

## B-CELL LINE EXCHANGE #296 DECEMBER 10, 2021

B-cell Line 591 - 592

The results for B-cell Line Exchange #296 are summarized in Tables 1 - 2 and individual laboratory results reported for each sample are listed in Tables 3 - 6. We would like to acknowledge the generosity of **Leiden University Medical Centre, Leiden, The Netherlands** and **Badger-Hawkeye Red Cross, Madison WI** for sharing the interesting cells examined in this study.

We would like to also thank the labs performing NGS for sharing their findings and encourage other NGS labs to do so as well. Haplotype frequencies used in this report are from the NMDP Bioinformatics website, <https://bioinformatics.bethematchclinical.org/>.

**Ter-591.** The reported HLA type for this cell from a Caucasian donor was DRB1\*14:10-DRB1\*15:02-DRB3\*02:02-DRB5\*01:02-DQA1\*01:01-DQA1\*01:01-DQB1\*05:01-DQB1\*05:10-DPA1\*02:01-DPA1\*02:02-DPB1\*01:01-DPB1\*05:01-A\*11:01-A\*33:03-B\*18:01-B\*52:01-C\*07:02-C\*07:04. This cell was TER283, one of the reference cells for DRB1\*14:10:01:01.

One possible association present in this cell was A\*11:01-B\*52:01-DRB1\*15:02, observed in Caucasians, with HF = 0.00211. The other association present was possibly A\*33:03-B\*18:01-DRB1\*14:10, observed in another DRB1\*14:10 reference cell, DKMS-LSL\_ID15199269.

This cell was examined previously in the Exchange as Ter 422 (2009), Ter 283 (2001), Ter 247 (1999), and as extract 119 (2000). In this present retyping, DRB1\*14:10 was reported by 100% of labs.

A number of labs (Askar, Blouin, Gandhi, Renac, and Ward) detected the presence a possible DQA1\*01 variant. Askar, Renac, and Ward noted the new allele was most similar to DQA1\*01:01, except for a base substitution in exon 2 at codon 59.3 (CCG → CCA), resulting in a synonymous substitution.

DQB1\*05:01 (100%) and DQB1\*05:10 (86%) were the reported DQB1 types, with 4 NGS labs assigning DQB1\*05:01:24. This is an update from the 2009 study in which DQB1\*05:01 (100%) and DQB1\*05:03 (92%) were assigned. Four labs at the time indicated a new DQB1\*05 variant was present.

**Ter-592.** The reported HLA type for this cell from a Hispanic donor was DRB1\*08:02-DRB1\*14:02-DRB3\*01:01-DQA1\*04:01-DQA1\*05:03-DQB1\*03:01-DQB1\*04:02-DPA1\*01:03-DPB1\*04:02-A\*02:11-A\*24:53-B\*40:04-C\*03:04.

This cell was the sibling of a cell examined previously in the Exchange as extract 194. From family studies and Exchange data, the class I associations present were found to be A\*02:11-B\*40:04-C\*03:04 and A\*24:53-B\*40:04-C\*03:04. The B\*40:04-C\*03:04 association present in this cell is observed exclusively in Hispanics, with HF = 0.00226.

This cell was previously examined in the Exchange as Ter 554 (2018) and extracts 412 (2008), 265 (2003), and 193 (2002). In this present retyping, the rare A\*24:53 and B\*40:04 alleles were once again assigned by 100% of labs reporting at high resolution. Good agreement (>90%) was also achieved for all other loci.



