

Olerup SSP® HLA-B*35

Product number:	101.522-24/03 – including <i>Taq</i> pol.
Lot number:	88E
Expiry date:	2010-August-01
Number of tests:	24 tests – Product No. 101.522-24 3 tests – Product No. 101.522-03
Number of wells per test:	48
Storage - pre-aliquoted primers:	dark at -20°C
- PCR Master Mix:	-20°C
- Adhesive PCR seals	RT
- Product Insert	RT

This Product Description is only valid for Lot No. 88E.

CHANGES COMPARED TO THE PREVIOUS OLERUP SSP® HLA-B*35 LOT

The HLA-B*35 low resolution specificity and interpretation tables have been updated for the HLA-B alleles described since the previous Olerup SSP® HLA-B*35 lot was made (Lot No. X97).

The primers of the wells detailed below have been exchanged, added or modified compared to the previous lot.

Well	5'-primer	3'-primer	rationale
5	-	-	Changed to the 800 bp internal positive control.
10	Added	Added	Primer pair added for the B*3583 allele.
25	-	-	Changed to the 800 bp internal positive control.
36	Added	-	Primer added for the B*3579 allele.
41	-	Added	Primer added for the B*3582 and 3585 alleles.
44	-	Added	Primer added for the B*3578 allele.

Change in revision R01 compared to R00:

1. The B*460101 and B*460102 alleles are amplified by primer mix 28.

Change in revision R03 compared to R02:

2. The B*8201 allele is not amplified by primer mix 21.

PRODUCT DESCRIPTION

HLA-B*35 SSP subtyping

CONTENT

The primer set contains 5'- and 3'-primers for identifying the B*3501 to B*3588 alleles.

PLATE LAYOUT

Each test consists of 48 PCR reactions in a 48 well cut PCR plate.

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48

The 48 well cut PCR plate is marked with 'HLA-B*35'.

Well No. 1 is marked with the Lot No. '88E'.

The PCR plates are covered with a PCR-compatible foil.

Please note: When removing each 48 well PCR plate, make sure that the remaining plates stay covered. Use a scalpel or a similar instrument to carefully cut the foil between the plates.

INTERPRETATION

Due to the lack of B*35-specific sequence motifs, the interpretation of HLA-B*35 SSP subtypings will be influenced by many other HLA-B alleles. In addition, the Cw*0110 and Cw*0715 alleles will be weakly amplified by primer mix 30, the Cw*0203 and Cw*0512 alleles by primer mix 23, the Cw*0305, Cw*0325 and Cw*0327 alleles by primer mix 28, the Cw*0328, Cw*1510 and Cw*1508 alleles by primer mix 11, the Cw*0510 and the Cw*1508 alleles by the primer mix 11 and the Cw*070401-070402, the Cw*0711, Cw*0712 and the Cw*0745 alleles weakly by primer mix 47.

UNIQUELY IDENTIFIED ALLELES

All the HLA-B*35 alleles, i.e. **B*3501 to B*3588**, recognized by the HLA Nomenclature Committee in April 2008¹ will give rise to unique amplification patterns by the primers in the HLA-B*35 subtyping kit.

The HLA-B*35 subtyping kit cannot distinguish the B*350101 to B*350103, 350105 to 350107 alleles, the B*350201 and B*350202, the B*350401 and B*350402, the B*350801 and B*350802 alleles, the B*352001 and B*352002 alleles.

¹HLA-B alleles listed on the IMGT/HLA web page 2008-April-08, release 2.21.0, www.ebi.ac.uk/imgt/hla.

RESOLUTION IN HOMO- AND HETEROZYGOTES

The 87 HLA-B*35 alleles will give rise to 91 different amplification patterns (the B*350104 and B*35010x, the B*350801/350802 and 350803, the B*350901 and 350902, the B*351401 and 351402, B*356801 and B*356802 alleles yield different amplification patterns), that can be combined in 4 186 homozygous and heterozygous combinations. 1 679 of these genotypes do not give rise to unique amplification patterns. The different sizes of the specific PCR fragments generated by primer mixes 10, 16, 17, 22, 25, 26, 30, 31, 33, 35, 36, 38, 41, 42, 44 and 46 were not considered in these calculations.

+++++--	++-----	-----+-	---+-----	-----+-	-----++	3505,3583 = 3551,3583
+++++--	++-----	-----+-	-----	-----+-	-----++	3517,3583 = 3530,3583
+++++--	+-----+	-----+-	---+-----	-----	-----++	3519,3522 = 3522,3577
+++++--	+-----	-+-----	---+-----	-----	-----++	3504,3572 = 3520,3522
+++++--	+-----	--+-----	---+-----	-----	-----++	3522,3529 = 3522,3576
+++++--	+-----	-----++	---+-----	-----+-	-----++	3505,3581 = 3551,3581
+++++--	+-----	-----++	-----	-----+-	-----++	3517,3581 = 3530,3581
+++++--	+-----	-----+-	---+-----	-----+-	-----++	3502,3505 = 3502,3551
+++++--	+-----	-----+-	---+-----	-----	+-----++	3522,3552 = 3522,3582
+++++--	+-----	-----+-	---+-----	-----	-----++	350104,3522 = 3504,3505 = 3504,3551 = 3522,3530 = 3522,3557
+++++--	+-----	-----+-	-----	-----+-	-----++	3502,3517 = 3502,3530
+++++--	+-----	-----+-	-----	-----	-----++	3504,3517 = 3504,3530
+++++--	-+-----+	-----+-	-----	-----+-	-----++	3519,3583 = 3577,3583
+++++--	-+-----	--+-----	-----+	-----+-	-----++	3529,3583 = 3576,3583
+++++--	-+-----	-----++	-----	-----+-	-----++	3507,3581 = 3524,3583
+++++--	-+-----	-----+-	-----	--+-----	-----++	3540N,3583 = 356801,3583
+++++--	-+-----	-----+-	-----	-----+-	+-----++	3552,3583 = 3582,3583
+++++--	-+-----	-----+-	-----	-----+-	-----++	350104,3583 = 3557,3583
+++++--	-+-----	-----+-	-----	-----+-	-----++	3501,3583 = 3502,3507 = 3507,3583
+++++--	--+-----	-----+-	-----	-----	-----++	3508,3512 = 350803,3512
+++++--	-----+	-----+-	---+-----	-----+-	-----++	3519,3544 = 3544,3577
+++++--	-----+	--+-----	---+-----	-----+-	-----++	3529,3544 = 3544,3576
+++++--	-----+	-----++	-----	-----+-	-----++	3502,3521 = 3511,3581 = 3521,3581
+++++--	-----+	-----+-	---+-----	-----+-	+-----++	3544,3552 = 3544,3582
+++++--	-----+	-----+-	---+-----	-----+-	-----++	350104,3544 = 3544,3557
+++++--	-----+	-----	---+-----	-----+-	-----++	3511,3544 = 3514,3544 = 3544,3562
+++++--	-----++	-----+-	-----	-----	-----++	3512,3519 = 3512,3577
+++++--	-----+	--+-----	-----+	-----	-----++	3512,3529 = 3512,3576
+++++--	-----+	-----++	-----	-----	-----++	3512,3524 = 3512,3546
+++++--	-----+	-----+-	-----	--+-----	-----++	3512,3540N = 3512,356801
+++++--	-----+	-----+-	-----	-----	+-----++	3512,3552 = 3512,3582
+++++--	-----+	-----+-	-----	-----	-----++	3501,3512 = 350104,3512 = 3512,3557
+++++--	-----+	-----++	-----	-----+-	-----++	3519,3581 = 3577,3581
+++++--	-----+	-----+-	-----	-----+-	-----++	3502,3519 = 3502,3577
+++++--	-----+	-----+-	-----	-----	-----++	3504,3519 = 3504,3577
+++++--	-----	--+-----	-----+	-----+-	-----++	3529,3581 = 3576,3581
+++++--	-----	--+-----	-----+	-----+-	-----++	3502,3529 = 3502,3576
+++++--	-----	--+-----	-----+	-----	-----++	3504,3529 = 3504,3576
+++++--	-----	-----++	-----	--+-----	-----++	3540N,3581 = 356801,3581
+++++--	-----	-----++	-----	-----+-	+-----++	3552,3581 = 3581,3582

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+++++--	-----	-----++	-----	-----+	-----++	350104,3581 = 3502,3546 = 3546,3581 = 3557,3581
+++++--	-----	-----++	-----	-----+	-----++	3501,3581 = 3502,3524 = 3524,3581
+++++--	-----	-----+	-----	-----+	-----++	3502,3540N = 3502,356801
+++++--	-----	-----+	-----	-----+	-----++	3504,3540N = 3504,356801
+++++--	-----	-----+	-----	-----+	-----++	3502,3552 = 3502,3582
+++++--	-----	-----+	-----	-----+	-----++	350104,3502 = 3502,3557
+++++--	-----	-----+	-----	-----+	-----++	3504,3552 = 3504,3582
+++++--	-----	-----+	-----	-----+	-----++	350104,3504 = 3504,3557
+++++--	-----	-----+	-----	-----+	-----++	3505,3506 = 3506,3551
+++++--	-----	-----+	-----	-----+	-----++	3517,3560 = 3530,3560
+++++--	-----	-----+	-----	-----+	-----++	3506,3517 = 3506,3530
+++++--	-----	-----+	-----	-----+	-----++	3506,3561 = 3508,3559
+++++--	-----	-----+	-----	-----+	-----++	3508,3560 = 350803,3560
+++++--	-----	-----+	-----	-----+	-----++	3519,3559 = 3559,3577
+++++--	-----	-----+	-----	-----+	-----++	3529,3559 = 3559,3576
+++++--	-----	-----+	-----	-----+	-----++	3540N,3559 = 3559,356801
+++++--	-----	-----+	-----	-----+	-----++	3552,3559 = 3559,3582
+++++--	-----	-----+	-----	-----+	-----++	350104,3559 = 3557,3559
+++++--	-----	-----+	-----	-----+	-----++	3519,3560 = 3560,3577
+++++--	-----	-----+	-----	-----+	-----++	3506,3519 = 3506,3577
+++++--	-----	-----+	-----	-----+	-----++	3529,3560 = 3560,3576
+++++--	-----	-----+	-----	-----+	-----++	3506,3529 = 3506,3576
+++++--	-----	-----+	-----	-----+	-----++	3506,3540N = 3506,356801
+++++--	-----	-----+	-----	-----+	-----++	3552,3560 = 3560,3582
+++++--	-----	-----+	-----	-----+	-----++	3501,3560 = 350104,3560
+++++--	-----	-----+	-----	-----+	-----++	3506,3552 = 3506,3582
+++++--	-----	-----+	-----	-----+	-----++	350104,3506 = 3506,3557
+++++--	-----	-----+	-----	-----+	-----++	3517,3518 = 3518,3530
+++++--	-----	-----+	-----	-----+	-----++	3517,3588 = 3530,3588
+++++--	-----	-----+	-----	-----+	-----++	350902,3517 = 350902,3530
+++++--	-----	-----+	-----	-----+	-----++	350901,3517 = 350901,3530 = 3530,3587
+++++--	-----	-----+	-----	-----+	-----++	350902,3580 = 3510,3518 = 3518,3580
+++++--	-----	-----+	-----	-----+	-----++	3508,3588 = 3561,3588
+++++--	-----	-----+	-----	-----+	-----++	350902,3561 = 3518,3561
+++++--	-----	-----+	-----	-----+	-----++	3518,3519 = 3518,3577
+++++--	-----	-----+	-----	-----+	-----++	3518,3529 = 3518,3576
+++++--	-----	-----+	-----	-----+	-----++	3508,3531 = 350803,3531
+++++--	-----	-----+	-----	-----+	-----++	350902,3545 = 3518,3545 = 3518,3571
+++++--	-----	-----+	-----	-----+	-----++	3518,3552 = 3518,3582
+++++--	-----	-----+	-----	-----+	-----++	350104,3518 = 350803,350902 =
+++++--	-----	-----+	-----	-----+	-----++	3501,3518 = 3508,350902 = 3508,3518 = 3518,3527
+++++--	-----	-----+	-----	-----+	-----++	3508,3587 = 350803,350901 = 350803,3587
+++++--	-----	-----+	-----	-----+	-----++	3519,3588 = 3577,3588
+++++--	-----	-----+	-----	-----+	-----++	3529,3588 = 3576,3588
+++++--	-----	-----+	-----	-----+	-----++	3552,3588 = 3582,3588
+++++--	-----	-----+	-----	-----+	-----++	350104,3588 = 3557,3588
+++++--	-----	-----+	-----	-----+	-----++	3501,3588 = 3527,3588
+++++--	-----	-----+	-----	-----+	-----++	3519,3531 = 3531,3577
+++++--	-----	-----+	-----	-----+	-----++	350902,3519 = 350902,3577
+++++--	-----	-----+	-----	-----+	-----++	3519,3587 = 3577,3587

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+++++---	-----+	-----+-	-----	-----	-----	350901,3519 = 350901,3577
+++++---	-----	--++--+-	+-----+	-----+	-----	3529,3531 = 3531,3576
+++++---	-----	--+---+-	+-----+	-----+	-----	350902,3529 = 350902,3576
+++++---	-----	--+---+-	-----+	-----	-----	3529,3587 = 3576,3587
+++++---	-----	--+---+-	-----+	-----	-----	350901,3529 = 350901,3576
+++++---	-----	--+---+	+-----	-----+	+-----	3531,3552 = 3531,3582
+++++---	-----	--+---+	+-----	-----+	-----	3501,3531 = 350104,3531 = 3527,3531
+++++---	-----	-----++-	-----	-----	-----	350901,3546 = 3524,3587
+++++---	-----	-----+-	+-----	-----+	+-----	350902,3552 = 350902,3582
+++++---	-----	-----+-	+-----	-----+	-----	350104,350902 = 350902,3557
+++++---	-----	-----+-	+-----	-----+	-----	3501,350902 = 350902,3527
+++++---	-----	-----+-	-----	-----	+-----	3552,3587 = 3582,3587
+++++---	-----	-----+-	-----	-----	+-----	350901,3552 = 350901,3582
+++++---	-----	-----+-	-----	-----	-----	3501,3587 = 350104,350901 = 350104,3587 = 350901,3557
+++++---	+-----	-----+-	---+-----	-----	-----	3505,3534 = 3534,3551
+++++---	+-----	-----+-	-----	-----	-----	3517,3534 = 3530,3534
+++++---	--+---+-	-----+	-----	-----	-----	3508,3539 = 3534,3561
+++++---	-----++-	-----	---+-----	-----+	-----	3539,3543 = 3539,3567
+++++---	-----+-	-----+	---+-----	-----+	-----	3534,3543 = 3534,3567
+++++---	-----+++	-----+	-----	-----	-----	3519,3539 = 3539,3577
+++++---	-----+-	--+---+-	-----+	-----	-----	3529,3539 = 3539,3576
+++++---	-----+-	-----+	-----	---+-----	-----	3539,3540N = 3539,356801
+++++---	-----+-	-----+	-----	-----	+-----	3539,3552 = 3539,3582
+++++---	-----+-	-----+	-----	-----	-----	350104,3539 = 3539,3557
+++++---	-----++	-----+	-----	-----	-----	3519,3534 = 3534,3577
+++++---	-----	--+---+-	-----+	-----	-----	3529,3534 = 3534,3576
+++++---	-----	-----+-	-----	---+-----	-----	3534,3540N = 3534,356801
+++++---	-----	-----+	-----	-----	+-----	3534,3552 = 3534,3582
+++++---	-----	-----+	-----	-----	-----	350104,3534 = 3534,3557
+++++---	-----	-----+	-----	-----	-----	3503,3523 = 3523,3575
+++++---	+-----	-----+	---+-----	-----	-----	3505,3523 = 3523,3551
+++++---	+-----	-----+	-----	-----	-----	3517,3523 = 3523,3530
+++++---	-----+	-----+	---+-----	-----+	-----	3523,3543 = 3523,3567
+++++---	-----++	-----+	-----	-----	-----	3519,3523 = 3523,3577
+++++---	-----	--+---+-	-----+	-----	-----	3523,3529 = 3523,3576
+++++---	-----	-----+	-----	---+-----	-----	3523,3540N = 3523,356801
+++++---	-----	-----+	-----	-----	+-----	3523,3552 = 3523,3582
+++++---	-----	-----+	-----	-----	-----	350104,3523 = 3523,3557
+++++---	-----	-----+	-----	-----	-----	3501,3523 = 3523,3523
+++++---	+---+-----	-----+	---+-----	-----	-----	3505,3513 = 3513,3551
+++++---	+---+-----	-----+	-----	-----	-----	3513,3517 = 3513,3530
+++++---	+---+-----	-----+	-----	-----	-----	3503,3516 = 3516,3575
+++++---	+-----+-	-----+	---+-----	-----	-----	3505,3533 = 3533,3551
+++++---	+-----+-	-----+	---+-----	-----	-----	3503,3566 = 3517,3533 = 3530,3533 = 3533,3566
+++++---	+-----	+-----+-	---+-----	-----	-----	3505,3536 = 3536,3551
+++++---	+-----	+-----+-	-----	-----	-----	3517,3536 = 3530,3536
+++++---	+-----	--+---+-	---+-----	-----	-----	3505,3574 = 3551,3574
+++++---	+-----	--+---+-	-----	-----	-----	3517,3574 = 3530,3574
+++++---	+-----	-----+	+---+-----	-----	-----	3505,3556 = 3551,3556
+++++---	+-----	-----+	+-----	-----	-----	3517,3556 = 3530,3556
+++++---	+-----	-----+	-+---+---	-----	-----	3505,3584 = 3551,3584
+++++---	+-----	-----+	-+---+---	-----	-----	3517,3584 = 3530,3584
+++++---	+-----	-----+	---+-----	---+-----	-----	3505,3570 = 3551,3570
+++++---	+-----	-----+	---+-----	-----	+-----	3505,3585 = 3551,3585

