Description of an HLA-DQA1 RFLP allele [DQα4] defining DQw4/DRw8-bearing haplotypes

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SOURCE AND DESCRIPTION OF CLONE: A 797 bp Pst I fragment, DQA1 pDHC1 (1) was used as a probe.
POLYMORPHISM: Genomic DNA Taq I (T'CGA) digests hybridized with the DQA1 probe show two distinct RFLP alleles where it was thought only to be one, i.e: a 6.7kb and a 6.4 Kb band instead of the previously described 6.7 kb fragment (named DQα1b, 2, 3, 4).
FREQUENCY OF PRESENCE: Analyzed individuals, n=214; +ve for 6.7 kb, n=48 (22%); +ve for 6.4 kb, n=8 (4%). The associations of RFLP-Taq I-DQA1 alleles with the RFLP-Taq I-DRB1 ones in our panel are:

RFLP-Taq I-DQA1 (kb) ALLELES	RFLP-Taq I-DRB1 ALLOGENOTYPING	++	+-	-+	--
6.7	DRw13a3, 15, 16	48	0	0	166
6.4	DRw8	8	0	0	206

NOT POLYMORPHIC FOR: The alleles detected by Taq I (6.4 and 6.7 kb bands) are not found when using Pvu II and Bam HI.
CHROMOSOMAL LOCALIZATION: The DQA1 gene is localized in the HLA region on the short arm of human chromosome 6.
MENDELIAN INHERITANCE: Separate segregation of the 6.4 and 6.7 alleles was assesed in 1 family with 6 individuals (see figure and table).
PROBE AVAILABILITY: From Prof. Jack Strominger, Department of Biochemistry and Molecular Biology; Harvard University. Cambridge. Massachusetts 02138.
OTHER COMMENTS: The results show that the previously described 6.7 kb DQA1 Taq I allele(named DQα1b, 2) which was found associated with DRw13a3, 15, 16 and DRw8 (2) may really be split in two different alleles; they are over -lapping and not distinguishable in short-run gels (18hr, 27 V., 2, 3; ours are long-run gels, 52 hr, 30 V.). One of them has 6.7 kb and correlates only with DRw13a3, 15, 16 but not with DRw8 (it may still be named DQα1b) and the other one has 6.4 kb and correlates only with DRw8 (we therefore propose the name DQα4). In conclusion, we identify two DQA1-Taq I alleles; one of them is an specific marker for DQw4 (5) and the other one corresponds to a subtype of the DQw1 antigen.
REFERENCES: 1)Auffray et al. Proc. Natl. Acad. Sci. USA. 79, 6337 (1982), 2) Bidwell J.F. et al. Immunology Today 9, 18-23 (1988), 3) Bidwell J.F. Mol. Immunol. 24, No. 5, 513-522 (1987), 4) Hurley C.K. et al. J. of Immunol. 140, 886-892 (1988), 5) Bodmer W.F. et al. Immunogenetics 28, 391-398 (1988).
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HAPLOTYPES	SEROLOGY							ALLOGENOTYPING		
	A	Cw	B	Bw4/6	DR	DRw52/53	DQw	DRB1	DQA1	DQB1
a	2	7	8	6	w8	52	blank	8	4*	3a
b	29	5	44	4	4	53	3(2B3)	4	3	3a
c	11	-	w52	4	2		1	15	1c	x
d	29	2	-	6	w13	52	1	13a3	1b	1a

* New HLA-DQA1-Taq I-RFLP allele described in this paper.