**NEXT MAILING DATE: February 2, 2022**

*Happy Holidays!*

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**Table 3a: Individual laboratory results for B-cell #591 - Class II**

Low resolution														
Center	DRB1		DRB3/4/5		DQA1		DQB1		DPA1		DPB1		METHOD	Other Alleles
278	*14	*15	3*02	5*01	*01	*01	*05	*05	*02	*02	*01	*05		
725	*14	*15	3*02	5*01	*01		*05						SSO	
747	*14	*15	3*02	5*01	*01	*01	*05	*05	*02	*02	*01	*05	SSP SSO NGS	
792	*14	*15	3*02	5*01	*01	*01	*05	*05	*02	*02	*01	*05	SSO NGS	
793	*14	*15	3*02	5*PRESENT	*01	*01	*05				*01	*05	SSP	
794	*14	*15	3*02	5*01	*01		*05		*02		*01	*05	SSP SSO NGS	
2400	*14	*15	3*02	5*01	*01	*01	*05	*05	NT	NT	*01	*05	RT-PCR	
2847	*14	*15											SSO	
3519	*14	*15	3*02	5*01	*01		*05		*02		*01	*05	SSP NGS	
3753	*14	*15	3*02	5*01	*01	*01	*05	*05	*02	*02	*01	*05	RT-PCR	
3966													SSO	
4079	*14	*15	3*02	5*01	*01		*05	*05	*02	*02	*01	*05	SSP	
5130	*14	*15	3*02	5*01	*01	*01	*05	*05			*01	*05	SSO	
5214	*14	*15	3*02	5*01	*01		*05		*02		*01	*05	SSO NGS	
5219	*14	*15	NT	NT	*01	*01	*05	*05	NT	NT	NT	NT	RT-PCR	
5451	*14	*15	3*02	5*01	*01	*01	*05	*05					SSO NGS	
5462	*14	*15	3*02	5*01	*01	*01	*05		*02		NT	NT	SSO SBT	
5488			3*02		*01	*01							SSO RT-PCR	
5642	*14	*15	3*PRESENT	5*PRESENT			*05	*05					SSO SBT NGS	
6649	*14	*15					*05	*05					SSP SSO	
8029	*14	*15			*01	*01	*05	*05					SSO	
8043	*14	*15	3*PRESENT	5*PRESENT	*01	*01	*05	*05					SSP SSO NGS	
8068	*14	*15			*01	*01	*05	*05					SSO	
8123	*14	*15	3*02	5*01	*01	*01	*05	*05	*02	*02	*01	*05		

