

Peptide Array, Hepatitis C Virus, J4, NS4B Protein

Catalog No. NR-3744

This reagent is the tangible property of the U.S. Government.

Product Description: The 40-peptide array spans the NS4B protein of hepatitis C virus, J4 (genotype 1b; GenPept: AAC15722). Peptides are 12- to 18-mers, with 11 or 12 amino acid overlaps.

Lot: N663-1 to N663-40

The following information applies to all peptides:

- Appearance White lyophilized powder
- Mass spectral analysis Correct MW by MALDI-TOF
- Counter Ion Trifluoroacetate

Peptide-specific information is shown in the two tables below.

| Table 1 | | | | | | | |
|----------|--------------|--------|----------------------------|------------------------|----------------|-----------------------------|------------------------------|
| Peptide | Date of Mfg. | Length | Sequence | Molecular Weight (amu) | Hydrophilicity | Purity by HPLC ^a | Peptide Content ^b |
| 1 of 40 | 7/27/2006 | 18 | 1 ASQLPYIEQGMQLAEQFK 18 | 2081.39 | -0.48 | 99.7% | 90.1% |
| 2 of 40 | 7/27/2006 | 18 | 8 EQGMQLAEQFKQKALGLL 25 | 2032.41 | -0.34 | 95.6% | 85.6% |
| 3 of 40 | 7/27/2006 | 18 | 15 EQFKQKALGLLQTATKQA 32 | 2003.35 | -0.63 | 88.5% | 81.5% |
| 4 of 40 | 7/27/2006 | 18 | 22 LGLLQTATKQAEAAAPVV 39 | 1781.10 | 0.61 | 97.4% | 88.7% |
| 5 of 40 | 7/27/2006 | 18 | 29 TKQAEAAAPVVESKWRAL 46 | 1955.26 | -0.31 | 98.1% | 81.1% |
| 6 of 40 | 7/27/2006 | 18 | 36 APVVESKWRALETFWAKH 53 | 2155.51 | -0.39 | 94.6% | 79.1% |
| 7 of 40 | 7/27/2006 | 16 | 43 WRALETFWAKHMWNFI 58 | 2136.53 | -0.16 | 89.6% | 82.4% |
| 8 of 40 | 7/27/2006 | 18 | 48 TFWAKHMWNFISGIQYLA 65 | 2213.61 | 0.27 | 88.8% | 86.6% |
| 9 of 40 | 7/27/2006 | 16 | 55 WNFISGIQYLAGLSTL 70 | 1783.07 | 0.79 | 89.4% | 88.7% |
| 10 of 40 | 7/27/2006 | 18 | 60 GIQYLAGLSTLPGNPAIA 77 | 1756.05 | 0.64 | 92.1% | 88.5% |
| 11 of 40 | 7/27/2006 | 18 | 67 LSTLPGNPAIASLMAFTA 84 | 1775.11 | 0.98 | 100.0% | 88.6% |
| 12 of 40 | 7/27/2006 | 17 | 74 PAIASLMAFTASITSPL 90 | 1691.03 | 1.26 | Crude | 88.1% |
| 13 of 40 | 7/27/2006 | 18 | 80 MAFTASITSPLTTQNTLL 97 | 1910.23 | 0.58 | 88.9% | 89.3% |
| 14 of 40 | 7/27/2006 | 18 | 87 TSPLTTQNTLLFNILGGW 104 | 1976.28 | 0.28 | 86.5% | 89.7% |
| 15 of 40 | 7/27/2006 | 17 | 94 NTLNLFNILGGWVAAQLA 110 | 1801.14 | 1.13 | 86.4% | 88.8% |
| 16 of 40 | 7/27/2006 | 18 | 100 ILGGWVAAQLAPPSAASA 117 | 1679.95 | 0.95 | 93.7% | 88.1% |
| 17 of 40 | 7/27/2006 | 18 | 107 AQLAPPSAASAFVGAGIA 124 | 1598.83 | 1.04 | 81.4% | 87.5% |
| 18 of 40 | 7/27/2006 | 18 | 114 AASAFVGAGIAGAAVGS 131 | 1489.70 | 1.64 | Crude | 86.7% |
| 19 of 40 | 7/27/2006 | 18 | 121 AGIAGAAVGSIGLGKVL 138 | 1552.89 | 1.65 | 93.4% | 87.2% |
| 20 of 40 | 7/27/2006 | 17 | 128 VGSIGLGKVLVDILAGY 144 | 1674.03 | 1.39 | 100.0% | 88.0% |
| 21 of 40 | 7/27/2006 | 18 | 134 GKVLVDILAGYGAGVAGA 151 | 1630.92 | 1.18 | 80.0% | 87.7% |
| 22 of 40 | 7/27/2006 | 18 | 141 LAGYGAGVAGALVAFKVM 158 | 1695.07 | 1.51 | 92.1% | 88.1% |
| 23 of 40 | 7/27/2006 | 15 | 148 VAGALVAFKVMSEV 162 | 1477.8 | 1.45 | 98.8% | 86.6% |
| 24 of 40 | 7/27/2006 | 18 | 152 LVAFKVMSEVPSTEDLV 169 | 1921.26 | 0.68 | 93.5% | 89.4% |
| 25 of 40 | 7/27/2006 | 18 | 159 SGEVPSTEDLVNLLPAIL 176 | 1867.14 | 0.56 | 100.0% | 89.1% |
| 26 of 40 | 7/27/2006 | 18 | 166 EDLVNLLPAILSPGALVV 183 | 1833.22 | 1.38 | 98.1% | 88.9% |
| 27 of 40 | 7/27/2006 | 18 | 173 PAILSPGALVVGVCVCAI 190 | 1650.07 | 2.13 | 85.1% | 87.9% |
| 28 of 40 | 7/27/2006 | 16 | 180 ALVVGVCVCAILRRHV 195 | 1676.12 | 1.78 | 88.5% | 78.6% |

