

### Raw data for ME-CS-AlgNPs

| Alg | CS  | CaCl<br>2 | Drug | LE   |  | Alg | CS  | CaCl<br>2 | Drug | size  | CS  | CaCl2 | Drug |  | Alg | CS  | CaCl2 | Drug | Zeta<br>Potential |
|-----|-----|-----------|------|------|--|-----|-----|-----------|------|-------|-----|-------|------|--|-----|-----|-------|------|-------------------|
| 200 | 50  | 30        | 100  | 41.5 |  | 200 | 50  | 30        | 100  | 142   | 50  | 30    | 100  |  | 200 | 50  | 30    | 100  | -15.4             |
| 200 | 50  | 30        | 100  | 39.2 |  | 200 | 50  | 30        | 100  | 196   | 50  | 30    | 100  |  | 200 | 50  | 30    | 100  | -15.2             |
| 200 | 50  | 30        | 100  | 42   |  | 200 | 50  | 30        | 100  | 167.7 | 50  | 30    | 100  |  | 200 | 50  | 30    | 100  | -15.5             |
| 200 | 100 | 30        | 100  | 43.2 |  | 200 | 100 | 30        | 100  | 227   | 100 | 30    | 100  |  | 200 | 100 | 30    | 100  | -10.4             |
| 200 | 100 | 30        | 100  | 42   |  | 200 | 100 | 30        | 100  | 224.4 | 100 | 30    | 100  |  | 200 | 100 | 30    | 100  | -8.31             |
| 200 | 100 | 30        | 100  | 46   |  | 200 | 100 | 30        | 100  | 226   | 100 | 30    | 100  |  | 200 | 100 | 30    | 100  | -6.13             |
| 200 | 200 | 30        | 100  | 47.1 |  | 200 | 200 | 30        | 100  | 266.1 | 200 | 30    | 100  |  | 200 | 200 | 30    | 100  | -23.1             |
| 200 | 200 | 30        | 100  | 44   |  | 200 | 200 | 30        | 100  | 288.8 | 200 | 30    | 100  |  | 200 | 200 | 30    | 100  | -16.2             |
| 200 | 200 | 30        | 100  | 43.5 |  | 200 | 200 | 30        | 100  | 276.1 | 200 | 30    | 100  |  | 200 | 200 | 30    | 100  | -17.6             |
| 200 | 50  | 60        | 100  | 60   |  | 200 | 50  | 60        | 100  | 104.2 | 50  | 60    | 100  |  | 200 | 50  | 60    | 100  | -6.83             |
| 200 | 50  | 60        | 100  | 61   |  | 200 | 50  | 60        | 100  | 110.2 | 50  | 60    | 100  |  | 200 | 50  | 60    | 100  | -2.79             |
| 200 | 50  | 60        | 100  | 62   |  | 200 | 50  | 60        | 100  | 162.4 | 50  | 60    | 100  |  | 200 | 50  | 60    | 100  | -0.9              |
| 200 | 100 | 60        | 100  | 65.1 |  | 200 | 100 | 60        | 100  | 195.4 | 100 | 60    | 100  |  | 200 | 100 | 60    | 100  | -6.38             |
| 200 | 100 | 60        | 100  | 66   |  | 200 | 100 | 60        | 100  | 226.6 | 100 | 60    | 100  |  | 200 | 100 | 60    | 100  | -18.6             |
| 200 | 100 | 60        | 100  | 68.5 |  | 200 | 100 | 60        | 100  | 211   | 100 | 60    | 100  |  | 200 | 100 | 60    | 100  | -10               |