**Table 3b: Individual laboratory results for B-cell #591 - Class II**

High resolution														
Center	DRB1		DRB3/4/5		DQA1		DQB1		DPA1		DPB1		METHOD	Other Alleles
230	*14:10	*15:02	3*02:02	5*01:02	*01:01	*01:04	*05:01	*05:10	*02:01	*02:02	*01:01	*05:01	NGS	
278	*14:10	*15:02	3*02:02	5*01:02	*01:01	*01:04	*05:01	*05:10	*02:01	*02:02	*01:01	*05:01		DQA1*01:05 DQA1*01:05
747	*14:10	*15:02	3*02:02:01	5*01:02	*01:01	*01:05	*05:01	*05:10	*02:01:01	*02:02:02	*01:01:01	*05:01:01	SSP SSO NGS	DRB1*15:140 DRB1*15:149 DQB1*05:263 DRB1*15:140 DRB1*15:149 DQB1*05:263
762	*14:10	*15:02	3*02:02	5*01:02	*01:01	*01:04	*05:01	*05:10	*02:01	*02:02	*01:01	*05:01	NGS	
792	*14:10	*15:02	3*02:02	5*01:02	*01:01	*01:04	*05:01	*05:10	*02:01	*02:02	*01:01	*05:01	SSO NGS	DRB1*15:140 DRB1*15:149
793					*01:01	*01:04					*01:01	*05:01	SSP	
794	*14:10	*15:02:01	3*02:02:01	5*01:02	*01:01	*01:04:01	*05:01:24	*05:10	*02:01:01	*02:02:02	*01:01:01	*05:01:01	SSP SSO NGS RT-PCR	
2344	*14:10	*15:02:01	NT	NT	NT	NT	*05:01:24	*05:10	NT	NT	*01:01:01	*05:01:01	NGS	DRB1*15:140 DRB1*15:149
2400	*14:10	*15:02	3*02:02	5*01:02	*01:01	*01:04	*05:01	*05:10	NT	NT	*01:01:01G	*05:01:01G	SSO NGS	DRB1*15:140 DRB1*15:149
3135	*14:10	*15:02:01	3*02:02	5*01:02	*01:01		*05:01	*05:03	*02:01	*02:02P	*01:01	*05:01		DQA1*01:04 DQA1*01:05
3224	*14:10	*15:02	3*02:02	5*01:02	*01:01	*01:04	*05:01	*05:10	*02:01	*02:02	*01:01	*05:01	NGS	
3511	*14:10	*15:02	3*02:02	5*01:02	*01:01	*01:04	*05:01	*05:03	*02:01	*02:02P	*01:01	*05:01	SSP SSO	
3519	*14:10	*15:02P	3*02:02P	5*01:02	NEW	*01:04	*05:01	*05:10			*01:01	*05:01	SSP NGS RT-PCR	DRB1*15:02 DRB1*15:140 DRB1*15:149 DRB3*02:02
3966	*14:10	*15:02	3*02:02	5*01:02			*05:01	*05:03					SSP	
4337	*14:10	*15:02					*05:01	*05:10			*01:01	*05:01	SSP SBT NGS	
5130	*14:10	*15:02	3*02:02	5*01:02	*01:01	*01:04	*05:01	*05:10			*01:01	*05:01	SSO NGS	DRB1*15:140 DRB1*15:149
5133	*14:10	*15:02:01	3*02:02:01	5*01:02	*01:01	*01:04:01	*05:01:24	*05:10	*02:01:01	*02:02:02	*01:01:01	*05:01:01	NGS	
5219	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	SSO NGS	
5451	*14:10	*15:02:01											SSO SBT	
5488	*14:10	*15:02:01G		5*01:02			*05:01:24	*05:10	*02:01:01	*02:02:02	*01:01:01	*05:01:01	SSO SBT NGS	
5642	*14:10	*15:02					*05:01						SSP SSO	
8021	*14:10	*15:02	3*02:02	5*01:02	*01:01	*01:04	*05:01	*05:10	*02:01	*02:02	*01:01	*05:01	SSO NGS	
8043	*14:10	*15:02	3*02:02:01	5*01:02:01G	*01:01	*01:04	*05:01	*05:10	*02:01	*02:02	*01:01	*05:01	SSP SSO NGS	
8086	*14:10	*15:02	3*02:02	5*01:02	*01:01	*01:04	*05:01	*05:10	*02:01:01G	*02:02:02G	*01:01	*05:01	SBT	
8122	*14:10	*15:02	3*02:02	5*01:02	*01:01	NEW	*05:01	*05:10	*02:01	*02:02	*01:01	*05:01	NGS	

