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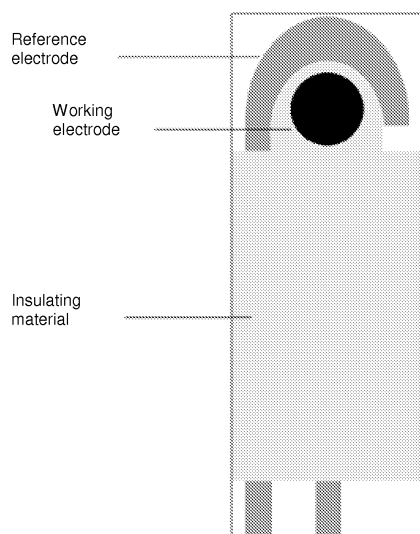
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(54) **Process for the preparation of modified electrodes, electrodes prepared with said process, and enzymatic biosensors comprising said electrodes**

(57) A process is described for the preparation of modified electrodes useful for the measurement of analytes in biological fluids, comprising the deposition of Prussian blue on screen printed electrodes, and the modified electrodes prepared via said process; the enzymatic electrodes and the biosensors comprising said modified electrodes and the method for the determination of analytes in biological fluids which uses said modified electrodes are also described.

Figure 1



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EUROPEAN SEARCH REPORT

Application Number  
EP 07 12 2884

| DOCUMENTS CONSIDERED TO BE RELEVANT  |   |   |   |
|--|---|---|---|
| Category   | Citation of document with indication, where appropriate, of relevant passages   | Relevant to claim   | CLASSIFICATION OF THE APPLICATION (IPC)                             |
| X  | IVANILDO LUIZ DE MATTOS ET AL: "Sensor and biosensor based on Prussian Blue modified gold and platinum screen printed electrodes",<br>BIOSENSORS AND BIOELECTRONICS, vol. 18, no. 2-3, March 2003 (2003-03), pages 193-200, XP055082440, ISSN: 0956-5663, DOI: 10.1016/S0956-5663(02)00185-9                              | 17,19-22  | INV.<br>A61B5/00<br>C12Q1/00<br>C12Q1/54<br>C23C18/16<br>G01N33/543 |
| A  | * 3.1. Electrodeposition and activation of PB film *  | 1-16  |   |
| X,D  | -----<br>RICCI F ET AL: "PRUSSIAN BLUE BASED SCREEN PRINTED BIOSENSORS WITH IMPROVED CHARACTERISTICS OF LONG-TERM LIFETIME AND PH STABILITY",<br>BIOSENSORS AND BIOELECTRONICS, ELSEVIER BV, NL, vol. 18, no. 2/03, March 2003 (2003-03), pages 165-174, XP001153799, ISSN: 0956-5663, DOI: 10.1016/S0956-5663(02)00169-0 | 17,19-22  | TECHNICAL FIELDS SEARCHED (IPC)                                     |
| Y  | * 2.5. Prussian Blue deposition *   | 18  | C23C  |
| A  | -----   | 1-16  |   |
| X  | US 4 859 306 A (SIDDIQI IQBAL [CH] ET AL)<br>22 August 1989 (1989-08-22)  | 17  |   |
| Y  | * column 4, line 17 - line 39 *   | 18  |   |
|  | -----<br>-/--   |   |   |
| <del>The present search report has been drawn up for all claims</del>  |   |   |   |
| Place of search<br><b>The Hague</b>  |   | Date of completion of the search<br><b>11 October 2013</b>  | Examiner<br><b>Le Hervet, Morgan</b>                                |
| CATEGORY OF CITED DOCUMENTS<br>X : particularly relevant if taken alone<br>Y : particularly relevant if combined with another document of the same category<br>A : technological background<br>O : non-written disclosure<br>P : intermediate document |   | T : theory or principle underlying the invention<br>E : earlier patent document, but published on, or after the filing date<br>D : document cited in the application<br>L : document cited for other reasons<br>.....<br>& : member of the same patent family, corresponding document |   |

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EPO FORM 1503 03/82 (P04C01)



