## **SESSIONS**

# PRE-CONFERENCE WORKSHOPS (AM) & MAIN CONFERENCE DAY 1 PLENARY (PM) - 24/02/2026

## TIDES Asia: Oligonucleotide & Peptide Therapeutics

**24-26 Feb, 2026** Grand Nikko Tokyo Daiba Tokyo

### **Registration and Coffee**

08:00 - 09:00

Workshop #1: Regulatory and Practical CMC Considerations Around Novel RNA Chemistries

### **Registration and Coffee**

08:00 - 09:00

Workshop #2: Manufacturing and Characterization of Long and/or Complex Peptides

### Workshop Moderator's Opening Remarks: Workshop #1

09:00 - 09:10

Workshop #1: Regulatory and Practical CMC Considerations Around Novel RNA Chemistries

#### **Participants**

**Thomas Rupp** - Owner & Principal, Thomas Rupp Consulting

### Workshop Co-Moderators' Opening Remarks: Workshop #2

09:00 - 09:10

Workshop #2: Manufacturing and Characterization of Long and/or Complex Peptides

### **Participants**

**Bruce Morimoto, PhD** - Independent Consultant, TIDES Advisor

### Manufacturing and Upscale Challenges of Next-generation Oligonucleotide Therapeutics

09:10 - 09:55

Workshop #1: Regulatory and Practical CMC Considerations Around Novel RNA Chemistries

### **Participants**

**Chris Oswald** - Founder, Owner, and Principal Consultant, Coswald Consulting LLC

## Strategies for Manufacturing of Long and Complex Peptides: Technical Considerations and Case Studies

09:10 - 09:55

Workshop #2: Manufacturing and Characterization of Long and/or Complex Peptides

The synthesis of long and structurally complex peptides presents significant manufacturing challenges, including low yields, side reactions and aggregation. This presentation explores customized strategies to overcome these hurdles, emphasizing hybrid synthesis techniques that integrate solid-phase and solution-phase methods to improve both efficiency and scalability. Key technical aspects are addressed, such as sourcing specialized raw materials, managing coupling inefficiencies, and incorporating complex moieties like PEG spacers and fatty acids. Special attention is given to process design considerations aligned with green chemistry principles, focusing on solvent minimization. Real case studies will demonstrate the successful application of these approaches, offering actionable insights for the development and industrialization of complex peptide therapeutics.

#### **Participants**

**Robert Hagopian** - Global Director, Biotech Partnerships, PolyPeptide Group

**El Djouhar Rekaï, PhD** - Head of Peptide Process Development & Manufacturing, PolyPeptide Group

### Process-related Impurities of Next-generation Oligonucleotide Therapeutics

09:55 - 10:40

Workshop #1: Regulatory and Practical CMC Considerations Around Novel RNA Chemistries

### **Participants**

**Thomas Rupp** - Owner & Principal, Thomas Rupp Consulting

### Analytical Journey of a Peptide Therapeutic: A Tailored Approach

09:55 - 10:35

Workshop #2: Manufacturing and Characterization of Long and/or Complex Peptides

The clinical journey of a drug candidate goes hand in hand with analytical development, validation, and characterisation. This crucial component evolves in scope and depth as the API advances through clinical stages. We will review how a phased approach to analytical topics is key to a successful development program, and show case studies highlighting how indication, posology, and the peptide itself impact the analytical strategy.

### **Participants**

Alaric Desmarchelier, PhD - Business Development Manager - Peptides, Almac Group

### **Networking Refreshment Break**

10:35 - 11:10

Workshop #2: Manufacturing and Characterization of Long and/or Complex Peptides

### **Networking Refreshment Break**

10:40 - 11:15

Workshop #1: Regulatory and Practical CMC Considerations Around Novel RNA Chemistries

### Innovations in Preparative Purification of Synthetic Peptides

11:10 - 11:50

Workshop #2: Manufacturing and Characterization of Long and/or Complex Peptides

Peptide pharmaceuticals are increasingly central to modern medicine, particularly in the treatment of diabetes and obesity, yet their large-scale purification remains a critical cost driver. This presentation will trace the evolution of preparative chromatography from its early developments to current large-scale applications, highlighting key innovations that have improved efficiency and scalability. Recent advances in stationary phase chemistry-offering greater stability, selectivity, and mechanical strength-have significantly enhanced process robustness. At the same time, progress in instrumentation and automation has streamlined operations, reduced variability, and lowered manufacturing costs. Together, these innovations are reshaping the economics of peptide production and enabling industry to respond to unprecedented demand for GLP-1 receptor agonists, insulin analogs, and related therapeutics. By integrating modern materials and advanced engineering tools, peptide purification can now achieve both high purity and cost-effectiveness, ensuring broader access to new and improved medicines.

### **Participants**

Marc Jacob, PhD - Head of Strategic Development, Chromatography Products, YMC America

## **SESSIONS**

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## TIDES Asia: Oligonucleotide & Peptide Therapeutics

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### Phase- appropriate CMC Considerations for Next-generation Oligonucleotides

11:15 - 12:00

Workshop #1: Regulatory and Practical CMC Considerations Around Novel RNA Chemistries

Next-generation oligonucleotides introduce unique CMC challenges due to increasingly complex chemistries and delivery strategies. This session outlines phase-appropriate approaches, from IND-enabling studies through commercialization, highlighting key development stages, documentation, and regulatory expectations. Attendees will gain practical insights to anticipate and manage scientific and operational hurdles, offering a strategic framework to support the successful advancement of innovative oligonucleotide therapeutics across diverse programs.

#### **Participants**

Dr. Pablo Lores Lareo, PhD - CMC Director, Sylentis

### Synthesis Solutions Enabling Rapid Supply of Complex Cyclic Peptides

11:50 - 12:30

Workshop #2: Manufacturing and Characterization of Long and/or Complex Peptides

Parallel SPPS approaches optimally discover clinical candidates, with automated methods maximizing efficiency. Automated SPPS is a useful method not only in early drug discovery but also for the rapid supply of large-scale non-clinical API. We present advanced yield-maximizing methodologies demonstrated in our clinical candidate.

### **Participants**

**Dr. Manabu Wadamoto, PhD** - Chief Scientist, Chugai Pharmaceutical Co., Ltd.

### Panel Discussion and Q&A with Workshop Speakers

12:00 - 12:30

Workshop #1: Regulatory and Practical CMC Considerations Around Novel RNA Chemistries

### Workshop will cover the following topics:

The workshop will provide insight into decisions made to enable a multi-product facility that can accept many oligonucleotide types/designs and scales, all the while ensuring proper alignment of large scale and downscale processes. Critical Quality Attributes are suspected to influence efficacy, safety, and quality of final products, therefore consideration of CQAs for large scale manufacturing will be discussed. Participants will gain an insight into Large Scale manufacturing of oligonucleotide API and to the design of a facility. Major themes of the workshop will include:

- Large Scale Manufacturing: Challenges and Solutions
- Designing a Facility: Challenges and Solutions
- Critical Quality Attributes (CQA): How to Maintain during Upscaling

#### Who should attend?

Anyone interested in understanding the challenges that might exist if oligonucleotide manufacturing were to be build-up in-house rather than depending on a CDMO. Manufacturing personnel, quality assurance (QA), and project management (PM) would realize the most benefit out of this workshop.

