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- [54] **PROTECTION OF TELEOST FISH**
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- [51] **Int. Cl.<sup>6</sup>** ..... **A61K 39/00; A01N 59/26; C01B 7/00**
- [52] **U.S. Cl.** ..... **424/184.1; 424/606; 424/646; 424/665; 423/462**
- [58] **Field of Search** ..... **424/184.1, 606, 424/646, 665; 423/462**

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[57] **ABSTRACT**

Utility of protein phosphatase inhibitors to protect teleost fish from microorganismic pathogens is disclosed. The present invention provides pharmaceutical compositions, kits, and methods of therapeutic and prophylactic treatments comprising sodium orthovanadate or vanadate-mimetic protein phosphatase inhibitors to protect fish, for example, catfish, from infection and disease caused by microorganismic pathogens, e.g., *Edwardsiella*. Sodium orthovanadate, a protein phosphatase inhibitor, and vanadate-mimetic protein phosphatase inhibitors activate in vitro and in vivo the cytotoxicity of teleost nonspecific cytotoxic cells (NCC).

**18 Claims, 11 Drawing Sheets**