



US006406876B1

(12) **United States Patent**
Gordon et al.

(10) **Patent No.:** **US 6,406,876 B1**
(45) **Date of Patent:** **Jun. 18, 2002**

(54) **IMMOBILIZED ENZYMES BIOSENSORS FOR CHEMICAL TOXINS**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/558,511**

(22) Filed: **Apr. 26, 2000**

(51) **Int. Cl.⁷** **C12Q 1/46; C12Q 1/44; C12Q 1/28; C12Q 1/26**

(52) **U.S. Cl.** **435/20; 435/19; 435/28; 435/18; 435/25; 435/289.1; 435/283.1; 435/287.1; 435/286.5; 435/963; 435/970**

(58) **Field of Search** **435/20, 19, 28, 435/18, 25, 289.1, 283.1, 287.1, 286.5, 963, 970**

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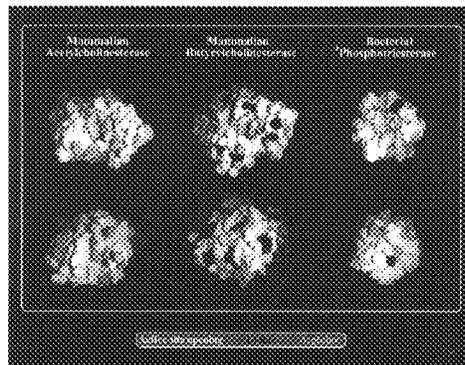
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(57) **ABSTRACT**

Methods, compositions and materials useful in the detection of organophosphorous and organosulfur compounds are disclosed. In particular, biosensors wherein a porous or a non-porous support having an enzyme immobilized upon or within are disclosed. The biosensors exhibit enzymatic stability at extreme temperatures and/or denaturing conditions, and similar kinetic characteristics of the soluble form of the enzymes utilized. The enzyme does not leach from the porous or non-porous support and the material retains enzymatic activity after prolonged storage. Differential biosensors are also disclosed.

31 Claims, 31 Drawing Sheets



Modeled surfaces of ChEs and triesterase. The top row shows a view of the front of the enzymes with the lip of the active site gorge outlined with a dotted line in the center. The bottom row shows the backside of the enzymes (180° rotation). The Lysine and Arginine residues on the surface, which are potential coupling sites to the polymer, are shaded dark in both the top and bottom row.