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(19) **United States**(12) **Patent Application Publication****BAVARI et al.**(10) **Pub. No.: US 2011/0086877 A1**(43) **Pub. Date: Apr. 14, 2011**(54) **SMALL MOLECULE INHIBITORS OF BOTULINUM NEUROTOXINS**(76) Inventors: **SINA BAVARI**, FREDERICK, MD (US); **RICK GUSSIO**, FREDERICK, MD (US); **JAMES C. BURNETT**, RICHMOND, VA (US)(21) Appl. No.: **12/896,338**(22) Filed: **Oct. 1, 2010***A61K 31/343* (2006.01)*C07D 407/06* (2006.01)*A61K 31/404* (2006.01)*C07D 209/20* (2006.01)*C07D 403/14* (2006.01)*A61K 31/4178* (2006.01)*C07D 409/06* (2006.01)*C07D 409/14* (2006.01)*A61K 31/4439* (2006.01)*A61K 31/443* (2006.01)*A61P 31/04* (2006.01)*C12N 9/99* (2006.01)**Related U.S. Application Data**

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(52) **U.S. Cl.** **514/313**; 514/443; 549/58; 514/469; 549/469; 514/415; 548/503; 548/312.1; 514/402; 514/414; 546/162; 546/167; 546/176; 514/314; 514/337; 546/277.4; 546/284.1; 435/184**Publication Classification**(51) **Int. Cl.***A61K 31/4709* (2006.01)*A61K 31/381* (2006.01)*C07D 333/60* (2006.01)(57) **ABSTRACT**

Disclosed herein are methods of inhibiting the activity of Botulinum neurotoxin A metalloprotease with the compounds disclosed herein. Also disclosed are methods of treating, inhibiting or preventing intoxication caused by bacteria of at least one bacterial strain in a subject, and pharmaceutical and cosmetic compositions comprising the compounds disclosed herein.

NSC	K _i	Query Fit	Distances (Å)			
			A-B ¹	A-C ¹	A-F ¹	Total ²
341909	3.0 μM		7.5	4.8	13.5	19.6
308574	6.0 μM		12.8	3.9	16.6	19.9
240898	10.0 μM		9.6	3.9	11.9	17.8
341907	10.0 μM		8.8	4.5	12.8	19.3

1. Distance taken from plane centroids
 2. Total length of the compound