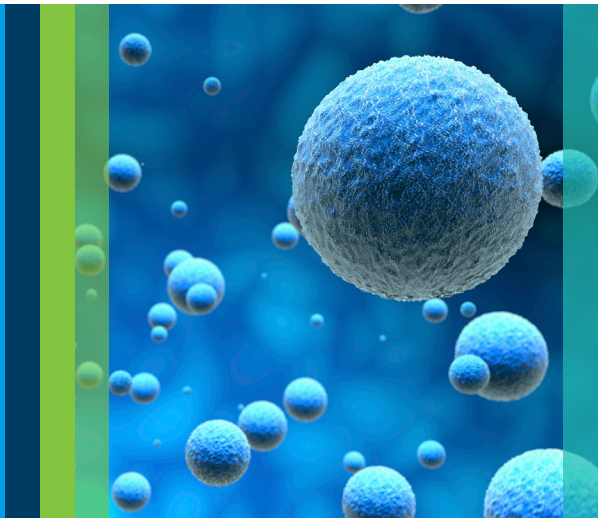
Biopharma Innovations Summit

24-25 September, 2024
3PM CEST I 2PM BST



24 September

Talk 1

Agilent Tools and Technologies to Drive Advancements in Biopharmaceutical Drug Development

Presented by Dr. Hervé Chaulet, Molecular and Biological Research Market Specialist, Agilent Technologies

Discovering, developing, and manufacturing biopharmaceuticals requires you to stay abreast of advances in knowledge and improvements in technology while constantly navigating a maze of business and scientific challenges. Agilent can be a trusted partner providing expertise and end-to-end workflows including systems, software, consumables, and services for the spectrum of applications from drug discovery to quality control. Learn more about our cell analysis and genomics expertise and the tools we provide to drive IVT mRNA development, protein therapeutics, and cell and gene therapies.

Talk 2

Quality Control In IVT mRNA Therapeutics and Vaccine Development Workflow Using The Agilent Fragment Analyzer System

Presented by Dr. Leslie Friedmann, Product Manager, Agilent Technologies

Reliable and robust analysis is essential throughout in vitro transcription (IVT) mRNA workflows, providing important quality information to help minimize risk and aid in the production of a consistent product. The Agilent Fragment Analyzer systems can be used for several QC steps at different checkpoints in mRNA vaccine development, providing accurate and precise sizing and integrity analysis. These QC steps are to determine the quality and size of the linearized plasmid, the size and purity of the IVT mRNA, length of the poly(A) tail, and purity of the final mRNA vaccine product.

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Talk 3

Analysis of NIST mAb Reference Material by Parallel SDS-Capillary Electrophoresis

Presented by Dr. Kyle Luttgeharm, Product Manager, Agilent Technologies

Monoclonal antibody drug products are complex biomolecules that must be tested for critical quality attributes (CQAs) such as monomeric purity and percent glycosylation. Capillary gel electrophoresis methods have been adopted as the standard method for size heterogeneity characterization, however legacy capillary electrophoresis (CE) methods involve complicated workflows or are cost prohibitive. To address these problems with legacy methods, Agilent has developed a 12-channel, parallel capillary electrophoresis-SDS (CE-SDS) instrument and reagents. The system uses a high-resolution sieving gel, allowing for resolution of mAb species including the non-glycosylated heavy chain and light chain. To demonstrate the capabilities of the ProteoAnalyzer, the NIST mAb was characterized under both reduced and non-reduced conditions and compared to the NIST data sheet.

Talk 4

Advanced Analytics for Cell Therapy Research, Process Development, and Manufacturing

Presented by Dr. Kelly Kroeger, Science & Technology Advisor, Agilent Technologies

With immunology and immune-based therapies rising as a pillar of science and therapeutics, we are seeing a foundational shift from targeting specific proteins and pathways to actually targeting the immune cellular network that resolves and prevents disease. Therefore there is a critical need for cell analysis tools to facilitate understanding of the dynamic nature of the interaction of these cellular networks whether it is in the context of immune cells or immune cells with cancer cells.

