



US005236567A

United States Patent [19]

[11] Patent Number: **5,236,567**

Nanba et al.

[45] Date of Patent: **Aug. 17, 1993**

[54] ENZYME SENSOR

[56] References Cited

[75] Inventors: Akira Nanba, Shobara; Masahiro Fukaya, Aichi; Hajime Okumura, Handa; Yoshiya Kawamura, Konan, all of Japan

U.S. PATENT DOCUMENTS

4,224,125	9/1980	Nakamura et al.	204/153.12
4,490,464	12/1984	Gorton et al.	204/403
4,545,382	10/1985	Higgins et al.	204/403
4,704,193	11/1987	Bowers et al.	204/153.12
4,711,245	12/1987	Higgins et al.	204/403
4,897,173	1/1990	Nankai et al.	204/403

[73] Assignee: Nakano Vinegar Co., Ltd., Handa, Japan

Primary Examiner—John Niebling
Assistant Examiner—Bruce F. Bell
Attorney, Agent, or Firm—Sherman and Shalloway

[21] Appl. No.: 528,088

[22] Filed: May 24, 1990

[57] ABSTRACT

[30] Foreign Application Priority Data

May 31, 1989	[JP]	Japan	1-135755
Dec. 5, 1989	[JP]	Japan	1-314310
Mar. 20, 1990	[JP]	Japan	2-68207

An enzyme sensor, which comprises an enzyme-modified electrode and a counter electrode, wherein the enzyme-modified electrode comprises, as electrode components, an enzyme and/or an enzyme-containing substance and mediator. The enzyme sensor is useful in analysis, such as the analysis of compounds in foods or components in the living body, the diagnosis of diseases and the control of reaction processes. The preparation of the enzyme-modified electrode is also described.

[51] Int. Cl.⁵ G01N 27/26

[52] U.S. Cl. 204/403; 204/418; 435/817; 435/288; 435/291; 436/518; 436/806

[58] Field of Search 204/403, 153.12, 416, 204/418, 419; 435/817, 288, 291; 436/518, 806

4 Claims, 12 Drawing Sheets