| 200 | 200 | 60        | 100  | 72.3 |  | 200 | 200 | 60        | 100  | 114.8 | 200 | 60    | 100  |  | 200 | 200 | 60    | 100  | -2.41             |
| 200 | 200 | 60        | 100  | 70   |  | 200 | 200 | 60        | 100  | 169   | 200 | 60    | 100  |  | 200 | 200 | 60    | 100  | -2.27             |
| 200 | 200 | 60        | 100  | 68   |  | 200 | 200 | 60        | 100  | 268.2 | 200 | 60    | 100  |  | 200 | 200 | 60    | 100  | -7.79             |
| 400 | 50  | 30        | 100  | 50.3 |  | 400 | 50  | 30        | 100  | 63.2  | 50  | 30    | 100  |  | 400 | 50  | 30    | 100  | -5.26             |
| 400 | 50  | 30        | 100  | 55   |  | 400 | 50  | 30        | 100  | 198.8 | 50  | 30    | 100  |  | 400 | 50  | 30    | 100  | -4.86             |
| 400 | 50  | 30        | 100  | 51   |  | 400 | 50  | 30        | 100  | 131   | 50  | 30    | 100  |  | 400 | 50  | 30    | 100  | -5.49             |
| 400 | 100 | 30        | 100  | 53.5 |  | 400 | 100 | 30        | 100  | 129.2 | 100 | 30    | 100  |  | 400 | 100 | 30    | 100  | -7.54             |
| 400 | 100 | 30        | 100  | 55   |  | 400 | 100 | 30        | 100  | 152   | 100 | 30    | 100  |  | 400 | 100 | 30    | 100  | -6.07             |
| 400 | 100 | 30        | 100  | 50.7 |  | 400 | 100 | 30        | 100  | 141.8 | 100 | 30    | 100  |  | 400 | 100 | 30    | 100  | -8.27             |
| 400 | 200 | 30        | 100  | 63.7 |  | 400 | 200 | 30        | 100  | 233.2 | 200 | 30    | 100  |  | 400 | 200 | 30    | 100  | -4.56             |
| 400 | 200 | 30        | 100  | 60   |  | 400 | 200 | 30        | 100  | 178.7 | 200 | 30    | 100  |  | 400 | 200 | 30    | 100  | -4.87             |
| 400 | 200 | 30        | 100  | 66.2 |  | 400 | 200 | 30        | 100  | 211.9 | 200 | 30    | 100  |  | 400 | 200 | 30    | 100  | -8.3              |
| 400 | 50  | 60        | 100  | 20.3 |  | 400 | 50  | 60        | 100  | 34.5  | 50  | 60    | 100  |  | 400 | 50  | 60    | 100  | -6.22             |
| 400 | 50  | 60        | 100  | 18   |  | 400 | 50  | 60        | 100  | 32.2  | 50  | 60    | 100  |  | 400 | 50  | 60    | 100  | -4.88             |
| 400 | 50  | 60        | 100  | 15   |  | 400 | 50  | 60        | 100  | 54    | 50  | 60    | 100  |  | 400 | 50  | 60    | 100  | -3.54             |
| 400 | 100 | 60        | 100  | 21.9 |  | 400 | 100 | 60        | 100  | 86.3  | 100 | 60    | 100  |  | 400 | 100 | 60    | 100  | -8.42             |
| 400 | 100 | 60        | 100  | 20   |  | 400 | 100 | 60        | 100  | 106   | 100 | 60    | 100  |  | 400 | 100 | 60    | 100  | -7.74             |