### Close of Workshop and Luncheon for Morning Workshop Attendees Only

12:30 - 13:45

Workshop #1: Regulatory and Practical CMC Considerations Around Novel RNA Chemistries

### Close of Workshop and Luncheon for Morning Workshop Attendees Only

12:30 - 13:45

Workshop #2: Manufacturing and Characterization of Long and/or Complex Peptides

#### Chairperson's Remarks: Keynote Day 1

13:45 - 13:50

Main Conference Plenary Keynote Session

### Development of New Molecular Technologies for siRNA Therapeutics

13:50 - 14:20

Main Conference Plenary Keynote Session

I will report on oligo-D-2,6-diaminogalactose (ODAGal) and oligo-L-2,4-diaminobutyric acid (Dab) as effective stabilizers and carriers of siRNA. In particular, folic acid-conjugated Dab will be reported for its pancreatic cancer-specific delivery and therapeutic efficacy of siRNA.

#### **Participants**

**Dr. Takeshi Wada, PhD** - Professor of Organic Chemistry, Tokyo University of Science

### Thiomorpholino Oligonucleotides (TMOs) Useful for Exon Skipping, RNase H and siRNA Applications

14:20 - 14:50

Main Conference Plenary Keynote Session

TMOs have been used for many biological applications. TMOs as cap/gapmers are very active in controlling the expression of glioblastomas, U4 noncoding RNA, allele specific knockdown of SLC6A1, multicentric carpotarsal osteolysis and several other genetic diseases. Similarly, via exon skipping experiments, TMOs control expression of DMD, STAT3 in head/neck tumors, inflammation via ITGA4, PKM, TUG 1 IncRNA, psoriasis, recessive dystrophic epidermolysis bullosa, and other genetic diseases as well. Recent research has also focused on controlling expression of peroxiredoxin (PRDX) 6 via TMO modified siRNA and using TMOs to control PEG 10 translation. These results will be outlined in my lecture.

### **Participants**

**Dr. Marvin Caruthers, PhD** - Distinguished Professor, Biochemistry, University of Colorado

## **SESSIONS**

# PRE-CONFERENCE WORKSHOPS (AM) & MAIN CONFERENCE DAY 1 PLENARY (PM) - 24/02/2026

TIDES Asia: Oligonucleotide & Peptide Therapeutics

**24-26 Feb, 2026** Grand Nikko Tokyo Daiba Tokyo

### Latest Progress and Advances in RNAi Therapeutics

14:50 - 15:20

Main Conference Plenary Keynote Session

### **Participants**

Muthiah (Mano) Manoharan, PhD - Senior Vice President of Drug Innovation and Distinguished Research Scientist, Alnylam Pharmaceuticals

### **Networking Refreshment Break**

15:20 - 16:00

Main Conference Plenary Keynote Session

### Emerging Technologies in the Scale Up of Oligonucleotide Therapeutics

16:00 - 16:30

Main Conference Plenary Keynote Session

Oligonucleotide therapies have long been associated with rare and orphan diseases, which have been critical in addressing unmet medical needs as well as providing clinical validation for this powerful therapeutic modality. This has accelerated the industry and driven interest in treating ever larger patient populations such as cardiovascular disease. As demand for oligonucleotides increases, this puts intense pressure on the industry to develop innovative solutions to environmental, cost, and efficiency concerns in the manufacture of these drugs. This talk will highlight Eli Lilly's efforts to develop new synthesis technologies such a fluidized bed reactor (FBR) and enzymatic ligation as well as drive practical advances such as implementing frozen solution API (vs lyophilization) which help drive efficiency and improved reliability for large scale products.

### **Participants**

**Dr. Scott May, PhD** - VP of Chemistry, Synthetic Molecule Design & Development, Eli Lilly and Company

### Clinical Development of Mazdutide, the First Dual GCG/GLP-1 Receptor Agonist Approval in China, for Chronic Weight Management

16:30 - 17:00

Main Conference Plenary Keynote Session

### **Participants**

**Dr. Lei Qian, MD, PhD** - Chief R&D Officer, General Biomedicine, Innovent Biologics

### The Science Behind the GLP-1 Medicines: A Historic View and Future Outlook

17:00 - 17:30

Main Conference Plenary Keynote Session

Glucagon-Like Peptide-1 receptor agonists (GLP-1RAs), such as liraglutide and semaglutide, offer diverse biological applications and are sanctioned for treating diabetes with established cardiovascular benefits, encompassing stroke prevention, and obesity management. Physiologically, GLP-1 plays a crucial role in glucose equilibrium, appetite control, and various other functions. Notably, long-acting pharmacological agents are pivotal for treatment success. These GLP-1RAs influence weight loss, potentially through brain GLP-1R-mediated mechanisms, and also demonstrate promise in mitigating systemic inflammation. Ongoing research is exploring their potential in addressing liver disease and Alzheimer's disease. This underscores the wideranging impact of GLP-1 physiology in various clinical domains.

### **Participants**

Dr. Lotte Bjerre Knudsen, PhD - Chief Scientific Advisor & Head of GLP-1 CoE, Novo Nordisk A/S

#### Close of Day One

17:30 - 17:35

Main Conference Plenary Keynote Session



# PRE-CONFERENCE WORKSHOPS (AM) & MAIN CONFERENCE DAY 1 PLENARY (PM) - 24/02/2026

# TIDES Asia: Oligonucleotide & Peptide Therapeutics

| TIME  | WORKSHOP #1: REGULATORY AND PRAC-<br>TICAL CMC CONSIDERATIONS AROUND<br>NOVEL RNA CHEMISTRIES       | WORKSHOP #2: MANUFACTURING AND CHARACTERIZATION OF LONG AND/OR COMPLEX PEPTIDES                                    | MAIN CONFERENCE PLENARY KEYNOTE SESSION   |
|-------|---|--|---|
| 08:00 | 08:00 - Registration and Coffee   | 08:00 - Registration and Coffee  |   |
| 09:00 | <b>09:00</b> - Workshop Moderator's Opening Remarks: Workshop #1                                    | 09:00 - Workshop Co-Moderators' Opening Remarks: Workshop #2   |   |
|       | <b>09:10</b> - Manufacturing and Upscale Challenges of Next-generation Oligonucleotide Therapeutics | 09:10 - Strategies for Manufacturing of<br>Long and Complex Peptides: Technical<br>Considerations and Case Studies |   |
|       | <b>09:55</b> - Process-related Impurities of Next-generation Oligonucleotide Therapeutics           | 09:55 - Analytical Journey of a Peptide<br>Therapeutic: A Tailored Approach  |   |
| 10:00 | 10:40 - Networking Refreshment Break  | 10:35 - Networking Refreshment Break   |   |
| 11:00 | 11:15 - Phase- appropriate CMC Considerations for Next-generation Oligonu-                          | 11:10 - Innovations in Preparative Purification of Synthetic Peptides  |   |
|       | cleotides   | 11:50 - Synthesis Solutions Enabling<br>Rapid Supply of Complex Cyclic Peptides                                    |   |
| 12:00 | 12:00 - Panel Discussion and Q&A with<br>Workshop Speakers  | 12:30 - Close of Workshop and Luncheon for Morning Workshop Attendees Only   |   |
|       | 12:30 - Close of Workshop and Luncheon for Morning Workshop Attendees Only                          |  |   |
| 13:00 |   |  | 13:45 - Chairperson's Remarks: Keynote<br>Day 1   |
|       |   |  | 13:50 - Development of New Molecular<br>Technologies for siRNA Therapeutics   |
| 14:00 |   |  | 14:20 - Thiomorpholino Oligonucleotides<br>(TMOs) Useful for Exon Skipping, RNase<br>H and siRNA Applications                         |
|       |   |  | 14:50 - Latest Progress and Advances in RNAi Therapeutics   |
| 15:00 |   |  | 15:20 - Networking Refreshment Break  |
| 16:00 |   |  | <b>16:00</b> - Emerging Technologies in the Scale Up of Oligonucleotide Therapeutics  |
|       |   |  | 16:30 - Clinical Development of Mazdutide, the First Dual GCG/GLP-1 Receptor Agonist Approval in China, for Chronic Weight Management |
| 17:00 |   |  | 17:00 - The Science Behind the GLP-1<br>Medicines: A Historic View and Future<br>Outlook  |
|       |   |  | 17:30 - Close of Day One  |

