



NMR-Based Process Analyses of Cell Culture Media in Recombinant Protein Production

Efficient production of recombinant proteins is pivotal for advancements in therapeutics and industrial applications. Achieving optimal yields requires a thorough understanding of cell culture media components and their impact on protein expression.

BACKGROUND

Recombinant protein expression relies heavily on the composition of the cell culture media, which serves as the environment for cell growth and protein synthesis. Suboptimal media conditions can hinder productivity and yield, resulting in increased production costs and longer development timelines. NMR spectroscopy provides a non-invasive, high-resolution approach to unravel the complex metabolite composition within the media, offering insights into nutrient availability, metabolic pathways, and potential bottlenecks.

TECHNOLOGY

Our offer revolves around NMR-based analyses of cell culture media, showcasing numerous advantages. This includes, but is not limited to, monitoring concentrations of key nutrients, identifying metabolic by-products, and assessing the overall metabolic profile of the culture. Advanced NMR techniques will enable the detection of subtle changes in the molecular composition, shedding light on critical factors influencing recombinant protein expression. These include:

1. Absolute Quantification: Easier implementation of precise quantification
2. Reduced 'dark' space: Minimization of unassigned features for enhanced data clarity
3. Identification and Structure Determination: Ideal for yet unidentified metabolites.
4. Isotope tracing: Straightforward implementation for deeper insights
5. Easy sample preparation: User-friendly procedures
6. Robustness: Ensuring reliable and consistent results
7. Lipoprotein Detection and Quantification
8. Cost-Effective: Lower costs for both sample preparation and measurements compared to mass spectrometry (metabolites) and analytical ultracentrifugation (lipoproteins)

OFFER

Under protection of a CDA/NDA we provide you with professional strategies for untargeted or targeted profiling or quantification of metabolites from cell culture media. We offer a unique opportunity to elevate your bioproduction capabilities through cutting-edge NMR analysis, ultimately leading to improved yields, reduced production costs, and accelerated development timelines.

IP developed in such a project would fully belong to our investor/industrial partner.

acib-EXPERTS:

Univ. Prof. Dr. Tobias Madl
Dr. Hansjörg Habisch

AVAILABLE FOR:

Joint Research Project, Contract Research

DEVELOPMENT STATUS:

Technology Readiness Level 6
(Demonstrated in relevant environment)

IPR:

Can be generated for our industrial partners / investors

KEYWORDS:

Cell culture media
Process analyses
NMR spectroscopy
Metabolomics
Multivariate data analysis
Metabolite identification
Metabolite quantification
Bioinformatics
Omics

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