

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
26 May 2005 (26.05.2005)

PCT

(10) International Publication Number
WO 2005/047493 A2

(51) International Patent Classification⁷: **C12N 5/02**,
D01F 9/00

Melvin, S. [US/US]; 117 Bedford Court, Piscataway, NJ 08854 (US). **CHUNG, Hoo, Y.** [US/US]; 7608 West 101 Street, Bloomington, MN 55438 (US).

(21) International Application Number:
PCT/US2004/027535

(74) Agent: **BRUESS, Steven, C.**; Merchant & Gould P.C., P.O. Box 2903, Minneapolis, MN 55402-0903 (US).

(22) International Filing Date: 24 August 2004 (24.08.2004)

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/703,169 5 November 2003 (05.11.2003) US

(71) Applicant (*for all designated States except US*): **MICHIGAN STATE UNIVERSITY** [US/US]; East Lansing, MI 48824 (US).

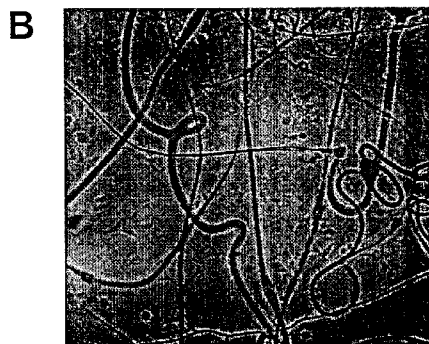
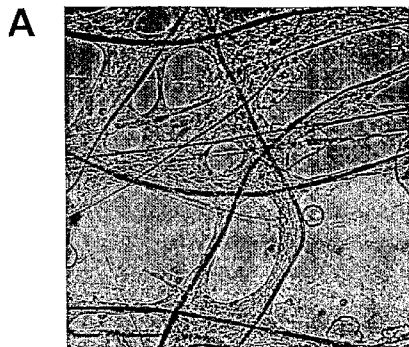
(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **SHINDLER,**

[Continued on next page]

(54) Title: NANOFIBRILLAR STRUCTURE AND APPLICATIONS INCLUDING CELL AND TISSUE CULTURE



(57) Abstract: A nanofibrillar structure for cell culture and tissue engineering is disclosed. The nanofibrillar structure can be used in a variety of applications including methods for proliferating and/or differentiating cells and manufacturing a tissue. Also disclosed is an improved nanofiber comprising a lipid, lipophilic molecule, or chemically modified surface. The nanofibers can be used in a variety of applications including the formation of nanofibrillar structures for cell culture and tissue engineering.



WO 2005/047493 A2



European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

- *without international search report and to be republished upon receipt of that report*