# SESSIONS MAIN CONFERENCE DAY 2 - 25/02/2026

TIDES Asia: Oligonucleotide & Peptide Therapeutics

**24-26 Feb, 2026** Grand Nikko Tokyo Daiba Tokyo

### **Registration and Coffee**

07:45 - 08:10 Main Conference

### Chairperson's Remarks

08:10 - 08:15 Main Conference

### Morning Spotlight Presentation: FluidAir

08:15 - 08:45 Main Conference

### Chemical Synthesis of mRNAs Based on Efficient Capping Reaction

08:45 - 09:15 mRNA Advances Track

Site-specific chemical modification of mRNAs can improve their translation efficiency and stability. Therefore, it is desirable to develop a complete chemical synthesis method for chemically modified mRNA. The key step in the synthesis of eukaryotic mRNA is a chemical reaction in which a cap structure is introduced to the chemically synthesized RNA strand. we have developed a capping reaction that proceeds rapidly and quantitatively and synthesized series of chemically modified mRNAs.

### **Participants**

**Hiroshi Abe, PhD** - Professor, Department of Chemistry, Graduate School, Nagoya University

### Advancing Oligonucleotide and mRNA Therapeutics: TUG1 ASO for Recurrent Glioblastoma and Runx1 mRNA for Knee Osteoarthritis

09:15 - 09:45 mRNA Advances Track

This presentation will provide clinical development updates on two innovative nucleic acid therapeutic programs: TUG1-targeting antisense oligonucleotide for recurrent glioblastoma and Runx1 mRNA therapy for knee osteoarthritis, showcasing the versatility of nucleic acid medicine across diverse therapeutic areas and highlighting recent clinical milestones and future development strategies.

### **Participants**

Shiro Akinaga, PhD - President and CEO, NANO MRNA, Co., Ltd.

### Advances in mRNA-based Therapeutics for Protein Replacement

09:45 - 10:15 mRNA Advances Track

This talk will summarize the preclinical validation and clinical translation of mRNA therapeutics for protein replacement. Non-clinical studies confirm robust expression and stability across multiple species. The data collectively demonstrate the flexibility of the mRNA platform to encode diverse therapeutic proteins, supporting rapid advancement toward scalable, precision-driven treatments.

#### **Participants**

**Pad Chivukula, PhD** - Chief Scientific Officer and COO, Arcturus Therapeutics

### Networking Refreshment Break with Poster and Exhibit Viewing

10:15 - 10:55

Networking Refreshment Break with Poster and Exhibit Viewing

### **TIDES Talk**

10:20 - 10:35 TIDES Talks in the Exhibit Hall

### Chairperson's Remarks: Track 1

10:55 - 11:00 Oligonucleotide Track

### **Participants**

Yogesh Sanghvi, PhD - President, Rasayan Inc.

### Chairperson's Remarks: Track 2

10:55 - 11:00 Peptide Track

### Formulation Innovations for Future Oligonucleotide Therapies: Insights Inspired by Biologics

11:00 - 11:30 Oligonucleotide Track

The shift from IV to SC administration in biologics has enhanced patient convenience and healthcare efficiency. Similarly, oligonucleotide therapies are expected to adopt SC routes, overcoming challenges like injection volume and viscosity with advanced formulation technologies. This presentation discusses these strategies, inspired by biologics, and briefly explores macromolecule oral delivery as the ultimate user-friendly solution. The intended audience includes professionals involved in oligonucleotide formulation development, researchers exploring or offering novel SC formulation technologies for oligonucleotides, and healthcare providers interested in transitioning from IV to SC administration.

### **Participants**

**Dr. Tomoya Takenaka, PhD** - Principal Scientist, Drug Product and Device Development, Takeda Pharmaceutical Company

### **Late Breaking Presentation**

11:00 - 11:30 Peptide Track

### Lessons Learned Building an Oligo CMC Program for a Small Company: Doing More with Less

11:30 - 12:00 Oligonucleotide Track

This presentation shares key lessons from building a CMC program for a therapeutic oligonucleotide that progressed to Phase 3. Focused on the realities of small biotech, it offers practical insights into analytical, manufacturing, and regulatory strategy, highlighting how to make smart, resource-conscious decisions from early development through late-stage milestones.

### **Participants**

Dr. Pablo Lores Lareo, PhD - CMC Director, Sylentis

### **Late Breaking Presentation**

11:30 - 12:00 Peptide Track

# SESSIONS MAIN CONFERENCE DAY 2 - 25/02/2026

TIDES Asia: Oligonucleotide & Peptide Therapeutics

**24-26 Feb, 2026** Grand Nikko Tokyo Daiba Tokyo

### Innovative AX-IPRP Purification for Diverse Oligo Therapeutics

12:00 - 12:30 Oligonucleotide Track

For oligo therapeutic developers advancing toward clinical manufacturing, AX-IPRP dual chromatography introduces a novel purification approach among existing methods. It enables high-resolution separation across diverse sequences and chemistries. This means easier tech transfer, streamlined process control, and faster regulatory alignment. Unlike traditional methods that struggle with complex or long oligos, AX-IPRP offers a scalable, broadly applicable solution that integrates into standard manufacturing infrastructure.

### **Participants**

**Alun Garner** - Business Development Manager, Nucleic Acid Solutions Division, Agilent Technologies

### **Late Breaking Presentation**

12:00 - 12:30 Peptide Track

### Networking Luncheon with Poster and Exhibit Viewing

12:30 - 13:40 Oligonucleotide Track

### Networking Luncheon with Poster and Exhibit Viewing

12:30 - 13:40 Peptide Track

### Chairperson's Remarks: Track 1

13:40 - 13:45 Oligonucleotide Track

### **Participants**

Yogesh Sanghvi, PhD - President, Rasayan Inc.

### Chairperson's Remarks: Track 2

13:40 - 13:45 Peptide Track

### **Participants**

Ved Srivastava, PhD - CTO, Perpetual Medicines

### Understanding UF/DF Capabilities for Enhancing ASO Processing to Make a Liquid or Lyo API

13:45 - 14:15 Oligonucleotide Track

Following purification, oligonucleotide processes often use UF/DF step to formulate their API for subsequent lyophilization (solid API). A better understanding of the UF/DF operation reveals this step can do more including enabling manufacturing flexibility to make either a liquid API or a more efficient lyophilized API process. Here we describe learnings from in depth UF/DF studies that provide improved process control and productivity that we believe Regulators will find acceptable.

