

|              |   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|--------------|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| VRC-PG04 UCA | Q | V       | Q       | L       | V       | Q       | S       | G       | A       | E       | V       | K       | K       | P       | G       |         |
|              | 1 | 2       | 3       | 4       | 5       | 6       | 7       | 8       | 9       | 10      | 11      | 12      | 13      | 14      | 15      |         |
| VRC-PG04     | Q | V       | Q       | L       | V       | Q       | S       | G       | S       | G       | V       | K       | K       | P       | G       |         |
|              | 1 | 2       | 3       | 4       | 5       | 6       | 7       | 8       | 9       | 10      | 11      | 12      | 13      | 14      | 15      |         |
|              |   | 0.52210 | 0.55985 | 0.55116 | 0.59505 | 0.56249 | 0.49854 | 0.79242 | 0.87372 | 0.05538 | 0.08690 | 0.53889 | 0.48867 | 0.52893 | 0.65890 | 0.89573 |

|              |    |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|--------------|----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| VRC-PG04 UCA | A  | S       | V       | K       | V       | S       | C       | K       | A       | S       | G       | Y       | T       | F       | T       |         |
|              | 16 | 17      | 18      | 19      | 20      | 21      | 22      | 23      | 24      | 25      | 26      | 27      | 28      | 29      | 30      |         |
| VRC-PG04     | A  | S       | V       | R       | V       | S       | C       | W       | T       | S       | E       | D       | I       | F       | E       |         |
|              | 16 | 17      | 18      | 19      | 20      | 21      | 22      | 23      | 24      | 25      | 26      | 27      | 28      | 29      | 30      |         |
|              |    | 0.87823 | 0.83293 | 0.63419 | 0.05995 | 0.73223 | 0.73367 | 0.54443 | 0.00436 | 0.28430 | 0.57899 | 0.12026 | 0.10474 | 0.05709 | 0.58738 | 0.00030 |

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|--------------|----|---------|-----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| VRC-PG04 UCA | -  | -       | Y   | Y       | M       | H       | W       | V       | R       | Q       | A       | P       | G       | Q       | G       |         |
|              | 31 | 32      | 33  | 34      | 35      | 36      | 37      | 38      | 39      | 40      | 41      | 42      | 43      | 44      | 45      |         |
| VRC-PG04     | R  | T       | E   | L       | I       | H       | W       | V       | R       | Q       | A       | P       | G       | Q       | G       |         |
|              | 31 | 32      | 33  | 34      | 35      | 36      | 37      | 38      | 39      | 40      | 41      | 42      | 43      | 44      | 45      |         |
|              |    | 0.00000 | N/A | 0.00217 | 0.03893 | 0.15600 | 0.42145 | 0.77074 | 0.60655 | 0.89092 | 0.82553 | 0.86841 | 0.87405 | 0.83843 | 0.48031 | 0.87955 |

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|--------------|----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| VRC-PG04 UCA | L  | E       | W       | M       | G       | W       | I       | N       | P       | N       | S       | G       | G       | T       | N       |         |
|              | 46 | 47      | 48      | 49      | 50      | 51      | 52      | 53      | 54      | 55      | 56      | 57      | 58      | 59      | 60      |         |
| VRC-PG04     | L  | E       | W       | I       | G       | W       | V       | K       | T       | V       | T       | G       | A       | V       | N       |         |
|              | 46 | 47      | 48      | 49      | 50      | 51      | 52      | 53      | 54      | 55      | 56      | 57      | 58      | 59      | 60      |         |
|              |    | 0.72121 | 0.51897 | 0.64245 | 0.04004 | 0.46822 | 0.55764 | 0.09782 | 0.14760 | 0.04086 | 0.01188 | 0.08409 | 0.60660 | 0.07797 | 0.00827 | 0.31970 |