**Table 4: Individual laboratory results for B-cell #591 - Class I**

Table 4: Individual laboratory results for B-cell #591 - Class I														
Low resolution							High resolution						METHOD	Other Alleles
Center	HLA-A		HLA-B		HLA-C		HLA-A		HLA-B		HLA-C			
230							*11:01	*33:03	*18:01	*52:01	*07:02	*07:04	NGS	
278	*11	*33	*18	*52	*07	*07	*11:01	*33:03	*18:01	*52:01	*07:02	*07:04		
725	*11	*33	*18	*52	*07								SSO	
747							*11:01:01	*33:03:01	*18:01:01	*52:01:01	*07:02:01	*07:04:01	SSP SSO NGS	
792	*11	*33	*18	*52	*07	*07	*11:01	*33:03	*18:01	*52:01	*07:02	*07:04	SSO NGS	
793	*11	*33	*18	*52	*07								SSP	
794	*11	*33	*18	*52	*07		*11:01:01	*33:03:01	*18:01:01	*52:01:01	*07:02:01	*07:04:01	SSP SSO NGS	
2344							*11:01:01	*33:03:01	*18:01:01	*52:01:01	*07:02:01	*07:04:01	RT-PCR	
2400	*11	*33	*18	*52	*07	*07	*11:01	*33:03	*18:01	*52:01	*07:02	*07:04	NGS	
2847	*11	*33	*18	*52	*07	*07							SSO NGS	
3135													SSO	
3224							*11:01P	*33:03P	*18:01P	*52:01P	*07:02P	*07:04P		
3511							*11:01	*33:03	*18:01	*52:01	*07:02	*07:04	NGS	
							*11:01	*33:03	*18:01	*52:01	*07:02	*07:04	SSP SSO	
3519	*11	*33	*18	*52	*07		*11:01	*33:03	*18:01	*52:01	*07:02	*07:04	SSP NGS	
3753	*11	*33	*18	*52	*07	*07							RT-PCR	
3966	*11	*33	*18	*52	*07	*07							SSO	
4079	*11	*33	*18	*52	*07	*07							SSP	
4337							*11:01	*33:03	*18:01	*52:01	*07:02	*07:04	SSO	
5130	*11	*33	*18	*52	*07	*07	*11:01	*33:03	*18:01	*52:01	*07:02	*07:04	SSP SBT NGS	
5133							*11:01	*33:03	*18:01	*52:01	*07:02	*07:04	SSO NGS	A*11:43 A*33:51
5214							*11:01:01:25	*33:03:01:01	*18:01:01	*52:01:01:01	*07:02:01	*07:04:01	NGS	
5219	*11	*33	*18	*52	*07								RT-PCR	
5219	*11	*33	*18	*52	*07	*07	NT	NT	NT	NT	NT	NT	SSO NGS	
5462	*11	*33	*18	*52	*07								SSO RT-PCR	
5488							*11:01:01	*33:03:01	*18:01:01	*52:01:01	*07:02:01	*07:04:01	SSO SBT NGS	
8021							*11:01	*33:03	*18:01	*52:01	*07:02	*07:04	SSO NGS	
8029	*11	*33	*18	*52	*07	*07								
8043							*11:01	*33:03	*18:01	*52:01	*07:02	*07:04	SSP SSO NGS	
8068	*11	*33	*18	*52	*07	*07							SSO	
8086							*11:01	*33:03	*18:01	*52:01	*07:02	*07:04	SSO	
8122							*11:01	*33:03	*18:01	*52:01	*07:02	*07:04	SBT	
8123	*11	*33	*18	*52	*07	*07							NGS	

**Table 5a: Individual laboratory results for B-cell #592 - Class II**

Low resolution														
Center	DRB1		DRB3/4/5		DQA1		DQB1		DPA1		DPB1		METHOD	Other Alleles
278	*08	*14	3*01	NT	*04	*05	*03	*04	*01	*01	*04	*04		
725	*08	*14	3*01		*04	*05	*03(DQ7)	*04					SSO	
747	*08	*14	3*01		*04	*05	*03	*04	*01	*01	*04	*04	SSP SSO NGS	
792	*08	*14	3*01		*04	*05	*03(DQ7)	*04	*01	*01	*04(DP402)	04(DP402)	SSO NGS	
793	*08	*14	3*01		*04	*05	*03(DQ7)	*04			*04(DP402)		SSP	
794	*08	*14	3*01		*04	*05	*03	*04	*01		*04		SSP SSO NGS	
2400	*08	*14	3*01	NP	*04	*05	*03	*04	NT	NT	*04		RT-PCR	
2847	*08	*14											SSO	
3519	*08	*14	3*01		*04	*05	*03(DQ7)	*04	*01		*04(DP402)		SSP NGS	
3753	*08	*14	NP	3*01	*04	*05	*03(DQ7)	*04	*01	*01	*04(DP402)	04(DP402)	RT-PCR	
3966	*08	*14		3*01			*03(DQ7)	*04					SSO	
4079	*08	*14	3*01		*04	*05	*03(DQ7)	*04	*01		*04(DP402)		SSP	
5130	*08	*14	3*01		*04	*05	*03	*04			*04	*04	SSO	
5130	*08	*14	3*01		*04	*05	*03(DQ7)	*04	*01		*04(DP402)		SSO NGS	
5214	*08	*14	3*01		*04	*05	*03(DQ7)	*04	*01		*04(DP402)		RT-PCR	
5219	NT	NT	NT	NT	*04	*05	*03	*04	NT	NT	NT	NT	SSO	
5451	*08	*14	3*01		*04	*05	*03	*04					SSO NGS	
5451	*08	*14	3*01		*04	*05	*03	*04					SSO SBT	
5462	*08	*14	3*01	NP	*04	*05	*03	*04	*01		NT	NT	SSO RT-PCR	
5488	NT												SSO SBT NGS	
5642	*08	*14	3*PRESENT				*03(DQ7)	*04					SSP SSO	
6649	*08	*14					*03(DQ7)	*04					SSO	
8029	*08	*14			*04	*05	*03	*04						
8043	*08	*14	3*PRESENT		*04	*05	*03	*04					SSP SSO NGS	
8068	*08	*14			*04	*05	*03	*04					SSO	
8123	*08	*14	3*01		*04	*05	*03(DQ7)	*04	*01	*01	*04(DP402)	04(DP402)		

