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### TEST INFO

|                            |                |                            |
|----------------------------|----------------|----------------------------|
| Sample Date:               | Amp Tech:      | Kit Lot #: <b>K3471-CR</b> |
| Sample ID: <b>1804214</b>  | Analysis Tech: | Test Date: <b>1/7/2019</b> |
| Patient ID: <b>AFK3449</b> | Review Tech:   |                            |

### SUMMARY

This session includes tests for A, B, C, DR, DQA, DQB, DPA and DPB

| TEST     | GENOTYPE        | PHENOTYPE       |
|----------|-----------------|-----------------|
| HLA-A    | A*02 A*03       | A2 A3           |
| HLA-B    | B*14 B*57       | B65 B57         |
| HLA-DRB1 | DRB1*07 DRB1*13 | DR7 DR13        |
| HLA-DQA1 | DQA1*01 DQA1*02 | DQA1*01 DQA1*02 |
| HLA-DPA1 | DPA1*01 DPA1*01 | DPA1*01 DPA1*01 |

| TEST       | GENOTYPE                     | PHENOTYPE      |
|------------|------------------------------|----------------|
| HLA-C      | C*06 C*08                    | Cw6 Cw8        |
| Bw         |                              | Bw4 Bw6        |
| HLA-DRB345 | DRB3*03<br>DRB4*01:03:01:02N | DR52 DR53-Null |
| HLA-DQB1   | DQB1*03 DQB1*06              | DQ9 DQ6        |

| EPITYPE      | ALLELES   | HVR-A | HVR-B | HVR-C | HVR-D | HVR-E | HVR-F |
|--------------|---|-------|-------|-------|-------|-------|-------|
| <b>EDP04</b> | <b>DPB1* 04:01:01:01</b><br>(+109 rare alleles) | LFQG  | EEFA  | AAE   | ILEEK | M     | GGPM  |
| <b>EDP72</b> | (1 rare alleles)                                | LFQG  | EEFA  | AAE   | LLEEK | M     | GGPM  |

*One side of this epitope requires a RARE allele, review results to confirm assignment.  
 This epitope was MANUALLY chosen.*

The HLA-DPB1 test result requires a RARE allele assignment.

(Notice: Cannot exclude other combinations. Review all results.)  
 All test results are based on IMGT/HLA release: version 3.25.0 - July 2016