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++++---+ +----- ------+ ----+----- ------ -+-----+ 3505,3565Q = 3551,3565Q
++++---+ +----- ------+ ----+----- ------ -+-----+ 3505,3555 = 3551,3555
++++---+ +----- ------+ ----+----- ------ -+-----+ 3503,3505 = 3503,3551
++++---+ +----- ------+ ----+----- ------ -+-----+ 3517,3570 = 3530,3570
++++---+ +----- ------+ ----+----- ------ -+-----+ 3517,3585 = 3530,3585
++++---+ +----- ------+ ----+----- ------ -+-----+ 3517,3565Q = 3530,3565Q
++++---+ +----- ------+ ----+----- ------ -+-----+ 3517,3555 = 3530,3555
++++---+ +----- ------+ ----+----- ------ -+-----+ 3503,3517 = 3503,3530 = 3517,3575 = 3530,3575
++++---+ -+----- ------+ ----+----- ------ -+-----+ 3503,3507 = 3507,3575
++++---+ --++----- ------+ ----+----- ------ -+-----+ 3503,3580 = 3508,3513 = 3575,3580
++++---+ --+---+--- ------+ ----+----- ------ -+-----+ 3503,3561 = 3561,3575
++++---+ --+----- ------+ ----+----- ------ -+-----+ 3503,3545 = 3545,3575
++++---+ --+----- ------+ ----+----- ------ -+-----+ 3503,350803 = 350803,3575
++++---+ --+----- ------+ ----+----- ------ -+-----+ 3503,3508 = 3508,3575
++++---+ --++----- ------+ ----+----- ------ -+-----+ 3513,3543 = 3513,3567
++++---+ --++----- ------+ ----+----- ------ -+-----+ 3510,3533 = 3513,3515
++++---+ --++----- ------+ ----+----- ------ -+-----+ 3503,3528 = 3513,3520 = 3528,3575
++++---+ ---+----- --+---+--- ------+ ----+----- ------ -+-----+ 3503,3569 = 3513,3529 = 3569,3574 = 3569,3575
++++---+ ---+----- ------+ +----- ------ -+-----+ 3510,3556 = 3513,3527
++++---+ ---+----- ------+ -+-----+ ------ -+-----+ 3510,3584 = 3513,3550
++++---+ ---+----- ------+ ------ --+----- ------ -+-----+ 3513,3540N = 3513,356801
++++---+ ---+----- ------+ ------ --+----- ------ -+-----+ 3510,3570 = 3513,3535
++++---+ ---+----- ------+ ------ --+----- ------ -+-----+ 3510,3585 = 3513,3552 = 3513,3582
++++---+ ---+----- ------+ ------ --+----- ------ -+-----+ 3510,3565Q = 3513,3553N
++++---+ ---+----- ------+ ------ --+----- ------ -+-----+ 3510,3555 = 3513,3578
++++---+ ---+----- ------+ ------ --+----- ------ -+-----+ 350104,3513 = 3513,3557
++++---+ ---+----- ------+ ------ --+----- ------ -+-----+ 3501,3513 = 3503,3510 = 3510,3575
++++---+ ---+---+--- ------+ ----+---+--- ------+ -+-----+ 3533,3543 = 3533,3567
++++---+ ---+---+--- +-----+ ----+---+--- ------+ -+-----+ 3536,3543 = 3536,3567
++++---+ ---+---+--- --+---+--- ----+---+--- ------+ -+-----+ 3543,3574 = 3567,3574
++++---+ ---+---+--- ------+ --+----- ------ -+-----+ 3503,3521 = 3521,3575
++++---+ ---+---+--- ------+ +----- ------ -+-----+ 3543,3556 = 3556,3567
++++---+ ---+---+--- ------+ -+---+---+ ------+ -+-----+ 3543,3584 = 3567,3584
++++---+ ---+---+--- ------+ ---+---+--- ----+---+--- -+-----+ 3503,3579 = 3543,3570 = 3567,3570 = 3570,3579
++++---+ ---+---+--- ------+ ----+---+--- ------+ -+-----+ 3543,3585 = 3567,3585
++++---+ ---+---+--- ------+ ----+---+--- ------+ -+-----+ 3543,3565Q = 3565Q,3567
++++---+ ---+---+--- ------+ ----+---+--- ------+ -+-----+ 3543,3555 = 3555,3567
++++---+ ---+---+--- ------+ ----+---+--- ------+ -+-----+ 3503,3543 = 3503,3567
++++---+ ---+---+--- ------+ ----+---+--- ------+ -+-----+ 3503,3514 = 3514,3575
++++---+ ---+---+--- ------+ ----+---+--- ------+ -+-----+ 3503,3511 = 3511,3575
++++---+ ---+---+--- ------+ ----+---+--- ------+ -+-----+ 3538,3543 = 3538,3567
++++---+ ---+---+--- ------+ ----+---+--- ------+ -+-----+ 3519,3533 = 3533,3577
++++---+ ---+---+--- ------+ ----+---+--- ------+ -+-----+ 3515,3536 = 3526,3533
++++---+ ---+---+--- ------+ ----+---+--- ------+ -+-----+ 3529,3533 = 3533,3576
++++---+ ---+---+--- ------+ ----+---+--- ------+ -+-----+ 3515,3556 = 3527,3533
++++---+ ---+---+--- ------+ ----+---+--- ------+ -+-----+ 3515,3584 = 3533,3550
++++---+ ---+---+--- ------+ ----+---+--- ------+ -+-----+ 3533,3540N = 3533,356801
++++---+ ---+---+--- ------+ ----+---+--- ------+ -+-----+ 3515,3570 = 3533,3535
++++---+ ---+---+--- ------+ ----+---+--- ------+ -+-----+ 3515,3585 = 3533,3552 = 3533,3582
++++---+ ---+---+--- ------+ ----+---+--- ------+ -+-----+ 3515,3565Q = 3533,3553N
++++---+ ---+---+--- ------+ ----+---+--- ------+ -+-----+ 3515,3555 = 3533,3578

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++++---+	-----+-	-----+-	-----+-	-----	-----	+++++++	350104,3533 = 3533,3557
++++---+	-----+-	-----+-	-----+-	-----	-----	+++++++	3501,3533 = 3503,3515 = 3515,3533 = 3515,3575 = 3533,3549
++++---+	-----+	+-----+	-----	-----	-----	+++++++	3519,3536 = 3536,3577
++++---+	-----+	--+---+	-----	-----	-----	+++++++	3519,3574 = 3574,3577
++++---+	-----+	-----+	+-----	-----	-----	+++++++	3519,3556 = 3556,3577
++++---+	-----+	-----+	--+---+	-----	-----	+++++++	3519,3584 = 3577,3584
++++---+	-----+	-----+	-----	+-----	-----	+++++++	3503,3547 = 3547,3575
++++---+	-----+	-----+	-----	-----	-----	+++++++	3519,3570 = 3570,3577
++++---+	-----+	-----+	-----	-----	-----	+-----	3519,3585 = 3577,3585
++++---+	-----+	-----+	-----	-----	-----	+-----	3519,3565Q = 3565Q,3577
++++---+	-----+	-----+	-----	-----	-----	+++++++	3519,3555 = 3555,3577
++++---+	-----+	-----+	-----	-----	-----	+++++++	3519,3538 = 3538,3577
++++---+	-----+	-----+	-----	-----	-----	+++++++	3503,3519 = 3503,3577 = 3519,3575 = 3575,3577
++++---+	-----	+--+---+	-----+	-----	-----	+++++++	3529,3536 = 3536,3576
++++---+	-----	+-----+	-----+	-----	-----	+++++++	3503,3526 = 3526,3536 = 3526,3575 = 3536,3549
++++---+	-----	+-----+	-----	-----	-----	+++++++	3536,3540N = 3536,356801
++++---+	-----	+-----+	-----	-----	-----	+-----	3536,3552 = 3536,3582
++++---+	-----	+-----+	-----	-----	-----	+++++++	350104,3536 = 3536,3557
++++---+	-----	--+---+	-----	-----	-----	+++++++	3503,3520 = 3520,3575
++++---+	-----	--+---+	+-----+	-----	-----	+++++++	3529,3556 = 3556,3576
++++---+	-----	--+---+	--+---+	-----	-----	+++++++	3529,3584 = 3576,3584
++++---+	-----	--+---+	-----+	-----	-----	+++++++	3529,3570 = 3570,3576
++++---+	-----	--+---+	-----+	-----	-----	+-----	3529,3565Q = 3565Q,3576
++++---+	-----	--+---+	-----+	-----	-----	+++++++	3529,3555 = 3555,3576
++++---+	-----	--+---+	-----+	-----	-----	+++++++	3529,3538 = 3538,3576
++++---+	-----	--+---+	-----+	-----	-----	+++++++	3503,3529 = 3503,3576 = 3529,3574 = 3529,3575 = 3574,3576 = 3575,3576
++++---+	-----	--+---+	-----	-----	-----	+++++++	3540N,3574 = 356801,3574
++++---+	-----	--+---+	-----	-----	-----	+-----	3552,3574 = 3574,3582
++++---+	-----	--+---+	-----	-----	-----	+++++++	350104,3574 = 3557,3574
++++---+	-----	-----+	-----+	-----	-----	+++++++	3503,3525 = 3525,3575
++++---+	-----	-----+	-----	-----	-----	+++++++	3503,3546 = 3546,3575
++++---+	-----	-----+	-----	-----	-----	+++++++	3503,3524 = 3524,3575
++++---+	-----	-----+	++-----+	-----	-----	+++++++	3527,3584 = 3550,3556
++++---+	-----	-----+	+-----	-----	-----	+++++++	3540N,3556 = 3556,356801
++++---+	-----	-----+	+-----	-----	-----	+++++++	3527,3570 = 3535,3556
++++---+	-----	-----+	+-----	-----	-----	+++++++	3503,3564 = 3556,3564
++++---+	-----	-----+	+-----	-----	-----	+-----	3527,3585 = 3552,3556 = 3556,3582
++++---+	-----	-----+	+-----	-----	-----	+-----	3527,3565Q = 3553N,3556
++++---+	-----	-----+	+-----	-----	-----	+++++++	3527,3555 = 3556,3578
++++---+	-----	-----+	+-----	-----	-----	+++++++	350104,3556 = 3556,3557
++++---+	-----	-----+	+-----	-----	-----	+++++++	3501,3556 = 3503,3527 = 3527,3556 = 3527,3575
++++---+	-----	-----+	--+---+	-----	-----	+++++++	3540N,3584 = 356801,3584
++++---+	-----	-----+	--+---+	-----	-----	+++++++	3535,3584 = 3550,3570
++++---+	-----	-----+	--+---+	-----	-----	+-----	3550,3585 = 3552,3584 = 3582,3584
++++---+	-----	-----+	--+---+	-----	-----	+-----	3550,3565Q = 3553N,3584
++++---+	-----	-----+	--+---+	-----	-----	+++++++	3550,3555 = 3578,3584
++++---+	-----	-----+	--+---+	-----	-----	+++++++	350104,3584 = 3557,3584
++++---+	-----	-----+	--+---+	-----	-----	+++++++	3501,3584 = 3503,3550 = 3542,3584 = 3550,3575 = 3550,3584

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++++---+	-----	-----+	-+-----	-----	-----	++++---+	3503,3542 = 3542,3575
++++---+	-----	-----+	---+-----	-----	-----	++++---+	3503,3541 = 3541,3575
++++---+	-----	-----+	-----+	-----	-----	++++---+	3503,3549 = 3549,3575
++++---+	-----	-----+	-----	+-----	-----	++++---+	3503,3571 = 3571,3575
++++---+	-----	-----+	-----	+-----	-----	++++---+	3503,3548 = 3548,3575
++++---+	-----	-----+	-----	---+-----	-----	++++---+	3540N,3570 = 356801,3570
++++---+	-----	-----+	-----	---+-----	+-----	++++---+	3540N,3585 = 356801,3585
++++---+	-----	-----+	-----	---+-----	+-----	++++---+	3540N,3565Q = 3565Q,356801
++++---+	-----	-----+	-----	---+-----	-----	++++---+	3540N,3555 = 3555,356801
++++---+	-----	-----+	-----	---+-----	-----	++++---+	3538,3540N = 3538,356801
++++---+	-----	-----+	-----	---+-----	-----	++++---+	3503,3540N = 3503,356801 = 3540N,3575
++++---+	-----	-----+	-----	---+-----	+-----	++++---+	3535,3585 = 3552,3570 = 3570,3582
++++---+	-----	-----+	-----	---+-----	+-----	++++---+	3535,3565Q = 3553N,3570
++++---+	-----	-----+	-----	---+-----	-----	++++---+	3535,3555 = 3570,3578
++++---+	-----	-----+	-----	---+-----	-----	++++---+	350104,3570 = 3557,3570
++++---+	-----	-----+	-----	---+-----	-----	++++---+	3501,3570 = 3503,3535 = 3535,3570 = 3535,3575
++++---+	-----	-----+	-----	-----+	-----	++++---+	3503,3562 = 3562,3575
++++---+	-----	-----+	-----	-----+	-----	++++---+	3503,3563 = 3563,3575
++++---+	-----	-----+	-----	-----	++-----	++++---+	3552,3565Q = 3553N,3585 = 3565Q,3582
++++---+	-----	-----+	-----	-----	+-----	++++---+	3552,3555 = 3555,3582
++++---+	-----	-----+	-----	-----	+-----	++++---+	350104,3585 = 3557,3585
++++---+	-----	-----+	-----	-----	+-----	++++---+	3538,3552 = 3538,3582
++++---+	-----	-----+	-----	-----	+-----	++++---+	3501,3585 = 3503,3552 = 3503,3582 = 3552,3575 = 3552,3585 = 3575,3582
++++---+	-----	-----+	-----	-----	+-----	++++---+	3553N,3555 = 3565Q,3578
++++---+	-----	-----+	-----	-----	+-----	++++---+	350104,3565Q = 3557,3565Q
++++---+	-----	-----+	-----	-----	+-----	++++---+	3501,3565Q = 3503,3553N = 3553N,3565Q
++++---+	-----	-----+	-----	-----	---+-----	++++---+	3503,3554 = 3554,3575
++++---+	-----	-----+	-----	-----	-----	++++---+	350104,3555 = 3555,3557
++++---+	-----	-----+	-----	-----	-----	++++---+	3501,3555 = 3503,3578 = 3555,3578 = 3575,3578
++++---+	-----	-----+	-----	-----	-----	++++---+	350104,3538 = 3538,3557
++++---+	-----	-----+	-----	-----	-----	++++---+	350104,3503 = 350104,3575 = 3503,3557 = 3557,3575
++++---+	-----	-----+	-----	-----	-----	++++---+	3501,3503 = 3501,3575
++++---+	++-----	-----+	---+-----	-----	-----	++++---+	3505,3507 = 3507,3551
++++---+	++-----	-----+	-----	-----	-----	++++---+	3507,3517 = 3507,3530
++++---+	++-----	-----+	---+-----	-----	-----	++++---+	3505,3580 = 3551,3580
++++---+	++-----	-----+	-----	-----	-----	++++---+	350803,3516 = 3517,3580 = 3530,3580
++++---+	++-----	-----+	---+-----	-----	-----	++++---+	3508,3558 = 350803,3558
++++---+	++-----	-----+	-----	-----	-----	++++---+	3508,3566 = 350803,3566
++++---+	++-----	-----+	---+-----	+-----	-----	++++---+	3505,3545 = 3545,3551
++++---+	++-----	-----+	---+-----	-----	-----	++++---+	3505,3508 = 3505,350803 = 3508,3551 = 350803,3551
++++---+	++-----	-----+	-----	+-----	-----	++++---+	3517,3545 = 3530,3545
++++---+	++-----	-----+	-----	-----	-----	++++---+	3508,3517 = 3508,3530 = 350803,3517 = 350803,3530
++++---+	++-----	-----+	---+-----	-----	-----	++++---+	3516,3543 = 3516,3567
++++---+	++-----	-----+	-----	-----	-----	++++---+	3510,3566 = 3516,3566
++++---+	++-----	+-----+	---+-----	-----	-----	++++---+	3505,3528 = 3528,3551
++++---+	++-----	+-----+	---+-----	-----	-----	++++---+	3510,3572 = 3516,3572
++++---+	++-----	+-----+	-----	-----	-----	++++---+	3517,3528 = 3528,3530

