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(71) Applicant (for all designated States except US): **UNIVERSITY OF SOUTH FLORIDA** [US/US]; 4202 East Fowler Avenue, FAO 126, Tampa, FL 33620-7900 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **YU, Bazhang** [CN/US]; 14223 Les Palms Circle, Apt. 3, Tampa, FL 33613 (US). **MOUSSY, Francis** [FR/US]; 10457 Canary Isle Drive, Tampa, FL 33647 (US).

(74) Agent: **MCGAW, Michael, M.**; Smith & Hopen, P.A., 15950 Bay Vista Drive, Suite 220, Clearwater, FL 33760 (US).

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(54) Title: EPOXY ENHANCED POLYMER MEMBRANE TO INCREASE DURABILITY OF BIOSENSORS

(57) Abstract: The present invention provides a polymer membrane enhanced with cured epoxy resin for use as the outer membrane of biosensors. The membrane includes approximately 30-80% epoxy resin adhesives, 10-60% polymer such as poly(vinyl chloride), polycarbonate and polyurethane and 0-30% plasticizers and 5-15% surface modifier reagent such as polyethylene oxide-containing block copolymers. Utilizing the polymer membrane of the present invention, a three-layered sensing element has been developed. This sensing element will be particularly useful for miniaturized biosensors used for in vitro blood measurements or for continuous in vivo monitoring such as implantable biosensors. This element includes an enzyme layer, an interferenceeliminating layer and the novel polymer member of the present invention as the outer polymer layer. This novel sensing element shows excellent response characteristics in solutions and has an extremely long lifetime. This technology is particularly useful for improving the lifetime of implantable biosensors.

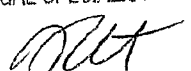


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A. CLASSIFICATION OF SUBJECT MATTER IPC: Please See Continuation Sheet USPC: Please See Continuation Sheet According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) U.S. : 428/413,414,415,416,417,418; 523/105,112,113; 525/92H,107,438,463,476,523,528,529,530,531,532,533 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EAST: USPAT, US-PGPUB, USOCR, EPO, JPO, DERWENT		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y --- A	US 5,223,124 A (EGE) 29 June 1993 (29.06.1993), column 3, line 22 through column 4, line 37; column 5, line 1 through column 6, line 46.	1-14,17 ----- 15,16,18-24
Y --- A	US 2003/0070548 A1 (CLAUSEN) 17 April 2003 (17.04.2003), Abstract; paragraph 0031.	1-14,17 ----- 15,16,18-24
Y --- A	US 5,322,063 A (ALLEN et al) 21 June 1994 (21.06.1994), column 3, line 15 through column 4, line 15.	3,6,13 ----- 1,2,4,5,7-12,14-24
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
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