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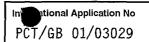
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(54) Title: IMPROVED CAPTURE AND DETECTION FORMAT VERSATILITY FOR DIPSTICK ASSAYS

(57) Abstract: Dipsticks for testing for the presence of a target nucleic acid in a sample solution are described the dipsticks comprise a universal capture probe immobilised at a capture zone of the dipstick. The universal capture probe is capable of hybridising to a hook capture probe which is hybridised to the target nucleic acid in the sample solution. A contact end of the dipstick is contacted with the sample solution to cause hook capture probe hybridised to the target nucleic acid to move by capillary action to the capture zone where the target nucleic acid can be detected. Use of the universal and hook capture probes allows dipsticks to be prepared which can be used to capture any target nucleic acid, thereby simplifying preparation of the dipsticks. Specificity of target nucleic acid capture is then achieved by use of an appropriate hook capture probe. Methods and kits are also described.



A. CLASSIFICATION OF SUBJECT MATTER IPC 7 C12Q1/68 G01N33/543

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

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, BIOSIS, PAJ

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4 751 177 A (STABINSKY YITZHAK) 14 June 1988 (1988-06-14) column 3, line 36 -column 4, line 2; claims 1-19	1-63
Υ	US 4 868 105 A (URDEA MICKEY ET AL) 19 September 1989 (1989-09-19) column 1, line 41 -column 2, line 6	1-63
Υ	US 5 681 697 A (URDEA MICHAEL S ET AL) 28 October 1997 (1997-10-28) column 2, line 54 -column 3, line 29; figures 1-7	1-63
Y	EP 0 198 662 A (AMERSHAM INT PLC) 22 October 1986 (1986-10-22) page 5, line 22 -page 9, line 4; claims 1-6	1-63

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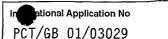
In ational Application No PCT/GB 01/03029

Continua	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	101/48 01/03029		
Category °		Relevant to claim No.		
Y	US 5 747 248 A (COLLINS MARK L) 5 May 1998 (1998-05-05) column 5, line 61 - line 65 column 8, line 62 -column 11, line 15; figure 1	1-63		
Y	US 5 310 650 A (MCMAHON MICHAEL E ET AL) 10 May 1994 (1994–05–10) column 2, line 46 –column 3, line 46; examples 5,6	1-63		
Y	W0 95 27081 A (DU PONT) 12 October 1995 (1995-10-12) page 6, line 19 -page 7, line 14; figures 1-3	1-63		

Information on patent family members

In ational Application No
PCT/GB 01/03029

						01/03029
	ent document in search report		Publication date		Patent family member(s)	Publication date
US 4	4751177 	A 	14-06-1988	NONE		سنة منت من وي ويدا سنا الله المدار
US 4	4868105	A	19-09-1989	AT AT CA CA DE DE DE EP ES JP JP US US	113078 T 204288 T 1303033 A1 1317207 A2 3650103 D1 3650103 T2 3650760 D1 3650760 T2 0225807 A2 0423839 A2 2061441 T3 2160569 T3 6339378 A 2655569 B2 62188970 A 4910300 A 5093232 A	15-11-1994 15-09-2001 09-06-1992 04-05-1993 24-11-1994 30-03-1995 20-09-2001 18-04-2002 16-06-1987 24-04-1991 16-12-1994 16-11-2001 13-12-1994 24-09-1997 18-08-1987 20-03-1990 03-03-1992
US !	5681697	Α	28-10-1997	AU AU CA EP HU JP WO US	694468 B2 1303895 A 2178598 A1 0731848 A1 74225 A2 9507024 T 9516055 A1 5635352 A	23-07-1998 27-06-1995 15-06-1995 18-09-1996 28-11-1996 15-07-1997 15-06-1995 03-06-1997
EP (0198662	Α	22-10-1986	EP JP	0198662 A1 61274699 A	22-10-1986 04-12-1986
US !	5747248	A	05-05-1998	AU CA EP JP WO US	4595996 A 2207011 A1 0795033 A2 10509595 T 9617955 A2 5736327 A	26-06-1996 13-06-1996 17-09-1997 22-09-1998 13-06-1996 07-04-1998
US !	5310650	A	10-05-1994	US AT AU CA DE EP AU CA DE EP JP JP JP	4960691 A 157404 T 636875 B2 5119690 A 2012355 A1 69031318 D1 0387696 A2 2283299 A 85130 T 598871 B2 7903187 A 1303493 A1 3783845 D1 3783845 D1 3783845 T2 0262328 A2 2038973 T3 2086308 C 7036017 B 63096559 A	02-10-1990 15-09-1997 13-05-1993 20-09-1990 17-09-1990 02-10-1997 19-09-1990 20-11-1990 15-02-1993 05-07-1990 31-03-1988 16-06-1992 11-03-1993 09-06-1993 06-04-1988 16-08-1993 23-08-1996 19-04-1995 27-04-1988



	Information on patent family members			PCT/GE	PCT/GB 01/03029	
Patent document cited in search report		Publication date		Patent family member(s)	Publication date	
WO 9527081	Α	12-10-1995	WO US	9527081 A1 6037127 A	12-10-1995 14-03-2000	
				<u> </u>		
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