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Editorial Note on Bioprocess

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Editorial

A bioprocess is a method for obtaining desired products that involves the utilisation of whole live cells or their components (e.g., bacteria, enzymes, and chloroplasts). Many biological and environmental systems rely on the transport of energy and mass. Food processing (including brewing beer), building thermal design, biomedical devices, monoclonal antibody manufacturing, pollution control, and global warming all require an understanding of how energy and mass may be carried through materials (momentum, heat transfer, etc.). Cell therapy bioprocessing is a sub-field of bioprocess engineering that connects the domains of cell therapy with bioprocessing (i.e., biopharmaceutical manufacturing). [1] The goals of cell therapy bioprocessing are to create repeatable and reliable manufacturing procedures for therapeutic cells. Bioprocesses that are commercially viable will:

- Produce products that meet or exceed all biopharmaceutical medication quality criteria.
- Throughout the development process, provide both clinical and commercial quantities of therapeutic cells.
- The processes and production methods must be scalable, and the final drug product's cost of goods (CoGs) must be kept under control. This is a crucial component of laying the groundwork for an economically viable industry.

Upstream bioprocessing: There are two types of therapeutic cell production processes: upstream and downstream. The upstream process encompasses everything from early cell isolation and cultivation to cell banking and culture expansion till the ultimate harvest (termination of the culture and collection of the live cell batch). [2] Aside from technological hurdles, such as scalability of culture apparatus, a variety of raw material supply problems, such as the availability of GMP quality foetal bovine serum, have surfaced in recent years. The initial step in a bioprocess is the cultivation of microbes/cells in bioreactors, such as bacterial or mammalian cell lines (see cell culture).

Upstream processing includes all procedures related to inoculum development, medium development, inoculum improvement through genetic engineering, and growth kinetics optimization so that product development can be greatly improved. [3]There are two stages to fermentation: upstream and downstream. Following product creation, the purification of the product to achieve the desired quality is the following phase. They are collected and transported to the downstream section of the bioprocess when they achieve the necessary density (for batch and fed-batch cultures). The downstream section of a bioprocess is where the upstream cell mass is treated to fulfil purity and quality specifications. Cell disruption, purification, and polishing are the three primary portions of downstream processing. Without pre-treatment, the volatile compounds can be isolated by distilling the harvested culture.

Continuous stills are used to distil at a lower pressure. Distillation of the product directly from the fermentor may be accomplished at lower pressures. [4]The following are the steps in downstream processing: Separation of biomass (microbial cells) is usually accomplished using centrifugation or ultracentrifugation. If the product is biomass, the spent medium is discarded and the biomass is recovered for processing. [5]The biomass will be discarded if the product is extracellular. Ultra filtration is a centrifugation alternative. If the desired product is intracellular, the cell biomass can be disrupted, allowing the product to be released. Centrifugation or filtration are used to separate the solid from the liquid, and cell debris is removed. Broth concentration: If the result is extracellular, the wasted medium is concentrated. Initial metabolite purification: Several methods for recovering product from clarified fermented broth were utilised, depending on the physico-chemical nature of the product molecule (precipitation, etc.)

References

1. Ahn, Jung-Oh, Hong-Weon Lee, Rajib Saha and Myong-Soo Park, et al. “Exploring the effects of carbon sources on the metabolic capacity for shikimic acid production in *Escherichia coli* using in silico metabolic predictions.” *J Microbiol Biotechnol* 18(2008):1773–1784.
2. Albertazzi, E., Cardillo, R., Servi, S., and Zucchi, “G.Biogeneration of 2-phenylethanol and 2-phenylethylacetate important aroma components.” *Biotechnol Lett* 16(1994): 491–496.
3. Averesch, N. J. H., and Kayser, O. “Assessing heterologous E xpression of Hyoscyamine 6-βHydroxylase - a feasibility study.” *Proc Chem* 13 (2014): 69–78.
4. ÄYräpää, T. “The formation of phenethyl alcohol from 14C-labelled Phenylalanine.” *J Inst Brew* 71(1965): 341–347.
5. Barker, J. L., and Frost, J. W. “Microbial synthesis of p-hydroxybenzoic acid from glucose.” *Biotechnol Bioeng* 76(2001): 376–339.

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