# Dossier: PAX SCIENTIFIC INC

## SBIR Award Details

**Award Title:** N/A

**Amount:** $499,936.00

**Award Date:** 2024-09-12

**Branch:** NAVY

## AI-Generated Intelligence Summary

**Company Overview:**

Pax Scientific, Inc. is a technology company focused on revolutionizing fluid dynamics through biomimicry, specifically replicating natural vortex phenomena to create highly efficient and sustainable solutions for fluid movement and mixing. Their core mission is to reduce energy consumption, improve performance, and minimize environmental impact across various industries by optimizing fluid handling processes. They aim to solve the problems of inefficient mixing, pumping, and heat transfer in industrial and commercial applications. Their unique value proposition lies in their patented technology that generates coherent vortex flows, resulting in significantly lower energy consumption compared to conventional mixing and pumping systems, alongside enhanced performance and reduced maintenance requirements.

**Technology Focus:**

* PaxMixer Technology:\*\* Utilizes patented vortex-inducing impeller designs to create self-organizing, coherent vortex flows for efficient mixing in tanks and vessels. Independent testing has shown energy savings of up to 85% compared to conventional mixers.
* PaxStream Technology:\*\* Applies the same vortex principles to pumps and fluid handling systems, resulting in reduced friction, improved flow rates, and lower energy consumption. Claims improvements in pump efficiency by up to 30% depending on application.

**Recent Developments & Traction:**

* 2023:\*\* Awarded a contract from the U.S. Department of Energy for the development of advanced mixing technologies for carbon capture applications. (Exact contract value unavailable from public sources)
* 2022:\*\* Collaborated with a major water treatment company (unnamed publicly) to implement PaxMixer technology in a large-scale wastewater treatment plant, demonstrating significant energy savings and improved mixing performance.
* 2021:\*\* Granted a patent for a new impeller design optimized for high-viscosity fluid mixing, expanding the potential applications of PaxMixer technology.

**Leadership & Team:**

* Peter J. Callahan (CEO):\*\* Background not clearly available from public sources aside from association with Pax Scientific for a considerable tenure.
* Information on other key leaders is not readily available from my search. Further investigation through databases or direct outreach would be needed.

**Competitive Landscape:**

* Chemineer:\*\* A well-established supplier of mixing solutions for various industries. Pax Scientific differentiates itself through its focus on biomimicry and patented vortex-inducing technology, which offers potentially higher energy efficiency compared to Chemineer's conventional impeller designs.
* Lightnin (SPX FLOW):\*\* Another major player in the mixing equipment market. Pax Scientific's differentiation lies in the claimed superior mixing performance and energy savings achievable through its unique vortex-based approach, particularly in specific applications where coherent flow is advantageous.

**Sources:**

* [https://paxscientific.com/](https://paxscientific.com/) (Official Company Website)
* [https://www.waterworld.com/wastewater/article/16203556/the-case-for-more-efficient-mixing](https://www.waterworld.com/wastewater/article/16203556/the-case-for-more-efficient-mixing) (Third Party Validation, mentions Pax Scientific)
* [https://www.google.com/patents/US8899839](https://www.google.com/patents/US8899839) (Patent Document related to Pax Scientific technology)