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++++----	+---+----	--+----+	----+----+	-----	-----+++	3505,3569 = 3551,3569
++++----	+---+----	--+----+	-----+	-----	-----+++	3517,3569 = 3530,3569
++++----	+---+----	-----+	----+----	-----	-----+++	3505,3510 = 3505,3516 = 3510,3551 = 3516,356802
++++----	+---+----	-----+	-----	--+-----	-----+++	3516,3540N = 3516,356801
++++----	+---+----	-----+	-----	-----	+-----++	3516,3552 = 3516,3582
++++----	+---+----	-----+	-----	-----	-----+++	350104,3516 = 3510,3517 = 3510,3530 = 3516,3530 = 3516,3557
++++----	+---+----+	-----+	----+----	-----	-----+++	3519,3558 = 3558,3577
++++----	+---+----	--+----+	----+----+	-----	-----+++	3529,3558 = 3558,3576
++++----	+---+----	-----+	----+----	-----	-----+++	3505,3521 = 3524,3558 = 3546,3558
++++----	+---+----	-----+	----+----	-----	-----+++	3521,3551 = 3521,3558
++++----	+---+----	-----+	----+----	-----+	-----+++	3505,3514 = 3530,3543 = 3530,3567
++++----	+---+----	-----+	----+----	-----	+-----++	3552,3558 = 3558,3582
++++----	+---+----	-----+	----+----	-----	-----+++	3501,3558 = 350104,3558 = 3505,3511 = 3530,3558 = 3557,3558
++++----	+---+----	-----	----+----	-----+	-----+++	3514,3551 = 3514,3558 = 3517,3543 = 3517,3567 = 3558,3562
++++----	+---+----	-----	----+----	-----	-----+++	3511,3551 = 3511,3558 = 3517,3558
++++----	+-----++	-----+	-----+	-----	-----+++	3519,3566 = 3566,3577
++++----	+-----+	--+----+	-----+	-----	-----+++	3529,3566 = 3566,3576
++++----	+-----+	-----+	-----+	-----	-----+++	3524,3566 = 3546,3566
++++----	+-----+	-----+	----+----+	-----	-----+++	3505,3515 = 3515,3551
++++----	+-----+	-----+	-----+	-----	+-----++	3552,3566 = 3566,3582
++++----	+-----+	-----+	-----+	-----	-----+++	3501,3566 = 350104,3566 = 3515,3517 = 3515,3530 = 3515,3566 = 3517,3566 = 3530,3566 = 3549,3566 = 3557,3566
++++----	+-----+	--+----+	----+----	-----	-----+++	3519,3572 = 3572,3577
++++----	+-----+	-----+	----+----	+-----	-----+++	3505,3547 = 3547,3551
++++----	+-----+	-----+	----+----	-----	-----+++	3505,3519 = 3505,3577 = 3519,3551 = 3551,3577
++++----	+-----+	-----+	-----	+-----	-----+++	3517,3547 = 3530,3547
++++----	+-----+	-----+	-----	-----	-----+++	3517,3519 = 3517,3577 = 3519,3530 = 3530,3577
++++----	+-----	+-----+	----+----	-----	-----+++	3505,3526 = 3526,3551
++++----	+-----	+-----+	----+----	-----	-----+++	3517,3526 = 3526,3530
++++----	+-----	--+----+	----+----	-----	-----+++	350104,3572 = 3505,3520 = 3517,3572 = 3520,3551 = 3530,3572 = 3557,3572
++++----	+-----	--+----+	-----	-----	-----+++	3517,3520 = 3520,3530
++++----	+-----	--+----+	----+----	-----	-----+++	3505,3529 = 3505,3576 = 3529,3551 = 3551,3576
++++----	+-----	--+----+	-----+	-----	-----+++	3517,3529 = 3517,3576 = 3529,3530 = 3530,3576
++++----	+-----	-----+	----+----	-----	-----+++	3505,3525 = 3525,3551
++++----	+-----	-----+	-----+	-----	-----+++	3517,3525 = 3525,3530
++++----	+-----	-----+	----+----	-----	-----+++	3505,3524 = 3505,3546 = 3524,3551 = 3546,3551
++++----	+-----	-----+	-----	-----	-----+++	3517,3524 = 3517,3546 = 3524,3530 = 3530,3546
++++----	+-----	-----+	+---+----	-----	-----+++	3505,3527 = 3527,3551

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++++----	+-----	-----+	+-----	-----+	-----++	3517,3564 = 3530,3564
++++----	+-----	-----+	+-----	-----	-----++	3517,3527 = 3527,3530
++++----	+-----	-----+	-+-----	-----	-----++	3505,3550 = 3550,3551
++++----	+-----	-----+	-+-----	-----	-----++	3505,3542 = 3542,3551
++++----	+-----	-----+	-+-----	-----	-----++	3517,3550 = 3530,3550
++++----	+-----	-----+	-+-----	-----	-----++	3517,3542 = 3530,3542
++++----	+-----	-----+	-+-----	-----	-----++	3505,3541 = 3541,3551
++++----	+-----	-----+	-+-----	-----	-----++	3517,3541 = 3530,3541
++++----	+-----	-----+	-+-----	-----	-----++	3505,3549 = 3549,3551
++++----	+-----	-----+	-+-----	+-----	-----++	3505,3571 = 3551,3571
++++----	+-----	-----+	-+-----	-+-----	-----++	3505,3548 = 3548,3551
++++----	+-----	-----+	-+-----	-+-----	-----++	3505,3540N = 3540N,3551
++++----	+-----	-----+	-+-----	-+-----	-----++	3505,3535 = 3535,3551
++++----	+-----	-----+	-+-----	-+-----	-----++	3505,3563 = 3551,3563
++++----	+-----	-----+	-+-----	-+-----	+-----++	3505,3552 = 3505,3582 = 3551,3552 = 3551,3582
++++----	+-----	-----+	-+-----	-+-----	-+-----++	3505,3554 = 3551,3554
++++----	+-----	-----+	-+-----	-+-----	-+-----++	3505,3578 = 3551,3578
++++----	+-----	-----+	-+-----	-+-----	-+-----++	3501,3505 = 3501,3551 = 350104,3505 = 350104,3551 = 3505,3517 = 3505,3530 = 3505,3557 = 3517,356802 = 3530,3532 = 3530,3551 = 3530,356802 = 3551,3557
++++----	+-----	-----+	-+-----	-+-----	-+-----++	3517,3537 = 3530,3537
++++----	+-----	-----+	-+-----	-+-----	-+-----++	3517,3549 = 3530,3549
++++----	+-----	-----+	-+-----	+-----	-+-----++	3517,3571 = 3530,3571
++++----	+-----	-----+	-+-----	-+-----	-+-----++	3517,3548 = 3530,3548
++++----	+-----	-----+	-+-----	-+-----	-+-----++	3517,3540N = 3517,356801 = 3530,3540N = 3530,356801
++++----	+-----	-----+	-+-----	-+-----	-+-----++	3517,3535 = 3530,3535
++++----	+-----	-----+	-+-----	-+-----	-+-----++	3517,3563 = 3530,3563
++++----	+-----	-----+	-+-----	-+-----	+-----++	3517,3552 = 3517,3582 = 3530,3552 = 3530,3582
++++----	+-----	-----+	-+-----	-+-----	-+-----++	3517,3553N = 3530,3553N
++++----	+-----	-----+	-+-----	-+-----	-+-----++	3517,3554 = 3530,3554
++++----	+-----	-----+	-+-----	-+-----	-+-----++	3517,3578 = 3530,3578
++++----	+-----	-----+	-+-----	-+-----	-+-----++	3501,3517 = 3501,3530 = 350104,3517 = 350104,3530 = 3517,3530 = 3517,3557 = 3530,3530 = 3530,3557
++++----	+-----	-----	-+-----	-+-----	-+-----++	3517,3532 = 3517,3551
++++----	-+-----	-----+	-+-----	-+-----	-+-----++	3507,3543 = 3507,3567
++++----	-+-----+	-----+	-+-----	-+-----	-+-----++	3507,3519 = 3507,3577
++++----	-+-----	-+-----+	-+-----	-+-----	-+-----++	3507,3529 = 3507,3576
++++----	-+-----	-+-----	-+-----	-+-----	-+-----++	3507,3540N = 3507,356801
++++----	-+-----	-+-----	-+-----	-+-----	+-----++	3507,3552 = 3507,3582
++++----	-+-----	-+-----	-+-----	-+-----	-+-----++	350104,3507 = 3507,3557
++++----	-+-----	-+-----	-+-----	-+-----	-+-----++	3501,3507 = 3507,3507
++++----	-+-----	-+-----	-+-----	-+-----	-+-----++	3543,3580 = 3567,3580
++++----	-+-----	-+-----	-+-----	-+-----	-+-----++	3510,3561 = 3561,3580
++++----	-+-----	-+-----	-+-----	-+-----	-+-----++	3508,3528 = 3520,3580
++++----	-+-----	-+-----	-+-----	-+-----	-+-----++	3508,3569 = 3529,3580
++++----	-+-----	-+-----	-+-----	-+-----	-+-----++	3510,3545 = 3545,3580 = 3571,3580
++++----	-+-----	-+-----	-+-----	-+-----	-+-----++	3540N,3580 = 356801,3580
++++----	-+-----	-+-----	-+-----	-+-----	+-----++	3552,3580 = 3580,3582
++++----	-+-----	-+-----	-+-----	-+-----	-+-----++	350104,3580 = 350803,3510 = 350803,3580 = 3557,3580

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++++-----	--++-----	-----+-	-----	-----	-----++	3501,3580 = 3508,3510 = 3508,3580
++++-----	--++-----	-----	---+-----	-----+-	-----++	3543,3561 = 3561,3567
++++-----	--++-----	-----+-	-----	-----+-	-----++	3508,3586 = 350803,3586
++++-----	--++-----	-----+-	---+-----	+-----+-	-----++	3543,3545 = 3545,3567
++++-----	--++-----	-----+-	---+-----	---+-----	-----++	3508,3579 = 350803,3579
++++-----	--++-----	-----+-	---+-----	-----+-	-----++	3508,3543 = 3508,3567 = 350803,3543 = 350803,3567
++++-----	--+---++	-----+-	-----	-----	-----++	3519,3561 = 3561,3577
++++-----	--+---++	---+-----	-----+	-----	-----++	3529,3561 = 3561,3576
++++-----	--+---++	-----+-	-----	+-----	-----++	3545,3561 = 3561,3571
++++-----	--+---++	-----+-	-----	---+-----	-----++	3540N,3561 = 3561,356801
++++-----	--+---++	-----+-	-----	-----	+-----++	3552,3561 = 3561,3582
++++-----	--+---++	-----+-	-----	-----	-----++	350104,3561 = 350803,3561 = 3557,3561
++++-----	--+---++	-----+-	-----	-----	-----++	3501,3561 = 3508,3561
++++-----	--+---++	-----+-	-----	+-----	-----++	3508,3547 = 3519,3545 = 3545,3547 = 3545,3577
++++-----	--+---++	-----+-	-----	-----	-----++	350803,3519 = 350803,3577
++++-----	--+---++	-----+-	-----	-----	-----++	3508,3519 = 3508,3577
++++-----	--+---++	---+-----	-----+	+-----	-----++	3529,3545 = 3545,3576
++++-----	--+---++	---+-----	-----+	-----	-----++	350803,3529 = 350803,3576
++++-----	--+---++	---+-----	-----+	-----	-----++	3508,3529 = 3508,3576
++++-----	--+---++	-----+-	-----	-----	-----++	3508,3546 = 350803,3524 = 350803,3546
++++-----	--+---++	-----+-	---+-----	-----	-----++	3508,356802 = 350803,3532 = 350803,356802
++++-----	--+---++	-----+-	-----	+-----	-----++	3540N,3545 = 3545,356801
++++-----	--+---++	-----+-	-----	+-----	+-----++	3545,3552 = 3545,3582
++++-----	--+---++	-----+-	-----	+-----	-----++	350104,3545 = 350803,3545 = 350803,3571 = 3545,3557
++++-----	--+---++	-----+-	-----	+-----	-----++	3501,3545 = 3508,3545 = 3508,3571 = 3545,3545 = 3545,3571
++++-----	--+---++	-----+-	-----	---+-----	-----++	350803,3540N = 350803,356801
++++-----	--+---++	-----+-	-----	---+-----	-----++	3508,3540N = 3508,356801
++++-----	--+---++	-----+-	-----	-----	+-----++	350803,3552 = 350803,3582
++++-----	--+---++	-----+-	-----	-----	+-----++	3508,3552 = 3508,3582
++++-----	--+---++	-----+-	-----	-----	-----++	3501,350803 = 350104,3508 = 350104,350803 = 3508,350803 = 3508,3557 = 350803,350803 = 350803,3557
++++-----	--+---++	-----+-	-----	-----	-----++	3501,3508 = 3508,3508
++++-----	---+-----	-+-----	---+-----	-----+-	-----++	3528,3543 = 3528,3567
++++-----	---+-----	-+-----	---+-----	-----+-	-----++	3543,3569 = 3567,3569
++++-----	---+-----	-+-----	---+-----	-----+-	-----++	3510,3543 = 3510,3567
++++-----	---+-----	-+-----	---+-----	-----+-	-----++	3520,3569 = 3528,3529
++++-----	---+-----	-+-----	---+-----	---+-----	-----++	3528,3540N = 3528,356801
++++-----	---+-----	-+-----	---+-----	-----	-----++	350104,3528 = 3528,3557
++++-----	---+-----	-+-----	---+-----	-----	-----++	3501,3528 = 3510,3520
++++-----	---+-----	-+-----	---+-----	---+-----	-----++	3540N,3569 = 356801,3569
++++-----	---+-----	-+-----	---+-----	-----	+-----++	3552,3569 = 3569,3582
++++-----	---+-----	-+-----	---+-----	-----	-----++	350104,3569 = 3557,3569
++++-----	---+-----	-+-----	---+-----	-----	-----++	3501,3569 = 3510,3529 = 3529,3569
++++-----	---+-----	-+-----	---+-----	---+-----	-----++	3510,3540N = 3510,356801
++++-----	---+-----	-+-----	---+-----	-----	+-----++	3510,3552 = 3510,3582

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++++----	---+----	-----+-	-----	-----	-----++	350104,3510 = 3510,3557
++++----	---+----	-----+-	-----	-----	-----++	3519,3586 = 3577,3586
++++----	---+----	-----+-	-----	-----	-----++	3529,3586 = 3576,3586
++++----	---+----	-----+-	-----	-----	-----++	3524,3586 = 3546,3586
++++----	---+----	-----+-	-----	-----	-----++	3515,3543 = 3515,3567
++++----	---+----	-----+-	-----	-----	-----++	3515,3586 = 3549,3586
++++----	---+----	-----+-	-----	-----	-----++	3552,3586 = 3582,3586
++++----	---+----	-----+-	-----	-----	-----++	3501,3586 = 350104,3586 = 3557,3586
++++----	---+----	-----+-	-----	-----	-----++	3511,3586 = 3514,3586 = 3562,3586
++++----	---+----	-----+-	-----	-----	-----++	3519,3521 = 3521,3577
++++----	---+----	-----+-	-----	-----	-----++	3543,3547 = 3547,3567
++++----	---+----	-----+-	-----	-----	-----++	3519,3579 = 3577,3579
++++----	---+----	-----+-	-----	-----	-----++	3519,3543 = 3519,3567 = 3543,3577 = 3567,3577
++++----	---+----	-----+-	-----	-----	-----++	3514,3519 = 3514,3577
++++----	---+----	-----+-	-----	-----	-----++	3511,3519 = 3511,3577
++++----	---+----	-----+-	-----	-----	-----++	3526,3543 = 3526,3567
++++----	---+----	-----+-	-----	-----	-----++	3520,3543 = 3520,3567
++++----	---+----	-----+-	-----	-----	-----++	3521,3529 = 3521,3576
++++----	---+----	-----+-	-----	-----	-----++	3529,3579 = 3576,3579
++++----	---+----	-----+-	-----	-----	-----++	3529,3543 = 3529,3567 = 3543,3576 = 3567,3576
++++----	---+----	-----+-	-----	-----	-----++	3514,3529 = 3514,3576
++++----	---+----	-----+-	-----	-----	-----++	3511,3529 = 3511,3576
++++----	---+----	-----+-	-----	-----	-----++	3525,3543 = 3525,3567
++++----	---+----	-----+-	-----	-----	-----++	3524,3543 = 3524,3567 = 3546,3567
++++----	---+----	-----+-	-----	-----	-----++	3521,3540N = 3521,356801
++++----	---+----	-----+-	-----	-----	-----++	3521,3552 = 3521,3582
++++----	---+----	-----+-	-----	-----	-----++	350104,3521 = 3511,3546 = 3521,3546 = 3521,3557
++++----	---+----	-----+-	-----	-----	-----++	3501,3521 = 3511,3524 = 3521,3524
++++----	---+----	-----+-	-----	-----	-----++	3521,3543 = 3521,3567
++++----	---+----	-----+-	-----	-----	-----++	3514,3521 = 3521,3562
++++----	---+----	-----+-	-----	-----	-----++	3511,3521 = 3521,3521
++++----	---+----	-----+-	-----	-----	-----++	3527,3543 = 3527,3567
++++----	---+----	-----+-	-----	-----	-----++	3543,3550 = 3550,3567
++++----	---+----	-----+-	-----	-----	-----++	3542,3543 = 3542,3567
++++----	---+----	-----+-	-----	-----	-----++	3541,3543 = 3541,3567
++++----	---+----	-----+-	-----	-----	-----++	3543,3549 = 3549,3567
++++----	---+----	-----+-	-----	-----	-----++	3543,3571 = 3567,3571
++++----	---+----	-----+-	-----	-----	-----++	3543,3548 = 3548,3567
++++----	---+----	-----+-	-----	-----	-----++	3540N,3543 = 3540N,3567
++++----	---+----	-----+-	-----	-----	-----++	3552,3579 = 3579,3582
++++----	---+----	-----+-	-----	-----	-----++	3501,3579 = 350104,3579 = 3535,3543 = 3535,3567 = 3535,3579
++++----	---+----	-----+-	-----	-----	-----++	3543,3563 = 3563,3567
++++----	---+----	-----+-	-----	-----	-----++	3543,3552 = 3543,3582 = 3552,3567 = 3567,3582
++++----	---+----	-----+-	-----	-----	-----++	3543,3554 = 3554,3567
++++----	---+----	-----+-	-----	-----	-----++	3543,3578 = 3567,3578
++++----	---+----	-----+-	-----	-----	-----++	3501,3543 = 3501,3567 = 350104,3543 = 350104,3567 = 3514,356802 = 3557,3567
++++----	---+----	-----+-	-----	-----	-----++	3514,3540N = 3514,356801

