

Subtelomere Specific probes

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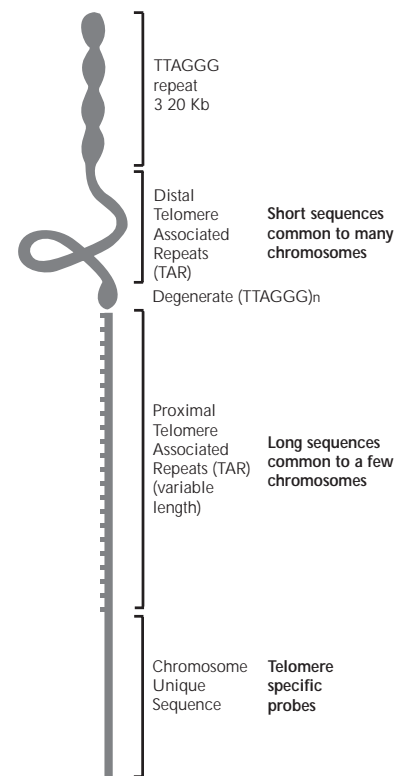
Chromosomal rearrangements involving the ends of chromosomes have emerged as an important cause of genetic disease given the gene-rich nature of the regions adjacent to the telomeres.¹ The importance of such subtelomeric chromosome rearrangements has been clearly shown by their observed association with unexplained mental retardation and congenital abnormalities.²

Individual subtelomere specific probes have been used to focus on particular subtelomeric regions and have resulted in the establishment of new syndromes such as the chromosome 1p36 deletion syndrome³ and the 22q13.3 deletion syndrome.⁴ The probes are also finding applications in the investigation of autistic disorders⁵, recurrent miscarriages⁶ and haematological malignancies.⁷

Cytocell's subtelomere specific probes are located in the most distal region of chromosome specific DNA on each chromosome. Beyond this unique sequence material is the 100 to 300 kb region of telomere associated repeat, followed by the cap of between 3 to 20 kb of tandemly repeated (TTAGGG)_n sequence.⁸

The probes have been chosen from the most distal unique sequence to provide the best possible chromosome specificity whilst also being the most subtelomeric probes available that are capable of being used routinely to examine subtelomere enumeration and integrity.

The original second-generation set of probes is derived from PAC clones⁹ and was established in conjunction with the Institute of Molecular Medicine, part of Oxford University in the UK. Continuing product improvements have led to some substitutions with alternative



cosmid (35–40 kb) or BAC (150 kb) clones to give improved signal strength or chromosome specificity. The average probe size is therefore 100 kb, and all of them have been mapped to within a maximum of 600 kb of the true telomere.

CytoCell offers a complete set of subtelomere specific probes available in the Aquarius® liquid format. The set identifies 41 of the 46 human subtelomeres with the exclusion of the p-arm telomeres of the acrocentric chromosomes. The probes are available independently and directly labelled in either a red or a green fluorophore (Texas Red or FITC spectra respectively).

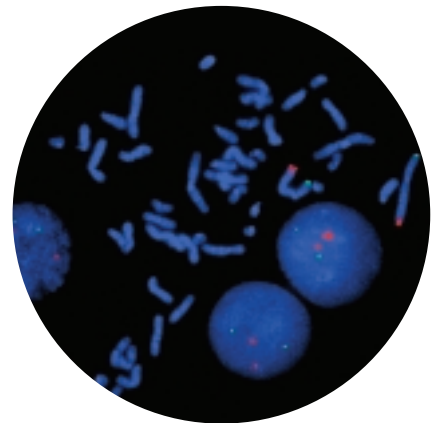
The probes are supplied in an economical 5 test format and are concentrated to allow the mixing, if required, of up to 3 Aquarius subtelomere specific probes in the same hybridisation.

The kits come complete with hybridisation solution, DAPI counterstain and full instructions for using the rapid and simple co-denaturation protocol.

FEATURES

- Most subtelomeric probe set available providing high resolution detection of subtelomeric chromosome rearrangements
- Detection of balanced chromosome rearrangements otherwise missed by alternative techniques
- Directly labelled with a choice of label: red or green
- Aquarius® liquid probe format
- Simple and clean: co-denaturation protocol
- Visible using standard microscope filters for Texas Red or FITC filters or combinations
- 5 assay kit format which includes hybridisation solution, DAPI counterstain and full instructions for use

The probe mixtures are designed for fluorescence *in situ* hybridisation of interphase cells and metaphase chromosomes from cultured peripheral blood cells.



Subtelomere Specific Probes for chromosome 2: 2pter (green); 2qter (red)

REFERENCES

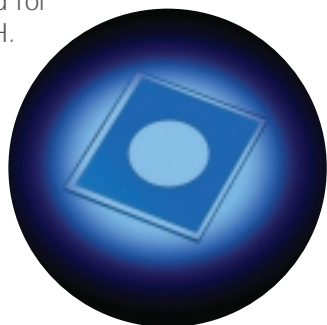
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Related Products

Chromoprobe®-Choices Subtelomere Specific Probe Range

The Chromoprobe-Choices range consists of coverslips coated with reversibly bound subtelomere specific probes. Each coverslip contains the probes for both p-arm and q-arm of a single chromosome, labelled in different colours (green and red respectively). Coverslips are available for all the human chromosomes so that the user can select a minimum of 10 coverslips, each one specific for an individual chromosome, if required.

