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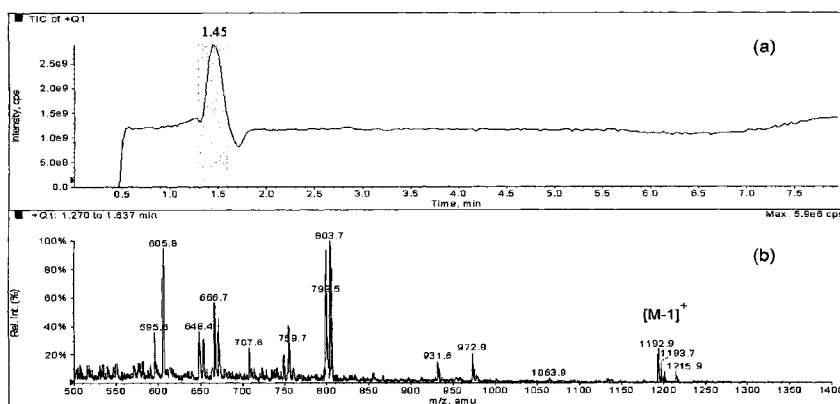


FIG. 1

(57) Abstract: Syntheses of polyethyleneglycol (PEG)-lipid conjugates are disclosed. Such syntheses involve stepwise addition of small PEG oligomers to a glycerol backbone until the desired chain size is attained. Polymers resulting from the syntheses are highly monodisperse. The present invention provides several advantages such as simplified synthesis, high product yield and low cost for starting materials. The present synthesis method is suitable for preparing a wide range of conjugates. In another aspect, the invention comprises PEG lipid conjugates having a glycerol backbone covalently attached to one or two monodisperse PEG chains and one or two lipids. These conjugates are especially useful for pharmaceutical formulations.

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61K 9/127 (2012.01)

USPC - 424/450, 428/402.2

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)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Patents and NPL (classification, keyword; search terms below)

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

PubWest (US Pat, PgPub, EPO, JPO), GoogleScholar (PL, NPL), FreePatentsOnline (US Pat, PgPub, EPO, JPO, WIPO, NPL);
search terms: glycerol, lipid, PEG, polyethylene, glycol, chain, molecular, weight, dalton, alkyl, bile acid, cholesterol, butyric, caproic, caprylic, capric, lauric, myristic, palmitic, stearic, arachidic, behenic, myristoleic...

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2005/0175682 A1 (HEYES et al.) 11 August 2005 (11.08.2005), para [0007]-[0009], [0047]-[0054], [0062], [0079], [0086], [0091], [0170], [0253]	1-16
Y	US 2004/0229842 A1 (YEDGAR et al.) 18 November 2004 (18.11.2004), para [0004], [0008], [0009], [0010], [0011], [0047]-[0054], [0079], [0091], [0104], [0119], [0122], [0126], [0134], [0140], [0203]	1-16
Y	US 6,296,870 B1 (NEEDHAM et al.) 02 October 2001 (02.10.2001), col 2, ln 41-65; col 9, ln 66 to col 10, ln 24	14
Y	WO 2009/064696 A1 (SZOKA et al.) 22 May 2009 (22.05.2009), para [0015]-[0032], [0084]-[00220]	1-16
Y	US 2006/0051405 A1 (MACLACHLAN et al.) 09 March 2006 (09.03.2006), para [0005]-[0009], [0042]-[0254]	1-16

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