## LABORATORY ASSIGNMENT

HLA-A: **A2 A3**  
HLA-C: **Cw6 Cw8**  
HLA-DQA1: **DQA1\*01 DQA1\*02**  
HLA-DPA1: **DPA1\*01 DPA1\*01**

HLA-B: **B65 B57**  
HLA-DRB1: **DR7 DR13**  
HLA-DQB1: **DQ9 DQ6**  
HLA-DPB1: **DPB1\*04:01**  
**DPB1\*72:01**

Bw: **Bw4 Bw6**  
HLA-DRB345: **DR52 DR53-Null**

## HLA-A

| GROUP   | ALLELES   | ANTIGEN   |
|---|---|-----------|
| A*02  | <b>A* 02:01:01:01, 02:01:04, 02:02:01:01, 02:04-02:05:01, 02:06:01:01, 02:07:01, 02:08-02:09, 02:11:01, 02:14, 02:17:01, 02:20:01, 02:22:01, 02:24:01;</b><br>A* 02:12d-02:13d, 02:16d, 02:18d, 02:21d, 02:25d, 02:29d, 02:34d, 02:49d, 02:74:01d;<br>A* 02:01:01:02Le-02:01:03e, 02:01:05e-02:01:13e, 02:01:15e-02:01:35e, 02:01:37e-02:01:122e, 02:02:01:02e-02:02:03e, 02:05:02e-02:05:06e, 02:06:01:02e-02:06:22e, 02:07:02e-02:07:08e, 02:11:02e-02:11:09e, 02:17:02e-02:17:03e, 02:20:02e, 02:22:02e, 02:24:02e, 02:31e, 02:35:02e, 02:41e-02:42e, 02:59e, 02:66e-02:68e, 02:70e-02:72e, 02:74:02e, 02:77e, 02:79:01e, 02:89e-02:90e, 02:97e, 02:105e   | <b>A2</b> |
|   | A* 02:03:05e  | A203      |
|   | A* 02:15Ne, 02:32Ne, 02:43Ne, 02:82Ne-02:83Ne, 02:88Ne, 02:94Ne, 02:113Ne, 02:125Ne   | Null      |
|   | <b>A* 02:30:01, 02:60:01;</b><br>A* 02:27d, 02:33d, 02:36d, 02:44d-02:45d, 02:58d, 02:63d-02:64:01d, 02:84d-02:86d, 02:96d, 02:119d, 02:123d, 02:131d, 02:137d;<br>A* 02:01:14Qe, 02:26e, 02:28e, 02:30:02e, 02:37e, 02:40e, 02:47e, 02:51e, 02:54e, 02:56e-02:57e, 02:60:02e-02:62e, 02:69e, 02:75e-02:76e, 02:80e, 02:91e-02:92e, 02:99e-02:104e, 02:106e-02:109e, 02:111e, 02:115e-02:116e, 02:118e, 02:120e-02:121e, 02:126e-02:128e, 02:130e, 02:132e-02:134e, 02:138e-02:142e, 02:144e-02:147e, 02:149e-02:151e, 02:153e-02:155e, 02:157e-02:170e, 02:172e-02:229e, 02:231e-02:241e, 02:243e, 02:246e-02:252e, 02:254e-02:257e, 02:259e-02:263e, 02:265e-02:278e, 02:283e-02:299e, 02:301Ne-02:303e, 02:305Ne-02:308e, 02:310e-02:314Ne, 02:316e-02:333e, 02:335e-02:337e, 02:340e-02:344e, 02:346e-02:354e, 02:356Ne-02:369e, 02:371e-02:397e, 02:399e-02:408e, 02:410e-02:411e, 02:413e-02:426e, 02:428e-02:430e, 02:432e-02:446e, 02:448e-02:452e, 02:455e-02:462e, 02:464e-02:465e, 02:467e-02:479e, 02:481e-02:504e, 02:506Ne-02:524:01e, 02:525Ne-02:526e, 02:528e, 02:530e-02:543e, 02:545e-02:556e, 02:558e-02:567e, 02:569e-02:570e, 02:572e-02:579e, 02:581e, 02:583e-02:593e, 02:595e-02:603e, 02:605Qe-02:611e, 02:613e-02:618Qe, 02:620e-02:627e, 02:629e, 02:632e | -         |
| A*03  | <b>A* 03:01:01:01, 03:02:01, 03:05:01;</b><br>A* 03:01:01:03d, 03:01:02d;<br>A* 03:01:01:04e-03:01:07e, 03:01:04e-03:01:18e, 03:01:20e-03:01:37e, 03:01:40e-03:01:58e, 03:02:02e-03:02:04e, 03:04e, 03:05:02e, 03:20e   | <b>A3</b> |
|   | A* 03:21Nd;<br>A* 03:01:01:02Ne, 03:03Ne, 03:11Ne   | Null      |
|   | A* 03:06d-03:09d, 03:22:01d, 03:26d, 03:50d, 03:108d;<br>A* 03:12e-03:16e, 03:17:02e-03:19e, 03:22:02e, 03:23:02e, 03:25e, 03:27e-03:29e, 03:31e-03:35e, 03:37e-03:40e, 03:42e, 03:44e-03:49e, 03:51e-03:81e, 03:83e-03:106e, 03:109e-03:151e, 03:153e-03:166e, 03:168Ne-03:170e, 03:172e-03:185e, 03:187e-03:218e, 03:220e-03:230e, 03:232e-03:249e  | -         |
| This genotype was MANUALLY chosen.  |   |           |
| This genotype was chosen as the most likely; cannot exclude one or more rare genotypes. |   |           |

## HLA-B

| GROUP       | ALLELES   | ANTIGEN    |
|-------------|---|------------|
| <b>B*14</b> | B* 14:06:02e  | B14        |
|             | <b>B* 14:02:01:01;</b><br>B* 14:02:01:02e-14:02:14e   | <b>B65</b> |
|             | <i>B* 14:09d;</i><br>B* 14:15e-14:17e, 14:20e, 14:22e, 14:24e-14:25e, 14:27e, 14:29e-14:31e, 14:34e-14:36e, 14:38e-14:39e, 14:41Ne, 14:43e-14:45e, 14:50e-14:52e  | -          |
| <b>B*57</b> | <b>B* 57:01:01;</b><br>B* 57:01:02e-57:01:08e, 57:01:10e-57:01:22e, 57:08e  | <b>B57</b> |
|             | B* 57:06e, 57:10e, 57:13e-57:15e, 57:18e-57:21e, 57:23e-57:27e, 57:29e-57:31e, 57:33e-57:38e, 57:40e-57:41e, 57:43e-57:44e, 57:47e-57:50e, 57:52e-57:56e, 57:59e-57:62e, 57:64e-57:65e, 57:68e, 57:72e-57:75e, 57:77e-57:79Ne, 57:81e | -          |