#### **Participants**

Robert Gronke, PhD - Senior Principal Scientist, Biogen, Inc

### Switching off Transcription Factors Using Intracellular Library-derived Peptides

13:45 - 14:15 Peptide Track

Protein-protein interactions, and in particular Transcription Factors (TFs), remain compelling drug targets, yet are often intractable to small molecules and inaccessible to larger biologics. Peptides occupy an attractive middle ground if they can become suitable ordered for target engagement. We utilize intracellular peptide library screening approaches to identify selective peptide-based inhibitors that can functionally antagonize TFs. There are two major novelties to our approach: i) our Transcription Block Survival (TBS) peptide-library screening platform in which TF consensus sites are placed directly into the coding region of an essential gene. Subsequent TF binding within the gene directly blocks gene transcription leading to cell death under selective conditions. Cell survival is therefore only possible if antagonists bind to the TF, but more importantly can prevent it from binding to its consensus sequence, thus shutting down TF function. TBS is an entirely tagfree genotype-to-phenotype approach, selecting desirable attributes such as high solubility, target specificity, biostability and low toxicity within the complex environment of the cell. TBS facilitates rapid library screening to accelerate identification of therapeutically valuable sequences. ii) concomitant deployment of cell penetrating crosslinkers. These enter cells to post-translationally constrain every library member into conformations not possible via genetic encoding alone, to select only those in which crosslinking translates into improve target antagonism. Screening ultra-structured biostable peptide libraries, where entire libraries are constrained during the search is highly desirable as it prevents a slow and costly retrospective trial-and-error search for beneficial crosslinkers, positions, and sequences. Using several different exemplars, I will discuss how library-derived constrained peptide antagonists are derived and discuss their characterization using a range of biophysical and cancer cell-based assays.

### **Participants**

**Jody Mason, PhD** - Professor of Biochemistry, University of Bath

### Oligo CMC Presentation

14:15 - 14:45 Oligonucleotide Track

# SESSIONS MAIN CONFERENCE DAY 2 - 25/02/2026

TIDES Asia: Oligonucleotide & Peptide Therapeutics

**24-26 Feb, 2026** Grand Nikko Tokyo Daiba Tokyo

### Mixed-Chirality Prohibitin Peptides Enhance Stability and In Vivo Effects on Obesity

14:15 - 14:45 Peptide Track

Here we report the design of a new generation of prohibitin peptide-based therapeutics engineered to target white adipose tissues. These peptides demonstrate significant reduction of body weight in a high-fat diet-induced obesity mouse model and represent a paradigm shift in approaches to the treatment of obesity by inducing mitochondrial uncoupling. The peptides curb adipocyte expansion and body weight, with favorable preclinical safety profiles.

### **Participants**

**David Craik, PhD** - Professor of Biomolecular Structure, University of Queensland

### Challenges of Raw Material Acquisition for Oligonucleotide Synthesis

14:45 - 15:15 Oligonucleotide Track

The increased complexity of oligonucleotide leads to the usage of new building blocks and raw materials in manufacturing of oligonucleotide for clinical application. This leads to inevitable challenges in qualification of the vendors as well as qualification of the raw materials used in the production process. Examples will be presented including potential solutions that would help overcome these challenges.

### **Participants**

**Dr. Long Ma, PhD** - CEO and Chief Scientist, Orilife Biotech

### Selection of Constrained Peptides as Functional Modulators of CB2R and Characterization of Functional Effects in IBD Models

14:45 - 15:15 Peptide Track

Targeting GPCRs for disease therapy has proven problematic with many drugs exhibiting off target side effects due to lack of receptor selectivity. We have targeted the cannabinoid GPCR CB2R with libraries of stabilized and constrained peptides, called Selektides. We describe here our work on discovery and functional characterization of candidate receptor antagonists with an emphasis on functional experimental design and receptor selectivity determination. Progress in development of an IND ready Selektide for IBD treatment will be described.

### **Participants**

**David O'Connell, PhD** - Professor, School of Biomolecular & Biomedical Science, University College Dublin

### Networking Refreshment Break with Poster and Exhibit Viewing

15:15 - 15:45 Oligonucleotide Track

### Networking Refreshment Break with Poster and Exhibit Viewing

15:15 - 15:45 Peptide Track

### Development and Manufacture of Oligonucleotides via Enzymatic Ligation

15:45 - 16:15 Oligonucleotide Track

As demand, volume, and structural complexity of oligonucleotide therapeutics grows, new technologies are required to address increasing environmental, cost, and efficiency concerns in the manufacture of these drugs. Fragment-based enzymatic ligation (EL) is emerging as a synthetic approach that captures benefits of well-established solid phase synthesis of short fragments with the specificity of biocatalysis for direct assembly of oligonucleotide duplexes. This talk will describe key drivers for the development of EL processes, control strategy advantages, and learnings from scale up to kilogram quantities under cGMP conditions.

### **Participants**

**Dr. Scott May, PhD** - VP of Chemistry, Synthetic Molecule Design & Development, Eli Lilly and Company

**Arne Berthelmann** - Senior Director Oligonucleotide R&D, Bachem AG

### Applying PeptiDream's Peptide Discovery Platform System (PDPS) to Identify and Optimize Oral IL-17 Peptide Inhibitors for Psoriasis

15:45 - 16:15 Peptide Track

This presentation outlines the design of mRNA display libraries featuring diverse chemical properties and scaffolds for the initial identification of peptide hits with high affinity and specificity for targets. We discuss strategies for constrained peptides to develop viable, orally available therapeutics, along with future advancements in therapeutic peptides.

### **Participants**

**Dr. Haruaki Kurasaki, PhD** - Director, Medicinal Chemistry, PeptiDream

### Technology and Innovation in Oligonucleotide CMC

16:15 - 16:45 Oligonucleotide Track

### **Participants**

Masafumi Iwamoto, PhD - Associate Director of Technology and Innovation, Nitto Denko Avecia

# Harnessing Venom for Drug Discovery: Developing a High-Performance Venom Library Platform with a Machine Learning-Enabled Rapid Hit-to-Lead Workflow

16:15 - 16:45 Peptide Track

A robust peptide therapeutics discovery platform has been developed using approximately 500 venom peptides as scaffolds. The platform leverages both phage and yeast surface display technologies. The libraries were designed with machine learning model that can rapidly predict key-residue determinants for peptide foldability. Additionally, a fast and cost-effective affinity maturation workflow has been enabled through machine learning, leading to the identification of potent and stable leads against targets of interest from this venom platform.

