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[Continued on next page]

(54) Title: SUBSTITUTED FULLERENES AS MRI CONTRAST AGENTS

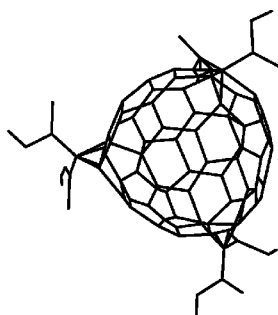


FIG. 1A

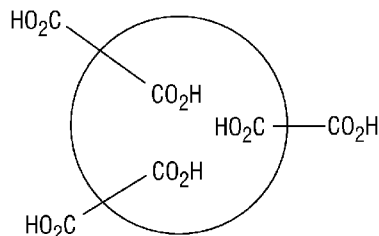


FIG. 1B

(57) Abstract: A contrast agent for enhancing contrast in in vivo magnetic resonance imaging, comprising a water-soluble, non-zero spin isotope-enriched substituted fullerene having a fullerene core or heterofullerene core and at least one substituent group bonded to at least one carbon of the fullerene core. A method of magnetic resonance imaging a sample, comprising (i) administering to the sample a plurality of substituted fullerenes; and (ii) detecting magnetic resonance signals from the sample. In the method, some or all of the plurality of substituted fullerenes may be non-zero spin isotope-enriched, but need not be. In the method, some or all of the plurality of substituted fullerenes may be hyperpolarized, but need not be.



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A. CLASSIFICATION OF SUBJECT MATTER
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B. FIELDS SEARCHED

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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 practical, search terms used)

EPO-Internal, WPI Data, BIOSIS, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Y	figure 1, paragraphs 77, 104, 107-116	1-21
X	DE 198 08 865 A1 (BAYERL [DE]; HIRSCH [DE]) 9 September 1999 (1999-09-09)	8,21
Y	Figure 1, column 6 line 65-column 7 line 34.	1-21
Y	US 2007/025918 A1 (HURD RALPH E [US]) 1 February 2007 (2007-02-01) Paragraph 22	1-21
Y	WO 2007/143558 A1 (UNIV RICE WILLIAM M [US]; RES DEV FOUNDATION [US]; ROSENBLUM MICHAEL G) 13 December 2007 (2007-12-13) Claims 1, 7; Figure 27, page 33 example 5	1-21
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See patent family annex.

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International application No

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
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Y	BALL G. E. ET AL.: "Structural reassignment of the Mono- and Bis-Addition Products from the Addition Reactions of N-(diphenylmethylene)glycinate Esters to [60]Fullerene under Bingel conditions" J. ORG. CHEM., vol. 70, no. 24, 16 September 2005 (2005-09-16), XP7910747 Page 8572 figure 1, paragraph 1. -----	1-21
Y	WO 2005/097807 A2 (LUNA INNOVATIONS INC [US]; GE ZHONGXIN [US]; DORN HARRY C [US]; PHILLI) 20 October 2005 (2005-10-20) Page 8 line 17-page 9 line 7 -----	1-21
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A	MEIER M. ET AL.: "A 13C INADEQUATE and HF-GIAO Study of C60H2 and C60H6 Identification of Ring Currents in a 1,2-Dihydrofullerene" J. AM. CHEM. SOC., vol. 124, 10 July 2002 (2002-07-10), pages 8090-8094, XP007910752 the whole document -----	1-21

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