| Peptide | Date of Mfg. | Length | Sequence | Molecular Weight (amu) | Hydrophilicity | Purity by HPLC ^a | Peptide Content ^b |
|----------|--------------|--------|----------------------------|------------------------|----------------|-----------------------------|------------------------------|
| 29 of 40 | 7/27/2006 | 18 | 185 VVCAAILRRHVGPGEGAV 202 | 1804.16 | 0.81 | 91.5% | 79.8% |
| 30 of 40 | 7/27/2006 | 18 | 192 RRHVGPGEAVQWMNRLI 209 | 2076.43 | -0.58 | 95.2% | 78.5% |
| 31 of 40 | 7/27/2006 | 16 | 199 EGAVQWMNRLIAFASR 214 | 1849.16 | 0.06 | 97.5% | 84.4% |
| 32 of 40 | 7/27/2006 | 15 | 204 WMNRLIAFASRGNHV 218 | 1772.08 | -0.03 | 97.6% | 79.5% |
| 33 of 40 | 7/27/2006 | 17 | 208 LIAFASRGNHVSPTHYV 224 | 1869.13 | 0.18 | 95.7% | 80.4% |
| 34 of 40 | 7/27/2006 | 18 | 214 RGNHVSPTHYVPESDAAA 231 | 1908.03 | -0.82 | 98.5% | 80.7% |
| 35 of 40 | 7/27/2006 | 17 | 221 THYVPESDAAARVTQIL 237 | 1871.1 | -0.07 | 94.5% | 84.5% |
| 36 of 40 | 7/27/2006 | 16 | 227 SDAAARVTQILSSLTI 242 | 1645.89 | 0.68 | 90.1% | 87.8% |
| 37 of 40 | 7/27/2006 | 18 | 232 RVTQILSSLTITQLLKRL 249 | 2083.57 | 0.48 | 88.9% | 82.0% |
| 38 of 40 | 7/27/2006 | 15 | 239 SLTITQLLKRLHQWI 253 | 1850.25 | 0.17 | 97.9% | 80.2% |
| 39 of 40 | 7/27/2006 | 18 | 243 TQLLKRLHQWINEDCSTP 260 | 2182.5 | -0.86 | 97.3% | 82.7% |
| 40 of 40 | 7/27/2006 | 12 | 250 HQWINEDCSTPC 261 | 1432.56 | -0.98 | 90.6% | 86.3% |

