

Case Study: Duke Human Vaccine Institute

How Boston BioProducts Accelerated Vaccine Development

at Duke Human Vaccine Institute with **Custom Buffers**

Fit-for-purpose buffers.
Faster innovation.
Confidence at scale.

Reliable buffers for rapid biologics manufacturing

For more than 30 years, Boston BioProducts (BBP) has delivered buffers that integrate seamlessly into biomanufacturing workflows. By working closely with customers to understand their exact needs, BBP provides customizable buffers¹ that scientists can rely on.

This case study highlights BBP's partnership with the Duke Human Vaccine Institute² (DHVI) and how it accelerated vaccine programs for HIV, Flu, and COVID-19.



3700+ liters delivered in 15 days



57-73% faster than other vendors



It is important to find vendors like BBP where you can develop that person-to-person relationship. It's the nature of our business to occasionally be reaching out with very short turnaround times for custom buffer formulations, and BBP has always been able to meet those needs. It's been really great.

– John Rumsey, Ph.D., GMP Business Operations Manager, DHVI



The Challenge: Slow buffer lead times and supply chain risk for unique formulations

With a vision to improve process efficiency across their product portfolio and expedite the translation of discoveries at the bench into impactful clinical applications, DHVI needed a partner to outsource buffer manufacturing. Understanding the laborious, costly, and risky nature of in-house buffer manufacturing, they initially collaborated with large providers to meet these needs.

Eventually met with manufacturing delays due to rigid and inflexible buffer lead times, DHVI sought a partner to provide customizable buffers¹ with a rapid turnaround for their mRNA and protein vaccine programs.



The Solution: A flexible vendor for custom buffers

DHVI found a trusted partner in BBP, and together, their collaboration has grown into a long-lasting and personal relationship geared toward success. The collaboration is supporting multiple HIV, Flu, and COVID-19 vaccine manufacturing programs.

BBP's in-house capabilities, frequent communication and ability to understand DHVI's specific needs enabled them to deliver optimal buffers for 10 upstream and downstream bioprocesses and make swift, sometimes last-minute, formulation changes to meet tight deadlines.

BBP's buffers support upstream and downstream bioprocesses and beyond.

- Harvest and purification
- IVT reaction for mRNA molecules
- LNP encapsulation of mRNA molecules
- Filtration and concentration of proteins and mRNA molecules
- Ion exchange chromatography – protein and mRNA purification
- Stripping and elution
- Final formulation buffers for protein and mRNA
- Chromatography column cleaning and storage
- Instrument cleaning
- Suite cleaning (general)

DHVI received high-quality buffers with unique formulations and diverse applications in bioprocessing:

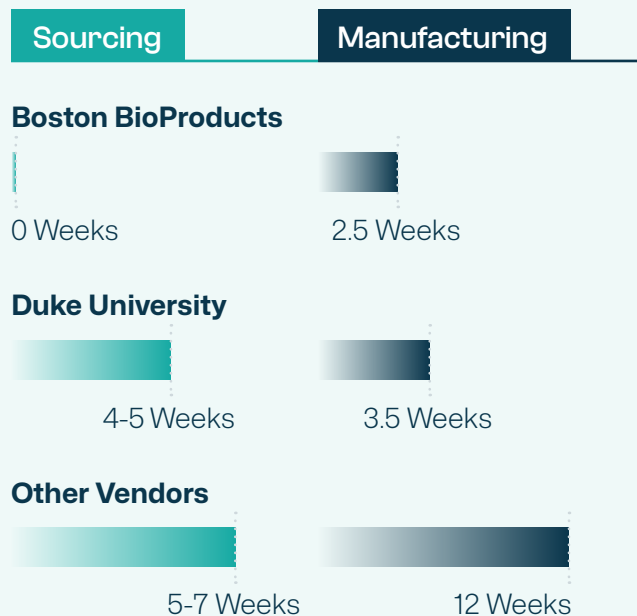
- ✓ 21 unique buffer formulations
- ✓ 24 final product configurations
- ✓ 10 QC tests
- ✓ 10 Bioprocesses supported
- ✓ 3 Infectious disease applications
- ✓ 11 different container formats

The Benefits: Faster supply, streamlined bioprocessing, confident scale-up

Boston BioProducts is setting a new benchmark for operational efficiency in custom reagent manufacturing: 3-7.5 times faster than DIY and other reagent manufacturers.

For DHVI, Boston BioProducts successfully manufactured, filtered, packaged, quality control tested, released, and shipped over 3,700 liters of product within a mere 15 days. This achievement starkly contrasts with the industry standards, where sourcing and manufacturing a comparable volume takes other vendors 17-19 weeks. DHVI's in-house process would have required 4-5 weeks to source the materials and an additional 3.5 weeks to manufacture the reagents they needed.

Boston BioProducts is setting a new benchmark



Boston BioProducts saved DHVI 5-12 weeks in materials sourcing and custom manufacturing

*including an 8-week manufacturing run

The time savings are made possible through BBP's seamless material flow and control.

All DHVI's products are manufactured in BBP's 115,000+ ft² cGMP commercial manufacturing facility in Milford, MA – built to support one continuous, circular process flow and incorporating single-use equipment where possible. Proactively, BBP keeps essential raw materials (provided by their verified vendor network) in stock, eliminating sourcing time and enabling them to start manufacturing as quickly as possible.

Beyond time-savings, BBP's dedication to consistent and quality-assured buffers facilitated DHVI's regulatory review to rapidly transition their vaccines into clinical trials and gave their team the confidence to funnel more resources into developing impactful projects.

This not only underscores Boston BioProducts' capacity for rapid production and delivery but also highlights its potential to significantly reduce time to market for critical bioproducts, offering substantial value to its clients and partners.

Buffers that fit. Speed you can count on. Confidence built in.

In novel therapeutics and vaccine R&D, timing is everything. DHVI needed a partner for the flexible, cost-efficient delivery of high-quality custom buffers, and BBP's prompt communication and flexible capabilities enable DHVI to work with peace of mind.

What customers say



BBP met the needs of our timelines while maintaining impeccable quality control, which other vendors could not provide us with; With vendors like BBP, who prioritize direct, person-to-person relationships, I can more easily manage business operations.

— John Rumsey, GMP Business Operations Manager,
Duke Human Vaccine Institute

What we say



Customizing reagents does not have to be a complicated process. The partnership with DHVI pairs rapid reagent development and launch of biologics.



Explore our custom buffer solutions at
<https://www.bostonbioproducts.com/contact-us>

References

1. Learn more about the Duke Human Vaccine Institute at <https://dhvi.duke.edu/>
2. View our custom buffer builder at <https://www.bostonbioproducts.com/custom-buffer-builder/>