|            | ALLELES  | ANTIGEN    |
|------------|--|------------|
| <b>Bw4</b> | <b>B* 57:01:01;</b><br>B* 57:01:02e-57:01:08e, 57:01:10e-57:01:22e, 57:06e, 57:08e, 57:10e, 57:13e-57:15e, 57:18e-57:21e, 57:23e-57:27e, 57:29e-57:31e, 57:33e-57:38e, 57:40e-57:41e, 57:43e-57:44e, 57:47e-57:50e, 57:52e-57:56e, 57:59e-57:62e, 57:64e-57:65e, 57:68e, 57:72e-57:75e, 57:77e-57:79Ne, 57:81e | <b>Bw4</b> |
| <b>Bw6</b> | <b>B* 14:02:01:01;</b><br><i>B* 14:09d;</i><br>B* 14:02:01:02e-14:02:14e, 14:06:02e, 14:15e-14:17e, 14:20e, 14:22e, 14:24e-14:25e, 14:27e, 14:29e-14:31e, 14:34e-14:36e, 14:38e-14:39e, 14:41Ne, 14:43e-14:45e, 14:50e-14:52e  | <b>Bw6</b> |

### HLA-C

| GROUP       | ALLELES   | ANTIGEN    |
|-------------|---|------------|
| <b>C*06</b> | <b>C* 06:02:01:01;</b><br><i>C* 06:02:01:02d;</i><br>C* 06:02:01:03e-06:02:07e, 06:02:09e-06:02:26e, 06:02:28e-06:02:45e  | <b>Cw6</b> |
|             | C* 06:16Ne  | Null       |
|             | <i>C* 06:07d-06:09d, 06:27d;</i><br>C* 06:03:02e, 06:04:02e, 06:10e-06:15e, 06:17e-06:26e, 06:28e-06:29e, 06:32e-06:34:01e, 06:36e-06:43e, 06:45e-06:71e, 06:73e-06:76:01e, 06:77e-06:100e, 06:102e-06:117e, 06:119e-06:123e, 06:125e-06:126e, 06:128Ne-06:131e, 06:133e-06:135e, 06:137e, 06:139e-06:142e, 06:145e-06:146e, 06:148e-06:152Ne, 06:154e-06:167e, 06:169e-06:187e | -          |
| <b>C*08</b> | <b>C* 08:02:01:01, 08:04:01;</b><br>C* 08:02:01:02e-08:02:03e, 08:02:05e-08:02:06e, 08:02:08e-08:02:10e, 08:02:12e-08:02:14e, 08:04:02e-08:04:03e   | <b>Cw8</b> |
|             | <i>C* 08:05d, 08:12d;</i><br>C* 08:07e, 08:17e-08:19e, 08:23e, 08:28e, 08:30e, 08:32e, 08:33:03e-08:35e, 08:37e, 08:43e, 08:45e, 08:48e-08:49e, 08:52Ne-08:55Ne, 08:62e-08:63e, 08:66e-08:71e, 08:73e-08:77e, 08:90e, 08:92e-08:93e, 08:100e, 08:103e-08:104e, 08:107e-08:108e, 08:110e-08:112e, 08:114e-08:116e, 08:120e, 08:125e-08:126e, 08:132e, 08:134e                    | -          |

