

Lonza Redefines Bioprocess Efficiency In APAC With Advanced Media Development Lab

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Michael Goetter Explains How Early Stage Optimisation, Design Of Experiments And Manufacturability Alignment Are Reducing Risk And Accelerating Biologics Development Across APAC



As biologics pipelines grow more complex and timelines tighten, early stage process decisions are becoming critical determinants of commercial success. In this conversation with BioSpectrum Asia, Michael Goetter discusses how Lonza's newly launched Media Development Lab in Singapore is addressing long standing gaps between development and manufacturing. By combining structured experimentation, proprietary media libraries and a strong focus on scalability, the initiative is helping biotech companies in APAC transition more confidently from discovery to GMP production while reducing late stage risks and inefficiencies.

The newly launched Media Development Lab reflects a growing need for early-stage optimization. What specific gaps in current bioprocess development workflows does this initiative aim to address, particularly in the APAC context?

The Media Development Lab (MDL) addresses a key gap between early process development and manufacturing readiness. In many workflows today, media optimization is done using trial-and-error methods, often without fully considering how that formulation will behave at scale. This leads to late-stage issues such as poor scalability, raw material challenges, or the need for reformulation.

In the APAC region, these challenges are more pronounced. Many emerging biotech companies are working with tight clinical development timelines and limited internal infrastructure. They need fast, reliable ways to optimize media without building large in-house teams. At the same time, the region is growing rapidly as a biologics hub, especially in Singapore, creating demand for local expertise with global manufacturing alignment.

MDL fills this gap by offering structured, data-driven optimization using Design of Experiments and access to Lonza's proprietary media and feed libraries. It also integrates manufacturability considerations early, including raw material selection and preparation methods.

By doing this in APAC, MDL provides local access to advanced development capabilities while maintaining seamless connection to Lonza's global GMP manufacturing and process development network. This reduces development risk, shortens timelines, and supports faster transition to clinical and commercial production.

How does the integration of Design of Experiments within this service tangibly accelerate media optimization compared to conventional approaches, and what impact does this have on development timelines?

Traditional media optimization often relies on changing one component at a time. This approach is slow and may miss important interactions between ingredients. In contrast, Design of Experiments (DoE) allows multiple variables to be tested simultaneously in a structured manner.

DoE helps teams understand which components truly impact performance, such as growth, productivity, or product quality. It also shows how these factors interact with each other. This leads to faster identification of optimal conditions and more robust formulations.

In practical terms, this can reduce development cycles significantly. Instead of running many sequential experiments, teams can reach confident conclusions in fewer runs. In some cases, structured DoE approaches can reduce optimization timelines by 20 to 30 percent compared to traditional methods.

At Lonza's MDL, DoE is combined with proprietary media and feed libraries, which expands the range of possible formulations. This means teams are not only optimizing faster but also exploring better solutions.

The result is faster decision-making, better understanding of the process, and formulations that are more likely to succeed during scale-up and manufacturing.

Lonza has emphasized manufacturability alongside performance. Could you elaborate on how early-stage media design decisions influence scalability, and how this lab ensures alignment with GMP manufacturing requirements?

Media decisions early in preclinical and clinical process development have a direct impact on whether a process can scale successfully. A formulation that works well in small-scale experiments may not behave the same way in larger bioreactors. Differences in mixing, oxygen transfer, or preparation steps can affect performance.

Another important factor is raw material selection. Some components may be difficult to source consistently at large volumes or across regions. If these issues are not identified early, they can lead to delays or reformulation later in development.

MDL addresses this by considering manufacturability from the beginning. During media optimization, we evaluate whether components are scalable, whether preparation steps are practical, and whether the formulation aligns with GMP requirements.

We also ensure that the way media is prepared during development reflects how it will be produced at a larger scale. This includes addition, solubility, and filtration considerations.

By aligning development with manufacturing early, MDL reduces the risk of late-stage changes, simplifies tech transfer, and improves confidence in moving toward GMP production.

With access to proprietary media and feed libraries, how does Lonza balance standardization with customization when developing formulations tailored to diverse biologics and modalities?

Balancing standardization and customization is critical in media development. On one hand, standardized approaches improve consistency, reproducibility, and ease of manufacturing. On the other hand, each molecule and cell line may require specific optimization to achieve the best performance.

Lonza addresses this balance through its proprietary media and feed libraries. These libraries contain a wide range of pre-developed formulations and components that have been tested across most commercially available CHO cell lines. This provides a strong starting point for optimization.

Using these libraries, MDL can customize formulations efficiently without starting from scratch. Design of Experiments helps refine these formulations to meet specific process needs while maintaining a level of standardization that supports scalability and manufacturability.

This approach allows us to deliver tailored solutions that are still robust and practical for manufacturing. Customers benefit from improved performance while avoiding the risks associated with completely custom, untested formulations.

In simple terms, we combine proven building blocks with targeted optimization to deliver flexibility and reliability.

From a risk mitigation perspective, how can early media optimization reduce late-stage failures or costly reformulations during scale-up and commercial manufacturing?

Late-stage failures in bioprocessing are often linked to decisions made early in development. If media is not optimized properly or if scalability is not considered, issues may appear during scale-up or GMP production. These issues can lead to delays, increased costs, or even the need to restart parts of development.

Early media optimization helps reduce these risks by identifying robust formulations from the start. Using structured methods like DoE, teams can understand how different components affect performance and define safe operating ranges.

MDL also evaluates raw material availability and manufacturability early. This prevents situations where a formulation works well but cannot be produced consistently at scale.

By confirming performance through non-GMP prototyping before GMP production, teams gain additional confidence. This staged approach allows potential issues to be addressed early, when changes are easier and less costly.

Overall, early optimization reduces uncertainty, improves process robustness, and helps ensure smoother progression to commercial manufacturing.

Looking ahead, how do you see media development evolving as biologics become more complex, and what role will integrated services like this play in shaping the future of bioprocessing globally?

As biologics become more complex, media development will continue to evolve toward more integrated and data-driven approaches. Traditional trial-and-error methods will be replaced by structured experimentation, predictive modeling, and better use of data.

We also expect closer integration between development and manufacturing. Instead of treating these as separate steps, companies will increasingly design processes with scalability and supply in mind from the beginning.

In addition, regional capabilities will become more important. As APAC continues to grow as a biomanufacturing hub, local access to advanced development services combined with global manufacturing support will be key.

Services like MDL will play a central role in this evolution. They provide structured optimization, access to advanced formulation libraries, and alignment with manufacturing. This helps companies move faster while maintaining confidence in their processes.

The future of media development is about speed with reliability. By combining data, expertise, and integrated workflows, the industry can support more complex therapies and deliver them to patients more efficiently.