^a0% full-length
^bRemainder is salt and water

| Peptide | | Ala (A) | Arg (R) | Asx (N,D) | Cys (C) | Glx (Q,E) | Gly (G) | His (H) | Ile (I) | Leu (L) | Lys (K) | Met (M) | Phe (F) | Pro (P) | Ser (S) | Thr (T) | Trp (W) | Tyr (Y) | Val (V) |
|----------|----------|---------|---------|-----------|---------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------------------|---------|-------------------|
| 1 of 40 | Expected | 2.00 | | | | 6.00 | 1.00 | | 1.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | | |
| | Actual | 1.87 | | | | 5.68 | 1.11 | | 0.72 | 1.76 | 0.94 | 0.92 | 1.04 | 0.98 | 1.00 | | | | 0.89 |
| 2 of 40 | Expected | 2.00 | | | | 6.00 | 2.00 | | | 4.00 | 2.00 | 1.00 | 1.00 | | | | | | |
| | Actual | 1.97 | | | | 5.67 | 2.24 | | | 3.77 | 1.73 | 1.00 | 1.11 | | | | | | |
| 3 of 40 | Expected | 3.00 | | | | 5.00 | 1.00 | | | 3.00 | 3.00 | | 1.00 | | | 2.00 | | | |
| | Actual | 2.66 | | | | 4.78 | 1.00 | | | 2.71 | 2.71 | | 1.09 | | | 1.75 | | | |
| 4 of 40 | Expected | 5.00 | | | | 3.00 | 1.00 | | | 3.00 | 1.00 | | | 1.00 | | 2.00 | | | 2.00 |
| | Actual | 4.68 | | | | 2.82 | 1.08 | | | 2.52 | 1.00 | | | 1.06 | | 1.69 | | | 0.90 ^a |
| 5 of 40 | Expected | 5.00 | 1.00 | | | 3.00 | | | | 1.00 | 2.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 2.00 |
| | Actual | 4.59 | 1.00 | | | 2.91 | | | | 0.96 | 2.03 | | | 1.04 | 0.94 | 0.65 | 0.00 ^b | | 0.56 ^a |
| 6 of 40 | Expected | 3.00 | 1.00 | | | 2.00 | | 1.00 | | 1.00 | 2.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | | 2.00 |
| | Actual | 2.66 | 0.89 | | | 1.92 | | 1.00 | | 0.96 | 1.96 | | 0.99 | 1.05 | 0.86 | 0.82 | 0.00 ^b | | 0.58 ^b |
| 7 of 40 | Expected | 2.00 | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | | | 1.00 | 3.00 | | |
| | Actual | 1.77 | 1.09 | 0.85 | | 0.89 | | 1.06 | 0.86 | 1.00 | 1.04 | 0.94 | 1.92 | | | 0.98 | 0.00 ^b | | |