**Table 5b: Individual laboratory results for B-cell #592 - Class II**

High resolution														
Center	DRB1		DRB3/4/5		DQA1		DQB1		DPA1		DPB1		METHOD	Other Alleles
230	*08:02	*14:02	3*01:01	3*01:01	*04:01	*05:03	*03:01	*04:02	*01:03	*01:03	*04:02	*04:02	NGS	
278	*08:02	*14:02	3*01:01	NT	*04:01	*05:03	*03:01	*04:02	*01:03	*01:03	*04:02	*04:02		
747	*08:02:01	*14:02:01	3*01:01:02		*04:01:01	*05:03:01	*03:01	*04:02:01	*01:03:01	*01:03:01	*04:02:01	*04:02:01	SSP SSO NGS	DQB1*03:276N
762	*08:02	*14:02	3*01:01		*04:01	*05:03	*03:01	*04:02	*01:03		*04:02		NGS	
792	*08:02	*14:02	3*01:01		*04:01	*05:03	*03:01	*04:02	*01:03	01:03	*04:02	*04:02	SSO NGS	
793					*04:01	*05:03					*04:02		SSP	
794	*08:02:01	*14:02:01	3*01:01		*04:01:01	*05:03:01	*03:01:01	*04:02:01	*01:03:01		*04:02:01		SSP SSO NGS RT-PCR	
2344	*08:02:01	*14:02:01	NT	NT	NT	NT	*03:01:01	*04:02:01	NT	NT	*04:02:01	*04:02:01	NGS	
2400	*08:02	*14:02	3*01:01	NP	*04:01	*05:03	*03:01	*04:02	NT	NT	*04:02:01G		SSO NGS	DQB1*03:276N
3135	*08:02	*14:02	3*01:01		*04:01	*05:03	*03:01	*04:02	*01:03		*04:02			
3224	*08:02	*14:02	3*01:01		*04:01	*05:03	*03:01	*04:02	*01:03		*04:02		NGS	
3511	*08:02	*14:02	3*01:01		*04:01	*05:03	*03:01	*04:02	*01:03	*01:03	*04:02	*04:02	SSP SSO	
3519	*08:02	*14:02	3*01:01		*04:01	*05:03	*03:01	*04:02	*01:03		*04:02		SSP NGS RT-PCR	
3966		*14:02		3*01:01			*03:01	*04:02					SSP	
4337	*08:02	*14:02					*03:01	*04:02			*04:02	*04:02	SSP SBT NGS	
5130	*08:02	*14:02	3*01:01		*04:01	*05:03	*03:01	*04:02			*04:02	*04:02	SSO NGS	
5133	*08:02:01	*14:02:01	3*01:01:02		*04:01:01	*05:03:01	*03:01:01	*04:02:01	*01:03:01		*04:02:01		NGS	
5219	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	SSO NGS	
5451	*08:02:01	*14:02:01											SSO SBT	
5488	*08:02:01	*14:02:01	3*01:01:02		*04:01:01	*05:03:01	*03:01:01G	*04:02:01	*01:03:01		*04:02:01		SSO SBT NGS	
5642	*08:02	*14:02					*03:01	*04:02					SSP SSO	
8021	*08:02	*14:02	3*01:01		*04:01	*05:03	*03:01	*04:02	*01:03		*04:02		SSO NGS	
8043	*08:02	*14:02	3*01:01:02G		*04:01	*05:03	*03:01	*04:02		*01:03	*04:02		SSP SSO NGS	
8086	*08:02	*14:02	3*01:01		*04:01	*05:03	*03:01	*04:02	*01:03:01G	*01:03:01G	*04:02	*04:02	SBT	
8122	*08:02	*14:02	NP	3*01:01	*04:01	*05:03	*03:01	*04:02	*01:03		*04:02		NGS	



