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(54) Title: IMPROVED DETECTION SIGNAL AND CAPTURE IN DIPSTICK ASSAYS

(57) **Abstract:** Improved dipstick assays for testing for the presence of a target nucleic acid in a sample solution are described. A dipstick is provided which comprises a contact end for contacting the sample solution and a capture zone remote from the contact end for capturing target nucleic acid. Sample solution is contacted with the contact end to cause sample solution to move by capillary action to the capture zone. Target nucleic acid in the sample solution is captured at the capture zone and is detected by a plurality of different labelled detection probes each capable of hybridising to a different region of the target nucleic acid. The detection signal is thereby enhanced. In other methods a plurality of different capture probes are added to the sample solution which can then be bound by a capture moiety at the capture zone to indirectly capture target nucleic acid. Capture of target nucleic acid is thereby improved. Kits and dipsticks for carrying out such methods are also described.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12Q1/68 G01N33/543 G01F23/04 G01N33/558

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)

IPC 7 C12Q G01F G01N

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 practical, search terms used)

EPO-Internal, WPI Data, PAJ, MEDLINE, BIOSIS, EMBASE, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 310 650 A (MCMAHON MICHAEL E ET AL) 10 May 1994 (1994-05-10) cited in the application abstract column 10, line 62 -column 11, line 8 column 11, line 36 -column 12, line 68 claims 1,7,16; figures 1-3; examples 3,5 ---	2,3,5, 15-17, 21-27, 36-39, 41,44
Y	WO 94 23299 A (QUIDEL CORP) 13 October 1994 (1994-10-13) the whole document --- -/--	1-26, 28-47

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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E earlier document but published on or after the international filing date

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O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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& document member of the same patent family

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	MAAG H ET AL: "OLIGODEOXYNUCEOTIDE PROBES WITH MULTIPLE LABELS LINKED TO THE 4'-POSITION OF THYMIDINE MONOMERS: EXCELLENT DUPLEX STABILITY AND DETECTION SENSITIVITY" TETRAHEDRON LETTERS, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 35, no. 35, 1994, pages 6449-6452, XP002928477 ISSN: 0040-4039 * see especially page 6451, paragraph 2 - 6452, first paragraph; as well as the table * the whole document ---	1,5-26, 28-30, 34,35, 37-41
Y	WO 91 08307 A (MICROPROBE CORP) 13 June 1991 (1991-06-13) abstract page 1, line 1 - line 21 page 5, line 19 -page 6, line 31 page 18, line 25 -page 20, line 19; claims 1,3,10-12,20-23,28,29; figure 1; example 1 ---	1-4,9, 10, 28-30, 34-36, 42-47
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Y	WO 96 29097 A (RES CORP TECHNOLOGIES INC) 26 September 1996 (1996-09-26) abstract page 21, line 19 -page 22, line 12; claims 1,3,16,17 -----	28-35

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Information on patent family members

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