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United States Patent [19][11] **Patent Number:** **5,534,509****Konishi et al.**[45] **Date of Patent:** **Jul. 9, 1996****[54] PHARMACEUTICAL COMPOSITION
REGULATING FUNCTION OF A LIVING
BODY**[75] Inventors: **Jin-emon Konishi**, Musashino; **Giichi Hamada**, Nishinomiya, both of Japan[73] Assignee: **Nippon Zoki Pharmaceutical Co., Ltd.**, Osaka, Japan[21] Appl. No.: **213,065**[22] Filed: **Mar. 15, 1994****[30] Foreign Application Priority Data**

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[51] **Int. Cl.⁶** **A61K 33/00**[52] **U.S. Cl.** **514/210**[58] **Field of Search** 514/210**[56] References Cited****U.S. PATENT DOCUMENTS**

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The present invention provides silicate polymers which regulate the function of a living body by restoring and normalizing the lowered cell functions due to diseases. The silicate polymers are preferably water soluble. The molecular weight of the polymers is in the range of 4,800 to 2,000,000, preferably 20,000 to 1,000,000, and they have a degree of polymerization in the range of 75 to 33,000, preferably 490 to 16,500. The polymers may be produced by dissolving a water-soluble silicate or a silicic acid containing material such as water glass in water to obtain an aqueous solution. The solution may be admixed with an acid to adjust the pH to 2-10, preferably 4-9.5. A saccharide or sugar alcohol or pharmaceutically acceptable salt may also be admixed with the solution. The aqueous solution is preferably dried to obtain a powder by heating at 150° C. to 250° C. or by lyophilization. The pharmaceutical composition may be used to treat or prevent various diseases, ailments or symptoms associated with allergies, inflammation, or pain.

12 Claims, No Drawings