BIOTECH WEEK BOSTON

Beyond flexible: Deployable plants offer pay-as-you-go biomanufacturing, says Just

By Dan Stanton
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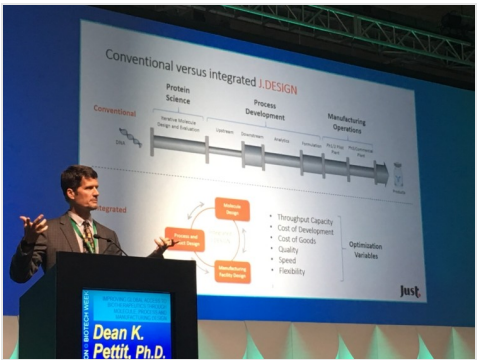
Faster and more flexible biomanufacturing models are necessary to reduce the cost of biologics, says Just Biotherapeutics which is building a deployable modular facility in China.



"Biotherapeutics are really just too expensive, especially for people outside the US or without a good insurance programme," Dean Pettit, founder and CSO of Just Biotheraputics told an audience at Biotech Week Boston last month.

His company is hoping to radically reduce the cost of goods for proteins from what he said was around $150-200 per gram to just $10-15, by addressing every area in the development and manufacture of biological products.

For example, Just Biotherapuetics has teamed up with healthcare software firm Labkey Biologics to fully utilise the masses of data produced, accelerating lab workflows and automating project tracking to gain immediate insight into molecules, processes and resources.

The firm is also trying to optimise molecule design by using a suite of computational and predictive software tools, while developing high yielding manufacturing processes through process intensification and high throughput robotic.

Deployable manufacturing

But Pettit also spoke about the firm's deployable manufacturing model based on prefabricated cleanroom modular units from G-CON called PODs.

"Schematically we are going from a conventional, to a flexible facility and then finally to a deployable facility," he told delegates.

"Conventional facilities were historically built for one molecule are large, with fixed equipment and centralised utilities. [They are] valuable because economies of scale are quite important… but they are different than the approach that we have been taking which is around small, flexible, portable, reconfigurable type facilities that we call J-PODS."

He continued: *"It shifts us from a fixed-cost model to a variable cost model. You're paying for drugs as you make them; you're paying for raw materials that go into manufacturing that drug as opposed to the fixed cost involved in a monolithic type facility which has to be fully utilised to get full advantage out of that economy of scale."*

A conventional facility costs between $300m and $500m Pettit said, and while a flexible facility dramatically reduces this cost, a 'deployable' POD-based model requires even less capital expenditure, costing $50-60m per plant.

China plant

The firm uses the POD technology at its clinical manufacturing facility in Seattle, outfitted with its process equipment: a 500L perfusion single-use bioreactor system run with a harvesting step.

And a commercial facility currently under construction in Hangzhou, China will mirror this design, Pettit said.

"That facility should be up in operation for commercial manufacture of drugs in the first quarter of next year, but it's all the work we put into the design feature – designing the molecule, the process – that allowed us to get away with designing a facility that is as small and flexible as it is."

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