### **Participants**

**Yingnan Zhang, PhD** - Senior Principal Scientific Manager, Genentech

### TIDES Asia: Oligonucleotide & Peptide Therapeutics

SESSIONS
MAIN CONFERENCE DAY 2 - 25/02/2026

**24-26 Feb, 2026** Grand Nikko Tokyo Daiba Tokyo

### Insights into siRNA Duplex Stability and Formulation Screening by UV-Vis and Rapidscreening DSC Thermal Analyses

16:45 - 17:15 Oligonucleotide Track

Non-covalent RNA complexes such as siRNA duplexes are a commercially established continuously evolving class of oligonucleotide therapeutics, with many novel formats and modification patterns currently under development. The non-covalent nature of these duplexes merits unique considerations for both analytical and formulation development in comparison to their single-stranded oligonucleotide therapeutic counterparts. Using UV-Vis absorbance measurements, thermal melting temperature analyses, and chromatography experiments, we explore the impact of siRNA concentration, solvent type and concentration, and salt type and concentration on siRNA duplex absorbance measurements and thermal melt data, and highlight the extent to which the hyperchromicity effect plays a role in these measurements, illuminating the stability of siRNA duplexes under various conditions. Additionally, we evaluate rapid-screening differential scanning calorimetry DSC (RS-DSC) as a novel instrument towards siRNA duplex analysis in a low-volume, highthroughput format, circumventing the limitations of traditional DSC and enabling parallel thermal stability analysis of high-concentration siRNA drug product formulations. We demonstrate the utility of this instrumentation for the comprehensive thermal analysis of therapeutic siRNA duplexes in multiple different contexts relevant to drug discovery and development, including: formulation screening, analytical sample preparation, and simulated in vivo administration. RS-DSC is a powerful, label-free technique that directly measures heat capacity changes associated with siRNA duplex unfolding, providing quantitative thermodynamic parameters such as melting temperature (Tm), enthalpy change  $(\Delta H)$ , and heat capacity. By characterizing subtle stability differences induced by various relevant formulation components, analytical methods, and administration via different routes, we highlight the flexibility of this method for evaluating the stability of siRNA across various critical stages of drug development. These experiments showcase the criticality of both UV-Vis and RS-DSC thermal analysis techniques for therapeutic oligonucleotide development, and provide a roadmap for how these techniques can be used in the development of chemistry, manufacturing, and controls (CMC) strategies for formulation development, analytical development, quality control, in-vivo stability prediction, and beyond.

### **Participants**

Dr. Molly Blevins, PhD - Principal Scientist, Genentech

### Antibody Peptide Conjugates: The Next Big Modality?

16:45 - 17:15 Peptide Track

APCs bring together the best elements of antibodies and peptides and may be the next big thing in drug development. The ability to incorporate agonist peptides into these poly-pharmacology approaches may revolutionize therapeutics. The flexibility of the linkers, the geometry, and valency can bring additive and synergistic activities.

#### **Participants**

**Dr. Kerry Blanchard, MD, PhD** - CEO, Chairman and Founder, Perpetual Medicines

### Networking Cocktail Reception with Poster and Exhibit Viewing

17:15 - 18:15 Oligonucleotide Track

Please join your fellow attendees in the exhibit hall for an evening of networking while enjoying beverages and appetizers.

### Networking Cocktail Reception with Poster and Exhibit Viewing

17:15 - 18:15 Peptide Track

Please join your fellow attendees in the exhibit hall for an evening of networking while enjoying beverages and appetizers.

### Close of Day Two

18:15 - 18:20 Oligonucleotide Track

### Close of Day Two

18:15 - 18:20 Peptide Track

| TIME  | MAIN CONFERENCE   | MRNA ADVANCES TRACK   | NETWORKING REFRESHMENT<br>BREAK WITH POSTER AND EX-<br>HIBIT VIEWING | TIDES TALKS IN THE EXHIBIT HALL | OLIGONUCLEOTIDE TRACK   | PEPTIDE TRACK   |
|-------|---|---|--|---------------------------------|---|---|
| 07:00 | <b>07:45</b> - Registration and Coffee  |   |  |                                 |   |   |
| 08:00 | <b>08:10</b> - Chairperson's Remarks<br><b>08:15</b> - Morning Spotlight Presentation: FluidAir | 08:45 - Chemical Synthesis of<br>mRNAs Based on Efficient<br>Capping Reaction   |  |                                 |   |   |
| 09:00 |   | 09:15 - Advancing Oligonucleotide and mRNA Therapeutics: TUG1 ASO for Recurrent Glioblastoma and Runx1 mRNA for Knee Osteoarthritis |  |                                 |   |   |
|       |   | <b>09:45</b> - Advances in mRNA-<br>based Therapeutics for Protein<br>Replacement   |  |                                 |   |   |
| 10:00 |   |   | 10:15 - Networking Refreshment Break with Poster and Exhibit Viewing | 10:20 - TIDES Talk              | 10:55 - Chairperson's Remarks: Track 1  | 10:55 - Chairperson's Remarks: Track 2                                |
| 11:00 |   |   |  |                                 | 11:00 - Formulation Innova-<br>tions for Future Oligonu-<br>cleotide Therapies: Insights In-<br>spired by Biologics<br>11:30 - Lessons Learned Build- | 11:00 - Late Breaking Presentation 11:30 - Late Breaking Presentation |
|       |   |   |  |                                 | ing an Oligo CMC Program for<br>a Small Company: Doing More<br>with Less  |   |

| TIME  | MAIN CONFERENCE | MRNA ADVANCES TRACK | NETWORKING REFRESHMENT<br>BREAK WITH POSTER AND EX-<br>HIBIT VIEWING | TIDES TALKS IN THE EXHIBIT HALL | OLIGONUCLEOTIDE TRACK   | PEPTIDE TRACK  |
|-------|-----------------|---------------------|--|---------------------------------|---|--|
| 12:00 |                 |                     |  |                                 | 12:00 - Innovative AX-IPRP Purification for Diverse Oligo Therapeutics 12:30 - Networking Luncheon with Poster and Exhibit Viewing        | 12:00 - Late Breaking Presentation 12:30 - Networking Luncheon with Poster and Exhibit Viewing   |
| 13:00 |                 |                     |  |                                 | 13:40 - Chairperson's Remarks: Track 1  13:45 - Understanding UF/DF Capabilities for Enhancing ASO Processing to Make a Liquid or Lyo API | 13:40 - Chairperson's Remarks: Track 2 13:45 - Switching off Transcription Factors Using Intracellular Library-derived Peptides  |
| 14:00 |                 |                     |  |                                 | 14:15 - Oligo CMC Presentation 14:45 - Challenges of Raw Material Acquisition for Oligonucleotide Synthesis                               | 14:15 - Mixed-Chirality Prohibitin Peptides Enhance Stability and In Vivo Effects on Obesity 14:45 - Selection of Constrained Peptides as Functional Modulators of CB2R and Characterization of Functional Effects in IBD Models |

| TIME  | MAIN CONFERENCE | MRNA ADVANCES TRACK | NETWORKING REFRESHMENT<br>BREAK WITH POSTER AND EX-<br>HIBIT VIEWING | TIDES TALKS IN THE EXHIBIT<br>HALL | OLIGONUCLEOTIDE TRACK  | PEPTIDE TRACK   |
|-------|-----------------|---------------------|--|------------------------------------|--|---|
| 15:00 |                 |                     |  |                                    | 15:15 - Networking Refreshment Break with Poster and Exhibit Viewing   | 15:15 - Networking Refreshment Break with Poster and Exhibit Viewing  |
|       |                 |                     |  |                                    | 15:45 - Development and Manufacture of Oligonucleotides via Enzymatic Ligation   | 15:45 - Applying PeptiDream's<br>Peptide Discovery Platform<br>System (PDPS) to Identify and<br>Optimize Oral IL-17 Peptide In-<br>hibitors for Psoriasis   |
| 16:00 |                 |                     |  |                                    | 16:15 - Technology and Innovation in Oligonucleotide CMC 16:45 - Insights into siRNA Duplex Stability and Formulation Screening by UV-Vis and Rapid-screening DSC Thermal Analyses | 16:15 - Harnessing Venom for<br>Drug Discovery: Developing a<br>High-Performance Venom Li-<br>brary Platform with a Machine<br>Learning—Enabled Rapid Hit-<br>to-Lead Workflow<br>16:45 - Antibody Peptide Con-<br>jugates: The Next Big Modali-<br>ty? |
| 17:00 |                 |                     |  |                                    | 17:15 - Networking Cocktail<br>Reception with Poster and Ex-<br>hibit Viewing  | 17:15 - Networking Cocktail<br>Reception with Poster and Ex-<br>hibit Viewing   |
| 18:00 |                 |                     |  |                                    | 18:15 - Close of Day Two   | 18:15 - Close of Day Two  |