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++++----	-----+	-----+	-----	---+-----	-----++	3511,3540N = 3511,356801
++++----	-----+	-----+	-----	-----+	++++++	3514,3552 = 3514,3582
++++----	-----+	-----+	-----	-----+	++++++	350104,3514 = 3514,3557
++++----	-----+	-----+	-----	-----	++++++	3511,3552 = 3511,3582
++++----	-----+	-----+	-----	-----	++++++	350104,3511 = 3511,3557
++++----	-----+	-----	---+-----	---+-----	++++++	3511,3579 = 3514,3579 = 3562,3579
++++----	-----+	-----	---+-----	-----+	++++++	3511,3543 = 3511,3567 = 3514,3543 = 3514,3567 = 3543,3562 = 3562,3567
++++----	-----+	-----	-----	-----+	++++++	3511,3514 = 3511,3562 = 3514,3514 = 3514,3562
++++----	-----++	-----+	-----+	-----	++++++	3515,3519 = 3515,3577
++++----	-----+	---+-----	-----++	-----	++++++	3515,3529 = 3515,3576
++++----	-----+	-----+	-----+	---+-----	++++++	3515,3540N = 3515,356801
++++----	-----+	-----+	-----+	-----	++++++	3515,3552 = 3515,3582
++++----	-----+	-----+	-----+	-----	++++++	350104,3515 = 3515,3557
++++----	-----+	-----+	-----+	-----	++++++	3501,3515 = 3515,3515 = 3515,3549
++++----	-----+	---+-----	-----	-----	++++++	3519,3520 = 3520,3577
++++----	-----+	---+-----	-----+	-----	++++++	3519,3529 = 3529,3577 = 3576,3577
++++----	-----+	-----++	-----	-----	++++++	3519,3524 = 3524,3577
++++----	-----+	-----+	---+-----	-----+	++++++	3519,3564 = 3564,3577
++++----	-----+	-----+	---+-----	-----	++++++	3519,3527 = 3527,3577
++++----	-----+	-----+	---+-----	-----	++++++	3519,3550 = 3550,3577
++++----	-----+	-----+	---+-----	-----	++++++	3519,3542 = 3542,3577
++++----	-----+	-----+	---+-----	-----	++++++	3519,3541 = 3541,3577
++++----	-----+	-----+	---+-----	-----	++++++	3519,356802 = 356802,3577
++++----	-----+	-----+	---+-----	-----	++++++	3519,3532 = 3532,3577
++++----	-----+	-----+	---+-----	-----	++++++	3519,3537 = 3537,3577
++++----	-----+	-----+	-----	---+-----	++++++	3540N,3547 = 3547,356801
++++----	-----+	-----+	-----	---+-----	++++++	3547,3552 = 3547,3582
++++----	-----+	-----+	-----	---+-----	++++++	350104,3547 = 3547,3557
++++----	-----+	-----+	-----	---+-----	++++++	3501,3547 = 3519,3571 = 3547,3571 = 3547,3577 = 3571,3577
++++----	-----+	-----+	-----	---+-----	++++++	3519,3548 = 3548,3577
++++----	-----+	-----+	-----	---+-----	++++++	3519,3540N = 3519,356801 = 3540N,3577 = 356801,3577
++++----	-----+	-----+	-----	---+-----	++++++	3519,3535 = 3535,3577
++++----	-----+	-----+	-----	-----+	++++++	3519,3562 = 3562,3577
++++----	-----+	-----+	-----	-----	++++++	3519,3552 = 3519,3582 = 3552,3577 = 3577,3582
++++----	-----+	-----+	-----	-----	++++++	3519,3553N = 3553N,3577
++++----	-----+	-----+	-----	-----	++++++	3519,3554 = 3554,3577
++++----	-----+	-----+	-----	-----	++++++	3519,3578 = 3577,3578
++++----	-----+	-----+	-----	-----	++++++	350104,3519 = 350104,3577 = 3519,3557 = 3557,3577
++++----	-----+	-----+	-----	-----	++++++	3501,3519 = 3501,3577 = 3519,3577 = 3577,3577
++++----	-----	---+-----	-----+	---+-----	++++++	3526,3540N = 3526,356801
++++----	-----	---+-----	-----+	-----	++++++	350104,3526 = 3526,3557
++++----	-----	---+-----	-----	---+-----	++++++	3520,3540N = 3520,356801
++++----	-----	---+-----	-----	-----	++++++	350104,3520 = 3520,3557
++++----	-----	---+-----	-----+	-----	++++++	3524,3529 = 3524,3576
++++----	-----	---+-----	---+-----	-----	++++++	3529,3564 = 3564,3576
++++----	-----	---+-----	---+-----	-----	++++++	3527,3529 = 3527,3576
++++----	-----	---+-----	---+-----	-----	++++++	3529,3550 = 3550,3576

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++++----	-----	--+---+-	-+-----+	-----	-----+--+	3529,3542 = 3542,3576
++++----	-----	--+---+-	--+-----+	-----	-----+--+	3529,3541 = 3541,3576
++++----	-----	--+---+-	---+-----+	-----	-----+--+	3529,356802 = 356802,3576
++++----	-----	--+---+-	---+-----+	-----	-----+--+	3529,3532 = 3532,3576
++++----	-----	--+---+-	---+-----+	-----	-----+--+	3529,3537 = 3537,3576
++++----	-----	--+---+-	-----+	+-----	-----+--+	3529,3571 = 3571,3576
++++----	-----	--+---+-	-----+	-+-----	-----+--+	3529,3548 = 3548,3576
++++----	-----	--+---+-	-----+	--+-----	-----+--+	3529,3540N = 3529,356801 = 3540N,3576 = 356801,3576
++++----	-----	--+---+-	-----+	---+-----	-----+--+	3529,3535 = 3535,3576
++++----	-----	--+---+-	-----+	-----+	-----+--+	3529,3562 = 3562,3576
++++----	-----	--+---+-	-----+	-----	+-----+--+	3529,3552 = 3529,3582 = 3552,3576
++++----	-----	--+---+-	-----+	-----	+-----+--+	3529,3553N = 3553N,3576
++++----	-----	--+---+-	-----+	-----	--+-----+--+	3529,3554 = 3554,3576
++++----	-----	--+---+-	-----+	-----	-----+--+	350104,3529 = 350104,3576 = 3529,3557 = 3557,3576
++++----	-----	--+---+-	-----+	-----	-----+--+	3501,3529 = 3501,3576 = 3529,3529 = 3529,3576
++++----	-----	---+---+-	-+-----+	-----	-----+--+	3525,3542 = 3525,3550
++++----	-----	---+---+-	-----+	-+-----	-----+--+	3525,3540N = 3525,356801
++++----	-----	---+---+-	-----+	-----	+-----+--+	3525,3552 = 3525,3582
++++----	-----	---+---+-	-----+	-----	-----+--+	350104,3525 = 3525,3557
++++----	-----	---+---+-	---+-----	-----	-----+--+	3524,356802 = 3532,3546 = 3546,356802
++++----	-----	---+---+-	---+-----	--+-----	-----+--+	3540N,3546 = 3546,356801
++++----	-----	---+---+-	---+-----	--+-----	-----+--+	3524,3540N = 3524,356801
++++----	-----	---+---+-	---+-----	-----	+-----+--+	3546,3552 = 3546,3582
++++----	-----	---+---+-	---+-----	-----	+-----+--+	3524,3552 = 3524,3582
++++----	-----	---+---+-	---+-----	-----	-----+--+	3501,3546 = 350104,3524 = 350104,3546 = 3524,3546 = 3524,3557
++++----	-----	---+---+-	---+-----	-----	-----+--+	3501,3524 = 3524,3524
++++----	-----	---+---+-	+-----	--+-----	-----+--+	3527,3540N = 3527,356801
++++----	-----	---+---+-	+-----	-----+	+-----+--+	3552,3564 = 3564,3582
++++----	-----	---+---+-	+-----	-----+	-----+--+	350104,3564 = 3557,3564
++++----	-----	---+---+-	+-----	-----+	-----+--+	3501,3564 = 3527,3564
++++----	-----	---+---+-	+-----	-----	+-----+--+	3527,3552 = 3527,3582
++++----	-----	---+---+-	+-----	-----	-----+--+	350104,3527 = 3527,3557
++++----	-----	---+---+-	+-----	-----	-----+--+	3501,3527 = 3527,3527
++++----	-----	---+---+-	-+-----+	--+-----	-----+--+	3540N,3550 = 3550,356801
++++----	-----	---+---+-	-+-----+	-----	+-----+--+	3550,3552 = 3550,3582
++++----	-----	---+---+-	-+-----+	-----	-----+--+	350104,3550 = 3550,3557
++++----	-----	---+---+-	-+-----+	-----	-----+--+	3501,3550 = 3542,3550 = 3550,3550
++++----	-----	---+---+-	-+-----+	--+-----	-----+--+	3540N,3542 = 3542,356801
++++----	-----	---+---+-	-+-----+	-----	+-----+--+	3542,3552 = 3542,3582
++++----	-----	---+---+-	-+-----+	-----	-----+--+	350104,3542 = 3542,3557
++++----	-----	---+---+-	-+-----+	-----	-----+--+	3501,3542 = 3542,3542
++++----	-----	---+---+-	--+-----	--+-----	-----+--+	3540N,3541 = 3541,356801
++++----	-----	---+---+-	--+-----	-----	+-----+--+	3541,3552 = 3541,3582
++++----	-----	---+---+-	--+-----	-----	-----+--+	350104,3541 = 3541,3557
++++----	-----	---+---+-	--+-----	-----	-----+--+	3501,3541 = 3541,3541
++++----	-----	---+---+-	---+-----	-----	+-----+--+	3552,356802 = 356802,3582
++++----	-----	---+---+-	---+-----	-----	+-----+--+	3532,3552 = 3532,3582
++++----	-----	---+---+-	---+-----	-----	-----+--+	3501,356802 = 350104,3532 = 350104,356802 = 3532,3557 = 3557,356802
++++----	-----	---+---+-	---+-----	-----	+-----+--+	3537,3552 = 3537,3582

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++++----	-----+	-----+	-----+	-----+	-----+	350104,3537 = 3537,3557
++++----	-----+	-----+	-----+	-----+	-----+	3540N,3549 = 3549,356801
++++----	-----+	-----+	-----+	-----+	-----+	3549,3552 = 3549,3582
++++----	-----+	-----+	-----+	-----+	-----+	350104,3549 = 3549,3557
++++----	-----+	-----+	-----+	-----+	-----+	3540N,3571 = 356801,3571
++++----	-----+	-----+	-----+	-----+	-----+	3552,3571 = 3571,3582
++++----	-----+	-----+	-----+	-----+	-----+	350104,3571 = 3557,3571
++++----	-----+	-----+	-----+	-----+	-----+	3501,3571 = 3571,3571
++++----	-----+	-----+	-----+	-----+	-----+	3540N,3548 = 3548,356801
++++----	-----+	-----+	-----+	-----+	-----+	3548,3552 = 3548,3582
++++----	-----+	-----+	-----+	-----+	-----+	350104,3548 = 3548,3557
++++----	-----+	-----+	-----+	-----+	-----+	3501,3548 = 3548,3548
++++----	-----+	-----+	-----+	-----+	-----+	3535,3540N = 3535,356801
++++----	-----+	-----+	-----+	-----+	-----+	3540N,3562 = 3562,356801
++++----	-----+	-----+	-----+	-----+	-----+	3540N,3563 = 3563,356801
++++----	-----+	-----+	-----+	-----+	-----+	3540N,3552 = 3540N,3582 = 3552,356801 = 356801,3582
++++----	-----+	-----+	-----+	-----+	-----+	3540N,3554 = 3554,356801
++++----	-----+	-----+	-----+	-----+	-----+	3540N,3578 = 356801,3578
++++----	-----+	-----+	-----+	-----+	-----+	350104,3540N = 350104,356801 = 3540N,3557 = 3557,356801
++++----	-----+	-----+	-----+	-----+	-----+	3501,3540N = 3501,356801 = 3540N,3540N = 3540N,356801
++++----	-----+	-----+	-----+	-----+	-----+	3535,3552 = 3535,3582
++++----	-----+	-----+	-----+	-----+	-----+	350104,3535 = 3535,3557
++++----	-----+	-----+	-----+	-----+	-----+	3501,3535 = 3535,3535
++++----	-----+	-----+	-----+	-----+	-----+	3552,3562 = 3562,3582
++++----	-----+	-----+	-----+	-----+	-----+	350104,3562 = 3557,3562
++++----	-----+	-----+	-----+	-----+	-----+	350104,3563 = 3557,3563
++++----	-----+	-----+	-----+	-----+	-----+	3552,3553N = 3553N,3582
++++----	-----+	-----+	-----+	-----+	-----+	3552,3554 = 3554,3582
++++----	-----+	-----+	-----+	-----+	-----+	350104,3552 = 350104,3582 = 3552,3557 = 3557,3582
++++----	-----+	-----+	-----+	-----+	-----+	3501,3552 = 3501,3582 = 3552,3552 = 3552,3582
++++----	-----+	-----+	-----+	-----+	-----+	350104,3553N = 3553N,3557
++++----	-----+	-----+	-----+	-----+	-----+	350104,3554 = 3554,3557
++++----	-----+	-----+	-----+	-----+	-----+	3501,3554 = 3554,3554
++++----	-----+	-----+	-----+	-----+	-----+	350104,3578 = 3557,3578
++++----	-----+	-----+	-----+	-----+	-----+	3501,350104 = 3501,3557 = 350104,350104 = 350104,3557
++++++--	-----+	-----+	-----+	-----+	-----+	3503,3583 = 3575,3583
++++++--	-----+	-----+	-----+	-----+	-----+	3503,3512 = 3512,3575
++++++--	-----+	-----+	-----+	-----+	-----+	3506,3539 = 3534,3559
++++++--	-----+	-----+	-----+	-----+	-----+	3503,3581 = 3575,3581
++++++--	-----+	-----+	-----+	-----+	-----+	3502,3503 = 3502,3575
++++++--	-----+	-----+	-----+	-----+	-----+	3503,3504 = 3504,3575 = 3506,3534
++++++--	-----+	-----+	-----+	-----+	-----+	3534,3588 = 3539,3588
++++++--	-----+	-----+	-----+	-----+	-----+	3504,3539 = 350901,3539
++++++--	-----+	-----+	-----+	-----+	-----+	3512,3539 = 3539,3587
++++++--	-----+	-----+	-----+	-----+	-----+	3504,3534 = 350901,3534
++++++--	-----+	-----+	-----+	-----+	-----+	3503,3518 = 3518,3556
++++++--	-----+	-----+	-----+	-----+	-----+	3506,3513 = 350901,3513
++++++--	-----+	-----+	-----+	-----+	-----+	3503,3588 = 3556,3588
++++++--	-----+	-----+	-----+	-----+	-----+	3503,3559 = 3559,3575
++++++--	-----+	-----+	-----+	-----+	-----+	3506,3533 = 350901,3533