| 8 of 40 | Expected | 2.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | 2.00 | 1.00 | 1.00 | 1.00 | 2.00 | | 1.00 | 1.00 | 2.00 | 1.00 | |
| | Actual | 1.64 | | 0.73 | | 0.85 | 1.03 | 1.01 | 1.65 | 0.87 | 0.89 | 0.99 | 2.00 | | 0.91 | 0.90 | 0.00 ^b | 1.08 | |
| 9 of 40 | Expected | 1.00 | | 1.00 | | 1.00 | 2.00 | | 2.00 | 3.00 | | | 1.00 | | 2.00 | 1.00 | 1.00 | 1.00 | |
| | Actual | 0.93 | | 0.75 | | 0.66 | 2.15 | | 1.64 | 2.77 | | | 1.00 | | 1.83 | 0.78 | 0.00 ^b | 1.17 | |
| 10 of 40 | Expected | 3.00 | | 1.00 | | 1.00 | 3.00 | | 2.00 | 3.00 | | | | 2.00 | 1.00 | 1.00 | | 1.00 | |
| | Actual | 2.86 | | 1.00 | | 0.82 | 3.17 | | 1.70 | 3.00 | | | | 2.23 | 0.83 | 0.89 | | 0.82 | |
| 11 of 40 | Expected | 4.00 | | 1.00 | | | 1.00 | | 1.00 | 3.00 | | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 | | | |
| | Actual | 3.25 | | 0.95 | | | 1.15 | | 1.03 | 2.67 | | 0.99 | 1.08 | 2.00 | 1.91 | 1.66 | | | |
| 12 of 40 | Expected | 4.00 | | | | | | | 2.00 | 2.00 | | 1.00 | 1.00 | 2.00 | 3.00 | 2.00 | | | |
| | Actual | 3.56 | | | | | | | 1.86 | 2.07 | | 0.85 | 1.04 | 1.98 | 2.75 | 2.00 | | | |
| 13 of 40 | Expected | 2.00 | | 1.00 | | 1.00 | | | 1.00 | 3.00 | | 1.00 | 1.00 | 1.00 | 2.00 | 5.00 | | | |
| | Actual | 1.98 | | 0.96 | | 0.91 | | | 0.90 | 2.95 | | 0.95 | 1.21 | 1.15 | 2.00 | 4.65 | | | |
| 14 of 40 | Expected | | | 2.00 | | 1.00 | 2.00 | | 1.00 | 4.00 | | | 1.00 | 1.00 | 1.00 | 4.00 | 1.00 | | |
| | Actual | | | 1.75 | | 0.93 | 1.94 | | 0.82 | 3.56 | | | 1.24 | 1.13 | 1.00 | 3.65 | 0.00 ^b | | |
| 15 of 40 | Expected | 3.00 | | 2.00 | | 1.00 | 2.00 | | 1.00 | 4.00 | | | 1.00 | | | 1.00 | 1.00 | | 1.00 |
| | Actual | 2.65 | | 1.63 | | 1.00 | 2.19 | | 0.94 | 3.50 | | | 1.16 | | | 0.98 | 0.00 ^b | | 0.99 |
| 16 of 40 | Expected | 6.00 | | | | 1.00 | 2.00 | | 1.00 | 2.00 | | | | 2.00 | 2.00 | | | 1.00 | 1.00 |
| | Actual | 5.90 | | | | 1.00 | 2.24 | | 0.77 | 1.85 | | | | 2.25 | 1.66 | | 0.00 ^b | | 0.92 |