# SESSIONS MAIN CONFERENCE DAY 3 - 26/02/2026

TIDES Asia: Oligonucleotide & Peptide Therapeutics

**24-26 Feb, 2026** Grand Nikko Tokyo Daiba Tokyo

### **Registration and Coffee**

08:15 - 08:40 Plenary Sessions

### Chairperson's Remarks: Plenary Day 3

08:40 - 08:45 Plenary Sessions

### Surface Avidity Optimization Drives Potent CAR-T Generation with Targeted LNPs

08:45 - 09:15 Plenary Sessions

We developed a clinically inspired targeted LNP system for CD8+ T cell-directed mRNA delivery. By precisely tuning per-particle ligand density, we achieved efficient CAR mRNA transfection and robust in vivo CAR-T generation, leading to functional B cell depletion at double-digit µg/kg doses. This scalable, non-viral approach represents a promising platform for off-the-shelf immunotherapy, enabling targeted and dose-efficient programming of immune effector cells.

#### **Participants**

**Dr. Hiroshi Yamada, PhD** - Head of Drug Delivery Research and Development, Nitto Denko Corporation

### FORCE Platform Enables TfR1-mediated Delivery of Therapeutics for Rare Neuromuscular Diseases

09:15 - 09:45 Plenary Sessions

The FORCE platform leverages TfR1 biology to enable delivery of oligonucleotide or biologics to muscle and CNS, with potential applicability to a wide range of neuromuscular diseases. FORCE demonstrated high therapeutic potential in preclinical models of myotonic dystrophy type 1 (DM1) and non-human primates. With DYNE-101, the platform achieved clinical proof-of-concept in DM1 patients, with correction of the underlying splicing defect, broad functional improvement, and a favorable safety profile to date.

### **Participants**

**Dr. Stefano Zanotti, PhD** - VP, Head of Neuromuscular Research, Dyne Therapeutics

### Regulatory CMC Challenges and Strategies for Oligonucleotide and Peptide Programs under Accelerated Review

09:45 - 10:15 Plenary Sessions

The FDA Prescription Drug User Fee Act (PDUFA) Act VII Commitment Letter required FDA to implement a Chemistry, Manufacturing, and Controls (CMC) Development and Readiness Pilot (CDRP) where products regulated by the Center for Biologics Evaluation and Research (CBER) as well as the Center for Drug Evaluation and Research (CDER) may receive expedited and accelerated development. This aims to provide patients with earlier access to anticipated clinical benefit. Patient access to treatments with accelerated designations should not be delayed by CMC challenges. The presentation will explore challenges to expedited CMC development and strategies for improvement.

### **Participants**

**David Lin, PhD** - President and Principal Consultant, TS Pharma Experts LLC

### Networking Refreshment Break with Poster and Exhibit Viewing

10:15 - 10:55 Plenary Sessions

### Chairperson's Remarks: Track 1

10:55 - 11:00 Oligonucleotide Track

### Chairperson's Remarks: Track 2

10:55 - 11:00 Peptide Track

### **Participants**

**El Djouhar Rekaï, PhD** - Head of Peptide Process Development & Manufacturing, PolyPeptide Group

### Extending Oligonucleotide Delivery and Gene Knockdown to Specific Cell Types in Kidney

11:00 - 11:30 Oligonucleotide Track

Oligonucleotides are now clinically validated medicines, but their use and efficacy in kidney has been restricted. We are targeting the proximal tubule cells using conjugated siRNA that have a ligand for the endocytic receptor megalin.

### **Participants**

Alfica Sehgal, PhD - Chief Scientific Officer, Judo Bio

### PolyPeptide Key Technology Enablers to Speed Up IND and Early Clinical Trials

11:00 - 11:30 Peptide Track

Preclinical development and IND milestones are often measured by speed to market, supported by toxicology evaluation, first-in-human studies, and seamless scalability. As a global leader in peptide CDMO services, PolyPeptide combines speed, flexibility, deep process knowledge, and strong process economy and control. We leverage advanced process intensification technologies such as flow chemistry, automation, PAT, and high-capacity resins to deliver sufficient API rapidly and reliably. This presentation will share results achieved with these enablers and explain why partnering with PolyPeptide is a game changer for tox and early-phase peptide manufacturing.

#### **Participants**

**Fabien Rousset, PhD** - Global Director of Innovation, Polypeptide Group

### Expanding RNA Editing Applications to CNS Disorders Through AlMer Chemistry Design

11:30 - 12:00 Oligonucleotide Track

### **Participants**

**Chikdu Shivalila, PhD** - Senior Scientist, Biology, Wave Life Sciences

### Greener, Smarter Peptide Manufacturing: Advancing Sustainability and Quality

11:30 - 12:00 Peptide Track

Discover how Cyclover amine tag-assisted liquidphase peptide synthesis (LPPS) achieves higher yields, greener purity and lower carbon footprint compared to solid-phase peptide synthesis (SPPS). By using greener solvents, reducing reagent consumption, and shortening production cycles, this method helps pharmaceutical companies meet sustainability goals and accelerate delivery of consistently high-quality therapeutic peptides to patients.

### **Participants**

Anubrato Aich - Senior Project Manager, AmbioPharm

# SESSIONS MAIN CONFERENCE DAY 3 - 26/02/2026

### TIDES Asia: Oligonucleotide & Peptide Therapeutics

**24-26 Feb, 2026** Grand Nikko Tokyo Daiba Tokyo

### Leveraging IGF1R Receptor for Antisense Delivery

12:00 - 12:30 Oligonucleotide Track

siRNA delivery platforms capable of accessing both central and peripheral tissues are critically needed to expand the therapeutic potential of oligonucleotides. Here, we target IGF1R receptor for siRNA delivery across both central and peripheral tissues, offering a complementary strategy for expanding the therapeutic landscape of oligonucleotide delivery.

### **Participants**

**Dr. Hien Zhao, PhD** - Vice President, Neuroscience Research, Ionis Pharmaceuticals

### Driving Further Evolution in Peptide API Downstream Processing

12:00 - 12:30 Peptide Track

This presentation highlights advanced downstream technologies in peptide API manufacturing, including continuous chromatography, mixer-type lyophilization, and other emerging innovations. Collectively, these approaches improve efficiency, scalability, and product quality, thereby contributing to next-generation strategies for middle-molecule production.

