Table S4 CCD-based TFs formulations with respective responses

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Factor 1 (X1) | Factor 2 (X2) | Factor 3 (X3) | Response 1 (Y1) | Response 2 (Y2) | Response 3 (Y3) | Other Parameters | | | | |
| Formulation | A: Phospholipon 90 H (PL-90 H) | B: Tween® 80 | C: Probe Sonication Time | Vesicle Size (Zavg) | Entrapment Efficiency (EE) | Flexibility | Polydispersity Index (PDI) | Zeta Potential (ζ) | Loading Capacity (LC) | pH | Refractive Index (RI) |
|  | mg | mg | min | nm | % | mL/s |  | mV | % |  |  |
| 1 | 450 | 50 | 9 | 197.254 ± 3.215 | 86.545 ± 2.346 | 14.124 ± 2.245 | 0.211 ± 0.014 | -18.5 ± 0.275 | 9.606 ± 1.231 | 4.756 ± 0.012 | 1.335 ± 0.0001 |
| 2 | 450 | 50 | 3 | 231.253 ± 2.452 | 92.385 ± 3.457 | 13.254 ± 1.117 | 0.358 ± 0.006 | -17.8 ± 0.312 | 10.254 ± 1.543 | 4.743 ± 0.016 | 1.334 ± 0.0003 |
| 3 | 400 | 100 | 6 | 160.667 ± 3.554 | 62.846 ± 5.46 | 16.242 ± 2.623 | 0.184 ± 0.005 | -18.2 ± 0.242 | 6.975 ± 2.131 | 4.703 ± 0.024 | 1.337 ± 0.0004 |
| 4 | 350 | 50 | 9 | 110.334 ± 2.346 | 48.254 ± 4.489 | 14.215 ± 1.157 | 0.214 ± 0.014 | -11.8 ± 1.024 | 6.695 ± 1.546 | 4.81 ± 0.016 | 1.337 ± 0.0014 |
| 5 | 400 | 184.08975 | 6 | 129.334 ± 4.424 | 52.354 ± 3.247 | 12.213 ± 0.985 | 0.192 ± 0.048 | -17.2 ± 0.234 | 4.974 ± 3.071 | 4.733 ± 0.016 | 1.343 ± 0.0004 |
| 6 | 400 | 15.91035 | 6 | 171.667 ± 1.252 | 72.892 ± 1.278 | 10.244 ± 1.136 | 0.389 ± 0.006 | -18.2 ± 0.178 | 9.726 ± 1.067 | 4.52 ± 0.037 | 1.334 ± 0.0002 |
| 7 | 400 | 100 | 6 | 165.68 ± 2.246 | 65.254 ± 2.457 | 17.243 ± 2.016 | 0.237 ± 0.006 | -19.2 ± 0.123 | 7.243 ± 2.214 | 5.51 ± 0.035 | 1.338 ± 0.0003 |
| 8 | 400 | 100 | 11.0454 | 140.334 ± 3.423 | 56.235 ± 3.349 | 17.242 ± 0.896 | 0.201 ± 0.021 | -18.1 ± 1.214 | 6.242 ± 1.473 | 6.72 ± 0.016 | 1.34 ± 0.0007 |
| 9 | 484.09 | 100 | 6 | 238.333 ± 5.131 | 72.2865 ± 2.248 | 5.265 ± 1.273 | 0.128 ± 0.004 | -17.2 ± 0.542 | 6.868 ± 2.105 | 6.85 ± 0.028 | 1.337 ± 0.0008 |
| 10 | 400 | 100 | 6 | 161.213 ± 2.178 | 66.243 ± 4.478 | 16.242 ± 0.784 | 0.216 ± 0.024 | -19.4 ± 0.097 | 7.352 ± 1.136 | 4.78 ± 0.014 | 1.336 ± 0.0008 |
| 11 | 400 | 100 | 6 | 162.235 ± 1.546 | 63.234 ± 3.118 | 15.874 ± 0.858 | 0.221 ± 0.018 | -18.3 ± 0.132 | 7.018 ± 2.082 | 5.17 ± 0.008 | 1.335 ± 0.0001 |
| 12 | 315.91 | 100 | 6 | 75.5667 ± 2.147 | 38.152 ± 2.427 | 12.875 ± 1.346 | 0.216 ± 0.073 | -5.38 ± 0.245 | 5.091 ± 1.142 | 5.58 ± 0.021 | 1.334 ± 0.0001 |
| 13 | 350 | 150 | 9 | 97.1333 ± 3.279 | 45.545 ± 1.468 | 19.242 ± 1.023 | 0.183 ± 0.028 | -15.5 ± 0.312 | 5.055 ± 3.472 | 5.49 ± 0.008 | 1.335 ± 0.0002 |
| 14 | 400 | 100 | 6 | 167.548 ± 4.127 | 65.572 ± 3.314 | 16.124 ± 2.063 | 0.197 ± 0.029 | -19.2 ± 0.324 | 7.278 ± 2.140 | 4.79 ± 0.021 | 1.335 ± 0.0012 |
| 15 | 450 | 150 | 3 | 195.35 ± 2.179 | 66.356 ± 1.248 | 8.645 ± 0.965 | 0.276 ± 0.033 | -19.3 ± 0.547 | 6.137 ± 1.224 | 4.756 ± 0.012 | 1.338 ± 0.0003 |
| 16 | 400 | 100 | 6 | 168.235 ± 2.136 | 65.243 ± 1.118 | 16.578 ± 1.143 | 0.213 ± 0.028 | -17.2 ± 0.467 | 7.241 ± 0.985 | 4.756 ± 0.004 | 1.335 ± 0.0004 |
| 17 | 350 | 150 | 3 | 101.23 ± 1.746 | 65.246 ± 2.147 | 18.236 ± 2.034 | 0.249 ± 0.028 | -15.2 ± 0.247 | 7.242 ± 1.105 | 4.486 ± 0.055 | 1.337 ± 0.0002 |
| 18 | 400 | 100 | 0.954622 | 165.667 ± 3.364 | 80.324 ± 3.217 | 16.989 ± 0.864 | 0.401 ± 0.008 | -18.3 ± 0.176 | 8.915 ± 1.432 | 4.75 ± 0.008 | 1.337 ± 0.0002 |
| 19 | 350 | 50 | 3 | 120.243 ± 2.547 | 48.248 ± 2.211 | 8.345 ± 1.145 | 0.34 ± 0.042 | -9.32 ± 0.364 | 6.694 ± 2.017 | 4.63 ± 0.016 | 1.336 ± 0.0002 |
| 20 | 450 | 150 | 9 | 176.631 ± 1.578 | 42.213 ± 1.875 | 6.245 ± 1.368 | 0.212 ± 0.007 | -18.5 ± 1.081 | 3.904 ± 1.036 | 4.76 ± 0.018 | 1.335 ± 0.0001 |

Results were represented as mean ± standard deviation (n = 3)

CCD: Central Composite Design