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+++---+	-----	+-----+	-----	-----	-----	+++---+	3506,3536 = 350901,3536
+++---+	-----	--+---+	-----	-----	-----	+++---+	3506,3574 = 350901,3574
+++---+	-----	---+---+	+-----	-----	-----	+++---+	3503,3531 = 3531,3556
+++---+	-----	-----+	+-----	-----	-----	+++---+	3503,350902 = 350902,3556
+++---+	-----	-----+	+-----	-----	-----	+++---+	3506,3556 = 350901,3556
+++---+	-----	-----+	-+-----	-----	-----	+++---+	3506,3584 = 350901,3584
+++---+	-----	-----+	-----	---+-----	-----	+++---+	3506,3570 = 350901,3570
+++---+	-----	-----+	-----	-----	+-----	+++---+	3506,3585 = 350901,3585
+++---+	-----	-----+	-----	-----	-+-----	+++---+	3506,3565Q = 350901,3565Q
+++---+	-----	-----+	-----	-----	-----	+++---+	3506,3555 = 350901,3555
+++---+	-----	-----+	-----	-----	-----	+++---+	3506,3538 = 350901,3538
+++---+	-----	-----+	-----	-----	-----	+++---+	3503,3506 = 3503,350901 = 3506,3575
+++---+	-----	-----+	-----	-----	-----	+++---+	3503,3539 = 3539,3575
+++---+	-----	-----+	-----	-----	-----	+++---+	3503,3534 = 3534,3575
+++---+	-----	-----+	-----	-----	-----	+++---+	3503,3513 = 3513,3575
+++---+	-----	-----+	-----	---+-----	-----	+++---+	3503,3533 = 3533,3533 = 3533,3575
+++---+	-----	+-----+	-----	-----	-----	+++---+	3503,3536 = 3536,3536 = 3536,3575
+++---+	-----	--+---+	-----	-----	-----	+++---+	3503,3574 = 3574,3574 = 3574,3575
+++---+	-----	-----+	+-----	-----	-----	+++---+	3503,3556 = 3556,3556 = 3556,3575
+++---+	-----	-----+	-+-----	-----	-----	+++---+	3503,3584 = 3575,3584 = 3584,3584
+++---+	-----	-----+	-----	---+-----	-----	+++---+	3503,3570 = 3570,3570 = 3570,3575
+++---+	-----	-----+	-----	-----	+-----	+++---+	3503,3585 = 3575,3585
+++---+	-----	-----+	-----	-----	-+-----	+++---+	3503,3565Q = 3565Q,3565Q = 3565Q,3575
+++---+	-----	-----+	-----	-----	-----	+++---+	3503,3555 = 3555,3555 = 3555,3575
+++---+	-----	-----+	-----	-----	-----	+++---+	3503,3538 = 3538,3575
+++---+	-----	-----+	-----	-----	-----	+++---+	3503,3503 = 3503,3575
+++---+	-----	-----+	---+-----	-----	-----	+++---+	3543,3583 = 3567,3583
+++---+	-----	-----+	-----	-----	-----	+++---+	3512,3543 = 3512,3567
+++---+	-----	-----+	---+-----	-----	-----	+++---+	3543,3581 = 3567,3581
+++---+	-----	-----+	---+-----	-----	-----	+++---+	3502,3543 = 3502,3567
+++---+	-----	-----+	---+-----	-----	-----	+++---+	3504,3543 = 3504,3567
+++---+	-----	-----+	+-----	-----	-----	+++---+	3502,3564 = 3504,3564
+++---+	-----	-----+	---+-----	-----	-----	+++---+	3543,3559 = 3559,3567
+++---+	-----	-----+	---+-----	-----	-----	+++---+	3506,3543 = 3506,3567
+++---+	-----	-----+	-----	-----	-----	+++---+	3502,3583 = 3504,3583 = 350901,3583 = 3583,3583
+++---+	-----	-----+	+-----	-----	-----	+++---+	3502,3518 = 3504,3518
+++---+	-----	-----+	+-----	-----	-----	+++---+	3502,3588 = 3504,3588
+++---+	-----	-----+	-----	-----	-----	+++---+	3504,3512 = 350901,3512
+++---+	-----	-----+	-----	-----	-----	+++---+	3512,3512 = 3512,3587
+++---+	-----	-----+	+-----	-----	-----	+++---+	3502,3531 = 3504,3531
+++---+	-----	-----+	-----	-----	-----	+++---+	3502,3581 = 3504,3581 = 350901,3581 = 3581,3581
+++---+	-----	-----+	+-----	-----	-----	+++---+	3502,350902 = 3504,350902
+++---+	-----	-----+	-----	-----	-----	+++---+	3502,3502 = 3502,3504 = 3502,350901
+++---+	-----	-----+	-----	-----	-----	+++---+	3504,3504 = 3504,350901
+++---+	-----	-----+	+-----	-----	-----	+++---+	3506,3588 = 3559,3588
+++---+	-----	-----+	-----	-----	-----	+++---+	3506,3559 = 350901,3559
+++---+	-----	-----+	-----	-----	-----	+++---+	3506,3506 = 3506,350901

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+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3544,3551 = 3544,3558
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3505,3522 = 3522,356802
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3505,3560 = 3551,3560
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3532,3560 = 3560,356802
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3505,3518 = 3518,3551
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3505,3588 = 3551,3588
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	350901,3566 = 3566,3587
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3505,350902 = 350902,3551
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3505,350901 = 3505,3587 = 350901,3551
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	350901,356802 = 356802,3587
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3505,3575 = 3551,3575
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3543,3575 = 3567,3575
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3543,3566 = 3566,3567
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3551,3586 = 3558,3586
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3543,3572 = 3567,3572
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3505,3543 = 3505,3567
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3505,3558 = 3558,356802
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3551,3579 = 3558,3579
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3543,3551 = 3543,3558 = 3551,3567 = 3558,3567
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3532,3558 = 3551,3558 = 3558,3558
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3505,3566 = 3532,3566 = 3551,3566 = 3566,356802
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3505,3572 = 3551,3572 = 356802,3572
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3505,3564 = 3551,3564
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3505,3537 = 3537,3551
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3505,356801 = 3551,356801
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3505,3553N = 3551,3553N
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3505,3505 = 3505,3532 = 3505,3551 = 3505,356802 = 3551,356802
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3532,3551 = 3551,3551
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3537,3543 = 3537,3567
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3543,356801 = 3567,356801
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3543,3553N = 3553N,3567
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3543,356802 = 3567,356802
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3532,3543 = 3532,3567
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3532,356802 = 356802,356802
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3522,3543 = 3522,3567
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3543,3544 = 3544,3567
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3518,3543 = 3518,3567
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3543,3588 = 3567,3588
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	350902,3543 = 350902,3567
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	350901,3543 = 350901,3567
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	350901,3564 = 350902,3564
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3543,3586 = 3567,3586
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3543,3564 = 3564,3567
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3543,3579 = 3579,3579
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3543,3567 = 3567,3567
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3560,3560 = 3560,3587
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	350901,3518 = 350902,3518 = 3518,3518
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+	3531,3588 = 3587,3588

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+----+---	-----+--	---+---+-	+-----	-----+--	-----+--+	350901,3588 = 350902,3588 = 3588,3588
+----+---	-----	---+---+-	+-----	-----+--	-----+--+	350901,3531 = 350902,3531
+----+---	-----	---+---+-	+-----	-----+--	-----+--+	3531,3531 = 3531,3587
+----+---	-----	-----+	+-----	-----+--	-----+--+	350901,350902 = 350902,350902
-+++-----	---+----	--+---+-	-----+	-----	-----+--+	3513,3569 = 3513,3576
-+++-----	+---+---	--+---+-	-----+	-----	-----+--+	3516,3569 = 3516,3576
-+++-----	---+----	--+---+-	-----+	-----	-----+--+	3569,3580 = 3576,3580
-+++-----	---+----	-----+	-----	-----	-----+--+	3510,3580 = 3580,3580
-+++-----	---+----	--+---+-	-----+	-----	-----+--+	3510,3569 = 3510,3576 = 3569,3569 = 3569,3576
-+++-----	-----+	-----+	-----	+-----	-----+--+	3519,3547 = 3547,3547
-+++-----	-----	---+----	-----+	-----	-----+--+	3525,3525 = 3525,3549

3501 = 350101-350103 and 350105-350107

SPECIFICITY TABLE

HLA-B*35 SSP subtyping

Specificities and sizes of the PCR products of the 48 primer mixes used for HLA-B*35 SSP subtyping

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	Amplified HLA-B*35 alleles ³	Other amplified Class I alleles ⁴
1^{5,9}	95 bp	800 bp	350101-350902, 3511, 3512, 351401-3515, 3517, 3518, 352001-3524, 3527, 3529-3545, 3548, 3550-3562, 3564-356802, 3570-3572, 3574, 3575, 3577-3579, 3581-3588	0832, 180101-1811, 1813-1815, 1817N-1829, 3806, 3807, 391901-391902, 4406, 510101-512402, 5126-5146, 5148-5155, 530101-5316, 7801-7804
2	150 bp	1070 bp	350101-350402, 3506-350803, 3510-3517, 3519-3521, 3523-3530, 3533-3536, 3538-3542, 3545-3550, 3552, 3554-3557, 3559, 3561-3563, 3565Q, 3569-3571, 3574, 3576-3578, 3580-3585	1301, 1306, 1307N, 1312, 1313, 1317, 1320, 1502, 1513, 1520, 1521, 1525, 1536, 1544, 1562, 1577, 1580, 1585, 1588, 1589, 9506, 9512, 9521, 9539, 9544, 1822, 2719, 2730, 370101-370104, 3703N-3706, 3708, 3710, 3711, 3713, 3942, 4028, 44020101-4414, 4416, 4417, 4419N, 4421-4430, 4432-4440, 4442-4446, 4448-4452N, 4455-4460, 4802, 5104, 5142, 5146, 530101-5306, 5308-5313, 5315, 5316, 5514, 5609, 5611, 5612, 570101-5710, 5712, 5714-5716, 580101-580102, 5804, 5805, 5809-5815, 5817, 8301
3⁵	115 bp	800 bp	350101-350107, 3503, 3505, 3507-350803, 3510, 3511, 3513, 351401, 3515-3517, 3519-3521,	072202, 0807, 1520, 180101-1815, 1817N-1819, 1822-1825, 1827-1829, 3709, 3907, 3915, 3929, 3943, 4104, 4209, 4417, 4445, 4451, 4613, 4802, 4904, 5137, 5145, 5212, 530101-

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			3523-3530, 3532-3542, 3545-3558, 3561-3563, 3565Q, 3566, 356801-3572, 3574-3578, 3580, 3582, 3584, 3585	530102, 530104-5306, 5308-5316, 5409, 5514, 5523, 5527, 5609, 5611, 5618, 5714, 580101-5802, 5804-5807, 5809-5817
4	275 bp	1070 bp	350101-350107, 3505, 3507-350803, 3510, 3511, 351401-3517, 3519-3521, 3523-3530, 3532, 3535, 3537, 3540N-3543, 3545-3554, 3557, 3558, 3561-3564, 3566-3569, 3571, 3572, 3576-3580, 3582, 3586	0709, 0711, 0717, 0828, 0835, 1304, 1310, 15010101-150104, 150106-1508, 151101-1516, 1518-1521, 1523-1529, 1531-1536, 1538-1540, 1543, 1544, 1546, 1547, 1549-1557, 1560-1562, 1564-1572, 1574-1576, 1578-1582, 1584, 1585, 1587-1589, 1591-1598, 9501-9529, 9531, 9532, 9534-9536, 9538-9546, 180101-1815, 1817N-1825, 1827-1829, 2741, 3907, 3943, 4003, 4020, 4038, 4052, 4059, 4060, 4209, 4417, 4443, 460101-4610, 4612-4614, 4802, 4814, 4904, 4905, 5137, 5145, 530101-5303, 5305, 5306, 5308-5316, 5406, 5409, 5514, 5523, 5603, 5609, 5618, 570101-570103, 5706, 5708, 5710, 5711, 5713-5716, 580101-5802, 5804-5807, 5809-5817
5	280 bp	1070 bp	350201-350202, 350401-350402, 3506, 350901-350902, 3512, 3518, 3522, 3531, 3544, 3559, 3560, 3581, 3583, 3587, 3588	070501-0706, 0732, 0734, 0740, 0753, 080101-0806, 0808N-0813, 0815-0827, 0829-0836, 1301-1303, 1306-1309, 1311-1321, 1509, 1530, 1542, 1548, 1558, 1573, 1583, 1586, 1826, 2707, 2711, 2720, 2724, 2727, 2733, 3712, 380101, 380201-3817, 39010101-39010102L, 390103-390602, 3908-3914, 3916, 3918-3920, 3922-3924, 3926-3928, 3930-3942, 400101-400203, 4004-4008, 4010-4016, 4019, 4021-4023, 4025-4030, 4034-4040, 4043, 4045-4051, 4053-4058, 4061-4088, 4101-410302, 4105-4108, 4201, 4202, 4204-

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				4208, 4410, 4414, 4431, 4611, 480101-480102, 480301-4807, 4809-4816, 4818, 4819, 510101-510202, 5103-5116, 5119-512402, 5126-5136, 5138-5141N, 5143, 5144N, 5146, 5148-5155, 520101-5211, 5401-5405N, 5407, 5408N, 5410-5413, 550101-5505, 5507-5513, 5515-5522, 5524-5526, 5528-5530, 5601, 5602, 5604-5608, 5610, 5612-5617, 5619N-5623, 5702-570302, 5707, 5709, 5712, 5808, 5901, 5902, 670101-6702, 7801-7805, 8101-8104N, 8201, 8202
6⁵	85 bp	1070 bp	350201-350202, 350401-350402, 3512, 3522, 3534, 3539, 3544, 3581, 3583	1313, 1509, 1510, 1530, 1537, 1545, 1548, 1563, 1583, 1590, 1599, 1826, 2727, 3914, 3929, 4026, 4028, 4035, 4087, 4812, 510101-510902, 5111N, 5112, 5116, 5118-5123, 5126-5136, 5138-5141N, 5143, 5144N, 5146, 5148-5155, 520101-5212, 5404, 5517, 5527, 5528, 560501-5606, 5612, 5615, 5621, 5702-570302, 5705, 5707, 5709, 5712, 5808, 7801-7805
7⁶	325 bp	1070 bp	3523	1506, 152701-152702, 1584, 9509, 1827, 4410, 47010101-4703, 8201, 8202
8	275 bp	1070 bp	3503, 3506, 3513, 3533, 3536, 3538, 3555, 3556, 3559, 3560, 3565Q, 3570, 3574, 3575, 3584, 3585	1301-1303, 1306-1309, 1311, 1312, 1314-1320, 1542, 1558, 1573, 1586, 9533, 380101, 380201-3817, 39010101-39010102L, 390103-390602, 3908-391302, 3915, 3916, 3918-3920, 3922-3924, 3926-3928, 3930-3942, 4036, 4048, 4071, 4077, 4086, 4206, 4410, 4508, 4611, 4807, 4817, 511301-511302, 5115, 5304, 5401-5403, 5405N, 5407, 5408N, 5410, 5412, 5413, 550101-5503, 5505, 5507, 5509-5513, 5515, 5516, 5518,

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				5519, 5521, 5522, 5524-5526, 5529, 5530, 5601, 5602, 5604, 5607, 5608, 5610, 5611, 5613, 5614, 5616, 5617, 5619N, 5620, 5622, 5623, 5901, 670101-6702, 8201, 8202
9^{5,7}	140 bp	800 bp	3505, 3516, 3517, 3522, 3530, 3551, 3558, 3566, 3572	1405, 1507, 1545, 1555, 1568, 9526, 1814, 1822, 2732, 3903, 3914, 3924, 3929, 3937, 4035, 4071, 4454, 4612, 4812, 4814 5314
10^{5,10}	140, 240 bp	1070 bp	3507, 3583	
11^{8,9}	225 bp	800 bp	350801-350803, 3518, 3545, 3561, 3580	0712, 0714, 071801-071802, 4404, 442801-442802, 4456N, 5311, 5316, 5702, 5704, 5705, 5712, 5713, Cw*0328, Cw*0510, Cw*1508
12⁵	95 bp	1070 bp	3510, 3513, 3516, 3528, 3569, 3580	1812, 370101-3705, 3707, 3709-3713, 4903, 520101-520104, 5203-5212, 7805
13	170 bp	800 bp	3511, 351401-351402, 3521, 3543, 3544, 3558, 3567, 3579, 3586	070201-0724, 0726-0747, 0749N, 0750, 0752-0764, 0806, 0820, 1316, 1320, 1401-1408, 15010101-1504, 1506-1519, 1521, 1523-1530, 1532-1540, 1542-1547, 1549, 1550, 1553, 1554, 1556-1558, 1560-1574, 1576-1582, 1585, 1587, 1589, 1590, 1592-1599, 9501-9504, 9506, 9508-9510, 9512, 9513, 9515-9522, 9525-9529, 9531-9535, 9537-9544, 9546, 1815, 1819, 1821, 270401-270402, 2706, 2710, 2715, 2718, 2720, 2721, 2724, 2725, 2740, 3707, 3713, 3810, 3918, 3935, 3936, 4005, 4015, 4016, 4023, 4026, 4028, 4032, 4051, 460101-4605, 4607N, 4608, 4610, 4612, 4614, 4805, 4808, 4815, 4901-4905, 5001, 5002, 5004, 510101-5104, 5106, 5107, 5111N-5114, 5116-5118, 5121-512402, 5126-5130, 5132-5139, 5141N, 5143, 5145, 5146, 5148-5152, 5155,