### **Participants**

**Yuta Hiroyama** - Senior Scientist, Process Chemistry Group, R&D Department, PeptiStar

### Networking Luncheon with Poster and Exhibit Viewing

12:30 - 13:40 Oligonucleotide Track

### Networking Luncheon with Poster and Exhibit Viewing

12:30 - 13:40 Peptide Track

### Chairperson's Remarks: Track 1

13:40 - 13:45 Oligonucleotide Track

### Chairperson's Remarks: Track 2

13:40 - 13:45 Peptide Track

### **Participants**

**El Djouhar Rekaï, PhD** - Head of Peptide Process Development & Manufacturing, PolyPeptide Group

### Precision-Engineered SNPD-siRNAs for Allele-Specific Silencing of Disease-Causing Mutations

13:45 - 14:15 Oligonucleotide Track

To date, no approved siRNA drugs are capable of selectively silencing mutated genes without affecting wild-type alleles. To overcome this limitation, we have developed next-generation SNPD-siRNAs (Single-Nucleotide Polymorphism Distinguishable siRNAs) that achieve allele-specific silencing at single-nucleotide resolution. By precisely distinguishing mutated alleles from normal, these siRNAs offer a powerful therapeutic strategy for hereditary disorders and cancer-associated mutations, representing a major advance toward truly personalized nucleic acid therapeutics with unprecedented precision.

### **Participants**

**Dr. Kumiko Ui-Tei, PhD** - CTO, ANRis Therapeutics and Director/Professor NucleoTIDE & PepTIDE Drug Discovery Center, Institute of Science Tokyo

### Advancing Mid-sized Drug Discovery through Scalable Unnatural Amino Acid Technologies

13:45 - 14:15 Peptide Track

Mid-sized drugs require unique synthetic solutions from early research stages. We report scalable unnatural amino acid synthesis methods featuring two developments: reductive SP2-SP3 bond formation with natural amino acid decarboxylation and enzymatic routes for unique side chains, enhancing medicinal chemistry capabilities for challenging targets.

### **Participants**

**Dr. Manabu Wadamoto, PhD** - Chief Scientist, Chugai Pharmaceutical Co., Ltd.

### Advancing RNA Therapeutics: Preclinical Translation of Antibody Oligonucleotide Conjugates (AOC)

14:15 - 14:45 Oligonucleotide Track

This presentation will highlight recent progress in the discovery and development of Antibody Oligonucleotide Conjugates. Insights into muscle and cardiac tissue delivery, platform optimization and the preclinical translational of the AOC platform across rare neuromuscular diseases will be discussed.

### **Participants**

**Husam Younis, PhD** - Senior Vice President, Development Science, Avidity Biosciences

### Antibody-inducing Peptide Using Universal Epitopes: Concept and Clinical Update

14:15 - 14:45 Peptide Track

FunPep's peptide vaccine technology involves prolonged suppression due to the production of antiendogenous target protein antibody. A peptide vaccine, namely "Antibody-inducing peptide" consists of a highly immunogenic helper T cell epitope "AJP001" and B cell epitope originated from target protein. "AJP001" is a functional peptide that functions as both helper T cell epitope and an activator of natural immunity.

### **Participants**

**Hideki Tomioka, PhD** - Director of the Board and CSO, FunPep Co., Ltd.

# SESSIONS MAIN CONFERENCE DAY 3 - 26/02/2026

### TIDES Asia: Oligonucleotide & Peptide Therapeutics

**24-26 Feb, 2026** Grand Nikko Tokyo Daiba Tokyo

### LC-HRMS Bioanalytical Strategies for Characterizing and Quantifying Antibody-Oligonucleotide Conjugate (AOC) Therapeutics

14:45 - 15:15 Oligonucleotide Track

Antibody-oligonucleotide conjugates (AOCs) are an emerging class of therapeutics that combine the celltargeting specificity of antibodies with the genesilencing capability of oligonucleotides. While highly promising, the hybrid nature of AOCs presents unique analytical challenges in characterization, metabolite profiling, and bioanalysis. In this study, we present an integrated liquid chromatography-high-resolution mass spectrometry (LC-HRMS) workflow designed to support AOC development from early discovery through in vivo evaluation. We utilize LC-HRMS to rapidly confirm oligonucleotide seguence, molecular integrity, and drug-to-antibody ratio, enabling efficient batch release and structural verification. For metabolite profiling, ion-pairing reversed-phase LC-MS (IPRP-LC-MS) is employed to identify and semiquantitatively assess oligonucleotide metabolites in tissue samples, providing insights into tissue-specific distribution and lysosomal degradation. Additionally, leveraging a Proteinase K digestion sample preparation approach, we demonstrate the application of IPRP-LC-MS for the quantitative analysis of intact AOCs in plasma, supporting sensitive and selective pharmacokinetic assessments. Together, these LC-HRMS-based assays form a robust and scalable platform that addresses the analytical needs of AOC programs across CMC, nonclinical, and bioanalytical functions. This work highlights key strategies to accelerate AOC development and ensure regulatory readiness.

### **Participants**

**Dr. Xin Zhang, PhD** - Principal Scientist, Denali Therapeutics

### A Bioproduction Platform to Generate Functionalized Disulfide-constrained Peptide Analogues

14:45 - 15:15 Peptide Track

Disulfide constrained peptides (DCPs) have gained increased attention as a drug modality due to their exceptional stability and combined advantages of large biologics and small molecules. Chemical synthesis, although widely used to produce DCPs, is associated with high cost both economically and environmentally. To reduce the dependence on solid phase peptide synthesis and the negative environmental footprint associated with it, we present a highly versatile, cost and environmentally friendly bioproduction platform to generate DCPs and their conjugates, as well as chemically modified or isotope labeled DCPs. Using the DCP against the E3 ubiquitin ligase ZNRF3, MK1-3,6,10, as a model peptide, we have demonstrated the use of bacterial expression, combined with Ser ligation, to produce multivalent MK1-3.6.10 and MK1-3.6.10 with N-terminal functional groups. We have also developed a bioproduction method for site-specific incorporation of unnatural amino acids into recombinant DCPs by the amber codon suppression system. Lastly, we produced 15N/ 13C-labeled MK1-3.6.10 with high yield and assessed the performance of a semi-automated resonance assignment workflow that could be used to accelerate binding studies and structural characterization of DCPs. This study provides a proof of concept to generate functionalized DCPs using bioproduction, providing a potential solution to alleviate the reliance on hazardous chemicals, reduce the cost and expedite the timeline for DCP discovery.

### **Participants**

Sunhee Hwang, PhD - Scientist 4, Genentech

### Networking Refreshment Break with Poster and Exhibit Viewing

15:15 - 15:45 Oligonucleotide Track

### Networking Refreshment Break with Poster and Exhibit Viewing

15:15 - 15:45 Peptide Track

### The Analytical Method Development Challenges of a Peptide PMO Conjugate, VP-001 for the Treatment of Retinitis Pigmentosa RP-11

15:45 - 16:15 Oligonucleotide Track

VP-001 is a peptide phosphorodiamidate Morpholino oligomer (PMO) conjugate in clinical development for the treatment of retinitis pigmentosa RP-11. Due to the chemical complexity of the compound, a highly basic naturally derived peptide conjugated to a neutral PMO of 25 bases and a size of > 10 kDa, analytical method development has been challenging. UV methodologies can provide good resolution but are not mass spectrometry (MS) compatible, while MS compatible methods suffer from poor resolution. The analytical method development journey has covered many techniques including ion-exchange, reverse-phase and hydrophilic interaction chromatography in conjugation with multiple ion-pair reagents and mixed mode column chemistries. This presentation covers the analytical method development from early-stage research grade material to clinical grade compound.