Table 2 - Amino Acid Analysis

| Peptide | | Ala (A) | Arg (R) | Asx (N,D) | Cys (C) | Glx (Q,E) | Gly (G) | His (H) | Ile (I) | Leu (L) | Lys (K) | Met (M) | Phe (F) | Pro (P) | Ser (S) | Thr (T) | Trp (W) | Tyr (Y) | Val (V) |
|----------|----------|---------|---------|-----------|-------------------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------------------|---------|-------------------|
| 17 of 40 | Expected | 7.00 | | | | 1.00 | 2.00 | | 1.00 | 1.00 | | | 1.00 | 2.00 | 2.00 | | | | 1.00 |
| | Actual | 6.56 | | | | 0.97 | 1.99 | | 0.96 | 1.02 | | | 0.94 | 1.92 | 2.00 | | | | 0.93 |
| 18 of 40 | Expected | 7.00 | | | | | 4.00 | | 2.00 | | | | 1.00 | | 2.00 | | | | 2.00 |
| | Actual | 6.66 | | | | | 3.56 | | 2.10 | | | | 1.00 | | 2.79 | | | | 1.63 |
| 19 of 40 | Expected | 4.00 | | | | | 5.00 | | 2.00 | 2.00 | 1.00 | | | | 1.00 | | | | 3.00 |
| | Actual | 3.53 | | | | | 5.00 | | 2.11 | 1.88 | 0.94 | | | | 1.13 | | | | 2.61 |
| 20 of 40 | Expected | 1.00 | | 1.00 | | | 4.00 | | 2.00 | 3.00 | 1.00 | | | | 1.00 | | | 1.00 | 3.00 |
| | Actual | 1.10 | | 0.90 | | | 3.89 | | 1.60 | 2.91 | 1.08 | | | | 1.00 | | | 1.22 | 2.63 |
| 21 of 40 | Expected | 4.00 | | 1.00 | | | 5.00 | | 1.00 | 2.00 | 1.00 | | | | | | | 1.00 | 3.00 |
| | Actual | 3.58 | | 1.07 | | | 5.24 | | 0.99 | 1.89 | 1.00 | | | | | | | 1.14 | 2.53 |
| 22 of 40 | Expected | 5.00 | | | | | 4.00 | | | 2.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 3.00 |
| | Actual | 4.57 | | | | | 4.14 | | | 1.86 | 0.90 | 0.93 | 1.00 | | | | | 0.99 | 2.52 |
| 23 of 40 | Expected | 3.00 | | | | 1.00 | 2.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | | | | 4.00 |
| | Actual | 2.62 | | | | 0.87 | 2.10 | | | 1.13 | 0.73 | 0.83 | 0.80 | | 1.00 | | | | 3.55 |
| 24 of 40 | Expected | 1.00 | | 1.00 | | 2.00 | 1.00 | | | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 1.00 | | | 4.00 |
| | Actual | 0.86 | | 1.00 | | 1.76 | 1.12 | | | 1.84 | 0.98 | 0.94 | 0.97 | 0.98 | 2.05 | 0.94 | | | 3.67 |
| 25 of 40 | Expected | 1.00 | | 2.00 | | 2.00 | 1.00 | | 1.00 | 4.00 | | | | 2.00 | 2.00 | 1.00 | | | 2.00 |
| | Actual | 1.00 | | 1.65 | | 1.65 | 1.06 | | 0.89 | 3.65 | | | | 1.88 | 1.94 | 1.00 | | | 1.73 |
| 26 of 40 | Expected | 2.00 | | 2.00 | | 1.00 | 1.00 | | 1.00 | 5.00 | | | | 2.00 | 1.00 | | | | 3.00 |
| | Actual | 1.90 | | 1.84 | | 0.99 | 1.29 | | 0.93 | 4.70 | | | | 2.00 | 1.16 | | | | 1.98 ^a |
| 27 of 40 | Expected | 4.00 | | | 1.00 | | 2.00 | | 2.00 | 2.00 | | | | 2.00 | 1.00 | | | | 4.00 |
| | Actual | 3.58 | | | 0.51 ^c | | 2.00 | | 1.76 | 1.90 | | | | 1.91 | 1.11 | | | | 2.46 ^a |
| 28 of 40 | Expected | 3.00 | 2.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | 2.00 | | | | | | | | | 5.00 |
| | Actual | 2.79 | 2.25 | | 0.54 ^c | | 0.97 | 1.00 | 0.96 | 1.76 | | | | | | | | | 2.64 ^a |
| 29 of 40 | Expected | 3.00 | 2.00 | | 1.00 | 1.00 | 3.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | | | | | 4.00 |
| | Actual | 2.55 | 2.12 | | 0.52 ^c | 1.00 | 2.90 | 0.95 | 0.85 | 0.84 | | | | 1.01 | | | | | 2.47 ^a |
| 30 of 40 | Expected | 1.00 | 3.00 | 1.00 | | 2.00 | 3.00 | 1.00 | 1.00 | 1.00 | | 1.00 | | 1.00 | | | 1.00 | | 2.00 |