EUROPEAN SEARCH REPORT

Application Number  
EP 07 12 2884

| DOCUMENTS CONSIDERED TO BE RELEVANT   |   |   |   |
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| Category  | Citation of document with indication, where appropriate, of relevant passages   | Relevant to claim   | CLASSIFICATION OF THE APPLICATION (IPC) |
| A   | <p>RICCI F ET AL: "Sensor and biosensor preparation, optimisation and applications of Prussian Blue modified electrodes", BIOSENSORS AND BIOELECTRONICS, ELSEVIER BV, NL, vol. 21, no. 3, 15 September 2005 (2005-09-15), pages 389-407, XP027619410, ISSN: 0956-5663 [retrieved on 2005-09-15]<br/>* 3.3 PB deposition procedures *</p> <p>-----</p> | 1-22  | <p>TECHNICAL FIELDS SEARCHED (IPC)</p>  |
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| A   | <p>US 2004/045821 A1 (CUI GANG [CN] ET AL) 11 March 2004 (2004-03-11)<br/>* example 1 *</p> <p>-----</p>  | 22  |   |
| <del>The present search report has been drawn up for all claims</del>   |   |   |   |
| Place of search<br><b>The Hague</b>   |   | Date of completion of the search<br><b>11 October 2013</b>  | Examiner<br><b>Le Hervet, Morgan</b>    |
| <p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone<br/>Y : particularly relevant if combined with another document of the same category<br/>A : technological background<br/>O : non-written disclosure<br/>P : intermediate document</p> |   | <p>T : theory or principle underlying the invention<br/>E : earlier patent document, but published on, or after the filing date<br/>D : document cited in the application<br/>L : document cited for other reasons<br/>.....<br/>&amp; : member of the same patent family, corresponding document</p> |   |

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EPO FORM 1503 03.02 (P04C01)



Application Number

EP 07 12 2884

**CLAIMS INCURRING FEES**

The present European patent application comprised at the time of filing claims for which payment was due.

- Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):
- No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

**LACK OF UNITY OF INVENTION**

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:
- 1-22
- The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



**LACK OF UNITY OF INVENTION  
SHEET B**

Application Number  
EP 07 12 2884

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-22

A process for the preparation of a screen printed electrode modified with Prussian blue

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2. claims: 23-25

A method for determination of the quantity of an analyte in a biological fluid.

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 07 12 2884

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

11-10-2013

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|   |                     | -----                      |                     |

|               |  |         |            |
|---------------|--|---------|------------|
| 专利名称(译)       | 制备修饰电极的方法，用所述方法制备的电极和包含所述电极的酶促生物传感器  |         |            |
| 公开(公告)号       | <a href="#">EP1935331A3</a>  | 公开(公告)日 | 2014-01-01 |
| 申请号           | EP2007122884   | 申请日     | 2007-12-11 |
| 申请(专利权)人(译)   | A. MENARINI INDUSTRIE FARMACEUTICHE RIUNITE S.R.L.                               |         |            |
| 当前申请(专利权)人(译) | A. MENARINI INDUSTRIE FARMACEUTICHE RIUNITE S.R.L.                               |         |            |
| [标]发明人        | PALLESCHI GIUSEPPE<br>RICCI FRANCESCO<br>MOSCONE DANILA<br>POSCIA ALESSANDRO     |         |            |
| 发明人           | PALLESCHI, GIUSEPPE<br>RICCI, FRANCESCO<br>MOSCONE, DANILA<br>POSCIA, ALESSANDRO |         |            |
| IPC分类号        | A61B5/00 C12Q1/00 C12Q1/54 C23C18/16 G01N33/543                                  |         |            |
| CPC分类号        | C12Q1/001 C12Q1/003 C23C18/1204 C23C18/1601 G01N33/5438 Y10T436/144444           |         |            |
| 审查员(译)        | LE HERVET , MORGAN   |         |            |
| 优先权           | 102006901475419 2006-12-13 IT  |         |            |
| 其他公开文献        | EP1935331B1<br>EP1935331A2   |         |            |
| 外部链接          | <a href="#">Espacenet</a>  |         |            |

摘要(译)

描述了一种制备用于测量生物流体中分析物的修饰电极的方法，包括在丝网印刷电极上沉积普鲁士蓝，以及通过所述方法制备的修饰电极；还描述了包含所述修饰电极的酶电极和生物传感器以及使用所述修饰电极测定生物流体中分析物的方法。

Figure 1

