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(54) Title: NEBULIZABLE COMPOSITIONS OF QUATERNARY AMMONIUM MUSCARINIC RECEPTOR ANTAGONISTS

(57) Abstract: Compositions and methods for treatment, prevention, or amelioration of one or more symptoms of bronchoconstrictive disorders are provided. The compositions provided herein are nebulizable compositions comprising quaternary ammonium muscarinic receptor antagonists. The compositions are suitable for direct administration to a patient in need thereof via a nebulizer. Also provided are kits which comprise of the nebulizable composition of the invention in combination with a nebulizer. Also provided is a method of treating, preventing, or amelioration of one or more symptoms of bronchoconstrictive disorders by administering a therapeutically effective amount of the nebulizable composition of the invention via the use of a nebulizer to a patient in need thereof with minimal to no exposure of the nebulizable composition to the body surface of the patient.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 07/69707

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61K 31/138 (2007.01)

USPC - 514/651

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC (8) - A61K 31/138 (2007.01)

USPC - 514/651

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubWest DB=PGPB,USPT,EPAB,JPAB; PLUR=NO; OP=ADJ, Google, Google Scholar, USPTO

Search Terms: Nebulizer, ammonium muscarinic receptor, muscarinic, bronchoconstriction, quaternary ammonium muscarinic, muscarinic, tiotropium, surface, skin, face, exposure, bronchoconstriction, preservative, muscarinic

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2003/0055026 A1 (BENERJEE et al.) 23 March 2003 (23.03.2003) entire document especially para [0013] and [0054].	1-20
Y	US 2004/0045546 A1 (HIRSH et al.) 11 March 2004 (11.03.2004) entire document especially para [0028], [0030], [0041] and [0045].	1-20
Y	Hansel et. al. "Glycopyrrolate Causes Prolonged Bronchoprotection and Bronchodilatation in Patients With Asthma" Chest 128:1974-1979 entire document especially pg. 1975, 1976, 1978.	1-20
Y	US 2005/0009923 A1 (BENERJEE et al.) 13 January 2005 (13.01.2005) entire document especially para [0042] and [0049].	3-10 and 13-20

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Further documents are listed in the continuation of Box C.

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