RE-READING RESULTS OF *HLA-DQB1* GENOTYPING

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AIM: As other histocompatibility laboratories, we are constantly seeking new HLA genotyping strategies in order to ensure the accuracy of results and to speed up their release. We use several commercial kits for HLA genotyping of Volunteer Bone Marrow Donors through the SSOP (Sequence-specific Oligonucleotide Probes) method, both in the low/medium and in the high resolution levels. In this work, we aimed at comparing the level of resolution achieved by the "Labtype SSO DQA1/DQB1" kit (One Lambda, Inc.) with other methods used previously, namely SSP (Sequence-specific Primers) and SBT (Sequence-based Typing).

METHODS: In order to verify the applicability of the "Labtype SSO DQA1/DQB1" kit in the HLA genotyping routine, we carried out a comparison between the different methods using 100 samples. 94 of these had been already genotyped by the SSP method, while six had been genotyped by SBT. We repeated the typings of all samples though the SSOP method. Within each genotyping method, only one production lot was used.

RESULTS: We found that the "Labtype SSO DQA1/DQB1" kit yielded a better resolution in 55 of the 100 samples, as in the following example: *HLA-DQB1**03:01/10/19/21/22/24 and *06:01/35 in the SSP was defined as *HLA-DQB1**03:01/24 and *06:01 (Table 1, rows marked with a √). While ambiguities were completely resolved in 51 cases, 42 samples remained with the same resolution and only three samples had a larger set of possible alleles determined by the SSOP method, as in the following example: *HLA-DQB1**05:01 and *06:03/28 as compared to *HLA-DQB1**05:01 and *06:03/28/31 (Table 1, rows marked with a X).

CONCLUSION: We conclude that the "Labtype SSO DQA1/DQB1" kit is an effective method for the genotyping of *HLA-DQB1* in medium/high resolution. It produced results consistent with the other methods tested and yielded, in most cases, better results concerning the solution of ambiguities commonly found in other histocompatibility laboratories.