To address these new challenges, we at Agilent Technologies have developed a portfolio of cell analysis solutions that provide researchers with more relevant tools to measure living cells, dynamically track them, and model their microenvironments. These next-generation therapies require methods and technologies to enable assessment of real-time cell function, phenotype, and fate. Used together, the Agilent tool bench provides the capability to measure and develop immune cell function more effectively, thus enabling translational researchers and developers to achieve the necessary level of potential therapeutic potency and safety.

25 September

Talk 1

Advanced Analytical Solutions for Nucleic Acid Analysis and Purification

Presented by Dr. Charlotte Lekieffre, Biopharma Application Specialist, Agilent Technologies

The emphasis during the second day of the Summit will be on advanced analytical solutions, such as HRMS for tRNA sequencing and LC/MS for DNA/RNA analysis. Additionally, you'll discover techniques to enhance the efficiency and accuracy of your processes by scaling up oligonucleotide purification using Agilent biocolumns.

Talk 2

Extracted Yeast tRNA Sequencing by LC-MS/MS

Presented by Aurore Attina, Engineer of Mass Spectrometry, University of Montpellier

RNA modifications are essential for RNA stability, maturation, and functionality; directly influencing protein translation and gene regulation. They play a central role in various biological processes and are associated with many diseases, including cancers and neurological disorders. tRNA (transfer RNA), which plays a key role in protein synthesis, is the most modified molecule in the organism known to date. tRNA modifications are essential to ensure their correct function in protein translation, maintain the accuracy and fidelity of the genetic code, and enable flexible adaptation to changing cellular conditions and are therefore a crucial attribute to monitor. To monitor and map these modifications of tRNA, we have developed a LC-HRMS analytical workflow, first using synthetic oligonucleotide for the method optimization. In this webinar, we will first go through the various steps involved in LC-MS/MS method optimization using synthetic oligonucleotides. In a second part, we will present the protocol development of an enzymatic digestion applied to tRNA extracted from yeast. This digestion generates oligonucleotide fragments that can be analyzed by LC-MS/MS for sequence confirmation.

Talk 3

Discover Agilent's Software Tools to Confirm Oligonucleotide Sequence Integrity

Presented by Dr. Holger Stalz, LC/MS Product Specialist Austria & Switzerland, Agilent Technologies

Mass spectrometry (MS) is increasingly important for the development of therapeutic modalities such as oligonucleotides. A common analytical method for large molecules is intact mass by LC/MS. This can be used for the characterization and identification of a product or process-related impurities, or simply as a confirmation of molecular weight. The newly introduced Agilent OpenLab CDS 2.8 SW version comes with a set of features to enable the automatization of biopharma workflows. If you want to know how LC/MSD Spectral Deconvolution of your biopharma samples can be automated, we will provide answers during our presentation. Even more details on Oligonucleotide sequence confirmation and impurities characterization can be acquired using the power of a high-resolution accurate mass system (HRAM) on the Agilent 6545XT AdvanceBio LC/Q-TOF. Analyzing the sample data with the software workflows in Agilent BioConfirm version 12 will support the user to get the trusted answers to their most relevant questions.

Talk 4

Maximize Your Resources and Simplify Scale-up with AdvanceBio Oligonucleotide Columns

Presented by Dr. Andrea Tripodi, Application Development Engineer, Agilent Technologies

Several classes of nucleic acids, such as antisense oligonucleotides, small interfering RNAs (siRNAs), and aptamers are being investigated for potential therapeutic applications. Synthetic oligonucleotides inevitably contain many impurities due to limitations in the efficiency of each chemical reaction used during manufacture. They include deletion sequences (missing one or more nucleotides) and reaction by-products often arising during the final deprotection or cleavage steps. Ion pair reversed-phase (IP-RP) chromatography stands out as the prevalent method for analyzing and purifying oligonucleotides. For increased resolution and separation of your full-length synthetic oligonucleotide from closely related impurities, AdvanceBio Oligonucleotide is the ideal choice. The latest developments include semi-preparative, and lab-scale preparative columns packed with superficially porous particles that provide excellent performance and resolution without compromising column loading. A fast and easy scale-up method from analytical to semi-preparative scale was successfully achieved using a 10 mm ID column enabling higher sample loading using the same analytical LC instrument.

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