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New kid on the block: Industrialization of cell-free synthesis for biotherapeutics development

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NEW KID ON THE BLOCK: INDUSTRIALIZATION OF CELL-FREE SYNTHESIS FOR BIOTHERAPEUTICS DEVELOPMENT

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The production of recombinant proteins and antibodies using a cell-free synthesis step can now deliver industrially relevant quantities of the target biologic. The technology is ideally suited to the generation of bio-conjugates (e.g., ADCs and cytokine derivates), bispecific antibodies, and other protein formats that do not require glycosylation for functionality. A proprietary technology allows for incorporation of a non-natural amino acid at the desired sequence location(s) that can subsequently be combined with site-specific conjugation chemistry to deliver highly consistent and precise conjugation ratio. The cell-free synthesis approach enables rapid cycle times for molecular optimization in Research and process optimization in Development given that the protein synthesis step occurs in less than one day. In the last few years, Sutro has focused on industrialization of the bio-processing steps and supply chain needed to implement a productive and robust platform for biotherapeutics development and manufacturing, which has culminated in the introduction of multiple bioconjugates derived from cell-free synthesis into the clinic. This presentation will highlight the approaches and achievements in establishing scalable processes for manufacturing the cell-free machinery and auxiliary reagents that drive the cell-free synthesis engine, and scalable processes for protein synthesis and purification.

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