

Testimony of Mark Warner
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Unlocking U.S. Industrial Biotechnology Commercialization
The Role of the Small Business Administration

Senator Young and distinguished guests, my name is Mark Warner, I am co-founder and CTO of Liberation Bioindustries, a company working to bring fit-for-purpose biomanufacturing to the US, with our first facility under construction in Richmond.

The United States leads the world in biotechnology innovation but consistently fails to translate that leadership into domestic manufacturing. Nowhere is this more evident than in industrial biotechnology, where breakthrough processes are developed domestically but commercialized elsewhere. It has quite simply become a system driving small-business value creation out of the U.S.

My testimony argues that the Small Business Administration (SBA) is uniquely positioned to address this gap. Industrial biotechnology is overwhelmingly driven by small businesses, yet commercialization requires capital-intensive infrastructure that falls outside traditional SBA support frameworks. There currently is no bankable support, public or private, for first-of-a-kind technology facilities.

By adapting its programs to support first-of-a-kind manufacturing in biotechnology, the SBA can play a decisive role in converting innovation into operating assets, strengthening U.S. competitiveness and industrial resilience.

Industrial biotechnology represents a foundational manufacturing platform for the 21st century. It enables production of fuels, chemicals, materials, and food ingredients from biological systems rather than petroleum-based processes.

The implications are significant. This sector underpins energy security, supply chain resilience, and the ability to manufacture critical materials domestically. However, the United States risks repeating a familiar pattern: inventing new technologies while allowing manufacturing leadership to migrate elsewhere.

When manufacturing moves offshore, the supporting ecosystem follows—talent, process expertise, and future innovation. Maintaining leadership therefore requires not just invention, but domestic commercialization at scale.

Industrial biotechnology is often perceived as large-scale industry, but its innovation base is overwhelmingly composed of small businesses. The companies developing fermentation processes, synthetic biology platforms, and bio-based production pathways typically have fewer than 100–200 employees and are pre-profit and capital constrained. These are small businesses attempting to build entirely new manufacturing systems.

The development pathway is consistent: small companies innovate, develop pilot processes, and then attempt to build their first commercial facility. At that moment, capital requirements increase dramatically, but the companies themselves remain small. This creates a structural mismatch. Small businesses are responsible for building large industrial assets, without access to financing tools designed for that transition.

The primary barrier in industrial biotechnology is not scientific feasibility—it is commercialization. Current US government support reinforces the outcome. We fund innovation that gets scaled overseas. Capital requirements scale rapidly from tens of millions to hundreds of millions of dollars. Companies become too large for venture funding yet remain too risky for traditional project finance. This creates a persistent financing gap at the point of greatest leverage.

At the same time, the United States lacks sufficient shared infrastructure to de-risk technologies at intermediate scale. As a result, companies either delay projects, dilute heavily, or move development and manufacturing to regions with more supportive ecosystems. Scale happens in EU, China and Asia, not because these places are more innovative — they finance and host infrastructure better. This results in U.S. dollars going into foreign manufacturing, and when first plants are built overseas, we export the learning curve and future innovation.

Industrial biotechnology aligns directly with the SBA's core mission. The sector is driven by small, innovative, capital-constrained companies attempting to grow and scale. However, unlike traditional small businesses, success requires building manufacturing infrastructure rather than expanding service or incremental operations. This requires a different support model.

The SBA is uniquely positioned to bridge this gap by supporting the transition from technology development to asset ownership. This is the precise point where small businesses either scale into industrial players or fail to commercialize entirely.

Recommendations for SBA Action

1. Expand Loan Guarantees for FOAK Facilities
Increase program thresholds and flexibility to support capital-intensive biomanufacturing projects.
2. Create a Biotechnology Commercialization Track
Establish programs specifically designed for pilot-to-commercial scale transition.
3. Support Shared Infrastructure
Enable development of shared fermentation and processing facilities to reduce capital barriers.
4. Provide Technical Advisory Support
Expand expertise in scale-up, engineering, and project delivery.
5. Align with National Industrial Strategy
Coordinate with DOE, DoD, and other agencies to ensure biotechnology commercialization is treated as strategic infrastructure.

Conclusion

Industrial biotechnology represents a critical opportunity for the United States, but only if innovation is translated into domestic manufacturing. The companies driving this transformation are small businesses. The infrastructure they require is not. Bridging that gap is where the SBA can have outsized impact. If the United States is serious about maintaining leadership in biotechnology, it must support not just invention, but the ability to build. The SBA can and should be a central part of that solution.