we aim to explore how large-scale healthcare databases can be leveraged for evidence-based analyses, generating robust insights into drug safety profiles, patient outcomes, and risk-benefit assessments. Through this symposium, we seek to facilitate in-depth discussions on the challenges and opportunities associated with integrating RWD into clinical practice, ultimately contributing to improved patient safety and healthcare quality.



Symposium 16

Case Examples and Point to Consider of Several Key Assays in Drug Discovery

(Daegu Gyeongbuk Medical Innovation Foundation (K-MEDI hub))

Apr. 22nd (Tue), 13:50-15:45, Room 322

Daegu Gyeongbuk Medical Innovation Foundation (K-MEDI hub) supports industry, academia, the research institute and hospital with optimization of new drug hits, leads and candidates, designing of advanced medical devices, production of prototypes and performance evaluation. New Drug Development Center (NDDC) support for molecular design, protein structure analysis, drug synthesis, efficacy evaluation, pharmacokinetic evaluation and safety evaluation. we also license out many pipelines to biotech ventures, so bridging the gap between academia and industry. NDDC is composed of four main departments; Research Planning and Strategy, Platform Technology, Medicinal Chemistry, Efficacy and Safety Evaluation. In alignment with our four main departments in Drug discovery, we introduce each area and its research results. At this symposium, K-MEDI hub plan to share various case studies and know-how on utilizing the advanced infrastructure and expert personnel of the New Drug Development Support Center under the theme of “Case Examples and Point to Consider of Several Key Assays in Drug Discovery”.

Symposium 17

PharmED Academy: Understanding and Design of Outcome-based Pharmacy Education

(Korean Accreditation Council for Pharmacy Education (KACPE))

Apr. 22nd (Tue), 13:50-15:30, Room 321

The Korean Accreditation Council for Pharmacy Education (KACPE) has developed and implemented the “PharmEd OBE Academy,” a comprehensive educational program for pharmacy professors. This symposium, titled “PharmEd OBE Academy I: Understanding and Design of Outcome-based Pharmacy Education,” represents the first in the series and aims to enhance professors’ understanding of outcome-based education (OBE) core concepts and their capacity to effectively integrate these principles into pharmacy curricula.

The symposium bridges foundational OBE concepts and theories with practical application, allowing participants to explore the future direction of pharmaceutical education. Through interactive, hands-on training sessions focused on designing learning outcomes—the cornerstone of OBE curricula—participants will develop essential skills for effective implementation.

Rather than engaging in purely theoretical discussions about OBE, this symposium emphasizes practical knowledge directly applicable to educational settings. Participants will gain insights into a new paradigm of pharmaceutical education and explore the real-world feasibility and benefits of the OBE approach.

Symposium 18

Next-Generation Metabolomics in Pharmaceutical Sciences

Apr. 22nd (Tue), 13:50-15:30, Room 306A

Next-generation metabolomics enables the profiling of metabolites within biological systems, unlocking potential applications in drug discovery, drug metabolism and toxicity assessment, and personalized medicine. This symposium will explore the latest advancements in metabolomics analysis technologies and AI-driven data integration strategies, along with various applications such as molecular mechanism on disease, targeting metabolism, and multi-omics approaches, providing insights into innovative directions for advancements in pharmaceutical and medical fields.