# Dossier: MUSSEL POLYMERS INC

## SBIR Award Details

**Award Title:** N/A

**Amount:** $74,621.00

**Award Date:** 2023-12-14

**Branch:** USAF

## AI-Generated Intelligence Summary

**Company Overview:**

Mussel Polymers Inc. (MPI) is a biomaterials company focused on the development, manufacturing, and commercialization of high-performance, sustainable polymers based on the adhesive proteins of marine mussels. Their core mission is to replace petroleum-based polymers with environmentally friendly alternatives that offer superior performance, particularly in demanding applications. MPI aims to solve the problems of plastic pollution, reliance on fossil fuels, and the performance limitations of existing bio-based polymers. Their unique value proposition lies in their patented poly(catecholamine) (PCA) technology, which mimics the strong, versatile, and environmentally compatible adhesion properties of mussel adhesive proteins to create a suite of tunable polymers with broad applications. They offer a strong, sustainable alternative to traditional plastics and adhesives across a range of industries, from coatings and adhesives to biomedical and industrial applications.

**Technology Focus:**

* Poly(catecholamine) (PCA) Polymers:\*\* MPI's primary technology involves synthesizing PCA polymers that mimic the adhesive properties of marine mussels. These polymers exhibit strong adhesion to a wide variety of surfaces (metals, plastics, ceramics, glass, and biological tissues), are tunable in terms of mechanical properties (from flexible elastomers to rigid plastics), and are biodegradable under certain conditions.
* Coatings and Adhesives:\*\* MPI develops PCA-based coatings and adhesives that offer superior performance characteristics, including high strength, water resistance, and corrosion protection. These coatings are suitable for demanding applications in marine environments, infrastructure, and industrial settings.

**Recent Developments & Traction:**

* Seed Funding (2021):\*\* Closed a seed funding round led by DSM Venturing. Specific amount was not publicly released, but was aimed at scaling up PCA manufacturing.
* Department of Defense (DoD) Contracts:\*\* Received multiple Small Business Innovation Research (SBIR) grants from the DoD for developing PCA-based coatings for corrosion protection and biofouling prevention in naval applications. Most recent identified SBIR award was granted in 2023.
* Commercial Partnerships:\*\* Has established partnerships with companies in various industries to explore and commercialize PCA-based solutions for specific applications, including coatings for marine infrastructure and adhesives for medical devices. No specifics readily available on partners.

**Leadership & Team:**

* Dr. George Boyajian (CEO):\*\* Has extensive experience in biomaterials and polymer chemistry. Holds a Ph.D. in Chemical Engineering and has previously worked at the University of Chicago on mussel-inspired materials.
* Team composition includes scientists with PhDs specializing in polymer chemistry, materials science and engineering.

**Competitive Landscape:**

* Nature Coatings:\*\* Competes in the bio-based coatings market, but uses wood waste as its primary feedstock. MPI differentiates itself through its use of mussel-inspired chemistry, which offers superior adhesion and tunability.
* Companies specializing in petroleum-based high-performance adhesives and coatings (e.g., 3M, Henkel):\*\* While not direct competitors on sustainability, these companies represent the established market leaders in adhesive and coating technologies. MPI aims to disrupt this market by offering a bio-based alternative with comparable or superior performance characteristics.

**Sources:**

* [https://www.musselpolymers.com/](https://www.musselpolymers.com/)
* [https://www.sbir.gov/](https://www.sbir.gov/) (Search for Mussel Polymers Inc.)
* [https://www.dsm.com/corporate/about/businesses/dsm-venturing.html](https://www.dsm.com/corporate/about/businesses/dsm-venturing.html) (DSM Venturing - though specific MPI details are limited)
* [https://news.uchicago.edu/story/uc-companies-close-new-funding-rounds](https://news.uchicago.edu/story/uc-companies-close-new-funding-rounds) (Links to press releases regarding seed round)