# A Method For Treating Saxitoxin Poisoning

Tech ID: 34482 / UC Case 2022-164-0

## TECHNOLOGY DESCRIPTION

**Unmet Need:** Saxitoxin (STX) is a potent paralytic neurotoxin produced by marine cyanobacteria and dinoflagellates, responsible for paralytic shellfish poisoning (PSP) and declared a chemical weapon due to its lethality. PSP outbreaks, exacerbated by climate change, pose significant public health risks, leading to restrictions on commercial and recreational shellfish harvesting. Currently, there are no targeted medical countermeasures available to mitigate STX poisoning.

**TECHNOLOGY**: To address this critical need, we have characterized two families of high-affinity STX-binding proteins—saxiphilins from amphibians and Pufferfish Saxitoxin and Tetrodotoxin Binding Proteins (PSTBPs)—that can reverse the toxin's effects on voltage-gated sodium channels (NaVs).

**COMPETITIVE ADVANTAGE:**

- **First-of-its-kind medical countermeasure** targeting STX and related PSP toxins.
- **Reverses STX effects on voltage-gated sodium channels**, restoring neural function.
- **Adaptable protein-based approach** leveraging saxiphilins and PSTBPs from amphibians and pufferfish.
- **Addresses a growing public health challenge** linked to climate-driven PSP outbreaks.

**DEVELOPMENT STAGE**: The technology is currently in the proof-of-concept stage.

## PATENT STATUS

| Country | Type | Number | Dated | Case |
|---|---|---|---|---|
| Patent Cooperation Treaty | Reference for National Filings | WO 2023/240270 | 03/07/2024 | 2022-164 |

Patent Pending

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## OTHER INFORMATION

**KEYWORDS**

Saxitoxin, Paralytic shellfish poisoning, Saxiphilins, sodium channels

**CATEGORIZED AS**

- Biotechnology
  - Health
    - Medical
      - Diagnostics
      - Disease: Central Nervous System
    - Security and Defense
      - Food and Environment

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