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(54) **PREVINS AS SPECIFIC INHIBITORS AND THERAPEUTIC AGENTS FOR BOTULINUM TOXIN B AND TETANUS NEUROTOXINS**

(75) Inventors: **Richard K. Gordon**, Potomac, MD (US); **Deborah R. Moorad**, Silver Spring, MD (US); **Bhupendra P. Doctor**, Potomac, MD (US); **Gregory E. Garcia**, Silver Spring, MD (US)

(73) Assignee: **The United States of America as represented by the Secretary of the Army**, Washington, DC (US)

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(58) **Field of Classification Search** 514/15, 514/2; 435/7.1, 320.1, 325; 536/23.5; 424/239.1; 530/327, 300

See application file for complete search history.

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Primary Examiner—Chih-Min Kam
(74) *Attorney, Agent, or Firm*—Elizabeth Arwine

(57) **ABSTRACT**

The compounds of the invention are generally described by the formula:

$$B_1Z^*_2B_3Z^*_4X^*_5Q_6F_7X_8X_9X_{10}X_{11}, \quad (1)$$

$$B_1X_2X_3X_4X_5Q_6F_7X_8X_9X_{10}X_{11}, \text{ or} \quad (2)$$

$$B_1Z_2B_3X_4Z_5Q_6F_7Z_8X_9X_{10}X_{11} \quad (3)$$

and the salts, esters, amides, and acyl forms thereof. Each position represented by a letter indicates a single amino acid residue: B is a basic of polar/large amino acid or a modified form thereof; X is a small or hydrophobic amino acid or a modified form thereof; X* is a small or polar/large amino acid or a modified form thereof; Z is a polar/large or hydrophobic amino acid or a modified form thereof; Z* is Proline or a polar/large of hydrophobic amino acid or a modified form thereof. As described below, one or more of the peptide linkages between the amino acid residues may be replaced by a peptide linkage mimic.

These compounds may be used as molecular building blocks to create compounds that are optimized for inhibiting the protease activity of Botulinum b and tetanus toxins.

10 Claims, 8 Drawing Sheets