**Supplementary Table 1: Individual assay potency estimates relative to Sample S (µg/ampoule) calculated at NIBSC**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Lab** | **Day** | **Assay** | **Sample A** | **Sample B** | **Sample C** | **Sample D** | **Sample E** |
| 01 | 1 | 1 | 10.004 | 6.477 | 0.460 | 0.070 | 0.005 |
| 01 | 1 | 2 | 10.103 | 7.254 | 0.493 | 0.082 | 0.006 |
| 01 | 2 | 1 | 10.626 | 7.167 | 0.511 | 0.083 | 0.005 |
| 01 | 2 | 2 | 10.381 | 6.956 | 0.515 | 0.082 | 0.006 |
| 01 | 3 | 1 | 10.376 | 7.409 | 0.543 | 0.086 | 0.006 |
| 01 | 3 | 2 | 9.882 | 7.275 | 0.522 | 0.086 | 0.006 |
| 02 | 1 | 1 | 11.066 | 7.076 | 0.638 | 0.090 | 0.007 |
| 02 | 1 | 2 | 11.127 | 7.049 | 0.634 | 0.093 | 0.007 |
| 02 | 2 | 1 | 11.475 | 7.055 | 0.635 | 0.089 | 0.006 |
| 02 | 2 | 2 | 11.359 | 7.283 | 0.658 | 0.097 | 0.007 |
| 02 | 3 | 1 | 11.176 | 6.994 | 0.626 | 0.091 | 0.006 |
| 02 | 3 | 2 | 11.210 | 7.118 | 0.648 | 0.093 | 0.007 |
| 03 | 1 | 1 | 10.927 | 8.272 | 0.664 | 0.099 | 0.006 |
| 03 | 1 | 2 | 11.062 | 8.423 | 0.662 | 0.101 | 0.006 |
| 03 | 2 | 1 | 11.185 | 8.320 | 0.672 | 0.103 | 0.006 |
| 03 | 2 | 2 | 11.666 | 7.831 | 0.683 | 0.103 | 0.006 |
| 03 | 3 | 1 | 10.833 | 8.068 | 0.670 | 0.102 | 0.006 |
| 03 | 3 | 2 | 10.901 | 8.236 | 0.675 | 0.101 | 0.006 |
| 04 | 1 | 1 | 9.504 | 8.987 | 0.550 | 0.079 | 0.004 |
| 04 | 1 | 2 | 9.018 | 8.575 | 0.503 | 0.067 | 0.004 |
| 04 | 2 | 1 | NL | 9.450 | 0.535 | 0.078 | 0.004 |
| 04 | 2 | 2 | 10.199 | 9.308 | 0.538 | 0.080 | 0.005 |
| 04 | 3 | 1 | 9.837 | 8.377 | 0.523 | 0.077 | 0.004 |
| 04 | 3 | 2 | 9.643 | 8.538 | 0.555 | 0.087 | 0.005 |
| 05a | 1 | 1 | 10.480 | 8.402 | 0.596 | 0.083 | 0.005 |
| 05a | 1 | 2 | 10.485 | 8.655 | 0.599 | 0.088 | 0.005 |
| 05a | 2 | 1 | 10.343 | 8.851 | 0.610 | 0.083 | 0.005 |
| 05a | 2 | 2 | 10.497 | 8.810 | 0.647 | 0.083 | 0.005 |
| 05a | 3 | 1 | 10.321 | 8.368 | 0.594 | 0.082 | 0.005 |
| 05a | 3 | 2 | 10.008 | 8.073 | 0.579 | 0.081 | 0.005 |
| 05b | 1 | 1 | 10.961 | 8.808 | 0.599 | 0.084 | 0.007 |
| 05b | 1 | 2 | 10.535 | 8.504 | NL | 0.088 | 0.007 |
| 05b | 2 | 1 | 10.686 | 8.752 | 0.636 | 0.091 | 0.007 |
| 05b | 2 | 2 | 10.390 | 8.313 | 0.596 | 0.086 | 0.006 |
| 05b | 3 | 1 | 10.410 | 8.505 | 0.580 | 0.077 | 0.006 |
| 05b | 3 | 2 | 10.354 | 8.285 | 0.579 | 0.077 | 0.006 |
| 06 | 1 | 1 | 10.871 | 8.016 | 0.676 | 0.097 | 0.008 |
| 06 | 1 | 2 | 11.098 | 8.091 | 0.691 | 0.099 | 0.007 |
| 06 | 2 | 1 | 11.052 | 7.954 | 0.660 | 0.098 | 0.008 |
| 06 | 2 | 2 | 10.958 | 7.785 | 0.678 | 0.097 | 0.007 |