## HLA-DR

### HLA-DRB1

| GROUP   | ALLELES  | ANTIGEN |
|---------|--|---------|
| DRB1*07 | DRB1* 07:01:01:01;<br>DRB1* 07:03d;<br>DRB1* 07:01:01:02e-07:01:19e, 07:04e, 07:09e  | DR7     |
|         | DRB1* 07:10Ne  | Null    |
|         | DRB1* 07:05d, 07:07d, 07:11d, 07:13d;<br>DRB1* 07:06e, 07:08e, 07:12e, 07:14e-07:49e, 07:51e-07:70e  | -       |
| DRB1*13 | DRB1* 13:01:01:01, 13:02:01;<br>DRB1* 13:01:03d, 13:08d, 13:16d, 13:19d, 13:36d;<br>DRB1* 13:01:01:02e-13:01:02e, 13:01:04e-13:01:16e, 13:02:02e-13:02:12e, 13:52e, 13:57e   | DR13    |
|         | DRB1* 13:31d, 13:39d-13:40d, 13:59d, 13:76d;<br>DRB1* 13:28e, 13:32e, 13:34e-13:35e, 13:51e, 13:64e-13:65e, 13:68e-13:69e, 13:72e-13:74e,<br>13:79e-13:80e, 13:83e-13:84e, 13:87e, 13:91e-13:93e, 13:97:01e, 13:98e-13:99e,<br>13:102e-13:103e, 13:105e-13:107e, 13:109e-13:110e, 13:112e-13:113Ne, 13:117e, 13:121e,<br>13:123e-13:128e, 13:130e-13:131e, 13:135e, 13:137Ne-13:143e, 13:145e, 13:147e-13:148e,<br>13:153e, 13:155e, 13:160e, 13:165e-13:166e, 13:168e, 13:171:02e, 13:173e, 13:177e, 13:182e,<br>13:184e-13:187e, 13:190e, 13:200Ne-13:202e, 13:204e-13:205e, 13:207e-13:213e, 13:215e,<br>13:218e, 13:220e | -       |

### HLA-DRB345

| GROUP             | ALLELES  | ANTIGEN |
|-------------------|--|---------|
| DRB3*03           | DRB3* 03:01:01;<br>DRB3* 03:01:02e, 03:01:03e, 03:01:05e, 03:02e     | DR52    |
|                   | DRB3* 03:03e, 03:04e, 03:05e, 03:06e, 03:07e, 03:08e, 03:09e, 03:11e | -       |
| DRB4*01:03:01:02N | DRB4* 01:03:01:02N   | Null    |

Cannot exclude RARE alleles from another locus.

## HLA-DQA1

| GROUP   | ALLELES   | ANTIGEN |
|---------|---|---------|
| DQA1*01 | DQA1* 01:01:01:01, 01:01:02, 01:02:01:01, 01:03:01:01, 01:04:01:01, 01:05:01;<br>DQA1* 01:02:02d;<br>DQA1* 01:01:01:02e-01:01:01:03e, 01:01:03e, 01:02:01:02e-01:02:01:07e, 01:02:03e-01:02:04e,<br>01:03:01:02e-01:03:01:06e, 01:04:01:02e-01:04:02e, 01:05:02e-01:13e | -       |
| DQA1*02 | DQA1* 02:01:01:01;<br>DQA1* 02:01:01:02e  | -       |

## HLA-DQB1

| GROUP  | ALLELES  | ANTIGEN    |
|--|--|------------|
| <b>DQB1*03</b>   | DQB1* 03:01:13e, 03:01:15e, 03:01:21e, 03:01:25e   | DQ7        |
|  | DQB1* 03:10e   | DQ8        |
|  | <b>DQB1* 03:03:02:01;</b><br>DQB1* 03:03:02:02e-03:03:13e  | <b>DQ9</b> |
|  | DQB1* 03:12e, 03:15e-03:16e, 03:19:02e-03:20e, 03:23e, 03:26e, 03:30e-03:31e, 03:33e-03:34e, 03:38e-03:41e, 03:43e, 03:55e, 03:60e, 03:65e, 03:77e, 03:79e, 03:86e-03:91Qe, 03:95Ne-03:99Qe, 03:101e, 03:103e-03:105e, 03:108e, 03:111e-03:112e, 03:117e, 03:123e-03:124e, 03:126e, 03:130e, 03:133e, 03:136e-03:137e, 03:141e, 03:145e, 03:149e, 03:155e-03:156e, 03:168e, 03:172e, 03:176e-03:177e, 03:180e, 03:183e, 03:186e-03:187e, 03:195e, 03:200e, 03:202e, 03:209e, 03:212e, 03:217e, 03:222e, 03:227e, 03:230e | -          |
| <b>DQB1*06</b>   | <i>DQB1* 06:11:01d;</i><br>DQB1* 06:11:02e-06:12e  | DQ1        |
|  | <b>DQB1* 06:02:01, 06:03:01, 06:04:01, 06:08:01, 06:09:01;</b><br><i>DQB1* 06:05:01d;</i><br>DQB1* 06:01:14e, 06:02:02e-06:02:25e, 06:03:02e-06:03:22e, 06:04:02e-06:04:10e, 06:05:02e, 06:08:02e-06:08:03e, 06:09:02e-06:09:06e, 06:14e, 06:25e   | <b>DQ6</b> |
|  | DQB1* 06:26Ne  | Null       |
|  | <i>DQB1* 06:10d;</i><br>DQB1* 06:07e, 06:13e, 06:15e-06:22e, 06:24e, 06:27e-06:34e, 06:36e-06:44e, 06:46e-06:52e, 06:57e-06:60e, 06:62e-06:98e, 06:106e-06:107e, 06:109e-06:119e, 06:121e-06:123e, 06:125e-06:131e, 06:133e-06:138e, 06:141e-06:148e, 06:150e-06:152e, 06:154e-06:156e, 06:158Ne-06:176e, 06:178e-06:180e, 06:182e-06:200e, 06:202e-06:204e, 06:206e-06:208e   | -          |
| <i>This genotype was MANUALLY chosen.</i>  |  |            |
| <b>This genotype was chosen as the most likely; cannot exclude one or more rare genotypes.</b> |  |            |