**Table 6: Individual laboratory results for B-cell #592 - Class I**

Low resolution							High resolution						METHOD	Other Alleles
Center	HLA-A		HLA-B		HLA-C		HLA-A		HLA-B		HLA-C			
230							*02:11	*24:53	*40:04	*40:04	*03:04	*03:04	NGS	
278	*02	*24	*40	*40	*03	*03	*02:11	*24:53	*40:04	*40:04	*03:04	*03:04		
725	*02	*24	*40(B61)		*03(Cw10)								SSO	
747							*02:11:01	*24:53	*40:04:01	*40:04:01	*03:04:01	*03:04:01	SSP SSO NGS	
792	*02	*24	*40(B61)	*40(B61)	*03(Cw10)	*03(Cw10)	*02:11	*24:53	*40:04	*40:04	*03:04	*03:04	SSO NGS	
793	*02	*24	*40(B61)		*03(Cw10)								SSP	
794	*02	*24	*40		*03		*02:11:01	*24:53	*40:04:01		*03:04:01		SSP SSO NGS RT-PCR	
2344							*02:11:01	*24:53	*40:04:01	*40:04:01	*03:04:01	*03:04:01	NGS	
2400	*02	*24	*40		*03		*02:11	*24:53	*40:04		*03:04		SSO NGS	
2847	*02	*24	*40		*03								SSO	
3135							*02:11:01	*24:53	*40:04		*03:04P			
3224							*02:11	*24:53	*40:04		*03:04		NGS	
3511							*02:11	*24:53	*40:04	*40:04	*03:04	*03:04	SSP SSO	
3519	*02	*24	*40(B61)		*03(Cw10)		*02:11	*24:53	*40:04		*03:04		SSP NGS RT-PCR	
3753	*02	*24	*40(B61)	*40(B61)	*03(Cw10)	*03(Cw10)							SSO	
3966	*02	*24	*40	*40	*03	*03							SSP	
4079	*02	*24	*40(B61)	*40(B61)	*03(Cw10)	*03(Cw10)							SSO	
4337							*02:11	*24:53	*40:04	*40:04	*03:04	*03:04	SSP SBT NGS	
5130	*02	*24	*40	*40	*03	*03	*02:11	*24:53	*40:04	*40:04	*03:04	*03:04	SSO NGS	
5133							*02:11:01:01	*24:53	*40:04:01		*03:04:01:02		NGS	
5214	*02	*24	*40		*03(Cw10)								RT-PCR	
5219	*02	*24	*40	*40	*03	*03	NT	NT	NT	NT	NT	NT	SSO NGS	
5462	*02	*24	*40		*03								SSO RT-PCR	
5488							*02:11:01	*24:53	*40:04:01		*03:04:01		SSO SBT NGS	
8021							*02:11	*24:53	*40:04		*03:04		SSO NGS	
8029	*02	*24	*40	*40	*03	*03								
8043							*02:11	*24:53	*40:04		*03:04		SSP SSO NGS	
8068	*02	*24	*40	*40	*03	*03							SSO	
8086							*02:11	*24:53	*40:04	*40:04	*03:04	*03:04	SBT	
8122							*02:11	*24:53	*40:04		*03:04		NGS	
8123	*02	*24	*40(B61)	*40(B61)	*03(Cw10)	*03(Cw10)								