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|--------------|----|---------|---------|-----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| VRC-PG04 UCA | Y  | -       | -       | Q   | K       | F       | Q       | G       | R       | V       | T       | M       | T       | R       | D       |         |
|              | 61 | 62      | 63      | 64  | 65      | 66      | 67      | 68      | 69      | 70      | 71      | 72      | 73      | 74      | 75      |         |
| VRC-PG04     | F  | G       | S       | P   | D       | F       | R       | Q       | R       | V       | S       | L       | T       | R       | D       |         |
|              | 61 | 62      | 63      | 64  | 65      | 66      | 67      | 68      | 69      | 70      | 71      | 72      | 73      | 74      | 75      |         |
|              |    | 0.13991 | 0.00000 | N/A | 0.03767 | 0.01023 | 0.53994 | 0.06087 | 0.00026 | 0.79895 | 0.79650 | 0.08173 | 0.13372 | 0.64213 | 0.81560 | 0.67431 |

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|--------------|----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| VRC-PG04 UCA | T  | S       | I       | S       | T       | A       | Y       | M       | E       | L       | S       | R       | L       | R       | S       |         |
|              | 76 | 77      | 78      | 79      | 80      | 81      | 82      | 83      | 84      | 85      | 86      | 87      | 88      | 89      | 90      |         |
| VRC-PG04     | R  | D       | L       | F       | T       | A       | H       | M       | D       | I       | R       | G       | L       | T       | Q       |         |
|              | 76 | 77      | 78      | 79      | 80      | 81      | 82      | 83      | 84      | 85      | 86      | 87      | 88      | 89      | 90      |         |
|              |    | 0.01956 | 0.00135 | 0.10026 | 0.00391 | 0.58383 | 0.60356 | 0.11184 | 0.34308 | 0.19425 | 0.01202 | 0.43567 | 0.10036 | 0.87024 | 0.09172 | 0.00070 |

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|--------------|----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| VRC-PG04 UCA | D  | D       | T       | A       | V       | Y       | Y       | C       | A       | R       | Q       | K       | Y       | C       | T       |         |
|              | 91 | 92      | 93      | 94      | 95      | 96      | 97      | 98      | 99      | 100     | 101     | 102     | 103     | 104     | 105     |         |
| VRC-PG04     | G  | D       | T       | A       | T       | Y       | F       | C       | A       | R       | Q       | K       | F       | Y       | T       |         |
|              | 91 | 92      | 93      | 94      | 95      | 96      | 97      | 98      | 99      | 100     | 101     | 102     | 103     | 104     | 105     |         |
|              |    | 0.09263 | 0.60526 | 0.65732 | 0.72027 | 0.01947 | 0.25813 | 0.09789 | 0.58258 | 0.76451 | 0.73534 | 0.74259 | 0.38357 | 0.13960 | 0.10011 | 0.31923 |

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|--------------|-----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| VRC-PG04 UCA | G   | G       | Q       | G       | W       | Y       | F       | D       | L       | W       | G       | R       | G       | T       | L       |         |
|              | 106 | 107     | 108     | 109     | 110     | 111     | 112     | 113     | 114     | 115     | 116     | 117     | 118     | 119     | 120     |         |
| VRC-PG04     | G   | G       | Q       | G       | W       | Y       | F       | D       | L       | W       | G       | R       | G       | T       | L       |         |
|              | 106 | 107     | 108     | 109     | 110     | 111     | 112     | 113     | 114     | 115     | 116     | 117     | 118     | 119     | 120     |         |
|              |     | 0.65123 | 0.87026 | 0.51948 | 0.40933 | 0.61371 | 0.25443 | 0.53552 | 0.48908 | 0.69032 | 0.80633 | 0.90151 | 0.69175 | 0.60724 | 0.59385 | 0.68102 |

|              |     |         |         |         |         |         |
|--------------|-----|---------|---------|---------|---------|---------|
| VRC-PG04 UCA | V   | T       | V       | S       | S       |         |
|              | 121 | 122     | 123     | 124     | 125     |         |
| VRC-PG04     | I   | V       | V       | S       | S       |         |
|              | 121 | 122     | 123     | 124     | 125     |         |
|              |     | 0.05026 | 0.01145 | 0.79285 | 0.73269 | 0.75877 |