| 06 | 3 | 1 | 10.795 | 7.886 | 0.656 | 0.094 | 0.008 |
| 06 | 3 | 2 | 10.635 | 8.072 | 0.672 | 0.097 | 0.008 |
| 07 | 1 | 1 | 10.418 | 7.621 | 0.616 | 0.073 | 0.005 |
| 07 | 1 | 2 | 10.297 | 7.438 | 0.581 | 0.070 | 0.004 |
| 07 | 2 | 1 | 9.639 | 6.837 | NL | 0.063 | 0.003 |
| 07 | 2 | 2 | 10.116 | 7.326 | 0.468 | 0.066 | 0.004 |
| 07 | 3 | 1 | 10.295 | 7.629 | 0.481 | 0.068 | 0.005 |
| 07 | 3 | 2 | 10.453 | 7.795 | 0.495 | 0.066 | 0.004 |
| 08 | 1 | 1 | 10.282 | 7.721 | NP | 0.059 | 0.007 |
| 08 | 1 | 2 | 10.882 | 7.827 | 0.408 | 0.060 | 0.008 |
| 08 | 2 | 1 | 9.837 | 7.802 | NP | 0.058 | 0.005 |
| 08 | 2 | 2 | 10.835 | 7.993 | 0.416 | 0.063 | 0.006 |
| 08 | 3 | 1 | 10.543 | 8.093 | NP | 0.059 | 0.005 |
| 08 | 3 | 2 | Std NL | Std NL | Std NL | Std NL | Std NL |
| 09 | 1 | 1 | 10.637 | 7.600 | 0.811 | 0.137 | 0.011 |
| 09 | 1 | 2 | n/t | n/t | n/t | n/t | n/t |
| 09 | 2 | 1 | NL | 8.755 | 0.904 | 0.154 | 0.014 |
| 09 | 2 | 2 | n/t | n/t | n/t | n/t | n/t |
| 09 | 3 | 1 | 10.453 | NL | 0.826 | 0.141 | 0.012 |
| 09 | 3 | 2 | n/t | n/t | n/t | n/t | n/t |
| 10 | 1 | 1 | NL/NP | NL/NP | NL/NP | 0.034 | 0.004 |
| 10 | 1 | 2 | NL | NL/NP | 0.334 | 0.042 | 0.001 |
| 10 | 2 | 1 | 9.356 | 6.050 | 0.313 | 0.031 | 0.002 |
| 10 | 2 | 2 | Std NL | Std NL | Std NL | Std NL | Std NL |
| 10 | 3 | 1 | NL/NP | 5.955 | 0.282 | 0.037 | 0.002 |
| 10 | 3 | 2 | Std NL | Std NL | Std NL | Std NL | Std NL |
| 11 | 1 | 1 | 9.868 | 7.729 | 0.368 | 0.062 | 0.005 |
| 11 | 1 | 2 | 10.392 | 7.759 | 0.356 | 0.057 | 0.004 |
| 11 | 2 | 1 | 10.565 | 7.550 | 0.365 | 0.061 | 0.004 |
| 11 | 2 | 2 | 10.197 | 7.796 | 0.382 | 0.061 | 0.004 |
| 11 | 3 | 1 | 10.228 | 7.781 | 0.384 | 0.060 | 0.004 |
| 11 | 3 | 2 | 10.162 | 7.882 | 0.382 | 0.060 | 0.004 |
| 12 | 1 | 1 | Std NL | Std NL | Std NL | Std NL | Std NL |
| 12 | 1 | 2 | NL/NP | 8.481 | NP | 0.092 | 0.008 |
| 12 | 2 | 1 | 10.719 | 8.223 | NL | 0.091 | 0.009 |
| 12 | 2 | 2 | 10.718 | 8.406 | 0.694 | 0.095 | 0.010 |
| 12 | 3 | 1 | 11.188 | NL/NP | 0.632 | 0.096 | 0.009 |
| 12 | 3 | 2 | 11.483 | 8.396 | 0.696 | 0.102 | 0.009 |

**NL: Non-linear**

**NP: Non-parallel**

**Std NL: Standard non-linear**

**n/t: not tested**

**Supplementary Table 2: Individual laboratory reported concentration estimates (µg/ml)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Lab** | **Day** | **Assay** | **Sample S** | **Sample A** | **Sample B** | **Sample C** | **Sample D** | **Sample E** |
| 01 | 1 | 1 | 7.118 | 11.363 | 7.340 | 0.519 | 0.079 | 0.005 |
