

FASTFACTS

Leveraging the power of AI to design the best performing iPSC culture media

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When the key to a viable therapy relies on living cells rather than a molecule, it is of utmost importance to use the best performing cell culture media to achieve clinical success. By tailoring cell culture media to specific critical quality attributes, cell therapy efficacy can easily be maximized. Here, we demonstrate the development of a customized cell culture media for induced pluripotent stem cell (iPSC)-based therapy using advanced artificial intelligence (AI) technology.

Cell & Gene Therapy Insights 2022; 8(8), 1137; DOI: 10.18609/cgti.2022.168

IPSCS & CELL CULTURE MEDIA

The use of iPSCs in clinical trials is growing rapidly, with 125 registered clinical trials currently underway for iPSC-based therapies. The cell culture media used in the production of iPSCs constitutes the cell microenvironment and directly affects cell performance. Multiple

proprietary media are available on the market, however their non-disclosed formulations mean that the ingredients being fed to cells remain unknown to users.

Developing a custom formulation for a user protocol is a key element for success, as is owning the IP for the formula. IP ownership allows

Figure 1. The benefits of custom media.

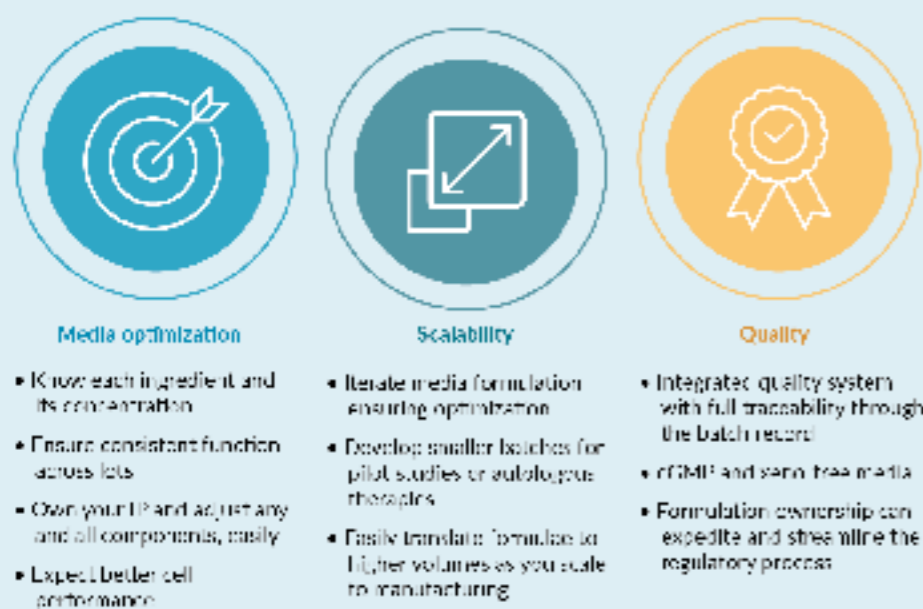


Figure 2. Xuri Media AI Guide 3 step process to achieve custom-designed formulae.



cell culture media optimization and reduces supply chain risk from sole sourced products. **Figure 1** contains a summary of the benefits of custom media.

XURI™ MEDIA AI GUIDE

Xuri™ Media AI Guide helps to create custom and optimized formulations in minutes, by searching the peer-reviewed literature on PubMed

based on the user's cell type and critical quality attributes (CQAs). This AI-based media configuration identifies high-value compounds and concentrations and leverages a novel neural network to recommend multiple formulations from meta-analysis. It enhances cell performance by allowing rapid testing of formulations. The three-step process of the guide is outlined in **Figure 2**.

When using Xuri™ Media AI Guide to design media, the user will own the formulation they create and can easily order it in the preferred format, size, and packaging through the Xuri™ Media Designer System. This has the potential to reduce costs and also to mitigate supply chain risks. This gives the potential

to instantly canvas publicly accessible scientific content and extract component and concentration level information to dramatically reduce the time to research and design custom formulations. A typical timeline of custom media creation using Xuri™ Media AI is outlined in **Figure 3**.

Figure 3. 14-week typical timeline to create custom media from start to finish.

