Novel Lateral Flow Test Design to Detect the Presence of Paralytic Shellfish Poisoning

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Paralytic Shellfish Poisoning (PSP) has been a pressing problem in Alaska for some time, especially recently. Numerous people residing in villages and coastal communities throughout Alaska live off of shellfish and seafood for subsistence, and PSP toxins can cause detrimental effects to their supplies. Since the Harmful Algal Blooms of Alexandrium that cause PSP often do not show evidence of their presence, it is generally unknown whether or not the ocean coastline waters contain PSP toxins. Due to several limiting factors such as funding and resources, many of these waters fished in for subsistence cannot be tested for the presence of PSP. With the development of a new rapid lateral flow test that detects the main PSP toxin, testing for PSP would be available for the general public. Inspired by a modified ELISA (enzyme-linked immunosorbent assay), this rapid test utilizes a secondary and primary polyclonal conjugated antibody reaction to identify the presence of saxitoxin (STX), the main neurotoxin causing the symptoms of PSP. The lateral flow test is an affordable, user-friendly alternative to the existing tests. In the future, the current model will instead be encased in a plastic housing that would have windows for the test and control lines. Having this type of test available would support small communities and subsistence fishing around Alaska.

Awards Won:

Third Award of $1,000