| 01 | 1 | 2 | 6.632 | 11.091 | 6.792 | 0.506 | 0.079 | 0.005 |
| 01 | 2 | 1 | 6.451 | 11.273 | 7.383 | 0.513 | 0.080 | 0.005 |
| 01 | 2 | 2 | 7.510 | 10.771 | 7.046 | 0.507 | 0.077 | 0.005 |
| 01 | 3 | 1 | 6.287 | 10.670 | 7.493 | 0.533 | 0.080 | 0.005 |
| 01 | 3 | 2 | 6.397 | 10.389 | 7.443 | 0.516 | 0.081 | 0.005 |
| 02 | 1 | 1 | 5.654 | 10.023 | 6.273 | 0.557 | 0.072 | 0.004 |
| 02 | 1 | 2 | 5.631 | 10.053 | 6.220 | 0.555 | 0.075 | 0.004 |
| 02 | 2 | 1 | 5.521 | 10.139 | 6.124 | 0.547 | 0.072 | 0.004 |
| 02 | 2 | 2 | 5.314 | 9.748 | 6.092 | 0.545 | 0.075 | 0.004 |
| 02 | 3 | 1 | 5.552 | 9.972 | 6.100 | 0.543 | 0.074 | 0.004 |
| 02 | 3 | 2 | 5.530 | 9.948 | 6.249 | 0.556 | 0.075 | 0.004 |
| 03 | 1 | 1 | 7.190 | 12.457 | 9.428 | 0.756 | 0.114 | 0.008 |
| 03 | 1 | 2 | 7.133 | 12.510 | 9.520 | 0.743 | 0.116 | 0.007 |
| 03 | 2 | 1 | 7.137 | 12.651 | 9.411 | 0.758 | 0.118 | 0.008 |
| 03 | 2 | 2 | 7.045 | 13.041 | 8.779 | 0.764 | 0.116 | 0.008 |
| 03 | 3 | 1 | 7.311 | 12.557 | 9.347 | 0.780 | 0.120 | 0.008 |
| 03 | 3 | 2 | 7.247 | 12.512 | 9.444 | 0.781 | 0.119 | 0.008 |
| 04 | 1 | 1 | 7.393 | 11.263 | 10.758 | 0.669 | 0.100 | 0.006 |
| 04 | 1 | 2 | 8.095 | 11.692 | 11.293 | 0.704 | 0.100 | 0.007 |
| 04 | 2 | 1 | 7.541 | 12.661 | 11.399 | 0.666 | 0.097 | 0.006 |
| 04 | 2 | 2 | 7.540 | 12.259 | 11.272 | 0.670 | 0.101 | 0.006 |
| 04 | 3 | 1 | 7.524 | 11.861 | 10.113 | 0.660 | 0.099 | 0.006 |
| 04 | 3 | 2 | 7.431 | 11.434 | 10.110 | 0.670 | 0.105 | 0.007 |
| 05a | 1 | 1 | 8.553 | 14.214 | 11.352 | 0.832 | 0.112 | 0.008 |
| 05a | 1 | 2 | 8.881 | 14.741 | 12.123 | 0.874 | 0.122 | 0.008 |
| 05a | 2 | 1 | 8.595 | 14.091 | 12.044 | 0.852 | 0.112 | 0.008 |
| 05a | 2 | 2 | 8.443 | 14.026 | 11.753 | 0.897 | 0.109 | 0.008 |
| 05a | 3 | 1 | 9.062 | 14.817 | 12.005 | 0.885 | 0.115 | 0.008 |
| 05a | 3 | 2 | 8.798 | 13.987 | 11.271 | 0.839 | 0.111 | 0.008 |
| 05b | 1 | 1 | 7.559 | 13.160 | 10.590 | 0.714 | 0.100 | 0.007 |
| 05b | 1 | 2 | 7.862 | 13.159 | 10.631 | 0.747 | 0.109 | 0.008 |
| 05b | 2 | 1 | 7.433 | 12.622 | 10.350 | 0.741 | 0.108 | 0.007 |
| 05b | 2 | 2 | 7.901 | 13.036 | 10.429 | 0.740 | 0.108 | 0.007 |
| 05b | 3 | 1 | 8.521 | 14.079 | 11.519 | 0.780 | 0.104 | 0.008 |
| 05b | 3 | 2 | 8.398 | 13.782 | 11.043 | 0.764 | 0.101 | 0.008 |
| 06 | 1 | 1 | 6.169 | 10.951 | 8.085 | 0.682 | 0.098 | 0.007 |
| 06 | 1 | 2 | 6.198 | 10.923 | 7.975 | 0.676 | 0.097 | 0.006 |
| 06 | 2 | 1 | 6.309 | 11.075 | 7.977 | 0.657 | 0.098 | 0.008 |
