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(54) **POLYMER SCAFFOLD HAVING
MICROPOROUS POLYMER STRUTS
DEFINING INTERCONNECTED
MACROPORES**

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(30) **Foreign Application Priority Data**

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C12N 11/08; A61F 2/00

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435/180; 435/396; 435/402

(58) **Field of Search** 435/174, 180,
435/182, 395, 396, 402; 424/93.7, 423

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(57) **ABSTRACT**

A polymer scaffold is provided having an extensively interconnected macroporous network with macropores having microporous struts as walls. Macropore diameter ranges from about 0.5 to about 3.5 mm. The polymer may be a biocompatible, biodegradable polymer such as poly(lactide-co-glycolide) containing 75% polylactide and 25% polyglycolide. The polymer scaffold is prepared by mixing a liquid polymer with particles, precipitating the liquid polymer with a non-solvent for the liquid polymer and dissolving the particles with a solvent to form the macroporous polymer scaffold which preferably has porosity greater than 50%. The surface of the polymer scaffold may be modified by acid or base treatment, or by collagen or calcium phosphate deposition. The polymer scaffold has utility for tissue engineering, particularly as a scaffold for in vitro and in vivo cell growth.

18 Claims, 15 Drawing Sheets