#### HLA-DPA1

| GROUP          | ALLELES  | ANTIGEN |
|----------------|--|---------|
| <b>DPA1*01</b> | <b>DPA1* 01:03:01:01, 01:04;</b><br>DPA1* 01:03:01:02e-01:03:05e, 01:05e-01:07e, 01:09e-01:10e, 01:12e | -       |
| <b>DPA1*01</b> | <b>DPA1* 01:03:01:01, 01:04;</b><br>DPA1* 01:03:01:02e-01:03:05e, 01:05e-01:07e, 01:09e-01:10e, 01:12e | -       |

#### HLA-DPB1

| EPITYPE   | ALLELES   | HVR-A | HVR-B | HVR-C | HVR-D | HVR-E | HVR-F |
|---|---|-------|-------|-------|-------|-------|-------|
| EDP04   | <b>DPB1* 04:01:01:01;</b><br>DPB1* 04:01:01:02e-04:01:12e, 04:01:14e-04:01:32e /<br>DPB1* 99:01e / DPB1* 120:01Ne / DPB1* 121:01e / DPB1*<br>128:01e / DPB1* 134:01e / DPB1* 149:01e / DPB1*<br>169:01e / DPB1* 174:01e / DPB1* 175:01e / DPB1*<br>180:01e / DPB1* 181:01e / DPB1* 192:01e / DPB1*<br>194:01e / DPB1* 195:01e / DPB1* 212:01e / DPB1*<br>213:01e / DPB1* 224:01e / DPB1* 225:01e / DPB1*<br>228:01e / DPB1* 231:01e / DPB1* 232:01e / DPB1*<br>240:01e / DPB1* 253:01e / DPB1* 255:01e / DPB1*<br>262:01e / DPB1* 272:01e / DPB1* 275:01e / DPB1*<br>276:01e / DPB1* 281:01e / DPB1* 282:01e / DPB1*<br>283:01e / DPB1* 298:01e / DPB1* 320:01e / DPB1*<br>323:01e / DPB1* 334:01e / DPB1* 335:01e / DPB1*<br>336:01e / DPB1* 341:01e / DPB1* 350:01e / DPB1*<br>356:01e / DPB1* 360:01e / DPB1* 372:01e / DPB1*<br>376:01e / DPB1* 378:01e / DPB1* 396:01e / DPB1*<br>397:01e / DPB1* 415:01e / DPB1* 418:01e / DPB1*<br>425:01e / DPB1* 426:01e / DPB1* 428:01e / DPB1*<br>434:01e / DPB1* 453:01e / DPB1* 455:01Ne / DPB1*<br>459:01e / DPB1* 464:01e / DPB1* 465:01e / DPB1*<br>468:01e / DPB1* 475:01e / DPB1* 476:01e / DPB1*<br>479:01e / DPB1* 485:01e / DPB1* 486:01e / DPB1*<br>487:01e / DPB1* 497:01e / DPB1* 500:01e / DPB1*<br>520:01e / DPB1* 521:01e / DPB1* 522:01e / DPB1*<br>523:01e / DPB1* 524:01e / DPB1* 529:01e / DPB1*<br>534:01e / DPB1* 553:01e / DPB1* 554:01e / DPB1*<br>556:01e / DPB1* 559:01e / DPB1* 569:01e | LFQG  | EEFA  | AAE   | ILEEK | M     | GGPM  |
| EDP72   | DPB1* 72:01d  | LFQG  | EEFA  | AAE   | LLEEK | M     | GGPM  |
| One side of this epitope requires a RARE allele, review results to confirm assignment.<br>This epitope was MANUALLY chosen. |   |       |       |       |       |       |       |
| This genotype was selected.   |   |       |       |       |       |       |       |