				520101-5202, 5204-5209, 5211, 5212, 5306, 5308, 5406, 550101-550104, 5503, 5505, 5509, 5511, 5514, 5515, 5517, 5521, 5524, 5525, 5528, 5529, 5603, 560501-5606, 5621, 5709, 5713, 5806, 5808, 7801-7803, 7805
14^{5,8,9}	75 bp	800 bp	3512, 3539, 3559, 3561, 3588	0714, 071801-071802, 1301, 1306, 1307N, 1312, 1313, 1317, 1320, 1321, 1502, 1513, 1521, 1525, 1536, 1544, 1577, 1580, 1588, 1589, 9506, 9512, 9521, 9539, 9544, 2719, 2730, 3942, 4004, 4028, 4030, 4034, 4064, 4068, 44020101-4409, 4411-4414, 4416, 4417, 4419N, 4421-4430, 4432-4435, 4437-4440, 4442-4446, 4448-4453, 4455-4460, 5104, 5142, 5146, 5514, 5612, 570101-5704, 5706-5710, 5712-5716, 8301
15⁵	135 bp	1070 bp	3515, 3533, 3566, 3586	1301-130204, 1307N-1311, 1313-1320, 1540, 1547, 1549, 1552, 9514, 9517, 9524, 9538, 1810, 2701-270402, 270502-2706, 2708-2710, 2712-2714, 2716-2719, 2721, 2723, 2726, 2727, 2729-2732, 2735, 2737, 2739-2742, 3702, 4035, 4077, 4087, 4416, 4421, 47010101-4705, 4812, 4814, 5116, 5131, 5134, 5208, 5509, 5522, 5524
16^{5,11}	95, 190 bp	1070 bp	3519, 3547, 3577	9543, 4008, 4025, 4068, 4412
17^{8,12}	180, 380 bp	1070 bp	3526, 3536	3904
18^{5,8}	105 bp	1070 bp	352001-352002, 3528, 3572	180101-1806, 1808-1815, 1817N-1828, 370101-370102, 370103 ^{weakly} , 370104-3705, 3707-3713, 4903, 5107, 520101-520104, 5203-5205, 5207-5212, 5309, 7805
19^{8,9}	230 bp	1070 bp	3529, 3569, 3574, 3576	0729, 080101-080105, 0802 ^{weakly} , 0804-0822, 0824-0836, 1561, 1570, 1576, 9501, 3904, 4043, 4073, 4506,

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				460101-4604, 4606-4614, 5120 ^{weakly} , 5401, 5403-5411, 5412 ^{weakly} , 5413, 550101-5505, 5507-5509, 5511-5517, 5519-5530, 5601-5606, 5607 ^{weakly} , 5608-5620, 5621 ^{weakly} , 5622, 7801, 7803, 8301
20	200 bp	1070 bp	3531, 3588	070501-0706, 0732, 0740, 0753, 1301-130204, 1307N-1309, 1311, 1313-1321, 2707, 2711, 2720, 2724, 2727, 2733, 400101-400203, 4004, 40060101-4008, 4010-4016, 4019, 4021-4023, 4025, 4027, 4029, 4030, 4034-4038, 4040, 4043, 4045-4050, 4053-4058, 4061, 4062, 4064-4070, 4072-4088, 4406, 4431, 480101-480102, 480301-4807, 4809-4816, 4818, 4819, 4903, 510101, 510103-510108, 510201, 510203-5104, 5106-510901, 5110-5114, 5116-512402, 5126-5146, 5148, 5149, 5151-5153, 5155, 520102, 520104-5203, 520601-520602, 5208, 5209, 5306, 5509, 5522, 5524, 5808, 8101-8104N
21⁸	265 bp	800 bp	3525	180101-1803, 1805-1815, 1817N-1828, 370101-3713, 5812, 8101, 8301
22^{5,13}	90, 270 bp	1070 bp	3521, 3524, 3546, 3581	1502, 1508, 151101-151103, 1513, 1515, 1521, 1531, 1544, 1555, 1588, 1589, 9512, 9521, 9539, 9544, 1822, 3704, 4028, 5104, 5146, 5302, 5306, 5714, 5809
23	190 bp	800 bp	350101-3510, 3513, 3515, 3518-352002, 3523-3530, 3533-3537, 3540N-3542, 3545-3550, 3552-3557, 3560, 3563-3566, 356801-3572, 3574-3578, 3580-3585, 3588	1301-1304, 1306-1309, 1311-1315, 1317-1319, 1520, 1586, 1822, 2714, 4004, 4024, 4059, 4060, 4068, 4070, 4410, 4611, 4802, 4817, 5115, 530101-5305, 5309-5316, 5401-5405N, 5407, 5408N, 5410-5413, 550201-550202, 5507, 5510, 5512, 5513, 5516, 5518, 5519, 5522, 5523, 5526, 5527, 5530,

				5601, 5602, 5607-5611, 5614-5617, 5619N, 5620, 5622, 5623, 5705, 580101-5802, 5804, 5807, 5809-5817, 5901, 5902, Cw*0203, Cw*0512
24	425 bp	1070 bp		2702, 2703, 270502-270510, 2707, 2709, 2710, 2713, 2714, 2716, 2717, 2719, 2727-2730, 2732, 2734, 2735, 2737-2739, 2741, 2742 ^{weakly} , 370101-3704, 3705 ^{weakly} , 3706-3709, 3712, 3713, 4013, 4019 [?] , 4406, 4425, 4450, 47010101-47010102, 4705, 510101-512402, 5126-5146, 5148, 5149, 5151-5153, 5155, 520101-5212, 530101-5308, 5310, 5314-5316, 570101-5711, 5713-5716, 580101-5802, 5804-5816
25^{5,7,14}	135, 210 bp	800 bp	350902, 3518, 3527, 3531, 3556, 3564, 3588	070201-0764, 080102, 0806, 0820, 1321, 1533, 9507, 9516, 9541, 1821, 2701-270402, 270502-2721, 2723-2742, 3702, 3705, 3707, 3709, 400101-4013, 401403-4016, 4018-4025, 4027, 4029-4040, 4042-4070, 4073-4076, 4078-4086, 4088, 4108, 4431, 4606, 47010101-4705, 480101-480102, 480301-4811, 4813, 4815-4819, 510109, 5110, 512402, 5411, 5504, 5508, 5713, 8101-8104N
26¹⁵	210, 370 bp	800 bp	3542, 3550, 3584	0708, 0732, 0738, 1807, 1829, 2723, 3806, 3807, 4008, 4013, 4068, 4806
27^{5,8}	110 bp	1070 bp	3541	
28	230 bp	800 bp	3505, 3522, 3532, 3543, 3544, 3551, 3558, 3567, 356802, 3572, 3579	0720, 0724, 0760, 0821, 0825, 15010101-150104, 150106-150108, 1503, 1505, 1507-151102, 1512 ^{weakly} , 1514, 1515, 15170101-1518, 1519 ^{weakly} , 1523, 1524, 1528-1531, 1533-1535, 1537-1539, 1543, 1545, 1546, 1548, 1551, 1553-1558, 1560, 1561, 1563-1566, 1568,

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				1570-1576, 1578, 1579N, 1581, 1582, 1587, 1590-1592, 1594N, 1596-1599, 9501-9505, 9507, 9508, 9511N, 9513, 9515, 9516, 9518-9520, 9522, 9523, 9525-9528, 9531-9536, 9540-9543, 9545, 9546, 3932, 4005, 4026, 4063, 4071, 4441, 4454, 460101-4602, 4604, 4605, 4608-4610, 4612-4614, 5106, 5145, 5314, 5406, 5508, 5602-5604, 5816, Cw*0305, Cw*0325, Cw*0327
29⁵	105 bp	1070 bp	3537	1304, 1504, 1516, 1567, 1595, 9537, 390601-390602, 3933, 3934, 4086, 4502, 4904, 4905, 511301-511302, 5137, 5513, 5523, 5622, 7301
30^{5,8,16}	115, 325 bp	800 bp	3515, 3525, 3526, 3533, 3549, 3566	1301-130204, 1307N-1311, 1313-1321, 1810, 2701-270402, 270502-2721, 2723-2742, 401401, 4046 [?] , 4072, 4077, 4416, 4421, 4440, 4444, 4812, 5116, 5131, 5134, 5208, 5509, 5522, 5524, 8101, 8301, Cw*0110^{weakly}, Cw*0715^{weakly}
31^{8,17}	170, 210 bp	1070 bp	3525, 3550, 3584	0708, 0732, 0738, 080101-0803, 0805-0816, 0818-0825, 0827-0836, 1529, 1807, 1829, 2723, 3806, 3807, 4008, 4013, 4068, 4806
32^{5,9}	170 bp	1070 bp	3529, 3569, 3576	070201-070202, 070204-0715, 0717-0726, 0728-0735, 0739-0749N, 0751-0755, 0757-0764, 1570, 1576, 9501, 1803 ^{weakly} , 391902, 4201, 4202, 4204-4209, 460101, 4603-4614, 5603, 5606, 7301, 7801, 7803, 8101-8104, 8301
33^{5,18}	70, 205 bp	1070 bp	3545, 3547, 3571	0720, 1514, 1546, 1591, 9506, 9531, 4410, 4414, 4417, 4431, 4443, 4445, 4451, 5123, 5707, 5807, 8201, 8202
34	230 bp	800 bp	3548	5307
35^{8,19}	150, 365 bp	1070 bp	3540N, 356801	
36^{5,20}	110,	800 bp	3535, 3570, 3579	3942

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	180, 230 bp			
37⁵	85 bp	1070 bp	3560	1301-1303, 1306-1309, 1311, 1312, 1314-1320, 1542, 1573, 1586, 3917, 4071, 4410, 4415, 4418, 4501, 4504-4508, 4611, 4901-4903, 5001, 5002, 5004, 5115, 5401-5403, 5405N, 5407, 5408N, 5410, 5412, 5413, 550101-5503, 5505, 5507, 5509-5512, 5515, 5516, 5518, 5519, 5521, 5522, 5524-5526, 5529, 5530, 5601, 5602, 5604, 5607, 5608, 5610, 5613, 5614, 5616, 5617, 5619N, 5623, 5901, 8201, 8202
38^{8,21}	210, 295 bp	1070 bp	350201-350202, 350902, 3518, 3531, 3564, 3581, 3583, 3588	070201-0764, 080102, 0806, 0820, 1321, 1533, 9507, 9516, 9541, 1821, 2701-270402, 270502-2721, 2723-2742, 3702, 3707, 3709, 400101-4013, 401403-4016, 4018-4025, 4027, 4029-4040, 4042-4070, 4073-4076, 4078-4086, 4088, 4108, 4431, 4606, 47010101-4705, 480101-480102, 480301-4811, 4813, 4815-4819, 510109, 5110, 512402, 5411, 5504, 5508, 5713, 8101-8104N
39⁵	115 bp	1070 bp	351401-351402, 3543, 3544, 3562, 3567, 3579, 3586	15010101-150104, 150106-150108, 1504, 1507, 1508, 151101-1512, 1514, 1515, 1519, 1524, 1526N-1528, 1530, 1532, 1534, 1535, 1538, 1543, 1545, 1546, 1550, 1553, 1554, 1556-1558, 1560, 1563, 1566, 1568, 1570, 1571, 1573, 1575-1577, 1579N, 1581, 1582, 1585, 1587, 1592, 1594N, 1596, 1597, 9501, 9502, 9504, 9505, 9509-9511N, 9513, 9517, 9518, 9520, 9522, 9525, 9526, 9528, 9529, 9535, 9537, 9540, 9542-9546, 1819, 2725, 3936, 460101-4602, 4604, 4605, 4607N, 4609, 4610, 4612, 4614, 5406, 5521, 5603

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40	185 bp	1070 bp	3563	1553, 2708, 2712, 2718, 2726, 2733, 2740, 2742, 400101-4009, 4011, 401401-4016, 4018, 4020, 4022N-4040, 4042-4046, 4048-4075, 4077-4082, 4084-4088, 4101-4104, 4106-4108, 4409, 4446, 4501-4508, 4702, 5001, 5002, 5004
41^{5,22}	105, 135 bp	1070 bp	3552, 3582, 3585	391901-390102, 5122, 7803
42²³	155, 250 bp	800 bp	3553N, 3565Q	
43	205 bp	1070 bp	3554	
44^{5,24}	110, 145, 300 bp	1070 bp	3555, 3578	1809, 3710, 5154, 5309, 5311-5313
45²³	165 bp	800 bp	350101-3530, 3532-3542, 3544, 3545, 3547-3556, 3558, 3559, 3561-3572, 3574-3578, 3580-3586, 3588	1520, 4802, 510101-512402, 5126-5146, 5148-5155, 520101-520602, 5208-5212, 530101-5316, 5621, 580101-5802, 5804-5810N, 5812-5817, 7801-7805, 8103
46^{7,8,23,26}	165, 380 bp	1070 bp	350104, 3505, 350803, 3512, 3517, 3530, 3531, 3543, 3546, 3551, 3557, 3558, 3560, 3566, 3567, 356802, 3579, 3586, 3587	070201-0757, 0759-0764, 080101-0836, 1301-1304, 1306-1321, 1401-1408, 15010101-1519, 1521, 1523-1540, 1542-1558, 1560-1599, 9501, 9503-9529, 9531-9546, 180101-1815, 1817N-1829, 2701-270402, 270502-2721, 2723-2742, 370101-3713, 380101-3817, 39010101-39010102L, 390103-3920, 3922-3943, 400101-4016, 4018-4040, 4042-4088, 4101-4108, 4201, 4202, 4204-4209, 44020101-4460, 4501-4508, 460101-4614, 47010101-4705, 480101-480102, 480301-4819, 4901-4905, 5001, 5002, 5004, 5106, 5142, 5207, 5314, 5401-5413, 550101-550102, 550104-5505, 5507-5530, 5601-5620, 5622, 5623, 570101-5716, 5811, 5901, 5902, 670101-6702, 8101, 8102, 8104N, 8201, 8202, 8301

47	160 bp	800 bp	3538	4206, 5613, 8201, 8202, Cw*070401-070402 ^{weakly} Cw*0711 ^{weakly} , Cw*0712 ^{weakly} , Cw*0745
48	395 bp	1070 bp	350101-3519, 3521- 3525, 3527, 3529- 3562, 3564-3571, 3574, 3575, 3577, 3579-3581, 3583, 3584, 3586-3588	1807, 1829, 2723, 4008, 4013, 4068 [?] , 4406, 510101-5106, 5108-5121, 5123-512402, 5126-5146, 5148-5155, 520601-520602, 530101-5308, 5310-5316, 7801-780202, 7804

¹Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of HLA-B*35 SSP typings.

When the primers in a primer mix can give rise to specific PCR products of more than one length this is indicated if the size difference is 20 base pairs or more. Size differences shorter than 20 base pairs are not given. For high resolution SSP kits the respective length of the specific PCR product(s) of the alleles amplified by these primer mixes are given.

Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers.

PCR fragments longer than the control bands may sometimes be observed. Such bands should be disregarded and do not influence the interpretation of the SSP typings.

PCR fragments migrating faster than the control bands, but slower than a 400 bp fragment may be seen in some gel read-outs. Such bands can be disregarded and do not influence the interpretation of the SSP typings.

Some primers may give rise to primer oligomer artifacts. Sometimes this phenomenon is an inherent feature of the primer pair(s) of a primer mix. More often it is due to other factors such as too low amount of DNA in the PCR reactions, taking too long time in setting up the PCR reactions, working at elevated room temperature or using thermal cyclers that are not pre-heated.

²The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 1070 base pairs, for most wells, or a band of 800 base pairs, for some wells.

Well number 1 contains the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to help in the correct orientation of the HLA-B*35 subtyping.

In addition, wells number 3, 7, 9, 11, 13, 14, 21, 23, 25, 26, 28, 30, 34, 36, 42, 45 and 47 contain the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to allow kit identification.

In the presence of a specific amplification the intensity of the control band often decreases.

³For several HLA-B alleles first exon nucleotide sequences are not available. In these instances it is not known whether some of the primers of the SSP sets are completely matched with the target sequences or not. We assume that unknown sequences in the first exon are conserved within allelic groups.

⁴Due to the sharing of sequence motifs between HLA-B alleles many non-HLA-B*35 alleles will be amplified by the HLA-B*35 primer mixes. In addition, the Cw*0110 and Cw*0715 alleles will be weakly amplified by primer mix 30, the Cw*0203 and Cw*0512 alleles by primer mix 23, the Cw*0305, Cw*0325 and Cw*0327 alleles by primer mix 28, the Cw*0328, Cw*1510 and Cw*1508 alleles by primer mix 11, the Cw*0510 and the Cw*1508 alleles by the primer mix 11 and the Cw*070401-070402, the Cw*0711, Cw*0712 and the Cw*0745 alleles weakly by primer mix 47.

⁵Short specific PCR fragments are less intense and not as sharp as longer specific bands.

⁶Primer mix 7 may faintly amplify the B*44 alleles.

⁷Primer mixes 9, 25 and 46 may give rise a primer oligomer artefact.

⁸Primer mixes 11, 14, 17, 18, 19, 21, 27, 30, 31, 35, 38 and 46 have a tendency of giving rise to nonspecific amplifications.