| | Actual | 0.97 | 3.01 | 0.87 | | 1.65 | 3.00 | 1.07 | 0.95 | 0.97 | | 1.05 | | 1.12 | | | 0.00 ^b | | 1.90 |
| 31 of 40 | Expected | 3.00 | 2.00 | 1.00 | | 2.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | | 1.00 |
| | Actual | 2.57 | 1.99 | 1.00 | | 1.71 | 1.12 | | 0.99 | 0.83 | | 0.98 | 0.98 | | 0.92 | | 0.00 ^b | | 0.70 |
| 32 of 40 | Expected | 2.00 | 2.00 | 2.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | | 1.00 |
| | Actual | 1.94 | 2.02 | 2.00 | | | 1.08 | 0.87 | 0.96 | 0.92 | | 0.97 | 0.99 | | 1.03 | | 0.00 ^b | | 0.89 |
| 33 of 40 | Expected | 2.00 | 1.00 | 1.00 | | | 1.00 | 2.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | 2.00 | 1.00 | | 1.00 | 2.00 |
| | Actual | 1.95 | 1.06 | 0.96 | | | 1.06 | 1.70 | 0.85 | 0.86 | | | 0.97 | 1.00 | 1.94 | 0.88 | | 0.98 | 1.68 |
| 34 of 40 | Expected | 3.00 | 1.00 | 2.00 | | 1.00 | 1.00 | 2.00 | | | | | | 2.00 | 2.00 | 1.00 | | 1.00 | 2.00 |
| | Actual | 2.68 | 1.11 | 1.63 | | 0.88 | 1.15 | 1.91 | | | | | | 1.77 | 2.00 | 0.92 | | 1.11 | 1.65 |
| 35 of 40 | Expected | 3.00 | 1.00 | 1.00 | | 2.00 | 0.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 2.00 | | 1.00 | 2.00 |
| | Actual | 2.68 | 1.03 | 0.86 | | 1.73 | 0.00 | 1.04 | 0.80 | 0.87 | | | | 1.00 | 1.09 | 1.69 | | 0.93 | 1.67 |
| 36 of 40 | Expected | 3.00 | 1.00 | 1.00 | | 1.00 | | | 2.00 | 2.00 | | | | | 3.00 | 2.00 | | | 1.00 |
| | Actual | 3.00 | 0.86 | 1.12 | | 0.84 | | | 1.90 | 1.72 | | | | | 3.10 | 1.61 | | | 0.83 |
| 37 of 40 | Expected | | 2.00 | | | 2.00 | | | 2.00 | 5.00 | 1.00 | | | | 2.00 | 3.00 | | | 1.00 |
| | Actual | | 2.00 | | | 2.11 | | | 1.74 | 4.62 | 0.99 | | | | 2.06 | 2.66 | | | 0.88 |
| 38 of 40 | Expected | | 1.00 | | | 2.00 | | 1.00 | 2.00 | 4.00 | 1.00 | | | | 1.00 | 2.00 | 1.00 | | |
| | Actual | | 0.97 | | | 2.00 | | 1.00 | 1.74 | 3.71 | 1.13 | | | | 1.05 | 1.72 | 0.00 ^b | | |
| 39 of 40 | Expected | | 1.00 | 2.00 | 1.00 | 3.00 | | 1.00 | 1.00 | 3.00 | 1.00 | | | 1.00 | 1.00 | 2.00 | 1.00 | | |
| | Actual | | 1.12 | 2.00 | 0.52 ^c | 2.90 | | 1.20 | 0.95 | 2.78 | 1.03 | | | 1.20 | 1.15 | 2.05 | 0.00 ^b | | |
| 40 of 40 | Expected | | | 2.00 | 2.00 | 2.00 | | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | |
| | Actual | | | 1.65 | 0.89 ^c | 1.77 | | 1.16 | 0.94 | | | | | 1.06 | 1.00 | 0.96 | 0.00 ^b | | |

^aVal-Ile, Val-Val, Ile-Ile and/or Ile-Val bonds were only partially destroyed during hydrolysis

^bTrp was completely destroyed during hydrolysis

^cCys was partially destroyed during hydrolysis

Date: 11 OCT 2011

Signature: *Dorothy C. Young*

Title: Technical Manager, BEI Authentication

ATCC[®], on behalf of BEI Resources, hereby represents and warrants that the material provided under this certificate has been subjected by the vendor to the tests and procedures specified and that the results described, along with any other data provided in this certificate, are true and accurate to the best of ATCC[®]'s knowledge.

ATCC[®] is a trademark of the American Type Culture Collection.

You are authorized to use this product for research use only. It is not intended for human use.