#### **Participants**

Mark Anastasas - Group Lead Chemistry-QC, PYC Therapeutics

### **Late Breaking Presentation**

15:45 - 16:15 Peptide Track

### TIDES Asia: Oligonucleotide & Peptide Therapeutics

SESSIONS
MAIN CONFERENCE DAY 3 - 26/02/2026

**24-26 Feb, 2026** Grand Nikko Tokyo Daiba Tokyo

### Optimizing Oligo Protein Conjugates with Chemistry-Driven Solutions for Enhanced Properties and Scale-Up

16:15 - 16:45 Oligonucleotide Track

Delivering oligonucleotides using protein-based conjugates represents a promising advancement in both oligonucleotide and protein therapeutics. However, these conjugates present significant challenges in synthesis, analytical characterization, and scale-up due to their inherent structural and chemical complexity. This presentation outlines chemistry-driven strategies to address these challenges. We highlight how a focus on conjugate properties and reaction chemistry enabled the elimination of multiple unit operations and chromatography steps, facilitating rapid scale-up to GLP-grade material. We also demonstrate how advanced analytical techniques, particularly mass spectrometry, can differentiate activity based on the site of conjugation. Additionally, we show how rational linker design impacts critical properties such as oligoto-protein ratios. Our study highlights the importance of integrating chemistry, bioconjugation, and advanced analytical capabilities to support optimization and scale-up of complex oligonucleotide-protein conjugates.

### **Participants**

Naresh Jain, PhD - CEO, NJ Bio

### **Late Breaking Presentation**

16:15 - 16:45 Peptide Track

### Precise Engineering and Structural Elucidation of Aptamer-Drug Conjugates (ApDC) for Implantable Triple-Negative Breast Cancer (TNBC) Therapy

16:45 - 17:15 Oligonucleotide Track

TNBC accounts for about 10-15% of all breast cancers and differs from other types of invasive breast cancer in that they grow and spread faster, have limited treatment options, and a worse prognosis. Therefore, TNBC has a very low survival rate when it metastasizes to the lungs after surgery. We have recently developed a novel Aptamer-Drug Conjugate(ApDC) implantable anticancer agent that shows remarkable survival rate by preventing recurrence and metastasis after surgery in TNBC orthotopic mouse model. This ApDC device is thought to be a new surgical strategy to prevent metastasis in treating TNBC. In this study, we conjugated various types of drugs to aptamers and carried-out its preparation, structural analysis, in-vivo drug release, and chemistry, manufacturing, and control (CMC) of the resulting ApDC. The CMC of the novel ApDC involve precise synthesis and purification to ensure batch consistency, therapeutic efficacy and patient safety. Structural analysis of ApDC by NMR, CD, and UV spectroscopy revealed that it predominantly forms a highly stable and unique secondary structure. These findings provide important structural insight for its biological function and application as potential treatment for TNBC. We will present valuable insights into the development and characterization of aptamerbased drug delivery systems, highlighting their potential for cancer targeted therapy applications.

### **Participants**

Jung Hwan Lee, PhD - CEO, Interoligo Corp.

### **Late Breaking Presentation**

16:45 - 17:15 Peptide Track

### **Close of Conference**

17:15 - 17:20 Oligonucleotide Track

### **Close of Conference**

17:15 - 17:20 Peptide Track

| TIME  | PLENARY SESSIONS  | OLIGONUCLEOTIDE TRACK  | PEPTIDE TRACK   | OLIGONUCLEOTIDE TRACK  |
|-------|---|--|---|--|
| 08:00 | 08:15 - Registration and Coffee 08:40 - Chairperson's Remarks: Plenary Day 3 08:45 - Surface Avidity Optimization Drives Potent CAR-T Generation with Targeted LNPs   |  |   |  |
| 09:00 | 09:15 - FORCE Platform Enables TfR1-mediated<br>Delivery of Therapeutics for Rare Neuromuscu-<br>lar Diseases<br>09:45 - Regulatory CMC Challenges and Strate-<br>gies for Oligonucleotide and Peptide Programs<br>under Accelerated Review |  |   |  |
| 10:00 | 10:15 - Networking Refreshment Break with<br>Poster and Exhibit Viewing   | 10:55 - Chairperson's Remarks: Track 1   | 10:55 - Chairperson's Remarks: Track 2  |  |
| 11:00 |   | 11:00 - Extending Oligonucleotide Delivery and<br>Gene Knockdown to Specific Cell Types in Kid-<br>ney  11:30 - Expanding RNA Editing Applications to<br>CNS Disorders Through AlMer Chemistry De-<br>sign | 11:00 - PolyPeptide Key Technology Enablers to<br>Speed Up IND and Early Clinical Trials<br>11:30 - Greener, Smarter Peptide Manufactur-<br>ing: Advancing Sustainability and Quality |  |
| 12:00 |   | 12:00 - Leveraging IGF1R Receptor for Antisense Delivery  12:30 - Networking Luncheon with Poster and Exhibit Viewing  | 12:00 - Driving Further Evolution in Peptide API Downstream Processing 12:30 - Networking Luncheon with Poster and Exhibit Viewing  |  |
| 13:00 |   |  | 13:40 - Chairperson's Remarks: Track 2 13:45 - Advancing Mid-sized Drug Discovery through Scalable Unnatural Amino Acid Technologies  | 13:40 - Chairperson's Remarks: Track 1 13:45 - Precision-Engineered SNPD-siRNAs for Allele-Specific Silencing of Disease-Causing Mutations |



| TIME  | PLENARY SESSIONS | OLIGONUCLEOTIDE TRACK | PEPTIDE TRACK   | OLIGONUCLEOTIDE TRACK  |
|-------|------------------|-----------------------|---|--|
| 14:00 |                  |                       | 14:15 - Antibody-inducing Peptide Using Universal Epitopes: Concept and Clinical Update 14:45 - A Bioproduction Platform to Generate Functionalized Disulfide-constrained Peptide Analogues | 14:15 - Advancing RNA Therapeutics: Preclinical Translation of Antibody Oligonucleotide Conjugates (AOC)  14:45 - LC-HRMS Bioanalytical Strategies for Characterizing and Quantifying Antibody—Oligonucleotide Conjugate (AOC) Therapeutics                            |
| 15:00 |                  |                       | 15:15 - Networking Refreshment Break with Poster and Exhibit Viewing 15:45 - Late Breaking Presentation   | 15:15 - Networking Refreshment Break with<br>Poster and Exhibit Viewing<br>15:45 - The Analytical Method Development<br>Challenges of a Peptide PMO Conjugate,<br>VP-001 for the Treatment of Retinitis Pigmen-<br>tosa RP-11  |
| 16:00 |                  |                       | 16:15 - Late Breaking Presentation 16:45 - Late Breaking Presentation   | 16:15 - Optimizing Oligo Protein Conjugates with Chemistry-Driven Solutions for Enhanced Properties and Scale-Up 16:45 - Precise Engineering and Structural Elucidation of Aptamer-Drug Conjugates (ApDC) for Implantable Triple-Negative Breast Cancer (TNBC) Therapy |
| 17:00 |                  |                       | 17:15 - Close of Conference   | 17:15 - Close of Conference  |