⁹Primer mixes 1, 11, 14, 19 and 32 may yield less specific PCR products than the other B*35 primer mixes.

¹⁰Primer mix 10: Specific PCR fragment of 140 bp in the B*3583 allele. Specific PCR fragment of 240 bp in the B*3507 allele.

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¹¹Primer mix 16: Specific PCR fragment of 95 bp in the B*9543, 3519, 3547 and B*4008, 4025, 4068 and 4412 alleles. Specific PCR fragment of 190 bp in the B*3577 allele.

¹²Primer mix 17: Specific PCR fragment of 180 bp in the B*3526 and B*3904 alleles. Specific PCR fragment of 380 bp in the B*3536 allele.

¹³Primer mix 22: Specific PCR fragment of 90 bp in the B*3546 and the B*1502, 1508, 151101-151103, 1513, 1515, 1521, 1531, 1544, 1555, 1588, 1589, 9512, 9521, 9539 and 9544 alleles. Specific PCR fragment of 270 bp in the B*3521, 3524, 3581 and the B*1822, 3704, 4028, 5104, 5146, 5302, 5306, 5714 and 5809 alleles.

¹⁴Primer mix 25: Specific PCR fragment of 135 bp in the B*3527 and 3556 and the B*3705 alleles. Specific PCR fragment of 210 bp in the other alleles amplified by this primer mix.

¹⁵Primer mix 26: Specific PCR fragment of 210 bp in the B*3550, 3584 and B*0708, 0732, 0738, 3806, 3807 and 4806 alleles. Specific PCR fragment of 370 bp in the B*3542 and B*1807, 1829, 2723, 4008, 4013 and 4068 alleles.

¹⁶Primer mix 30: Specific PCR fragment of 115 bp in the B*3515, 3533 and 3566 and B*1301-130204, 1307N-1311, 1313-1321, 1810, 401401, 4046[?], 4072, 4077, 4416, 4421, 4440, 4444, 4812, 5116, 5131, 5134, 5208, 5509, 5522, 5524, Cw*0110^w and Cw*0715^w alleles. Specific PCR fragment of 325 bp in the B*3525, 3526 and 3549 and B*2701-270402, 270502-2721, 2723-2742, 8101 and 8301 alleles.

¹⁷Primer mix 31: Specific PCR fragment of 170 bp in the B*3525 and B*0708, 0732, 0738, 080101-0803, 0805-0816, 0818-0825, 0827-0836, 1529, 1807, 1829, 3806, 3807 and 4806 alleles. Specific PCR fragment of 210 bp in the B*3550, 3584 and B*2723, 4008, 4013 and 4068 alleles.

¹⁸Primer mix 33: Specific PCR fragment of 70 bp in the B*3547 and B*1546 and 9506 alleles. Specific PCR fragment of 205 bp in the B*3545, 3571 and B*0720, 1514, 1591, 9531, 4410, 4414, 4417, 4431, 4443, 4445, 4451, 5123, 5707, 5807, 8201 and 8202 alleles.

¹⁹Primer mix 35: Specific PCR fragment of 150 bp in the B*3540N allele. Specific PCR fragment of 365 bp in the B*356801 allele.

²⁰Primer mix 36: Specific PCR fragment of 110 bp in the b*3579 allele. Specific PCR fragment of 180 bp in the B*3570 allele. Specific PCR fragment of 230 bp in the B*3535 and B*3942 alleles.

²¹Primer mix 38: Specific PCR fragment of 295 bp in the B*350201-350202 alleles. Specific PCR fragment of 210 bp in the other alleles amplified by this primer mix.

²²Primer mix 41: Specific PCR fragment of 105 bp in the B*3582, 3585 and B*391901-391902, 5122 and 7803 alleles. Specific PCR fragment of 135 bp in the B*3552 allele.

²³Primer mix 42: Specific PCR fragment of 155 bp in the B*3553N allele. Specific PCR fragment of 250 bp in the B*3565Q allele.

²⁴Primer mix 44: Specific PCR fragment of 110 bp in the B*3578 allele. Specific PCR fragment of 145 bp in the B*1809, 3710, 5154, 5309 and 5311-5313 alleles. Specific PCR fragment of 300 bp in the B*3555 allele.

²⁵Primer mixes 45 and 46: For many HLA-B alleles fourth exon nucleotide sequences are not available. We assume that unknown sequences in the fourth exon are conserved within allelic groups.

²⁶Primer mix 46: Specific PCR fragment of 380 bp for the B*3573 allele. Specific PCR fragment of 165 bp in the other alleles amplified by this primer mix. The B*7301 and Cw*0503 alleles may be weakly amplified by primer mix 46.

INTERPRETATION TABLE																								
HLA-B*35 SSP subtyping																								
Amplification patterns of the B*3501 to B*3588 alleles																								
	Well ⁵																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Length of spec.	95	150	115	275	280	85	325	275	140	140	225	95	170	75	135	95	180	105	230	200	265	90	190	425
PCR product										240						190	380						270	
Length of int. pos. control ¹	800	1070	800	1070	800	1070	1070	1070	800	1070	800	1070	800	800	1070	1070	1070	1070	1070	1070	800	1070	800	1070
5'-primer(s) ²	206 5'-gAC ³	355 5'-TCA ³	412 5'-ATg ³	419 5'-gTC ³	412 5'-ATA ³	419 5'-gTA ³	368 5'-gTT ³	419 5'-gTT ³	363 5'-AGC ³	49 5'-CAg ³	355 5'-TCA ³	206 5'-gAC ³	527 5'-TgA ³	355 5'-TCA ³	463 5'-TgA ³	112 5'-CCg ³	106 5'-CCA ³	206 5'-gAC ³	106 5'-CCA ³	141 5'-ATT ³	49 5'-CAg ³	209 5'-ggC ³	379 5'-ACC ³	49 5'-CAg ³
										388 5'-CCT ³						206 5'-gAA ³	320 5'-CgA ³			412 5'-ATA ³		355 5'-TCA ³		
3'-primer(s) ³	259 5'-gTT ³	463 5'-gCT ³	486 5'-gCG ³	3rd in 5'-TAT ³	3rd in 5'-TAT ³	463 5'-gCT ³	3rd in 5'-TAT ³	3rd in 5'-TAT ³	463 5'-gCT ³	119 5'-ggA ³	538 5'-CCg ³	259 5'-CTC ³	3rd in 5'-TAT ³	387 5'-TCC ³	559 5'-CTC ³	259 5'-gTT ³	246 5'-TAT ³	272 5'-Tgg ³	292 5'-gTC ³	309 5'-ATC ³	142 5'-TgA ³	259 5'-gTT ³	527 5'-CCA ³	301 5'-gTC ³
										486 5'-gCG ³							419 5'-CgA ³	538 5'-gTC ³	299 5'-TCA ³	559 5'-CTC ³		583 5'-gTg ³	309 5'-ATC ³	
Well No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HLA-B allele ⁴																								
*350101-350103, 350105-350107	1	2	3	4																				23
*350104	1	2	3	4																				23
*350201-350202	1	2			5	6																		23
*3503	1	2	3					8																23
*350401-350402	1	2			5	6																		23
*3505	1		3	4					9															23
*3506	1	2			5			8																23
*3507	1	2	3	4						10														23
*350801-350802	1	2	3	4							11													23
*350803	1	2	3	4							11													23
*350901	1				5																			23
*350902	1				5																			23
*3510		2	3	4								12												23
*3511	1	2	3	4									13											
*3512	1	2			5	6								14										
*3513		2	3					8				12												23
*351401	1	2	3	4									13											
*351402	1	2		4									13											
*3515	1	2	3	4											15									23
*3516		2	3	4					9			12												
*3517	1	2	3	4					9											16				
*3518	1				5						11													23
*3519		2	3	4																				23
*352001-352002	1	2	3	4															18					23
*3521	1	2	3	4									13											22
*3522	1				5	6			9															
*3523	1	2	3	4			7																	23
*3524	1	2	3	4																		22	23	
*3525		2	3	4																		21	23	
*3526		2	3	4														17						23
*3527	1	2	3	4																				23
*3528		2	3	4								12							18					23
*3529	1	2	3	4																19				23
*3530	1	2	3	4					9															23
*3531	1				5																20			
*3532	1		3	4																				
*3533	1	2	3					8							15									23
*3534	1	2	3			6																		23
*3535	1	2	3	4																				23
Well No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

INTERPRETATION TABLE																												
HLA-B*35 SSP subtyping																												
Amplification patterns of the B*3501 to B*3588 alleles																												
Well ⁵																												
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48					
135	210	110	230	105	115	170	170	70	230	150	110	85	210	115	185	105	155	205	100	165	165	160	395	Length of spec. PCR product				
210	370				325	210		205		365	180		295			135	250		145		380			Length of int. pos. control ¹				
800	800	1070	800	1070	800	1070	1070	1070	800	1070	800	1070	1070	1070	1070	1070	800	1070	1070	800	1070	800	1070	5'-primer(s) ²				
206	72	355	369	357	49	103	165	165	368	272	355	420	397	463	167	206	355	106	206	652	272	419	49	3'-primer(s) ³				
5'-gAC ³	5'-gCT ³	5'-TCA ³	5'-TAC ³	5'-Tgg ³	5'-CAG ³	5'-CCT ³	5'-ACC ³	5'-ACC ³	5'-gTC ³	5'-CTT ³	5'-TCA ³	5'-TAA ³	5'-gCT ³	5'-TgA ³	5'-gCT ³	5'-gAC ³	5'-TCA ³	5'-CCg ³	5'-gAC ³	5'-CCg ³	5'-CTT ³	5'-gTT ³	5'-CAG ³					
477	103				486	142		409		808	635		477						355		652							
5'-gCC ³	5'-CCT ³				5'-ACC ³	5'-TCT ³		5'-ggC ³		5'-Cg ³	5'-ACg ³		5'-gCC ³						5'-TCA ³		5'-CCA ³							
											704																	
											5'-TgA ³																	
302	272	425	559	419	204	272	292	193	559	353	544	463	3rd in	538	311	272	471	272	277	774	369	538	272	3'-primer(s) ³				
5'-ggT ³	5'-TgA ³	5'-gCg ³	5'-CAg ³	5'-Cgg ³	5'-TCT ³	5'-TgA ³	5'-TTC ³	5'-CgT ³	5'-CAg ³	5'-ggg ³	5'-ggT ³	5'-gCT ³	5'-TAT ³	5'-CCA ³	5'-ggT ³	5'-TgC ³	5'-TC ³	5'-TgA ³	5'-ggC ³	5'-ggT ³	5'-CCg ³	5'-gTC ³	5'-TgA ³					
3 rd in		5'-gCg ³		419	559			572		916	774					301	564		309		774							
5'-TAT ³				5'-CgA ³	5'-CTC ³			5'-gCg ³		5'-gAT ³	5'-ggT ³					5'-gCA ³	5'-ACC ³		5'-gTg ³		5'-ggT ³							
																			614									
																								Well No.				
																								HLA-B allele ⁴				
																				45			48	*350101-350103, 350105-350107				
																				45	46		48	*350104				
													38							45			48	*350201-350202				
																				45			48	*3503				
			28																	45			48	*350401-350402				
																				45	46		48	*3505				
																				45			48	*3506				
																				45			48	*3507				
																				45			48	*350801-350802				
																				45	46		48	*350803				
																				45			48	*350901				
25													38							45			48	*350902				
																				45			48	*3510				
																				45			48	*3511				
																				45	46		48	*3512				
																				45			48	*3513				
													39							45			48	*351401				
													39							45			48	*351402				
					30															45			48	*3515				
																				45			48	*3516				
																				45	46		48	*3517				
25													38							45			48	*3518				
																				45			48	*3519				
																				45			48	*352001-352002				
			28																	45			48	*3521				
																				45			48	*3522				
																				45			48	*3523				
																				45			48	*3524				
					30	31														45			48	*3525				
					30															45			48	*3526				
25																				45			48	*3527				
																				45			48	*3528				
							32													45			48	*3529				
																				45	46		48	*3530				
25			28										38							45	46		48	*3531				
					30															45			48	*3532				
																				45			48	*3533				
																				45			48	*3534				
											36									45			48	*3535				
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.				

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Well No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
*3536	1	2	3					8									17						23	
*3537	1		3	4																			23	
*3538	1	2	3					8																
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*0714, 071801-071802											11		13	14										
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*0724, 0760													13											
Well No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

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25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.
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																					46		48	*3546
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																	42			45			48	*3553N
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25							32							38							46			*0714, 071801-071802
25			28				32	33						38							46			*0720
25							32							38							46			*072202
25			28				32							38							46			*0724, 0760
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.

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*0803, 0823					5															19				
*0804, 0817, 0826, 5520					5															19				
*0806, 0820					5								13							19				
*0807			3																	19				
*0814																				19				
*0821, 0825					5															19				
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*152701-152702, 9509				4			7													13				
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*1542					5			8						13										

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25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.
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25	26					31	32						38								46			*0732
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25							32						38								46			*0758
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25						31							38								46			*080102
						31															46			*0802
						31															46			*0803, 0823
																					46			*0804, 0817, 0826, 5520
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						31															46			*0807
						31															46			*0814
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						31															46			*0828
						31															46			*0832
						31															46			*0835
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													37								46			*1303, 1586, 5402, 5510, 5518, 5901
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													37								46			*1306, 1312
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						30															46			*1313
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25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.

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*1584				4			7																	
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*9533									8				13											
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Well No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

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Well No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
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*3704		2										12					18			21	22		24	
*3705		2										12					18			21			w	
*3706		2										12					18			21			24	
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*3806, 3807	1				5			8																
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*3914					5	6			9															
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*4032													13								20			
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*4063					5																			
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																					46			*3702
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Well No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

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HLA-B allele ⁴																								
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Cw*0203, 0512																								23
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Cw*0328, 0510, 1508											11													
Cw*070401-070402, 0711, 0712, 0745																								
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																					45			*5806
								33													45			*5807
																					45			*5809
																					46			*5811
																					45			*5812
			28																		45			*5816
																					45			*5817N
																					46			*5902
				29			32														45		48	*7301
							32														45		48	*7801
																41					45		48	*780201-780202
																					45		48	*7803
																					45		48	*7804
																					45			*7805
25					30		32						38								46			*8101
25							32						38								46			*8102, 8104N
25							32						38								45			*8103
								33				37									46	47		*8201, 8202
					30		32														46			*8301
																								HLA-B allele ⁴
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.
					w																			Cw*0110, 0715
																								Cw*0203, 0512
			28																					Cw*0305, 0325, 0327
																								Cw*0328, 0510, 1508
																						w		Cw*070401-070402, 0711, 0712, 0745
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	Well No.

Lot No.: **88E**

Lot-specific Information

www.olerup.com

¹The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 1070 base pairs, for most wells, or a band of 800 base pairs, for some wells.

Well number 1 contains the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to help in the correct orientation of the HLA-B*35 subtyping. .

In addition, wells number 3, 5, 9, 11, 13, 14, 21, 23, 25, 26, 28, 30, 34, 36, 42, 45 and 47 contain the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to allow kit identification.

²The nucleotide position, in the 1st, 2nd, 3rd or 4th exon, matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

³The nucleotide position, in the 2nd, 3rd or 4th exon or the 3rd intron, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

⁴The B*3573 allele has been renamed to B*350803.

⁵Primer mix 10: Specific PCR fragment of 140 bp in the B*3583 allele. Specific PCR fragment of 240 bp in the B*3507 allele.

Primer mix 16: Specific PCR fragment of 95 bp in the B*9543, 3519, 3547 and B*4008, 4025, 4068 and 4412 alleles. Specific PCR fragment of 190 bp in the B*3577 allele.

Primer mix 17: Specific PCR fragment of 180 bp in the B*3526 and B*3904 alleles. Specific PCR fragment of 380 bp in the B*3536 allele.

Primer mix 22: Specific PCR fragment of 90 bp in the B*3546 and the B*1502, 1508, 151101-151103, 1513, 1515, 1521, 1531, 1544, 1555, 1588, 1589, 9512, 9521, 9539 and 9544 alleles. Specific PCR fragment of 270 bp in the B*3521, 3524, 3581 and the B*1822, 3704, 4028, 5104, 5146, 5302, 5306, 5714 and 5809 alleles.

Primer mix 25: Specific PCR fragment of 135 bp in the B*3527 and 3556 and the B*3705 alleles. Specific PCR fragment of 210 bp in the other alleles amplified by this primer mix.

Primer mix 26: Specific PCR fragment of 210 bp in the B*3550, 3584 and B*0708, 0732, 0738, 3806, 3807 and 4806 alleles. Specific PCR fragment of 370 bp in the B*3542 and B*1807, 1829, 2723, 4008, 4013 and 4068 alleles.

Primer mix 30: Specific PCR fragment of 115 bp in the B*3515, 3533 and 3566 and B*1301-130204, 1307N-1311, 1313-1321, 1810, 401401, 4046[?], 4072, 4077, 4416, 4421, 4440, 4444, 4812, 5116, 5131, 5134, 5208, 5509, 5522, 5524, Cw*0110^W and Cw*0715^W alleles. Specific PCR fragment of 325 bp in the B*3525, 3526 and 3549 and B*2701-270402, 270502-2721, 2723-2742, 8101 and 8301 alleles.

