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(71) Applicants: ORTHOREBIRTH CO., LTD. [JP/JP];

3-17-43 Chigasaki-Higashi, Tsuzuki-ku, Yokohama-shi

2240033 (JP). THERADAPTIVE, INC. [US/US]; 4539
Metropolitan Ct., Frederick, Maryland 21704 (US).

(72) Inventors: TAIRA, Hiroyuki; c/o Orthorebirth Co., Ltd.,
3-17-43 Chigasaki-Higashi, Tsuzuki-ku, Yokohama-shi
2240033 (JP). ALVAREZ, Luis; c/o Theradaptive, Inc.,
4539 Metropolitan Ct., Frederick, Maryland 21704 (US).

(74) Agent: LIANG, T. Chyau; LIANG LEGAL GROUP,
PLLC, 6020 Annapolis Street, Houston, Texas 77005 (US).

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(54) Title: A BONE REGENERATION MATERIAL HAVING A COTTON-WOOL LIKE STRUCTURE FORMED OF A PLU-
RALITY OF ELECTROSPUN FIBERS

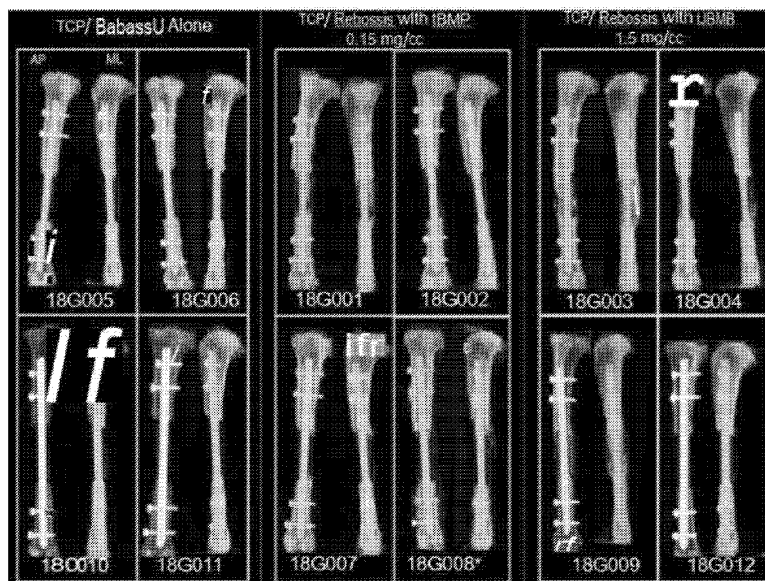


FIG. 7

(57) Abstract: A bone regeneration material has a cotton-wool like structure formed of a plurality of electrospun fibers that contain bound BMP-2 through β -TCP binding peptide. The electrospun biodegradable fiber contains 25-65 vol% of β -TCP particles distributed in the fiber such that a portion of the β -TCP particles is exposed on a surface of the electrospun fiber and the remaining portion of the β -TCP particles is buried in the fiber. β -TCP binding peptides that are fused with BMP-2 are bound to the β -TCP particles so that BMP-2 is tethered to β -TCP particles on the surface of the fibers. Upon implantation of the bone regeneration material in a bone defect site of a human body, BMP-2 that are tethered to β -TCP particles on the surface of the bone regeneration material promotes proliferation and differentiation of cells at the bone defect site.

[Continued on next page]

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