KIT	*HLA-DQB1*	KIT	*HLA-DQB1*	VERDICT
SSP	*05:01 *06:03/28	SSOP	*05:01 *06:03/28/31	X
SSP	*03:01/13/19/21/22/24 *06:03/28/31	SSOP	*03:01 *06:03	√
SSP	*02:01 *02:02	SSOP	*02:01 *02:02	=
SSP	*05:01 *05:02	SSOP	*05:01 *05:02	=
SSP	*03:01 *03:02	SSOP	*03:01 *03:02	=
SSP	*02:01/05 *03:03/20	SSOP	*02:01 *03:03	√
SSP	*02:02 *06:04/34	SSOP	*02:02 *06:04/34	=
SSP	*03:02 *04:02	SSOP	*03:02 *04:02	=
SSP	*02:02 *03:02	SSOP	*02:02 *03:02	=
SSP	*03:01/19/21/22/24 *05:01	SSOP	*03:01 *05:01	√
SSP	*03:02 *06:04/34	SSOP	*03:02 *06:04/34	=
SSP	*03:02 *06:04/34	SSOP	*03:02 *06:04/34	=
SSP	*06:02/33 *06:03/28	SSOP	*06:02 *06:03	√
SSP	*05:01 *06:03/28	SSOP	*05:01 *06:03/28/31	X
SSP	*04:02 *04:02	SSOP	*04:02 *04:02	=
SSP	*02:02 *03:01/19/21/22/24	SSOP	*02:02 *03:01	√
SSP	*06:02/33 *06:03/28	SSOP	*06:02 *06:03	√
SSP	*02:01 *06:04/34	SSOP	*02:01 *06:04/34	=
SSP	*02:01 *02:01/05	SSOP	*02:01 *02:01	√
SSP	*05:02 *06:02/33	SSOP	*05:02 *06:02	√
SSP	*04:02 *04:02	SSOP	*04:02 *04:02	=
SSP	*02:01 *05:01	SSOP	*02:01 *05:01	=
SSP	*02:01 *05:01	SSOP	*02:01 *05:01	=
SSP	*05:01 *05:02	SSOP	*05:01 *05:02	=
SSP	*04:02 *06:03/28	SSOP	*04:02 *06:03/28	=
SSP	*02:01 *05:01	SSOP	*02:01 *05:01	=
SSP	*03:02 *05:02	SSOP	*03:02 *05:02	=
SSP	*02:01 *02:02	SSOP	*02:01 *02:02	=
SSP	*05:01 *06:02/33	SSOP	*05:01 *06:02	√
SSP	*05:01 *06:02/33	SSOP	*05:01 *06:02	√
SSP	*05:01 *06:02/33	SSOP	*05:01 *06:02	√
SSP	*02:02 *06:03	SSOP	*02:02 *06:03	=
SSP	*02:01 *06:02/33	SSOP	*02:01 *06:02	√
SSP	*05:01 *06:04/34	SSOP	*05:01 *06:04/34	=
SSP	*02:02 *05:01	SSOP	*02:02 *05:01	=
SSP	*03:01/19/21/22/24 *06:02/33	SSOP	*03:01 *06:02	√
SSP	*03:02 *06:03/28	SSOP	*03:02 *06:03	√
SSP	*02:02 *04:02	SSOP	*02:02 *04:02	=
SSP	*03:01/19/21/22/24 *05:03	SSOP	*03:01 *05:03	√
SSP	*05:01 *06:03/28	SSOP	*05:01 *06:03/28/31	X
SSP	*02:02 *06:03/28	SSOP	*02:02 *06:03	√
SSP	*03:01/19/21/22/24 *06:02/33	SSOP	*03:19 *06:02	√
SSP	*04:02 *05:01	SSOP	*04:02 *05:01	=
SSP	*03:01/13/19/21/22/24 *06:03/28/31	SSOP	*03:01 *06:03	√
SSP	*02:01 *06:03/28	SSOP	*02:01 *06:03	√
SSP	*02:01 *03:01/19/21/22/24	SSOP	*02:01 *03:19	√
SSP	*05:01 *06:02/33	SSOP	*05:01 *06:02	√
SSP	*04:02 *06:02/33	SSOP	*04:02 *06:02	√
SSP	*05:01 *05:01	SSOP	*05:01 *05:01	=
SSP	*02:02 *03:01/19/21/22/24	SSOP	*02:02 *03:01	√
SSP	*02:01 *05:01	SSOP	*02:01 *05:01	=
SSP	*02:01 *03:01/19/21/22/24	SSOP	*02:01 *03:01	√
SSP	*02:01 *06:03/28	SSOP	*02:01 *06:03	√
SSP	*04:02 *04:02	SSOP	*04:02 *04:02	=
SSP	*03:02 *06:02/33	SSOP	*03:02 *06:02	√
SSP	*02:02 *05:01	SSOP	*02:02 *05:01	=
SSP	*05:01 *05:02	SSOP	*05:01 *05:02	=
SSP	*03:02 *05:01	SSOP	*03:02 *05:01	=
SSP	*05:03 *06:02/33	SSOP	*05:03 *06:02	√
SSP	*02:01 *03:01/19/21/22/24	SSOP	*02:01 *03:01	√
SSP	*05:03 *06:02/33	SSOP	*05:03 *06:02	√
SSP	*03:02 *06:02/33	SSOP	*03:02 *06:02	√
SSP	*05:03 *06:02/33	SSOP	*05:03 *06:02	√
SSP	*03:02 *06:02/33	SSOP	*03:02 *06:02	√
SSP	*02:01 *03:03 / *02:02 *03:03	SSOP	*02:02 *03:03	√
SSP	*03:01/19/21/22/24	SSOP	*03:01 *03:01/24	√
SSP	*02:01 *02:03 / *02:02 *03:03	SSOP	*02:02 *03:03	√
SSP	*02:02 *03:02	SSOP	*02:02 *03:02	=
SSP	*02:02 *03:02	SSOP	*02:02 *03:02	=
SSP	*03:01/19/21/22/24 *03:02	SSOP	*03:01 *03:02	√
SSP	*03:02 *03:02	SSOP	*03:02 *03:02	=
SSP	*04:02 *05:01	SSOP	*04:02 *05:01	=
SSP	*02:02 *03:01/19/21/22/24	SSOP	*02:02 *03:01	√
SSP	*02:02 *06:03/28	SSOP	*02:02 *06:03	√
SSP	*02:01 *06:02/33	SSOP	*02:01 *06:02	√
SSP	*02:01/05 *03:02	SSOP	*02:01 *03:02	√
SSP	*06:03/28 *06:03/28/32	SSOP	*06:03 *06:03/26N	√
SSP	*02:01/05 *03:03/20	SSOP	*02:01 *03:03	√
SSP	*02:01 *02:02	SSOP	*02:01 *02:02	=
SSP	*06:03 *06:03/28/32	SSOP	*06:03 *06:03/26N	√
SSP	*04:02 *06:03/28	SSOP	*04:02 *06:03	√
SSP	*02:01 *02:02	SSOP	*02:01 *02:02	=
SSP	*03:01/10/19/21/22/24 *06:01/35	SSOP	*03:01/24 *06:01	√
SSP	*03:02 *04:02	SSOP	*03:02 *04:02	=
SSP	*03:02 *04:02	SSOP	*03:02 *04:02	=
SSP	*03:03 *03:03/20	SSOP	*03:03 *03:03	√
SSP	*02:02 *06:03/28	SSOP	*02:02 *06:03	√
SSP	*02:01 *06:04/34	SSOP	*02:01 *06:04	√
SSP	*02:01 *05:03	SSOP	*02:01 *05:03	=
SSP	*03:02 *03:02	SSOP	*03:02 *03:02	=
SSP	*03:02 *03:03/20	SSOP	*03:02 *03:03	√
SSP	*05:01 *06:02/33	SSOP	*05:01 *06:02	√
SSP	*02:02 *05:01	SSOP	*02:02 *05:01	=
SSP	*03:04 *04:02	SSOP	*03:04 *04:02	=
SSP	*05:01 *06:02/33	SSOP	*05:01 *06:02	√
SSP	*02:01 *06:03/28	SSOP	*02:01 *06:03	√
SBT	*03:01/03 *03:02/04	SSOP	*03:01 *03:02	√
SBT	*02:02 *05:02	SSOP	*02:02 *05:02	=
SBT	*06:02/11 *06:03/14	SSOP	*06:02 *06:03	√
SBT	*03:01/03 *03:02/04	SSOP	*03:01 *03:02	√
SBT	*02:02/03 *03:04/19	SSOP	*02:02 *03:19	√
SBT	*04:02/03 *06:02/23	SSOP	*04:02 *06:02	√

Table 1: Description of comparative genotypings obtained by SSP/SSOP and SBT/SSOP for the *HLA-DQB1 locus*. (√) SSOP result with better resolution than the alternative method, (=) SSOP result with similar resolution, (X) SSOP result with lower resolution.

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