| 06 | 2 | 2 | 6.331 | 11.022 | 7.830 | 0.676 | 0.097 | 0.006 |
| 06 | 3 | 1 | 6.528 | 11.184 | 8.179 | 0.681 | 0.097 | 0.008 |
| 06 | 3 | 2 | 6.390 | 10.788 | 8.200 | 0.681 | 0.098 | 0.008 |
| 07 | 1 | 1 | 6.527 | 10.913 | 7.909 | 0.662 | 0.076 | 0.005 |
| 07 | 1 | 2 | 6.739 | 10.868 | 7.928 | 0.670 | 0.078 | 0.004 |
| 07 | 2 | 1 | 7.467 | 11.379 | 8.101 | 0.587 | 0.078 | 0.004 |
| 07 | 2 | 2 | 6.907 | 11.171 | 8.042 | 0.539 | 0.073 | 0.005 |
| 07 | 3 | 1 | 6.546 | 10.660 | 7.915 | 0.543 | 0.072 | 0.005 |
| 07 | 3 | 2 | 6.608 | 10.909 | 8.173 | 0.567 | 0.073 | 0.004 |
| 08 | 1 | 1 | 9.099 | 14.826 | 11.132 | 0.602 | 0.086 | 0.011 |
| 08 | 1 | 2 | 8.877 | 15.280 | 11.017 | 0.589 | 0.085 | 0.012 |
| 08 | 2 | 1 | 9.319 | 14.483 | 11.497 | 0.616 | 0.088 | 0.009 |
| 08 | 2 | 2 | 8.843 | 15.061 | 11.169 | 0.607 | 0.091 | 0.010 |
| 08 | 3 | 1 | 9.132 | 15.246 | 11.665 | 0.624 | 0.087 | 0.008 |
| 08 | 3 | 2 | 8.984 | 15.349 | 11.793 | 0.622 | 0.086 | 0.011 |
| 09 | 1 | 1 | 7.570 | 12.784 | 9.796 | 0.820 | 0.119 | 0.008 |
| 09 | 1 | 2 | n/t | n/t | n/t | n/t | n/t | n/t |
| 09 | 2 | 1 | 7.655 | 12.686 | 10.327 | 0.894 | 0.127 | 0.009 |
| 09 | 2 | 2 | n/t | n/t | n/t | n/t | n/t | n/t |
| 09 | 3 | 1 | 7.501 | 12.742 | 9.917 | 0.808 | 0.119 | 0.008 |
| 09 | 3 | 2 | n/t | n/t | n/t | n/t | n/t | n/t |
| 10 | 1 | 1 | 11.694 | 19.328 | 10.926 | 0.567 | 0.073 | 0.004 |
| 10 | 1 | 2 | 12.264 | 22.250 | 12.036 | 0.595 | 0.066 | 0.004 |
| 10 | 2 | 1 | 11.822 | 19.223 | 11.199 | 0.544 | 0.064 | 0.004 |
| 10 | 2 | 2 | 11.801 | 18.769 | 10.755 | 0.554 | 0.056 | 0.003 |
| 10 | 3 | 1 | 12.197 | 19.002 | 10.955 | 0.539 | 0.071 | 0.005 |
| 10 | 3 | 2 | 11.390 | 18.252 | 11.059 | 0.552 | 0.065 | 0.004 |
| 11 | 1 | 1 | 11.410 | 18.080 | 14.070 | 0.690 | 0.109 | 0.008 |
| 11 | 1 | 2 | 11.860 | 19.860 | 14.630 | 0.690 | 0.109 | 0.007 |
| 11 | 2 | 1 | 11.490 | 19.640 | 13.780 | 0.700 | 0.113 | 0.008 |
| 11 | 2 | 2 | 11.450 | 18.790 | 14.260 | 0.730 | 0.108 | 0.008 |
| 11 | 3 | 1 | 11.240 | 18.470 | 13.890 | 0.710 | 0.108 | 0.007 |
| 11 | 3 | 2 | 11.470 | 18.860 | 14.460 | 0.720 | 0.108 | 0.008 |
| 12 | 1 | 1 | 6.213 | 11.643 | 8.480 | 0.676 | 0.089 | 0.007 |
| 12 | 1 | 2 | 6.167 | 11.743 | 8.387 | 0.663 | 0.086 | 0.006 |
| 12 | 2 | 1 | 6.563 | 10.959 | 8.578 | 0.719 | 0.096 | 0.011 |
| 12 | 2 | 2 | 5.857 | 10.877 | 8.481 | 0.692 | 0.094 | 0.010 |
| 12 | 3 | 1 | 6.287 | 11.598 | 8.826 | 0.626 | 0.094 | 0.008 |
| 12 | 3 | 2 | 6.088 | 11.334 | 8.182 | 0.668 | 0.096 | 0.008 |