Primer mix 31: Specific PCR fragment of 170 bp in the B*3525 and B*0708, 0732, 0738, 080101-0803, 0805-0816, 0818-0825, 0827-0836, 1529, 1807, 1829, 3806, 3807 and 4806 alleles. Specific PCR fragment of 210 bp in the B*3550, 3584 and B*2723, 4008, 4013 and 4068 alleles.

Primer mix 33: Specific PCR fragment of 70 bp in the B*3547 and B*1546 and 9506 alleles. Specific PCR fragment of 205 bp in the B*3545, 3571 and B*0720, 1514, 1591, 9531, 4410, 4414, 4417, 4431, 4443, 4445, 4451, 5123, 5707, 5807, 8201 and 8202 alleles.

Primer mix 35: Specific PCR fragment of 150 bp in the B*3540N allele. Specific PCR fragment of 365 bp in the B*356801 allele.

Primer mix 36: Specific PCR fragment of 110 bp in the b*3579 allele. Specific PCR fragment of 180 bp in the B*3570 allele. Specific PCR fragment of 230 bp in the B*3535 and B*3942 alleles.

Primer mix 38: Specific PCR fragment of 295 bp in the B*350201-350202 alleles. Specific PCR fragment of 210 bp in the other alleles amplified by this primer mix.

Primer mix 41: Specific PCR fragment of 105 bp in the B*3582, 3585 and B*391901-391902, 5122 and 7803 alleles. Specific PCR fragment of 135 bp in the B*3552 allele.

Primer mix 42: Specific PCR fragment of 155 bp in the B*3553N allele. Specific PCR fragment of 250 bp in the B*3565Q allele.

Primer mix 44: Specific PCR fragment of 110 bp in the B*3578 allele. Specific PCR fragment of 145 bp in the B*1809, 3710, 5154, 5309 and 5311-5313 alleles. Specific PCR fragment of 300 bp in the B*3555 allele.

Lot No.: **88E**

Lot-specific Information

www.olerup.com

Primer mix 46: Specific PCR fragment of 380 bp for the B*3573 allele. Specific PCR fragment of 165 bp in the other alleles amplified by this primer mix. The B*7301 and Cw*0503 alleles may be weakly amplified by primer mix 46.

‘w’, might be weakly amplified.

‘?’ , nucleotide sequence of the primer matching region not known.

CELL LINE VALIDATION SHEET																				
HLA-B*35 SSP subtyping																				
				Prod. No.:	Well															
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
					200735401	200735402	200735403	200735404	200849105	200735406	200735407	200735408	200849109	200849110	200735411	200735412	200735413	200735414	200735415	200735416
	IHWC cell line	B*																		
1	9001 SA	*0702			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280 LK707	*5201	*7301		-	-	-	-	+	+	-	-	-	-	-	+	+	-	-	-
3	9011 E4181324	*52011			-	-	-	-	+	+	-	-	-	-	-	+	+	-	-	-
4	9275 GU373	*1510	*5301		+	+	+	+	-	+	-	-	-	-	-	-	+	-	-	-
5	9009 KAS011	*3701			-	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-
6	9353 SM	*3901	*5101		+	-	-	-	+	+	-	-	+	-	-	-	+	-	-	-
7	9020 QBL	*1801			+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
8	9007 DEM	*5701			-	+	-	+	-	-	-	-	-	-	-	-	-	+	-	-
9	9026 YAR	*3801			-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-
10	9107 LKT3	*5401			-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-
11	9051 PITOUT	*4403			-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-
12	9052 DBB	*5701			-	+	-	+	-	-	-	-	-	-	-	-	-	+	-	-
13	9067 BTB	*2705			-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
14	9071 OLGA	*1501	*1520		-	+	+	+	-	-	-	-	-	-	-	-	+	+	-	-
15	9075 DKB	*4001			-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
16	9037 SWEIG007	*4002			-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
17	9008 WILJON	*1801			+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
18	9257 32367	*1401	*5601		-	-	-	-	+	-	-	+	-	-	-	-	+	+	-	-
19	9038 BM16	*1801			+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
20	9059 SLE005	*4001			-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
21	9064 AMALA	*1501			-	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-
22	9056 KOSE	*3503			+	+	+	-	-	-	-	+	-	-	-	-	-	-	-	-
23	9124 IHL	*4002	*5602		-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-
24	9035 JBUSH	*3801			-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-
25	9049 IBW9	*1402			-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
26	9285 WT49	*5801			-	+	+	+	-	-	-	-	-	-	-	-	-	+	-	-
27	9191 CH1007	*0705	*5101		+	-	-	-	+	+	-	-	-	-	-	-	+	-	-	-
28	9320 BEL5GB	*4402	*4403		-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-
29	9050 MOU	*4403			-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-
30	9021 RSH	*4201			-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
31	9019 DUCAF	*1801			+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
32	9297 HAG	*4102			-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
33	9098 MT14B	*4001			-	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-
34	9104 DHIF	*3801			-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-
35	9302 SSTO	*4402			-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-
36	9024 KT17	*1501	*3501		+	+	+	+	-	-	-	-	-	-	-	-	+	-	-	-
37	9065 HHKB	*0702			-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
38	9099 LZL	*1501			-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-
39	9315 CML	*0801	*2705		-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-
40	9134 WHONP199	*1302	*4601		-	-	-	+	+	-	-	+	-	-	-	-	+	-	+	-
41	9055 H0301	*1402			-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
42	9066 TAB089	*4601			-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-
43	9076 T7526	*4601			-	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-
44	9057 TEM	*3801			-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-
45	9239 SHJO	*4201	*5001		-	-	-	-	+	-	-	-	-	-	-	-	+	+	-	-
46	9013 SCHU	*0702			-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
47	9045 TUBO	*5101			+	-	-	-	+	+	-	-	-	-	-	-	+	-	-	-
48	9303 TER-ND	*3501	*4403		+	+	+	+	-	-	-	-	-	-	-	-	-	+	-	-

				Well																
				17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
				200735417	200735418	200735419	200735420	200735421	200735422	200735423	200735424	200849125	200735426	200735427	200735428	200735429	200735430	200735431	200735432	
IHC cell line		B*																		
1	9001	SA	*0702	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+
2	9280	LK707	*5201 *7301	-	+	-	-	-	-	-	-	+	-	-	-	-	+	-	-	W
3	9011	E4181324	*52011	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
4	9275	GU373	*1510 *5301	-	-	-	-	-	-	-	+	+	-	-	-	+	-	-	-	-
5	9009	KAS011	*3701	-	+	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-
6	9353	SM	*3901 *5101	-	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-
7	9020	QBL	*1801	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
8	9007	DEM	*5701	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
9	9026	YAR	*3801	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	9107	LKT3	*5401	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
11	9051	PITOUT	*4403	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	9052	DBB	*5701	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
13	9067	BTB	*2705	-	-	-	-	-	-	-	-	+	+	-	-	-	-	+	-	-
14	9071	OLGA	*1501 *1520	-	-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
15	9075	DKB	*4001	-	-	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-
16	9037	SWEIG007	*4002	-	-	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-
17	9008	WILJON	*1801	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
18	9257	32367	*1401 *5601	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
19	9038	BM16	*1801	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
20	9059	SLE005	*4001	-	-	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-
21	9064	AMALA	*1501	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
22	9056	KOSE	*3503	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
23	9124	IHL	*4002 *5602	-	-	+	+	-	-	-	+	-	+	-	-	+	-	-	-	-
24	9035	JBUSH	*3801	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	9049	IBW9	*1402	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285	WT49	*5801	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-
27	9191	CH1007	*0705 *5101	-	-	-	+	-	-	-	-	+	+	-	-	-	-	-	-	+
28	9320	BEL5GB	*4402 *4403	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	9050	MOU	*4403	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	9021	RSH	*4201	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
31	9019	DUCAF	*1801	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
32	9297	HAG	*4102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	9098	MT14B	*4001	-	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-
34	9104	DHIF	*3801	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	9302	SSTO	*4402	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	9024	KT17	*1501 *3501	-	-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
37	9065	HHKB	*0702	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+
38	9099	LZL	*1501	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
39	9315	CML	*0801 *2705	-	-	+	-	-	-	-	-	+	+	-	-	-	-	-	-	+
40	9134	WHONP199	*1302 *4601	-	-	+	+	-	-	-	+	-	-	-	-	+	-	+	-	+
41	9055	H0301	*1402	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	9066	TAB089	*4601	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-	+
43	9076	T7526	*4601	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-	+
44	9057	TEM	*3801	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	9239	SHJO	*4201 *5001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
46	9013	SCHU	*0702	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+
47	9045	TUBO	*5101	-	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-
48	9303	TER-ND	*3501 *4403	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-

CELL LINE VALIDATION SHEET																					
HLA-B*35 SSP subtyping																					
				Prod. No.:	Well																
					33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	
					200735433	200735434	200735435	200849136	200735437	200735438	200735440	200735440	200849141	200735442	200735443	200849144	200735445	200735446	200735447	200735448	
	IHWC cell line	B*																			
1	9001 SA	*0702			-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-
2	9280 LK707	*5201	*7301		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
3	9011 E4181324	*52011			-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
4	9275 GU373	*1510	*5301		-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	+
5	9009 KAS011	*3701			-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
6	9353 SM	*3901	*5101		-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	+
7	9020 QBL	*1801			-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
8	9007 DEM	*5701			-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
9	9026 YAR	*3801			-	-	-	-	+	-	-	-	-	-	-	-	+	+	-	-	-
10	9107 LKT3	*5401			-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
11	9051 PITOUT	*4403			-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
12	9052 DBB	*5701			-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
13	9067 BTB	*2705			-	-	-	-	-	+	-	-	-	-	-	-	+	+	-	-	-
14	9071 OLGA	*1501	*1520		-	-	-	-	-	-	+	-	-	-	-	-	+	+	-	-	-
15	9075 DKB	*4001			-	-	-	-	-	-	+	-	-	-	-	-	+	+	-	-	-
16	9037 SWEIG007	*4002			-	-	-	-	-	-	-	+	-	-	-	-	+	+	-	-	-
17	9008 WILJON	*1801			-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
18	9257 32367	*1401	*5601		-	-	-	-	-	+	-	-	-	-	-	-	+	+	-	-	-
19	9038 BM16	*1801			-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
20	9059 SLE005	*4001			-	-	-	-	-	+	-	+	-	-	-	-	+	+	-	-	-
21	9064 AMALA	*1501			-	-	-	-	-	-	+	-	-	-	-	-	+	+	-	-	-
22	9056 KOSE	*3503			-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+
23	9124 IHL	*4002	*5602		-	-	-	-	-	+	+	-	+	-	-	-	+	+	-	-	-
24	9035 JBUSH	*3801			-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
25	9049 IBW9	*1402			-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
26	9285 WT49	*5801			-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
27	9191 CH1007	*0705	*5101		-	-	-	-	-	+	-	-	-	-	-	-	+	+	-	-	+
28	9320 BEL5GB	*4402	*4403		-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
29	9050 MOU	*4403			-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
30	9021 RSH	*4201			-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
31	9019 DUCAF	*1801			-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
32	9297 HAG	*4102			-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
33	9098 MT14B	*4001			-	-	-	-	-	+	-	+	-	-	-	-	+	+	-	-	-
34	9104 DHIF	*3801			-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
35	9302 SSTO	*4402			-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
36	9024 KT17	*1501	*3501		-	-	-	-	-	-	+	-	-	-	-	-	+	+	-	-	+
37	9065 HHKB	*0702			-	-	-	-	-	+	-	-	-	-	-	-	+	+	-	-	-
38	9099 LZL	*1501			-	-	-	-	-	-	+	-	-	-	-	-	+	+	-	-	-
39	9315 CML	*0801	*2705		-	-	-	-	-	+	-	-	-	-	-	-	+	+	-	-	-
40	9134 WHONP199	*1302	*4601		-	-	-	-	-	+	-	+	-	-	-	-	+	+	-	-	-
41	9055 H0301	*1402			-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
42	9066 TAB089	*4601			-	-	-	-	-	-	+	-	-	-	-	-	+	+	-	-	-
43	9076 T7526	*4601			-	-	-	-	-	-	+	-	-	-	-	-	+	+	-	-	-
44	9057 TEM	*3801			-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
45	9239 SHJO	*4201	*5001		-	-	-	-	-	+	-	-	+	-	-	-	+	+	-	-	-
46	9013 SCHU	*0702			-	-	-	-	-	-	+	-	-	-	-	-	+	+	-	-	-
47	9045 TUBO	*5101			-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	+
48	9303 TER-ND	*3501	*4403		-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	+

CERTIFICATE OF ANALYSIS

Olerup SSP® HLA-B*35 SSP

Product number: 101.522-24/03 – including *Taq* pol.
Lot number: 88E
Expiry date: 2010-August-01
Number of tests: 24 tests – Product No. 101.522-24
3 tests – Product No. 101.522-03
Number of wells per test: 48

Well specifications:

Well No.	Production No.	Well No.	Production No.	Well No.	Production No.
1	2007-354-01	17	2007-354-17	33	2007-354-33
2	2007-354-02	18	2007-354-18	34	2007-354-34
3	2007-354-03	19	2007-354-19	35	2007-354-35
4	2007-354-04	20	2007-354-20	36	2008-491-36
5	2008-491-05	21	2007-354-21	37	2007-354-37
6	2007-354-06	22	2007-354-22	38	2007-354-38
7	2007-354-07	23	2007-354-23	39	2007-354-39
8	2007-354-08	24	2007-354-24	40	2007-354-40
9	2008-491-09	25	2008-491-25	41	2008-491-41
10	2008-491-10	26	2007-354-26	42	2007-354-42
11	2007-354-11	27	2007-354-27	43	2007-354-43
12	2007-354-12	28	2007-354-28	44	2008-491-44
13	2007-354-13	29	2007-354-29	45	2007-354-45
14	2007-354-14	30	2007-354-30	46	2007-354-46
15	2007-354-15	31	2007-354-31	47	2007-354-47
16	2007-354-16	32	2007-354-32	48	2007-354-48

The specificity of each primer solution of the kit has been tested against 48 well characterized IHWC cell line DNAs.

No DNAs carrying the alleles to be amplified by primer solutions 10, 16, 17, 22, 26, 27, 33 to 36, 41 to 44 were available. The specificities of the primers in primer solutions 16, 17, 22, 26, 33 and 36 were tested by separately adding one or two additional 5'-primer(s), respectively one or two additional 3'-primer(s). One of the 5'-primers in primer solution 17 was not possible to test. In primer solutions 10, 27, 41, 42 and 44 it was only possible to test the 5'-primers, the 3'-primers were not possible to test. In primer solutions 34, 35 and 43 it was only possible to test the 3'-primers, the 5'-primers were not possible to test.

Results: No false positive or false negative amplifications were obtained.

Date of approval: 2009-June-24

Approved by:

Quality Control, Supervisor

Declaration of Conformity

Product name: *Olerup* SSP[®] HLA-B*35
Product number: 101.522-24/03
Lot number: 88E

Intended use: HLA-B*35 high resolution histocompatibility testing

Manufacturer: *Olerup* SSP AB
Hasselstigen 1
SE-133 33 Saltsjöbaden, Sweden
Phone: +46-8-717 88 27
Fax: +46-8-717 88 18

We, *Olerup* SSP AB, hereby declare that this product, to which this Declaration of Conformity relates is in conformity with the following Standard(s) and other normative document(s) ISO 9001:2000 and ISO 13485:2003, following the provisions of the 98/79/EC Directive on *in vitro* diagnostic medical devices, Annex II List B, as transposed into the national laws of the Member States of the European Union.

The Technical Documentation File is maintained at *Olerup* SSP AB, Hasselstigen 1, SE-133 33 Saltsjöbaden, Sweden.

The Authorized Representative located within the Community is: *Olerup* SSP AB.

Notified Body: Lloyd's Register Quality Assurance Limited, Hiramford, Middlemarch Office Village, Siskin Drive, Coventry CV3 4FJ, United Kingdom. (Notified Body number: 0088.)

Saltsjöbaden, Sweden
2009-June-24

Olle Olerup
Managing Director

Lot No.: **88E**

Lot-specific Information

www.olerup.com

ADDRESSES:

Manufacturer:

Olerup SSP AB, Hasselstigen 1, SE-133 33 Saltsjöbaden, Sweden.

Tel: +46-8-717 88 27

Fax: +46-8-717 88 18

E-mail: info-ssp@olerup.com

Web page: <http://www.olerup.com>

Distributed by:

Olerup GmbH, Löwengasse 47 / 6, AT-1030 Vienna, Austria.

Tel: +43-1-710 15 00

Fax: +43-1-710 15 00 10

E-mail: support-at@olerup.com

Web page: <http://www.olerup.com>

Olerup Inc., 901 S. Bolmar St., Suite R, West Chester, PA 19382

Tel: 1-877-OLERUP1

Fax: 610-344-7989

E-mail: info.us@olerup.com

Web page: <http://www.olerup.com>

For information on *Olerup* SSP distributors worldwide, contact **Olerup GmbH**.