# United States Patent [19]

**Urist**

[11] **4,455,256**

[45] * **Jun. 19, 1984**


[54] **BONE MORPHOGENETIC PROTEIN**


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[ * ] Notice: The portion of the term of this patent subsequent to Oct. 13, 1998 has been disclaimed.

[21] Appl. No.: **260,726**

[22] Filed: **May 5, 1981**

[51] **Int. Cl.**[3] ..... **C07G 7/00**

[52] **U.S. Cl.** ..... **260/112 R;** 260/118; 260/123.7; 424/95; 424/177

[58] **Field of Search** ..... 260/112 R, 118



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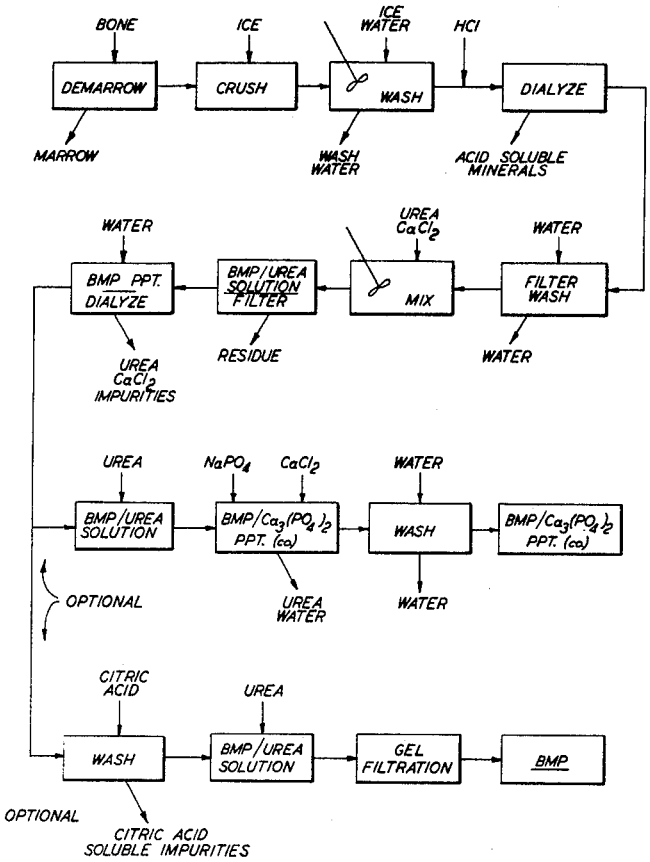
[57] **ABSTRACT**

Bone morphogenetic protein (BMP) made by the process comprising the steps of demineralizing bone tissue; treating the demineralized bone tissue under aqueous conditions with a water soluble neutral salt and a solubilizing agent for the BMP, the agent being selected from the group consisting of urea and guanidine, and thereby transforming the bone collagen to gelatin and extracting BMP into the solution of solubilizing agent; and separating the solubilizing agent and neutral salt from the solution, thereby precipitating BMP in the aqueous medium, and the BMP has a molecular weight in the range of 1,000–100,000.


**20 Claims, 1 Drawing Figure**