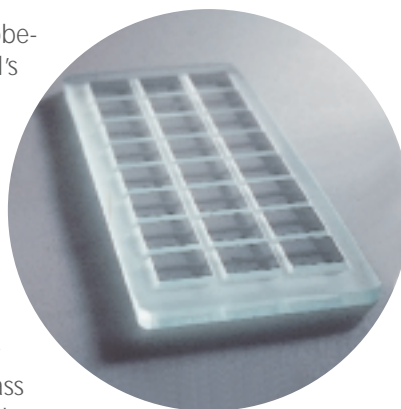
Kits are supplied with all the necessary hybridisation solution and DAPI counterstain required for the FISH.



Chromoprobe Multiprobe®-T System

The Chromoprobe Multiprobe-T System combines Cytocell's Chromoprobe Multiprobe technology with a complete set of subtelomere probes to allow the simultaneous analysis of all subtelomeric regions of every chromosome on one slide in one hybridisation. It consists of a Multiprobe glass device with 24 squares, each one carrying the subtelomere specific probes for both the p-arm and the q-arm of one of the 23 chromosomes reversibly applied to it.

For catalogue numbers and more information on this product, please refer to our brochure, "Chromoprobe Multiprobe®-T System" or visit our website www.cytocell.com



Ordering Information

For more information on Cytocell's products or to place an order, please contact your authorised local distributor. For distributor details, visit www.cytocell.com

Subtelomere Specific Probe Information

Probe Specificity	Clone Name	Marker (STS)	Accession Number (if available)	Max. physical distance from Telomere (kb)	Clone Reference	Aquarius Cat. No.*	Choices Cat.No.
1p	CEB108	CEB108/T7	-	<300	-	LPT01PR/G	PCT101
1q	160H23	1qtel19	D1S3739	80	9	LPT01QR/G	PCT101
2p	dJ892G20	2ptel27	D2S2983	330	9	LPT02PR/G	PCT102
2q ^{12,13}	dJ1011O17	2qtel47	D2S2986	240	9	LPT02QR/G	PCT102
2q NP ^{12,13}	172I13	VIJ-YRM2112	D2S447	240	9	LPT02QNPR/G	N/A
3p	dJ1186B18	3ptel25	D3S4559	450	9	LPT03PR/G	PCT103
3q	196F4	3qtel06	D3S1272	450	9	LPT03QR/G	PCT103
4p	36P21	4ptel04	D4S3360	73	9	LPT04PR/G	PCT104
4q	dJ963K6	4qtel11	-	275-500	9	LPT04QR/G	PCT104
5p	189N21	5ptel48	-	unknown	9	LPT05PR/G	PCT105
5q	240G13	5qtel70	D5S2097	245	9	LPT05QR/G	PCT105
6p	62I11	6ptel48	-	300	9	LPT06PR/G	PCT106
6q	57H24	6qtel54	D6S2522	280	14	LPT06QR/G	PCT106
7p	109a6	-	G31341	<255	14	LPT07PR/G	PCT107
7q	2000a5	-	G31340	<8	9	LPT07QR/G	PCT107
8p	dJ580L5	8ptel91	D8S2333	250	9	LPT08PR/G	PCT108
8q	489D14	8qtel11	D8S1925	170	9	LPT08QR/G	PCT108
9p	43N6	9ptel30	-	600	9	LPT09PR/G	PCT109
9q	112N13	9qtel33	D9S2168	65	9	LPT09QR/G	PCT109
10p	306F7	10ptel45	D10S2488	320	9	LPT10PR/G	PCT110
10q	137E24	10qtel24	D10S2490	270	9	LPT10QR/G	PCT110
11p	dJ908H22	11ptel03	D11S2071	125	9	LPT11PR/G	PCT111
11q	dJ770G7	11qtel38	D11S4974	65	9	LPT11QR/G	PCT111
12p	496A11	12ptel27	-	unknown	9	LPT12PR/G	PCT112
12q	221K18	12qtel87	D12S2343	190	9	LPT12QR/G	PCT112
13q	163C9	13qtel56	D13S1825	170	9	LPT13QR/G	PCT113
14q	dJ820M16	14qtel01	D14S1420	200	9	LPT14QR/G	PCT114
15q	154P1	WI-5214	D15S936	300	14	LPT15QR/G	PCT115
16p	121I4	16ptel05	D16S3400	160	9	LPT16PR/G	PCT116
16q	240G10	16qtel48	-	200	9	LPT16QR/G	PCT116
17p	202L17	17ptel80	D17S2199	60	9	LPT17PR/G	PCT117
17q	362K4	17qtel13	D17S2200	90	9	LPT17QR/G	PCT117
18p	74G18	VIJ-YRM2102	D18S552	220	9	LPT18PR/G	PCT118
18q	dJ964M9	18qtel11	D18S1390	290	9	LPT18QR/G	PCT118
19p	dJ546C11	19ptel29	-	250-500	9	LPT19PR/G	PCT119
19q	F21283	19qtel82	-	-	14	LPT19QR/G	PCT119
20p	dJ106L1	20pthy33	D20S502	180	9	LPT20PR/G	PCT120
20q	81F12	20qtel14	-	50	9	LPT20QR/G	PCT120
21q	63H24	21qtel07	D21S1575	175	9	LPT21QR/G	PCT121
22q	99K24	22qtel31	D22S1726	120	9	LPT22QR/G	PCT122
XpYp**	839D20	-	DXYS129	160	9	LPTXYPR/G	PCT123
XqYq***	C8.2/1	-	DXYS61	<90	15	LPTXYQR/G	PCT123

* R specifies a red label, G specifies a green label
 ** This probe is specific for the p-arms of both X and Y
 *** This probe is specific for the q-arms of both X and Y

Cytocell's products should be used in accordance with the Instructions For Use.



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The Chromoprobe principle is covered by international patents WO9314223, EP0623177. The design of the Multiprobe is a registered design, number 2050801 and is also covered by Design Patent No.436,668.