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# Engineered Botulinum Neurotoxin for Therapeutic and Cosmetic Applications

Tech ID: 33935 / UC Case 2023-769-0

## BRIEF DESCRIPTION

This technology offers a significant improvement in the therapeutic application of type E botulinum neurotoxin (BoNT/E) by introducing rationally designed mutations into the receptor binding domain.

## FULL DESCRIPTION

UC Irvine researchers have developed a technology that enhances the therapeutic potential of type E botulinum neurotoxin (BoNT/E). By modifying the toxin's interaction with its target receptor, synaptic vesicle glycoprotein 2 (SV2), variants with improved binding affinity have been developed. This advancement leads to increased potency, reduced dosage requirements, and potential for improved safety.

## SUGGESTED USES

- » Therapeutics: Provide effective treatments for neurological, otolaryngological, ophthalmological, urological, dermatological, and gastrointestinal disorders.
- » Cosmetics: Address the need for wrinkle reduction and muscle spasm treatments.
- » Product Development: Serve as a foundation for developing new BoNT/E-based products.

## ADVANTAGES

- » Potency: Increased therapeutic efficacy through optimized receptor binding.
- » Efficiency: Lower dosage requirements for potentially improved safety and tolerability.
- » Speed: Fast onset of action for quick treatment outcomes.
- » Duration: Short duration offers more flexibility, reversibility, and temporary muscle modulation.
- » Versatility: A platform for developing new neurotoxin products.

## PATENT STATUS

Patent Pending

## RELATED MATERIALS

- » Liu Z, Lee PG, Krez N, Lam KH, Liu H, Przykopanski A, Chen P, Yao G, Zhang S, Tremblay JM, Perry K, Shoemaker CB, Rummel A, Dong M, Jin R. Structural basis for botulinum neurotoxin E recognition of synaptic vesicle protein 2. Nat Commun. 2023 Apr 24;14(1):2338. doi: 10.1038/s41467-023-37860-8.

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## OTHER INFORMATION

## CATEGORIZED AS

- » Medical
- » Other
- » Therapeutics

## RELATED CASES

2023-769-0

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