

- [54] **PROCESS FOR PREPARING
MACROMOLECULAR BIOLOGICALLY
ACTIVE COLLAGEN**
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[57] **ABSTRACT**

Macromolecular reconstituted collagen is prepared by treating natural insoluble collagen with an aqueous solution comprised of an alkali sulfate salt and an alkali metal hydroxide for at least 48 hours to saponify fats suspended within the natural insoluble collagen. The fat free collagen is then treated with an aqueous solution comprised of an alkali metal sulfate for at least four hours to stabilize the interfibrillar bonds between individual polypeptide chains. The collagen is then dissolved in an aqueous acid solution and frozen at a rate of -20° C./hour. The frozen collagen is vacuum dried at 10^{-3} to 10^{-5} torr for at least 16 hours to produce a biologically active collagen article. Various biologically active materials may be added to the aqueous acid solution prior to freezing. The collagen product may then be implanted into an animal or the like and the medication slowly released. The article can remain within the biological system and it will slowly dissolve due to enzymatic digestion and through other biological processes.

12 Claims, No Drawings