Title (en)

DENDRITIC POLYMERS WITH ENHANCED AMPLIFICATION AND INTERIOR FUNCTIONALITY

Title (de)

DENDRITISCHE POLYMERE MIT VERBESSERTER AMPLIFIKATION UND INNERER FUNKTIONALITÄT

Title (fr)

POLYMÈRES DENDRITIQUES AVEC FONCTIONNALITÉ INTÉRIEURE ET AMPLIFICATION RENFORCÉES

Publication

EP 1877103 A4 20101103 (EN)

Application

EP 05857843 A 20051221

Priority

- US 2005047635 W 20051221
- US 2005013864 W 20050420

Abstract (en)

[origin: WO2006115547A2] Dendritic polymers with enhanced amplification and interior functionality are disclosed. These dendritic polymers are made by use of fast, reactive ring-opening chemistry (or other fast reactions) combined with the use of branch cell reagents in a controlled way to rapidly and precisely build dendritic structures, generation by generation, with cleaner chemistry, often single products, lower excesses of reagents, lower levels of dilution, higher capacity method, more easily scaled to commercial dimensions, new ranges of materials, and lower cost. The dendritic compositions prepared have novel internal functionality, greater stability (e.g., thermal stability and less or no reverse Michael's reaction), and reach encapsulation surface densities at lower generations. Unexpectedly, these reactions of polyfunctional branch cell reagents with polyfunctional cores do not create cross-linked materials. Such dendritic polymers are useful as demulsifiers for oil/water emulsions, wet strength agents in the manufacture of paper, proton scavengers, polymers, nanoscale monomers, calibration standards for electron microscopy, making size selective membranes, and agents for modifying viscosity in aqueous formulations such as paint. When these dendritic polymers have a carried material associated with their surface and/or interior, then these dendritic polymers have additional properties for carrying materials due to the unique characteristics of the dendritic polymer, such as for drug delivery, transfection, and diagnostics.

IPC 8 full level

C08G 83/00 (2006.01); **A61K 47/48** (2006.01); **A61K 49/00** (2006.01); **C12N 15/87** (2006.01); A61K 48/00 (2006.01)

CPC (source: EP)

A61K 47/59 (2017.07); **A61K 47/593** (2017.07); **A61K 47/595** (2017.07); **A61K 49/0002** (2013.01); **A61P 29/00** (2017.12); **A61P 43/00** (2017.12); **B82Y 5/00** (2013.01); **B82Y 10/00** (2013.01); **C08G 83/003** (2013.01); **C08L 101/005** (2013.01); **C09B 67/0013** (2013.01); **C12N 15/87** (2013.01); A61K 48/00 (2013.01)

Citation (search report)

- [E] WO 2006065266 A2 20060622 - DENDRITIC NANOTECHNOLOGIES INC [US], et al
- [X] XU D ET AL: "Fast growing dendritic poly(ester-amines) from alternate reaction of EDA and TMPTA", TETRAHEDRON LETTERS, ELSEVIER, AMSTERDAM, NL LNKD- DOI:10.1016/J.TETLET.2005.01.180, vol. 46, no. 14, 4 April 2005 (2005-04-04), pages 2503 - 2505, XP004785784, ISSN: 0040-4039
- [X] TANG L-M ET AL: "Structure, solution aggregation and UV curing of hyperbranched poly(ester-amine)s with terminal acrylate groups", POLYMER JOURNAL, SOCIETY OF POLYMER SCIENCE, TOKYO, JP LNKD- DOI:10.1295/POLYMJ.37.255, vol. 37, no. 4, 15 April 2005 (2005-04-15), pages 255 - 261, XP002567947, ISSN: 0032-3896
- See references of WO 2006115547A2

Citation (examination)

- EP 0271180 A1 19880615 - DOW CHEMICAL CO [US]
- US 5773527 A 19980630 - TOMALIA DONALD A [US], et al

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)

WO 2006115547 A2 20061102; **WO 2006115547 A3 20090604**; **WO 2006115547 A8 20070215**; CA 2598430 A1 20061102; CA 2598430 C 20111025; EP 1877103 A2 20080116; EP 1877103 A4 20101103; EP 2325236 A1 20110525; JP 2008545621 A 20081218; MX 2007010402 A 20080122; TW 200801075 A 20080101; TW I356709 B 20120121

DOCDB simple family (application)

US 2005047635 W 20051221; CA 2598430 A 20051221; EP 05857843 A 20051221; EP 10184062 A 20051221; JP 2008507644 A 20051221; MX 2007010402 A 20051221; TW 95122332 A 20060621