|     |     |    |     |      |  |     |     |    |     |       |     |    |     |  |     |     |    |     |       |
|-----|-----|----|-----|------|--|-----|-----|----|-----|-------|-----|----|-----|--|-----|-----|----|-----|-------|
| 400 | 100 | 60 | 100 | 20   |  | 400 | 100 | 60 | 100 | 96    | 100 | 60 | 100 |  | 400 | 100 | 60 | 100 | -9.58 |
| 400 | 200 | 60 | 100 | 32.3 |  | 400 | 200 | 60 | 100 | 96.9  | 200 | 60 | 100 |  | 400 | 200 | 60 | 100 | -4.3  |
| 400 | 200 | 60 | 100 | 30   |  | 400 | 200 | 60 | 100 | 95    | 200 | 60 | 100 |  | 400 | 200 | 60 | 100 | -4.6  |
| 400 | 200 | 60 | 100 | 28   |  | 400 | 200 | 60 | 100 | 101.8 | 200 | 60 | 100 |  | 400 | 200 | 60 | 100 | -4    |

# 1. Normal Plot of the Standardized effects

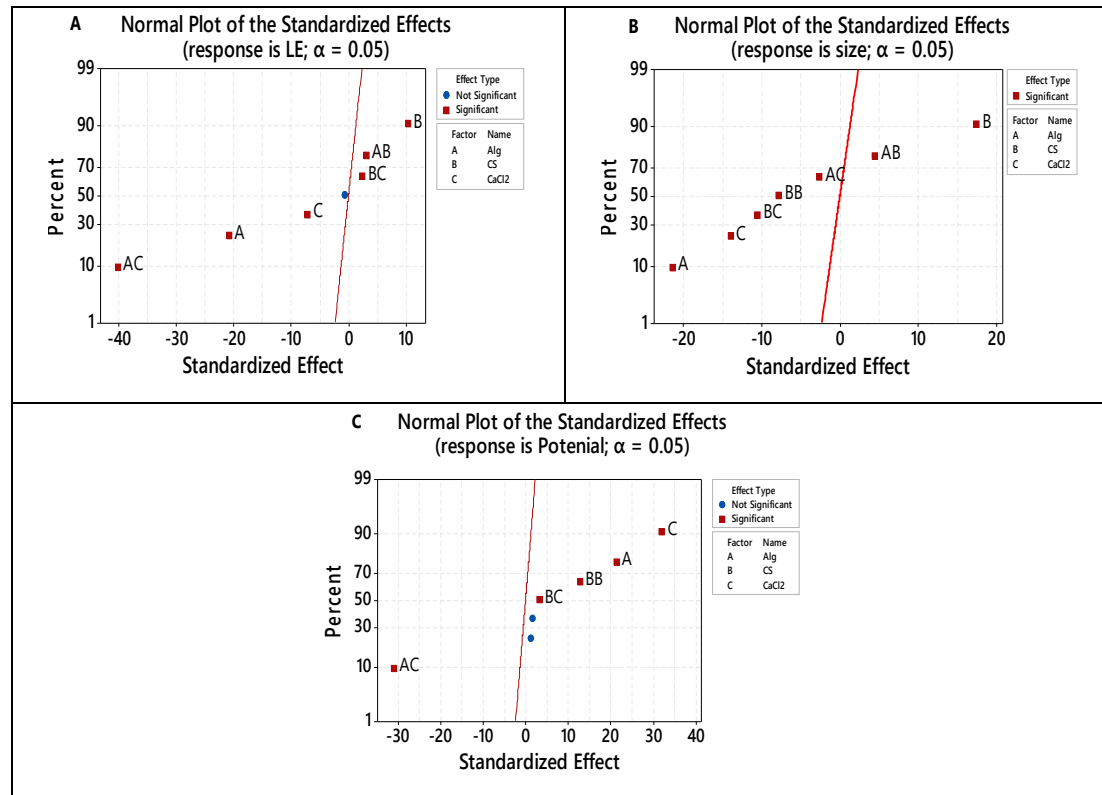


Figure S1. Normal Plot of the Standardized effects toward LE (A), particles size (B) and zeta potential (C).

## 2. Normal probability plot

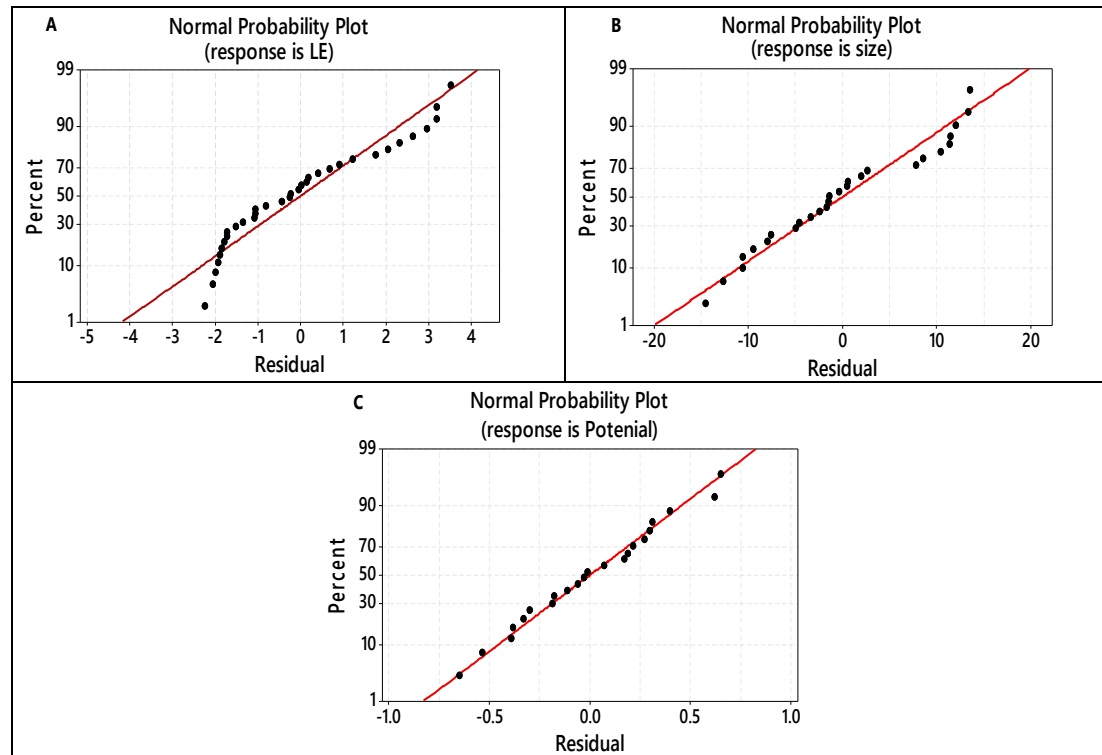


Figure S2. Normal probability plots for LE (A), particles size (B), and zeta potential (C).

### 3. Residuals versus fitted value

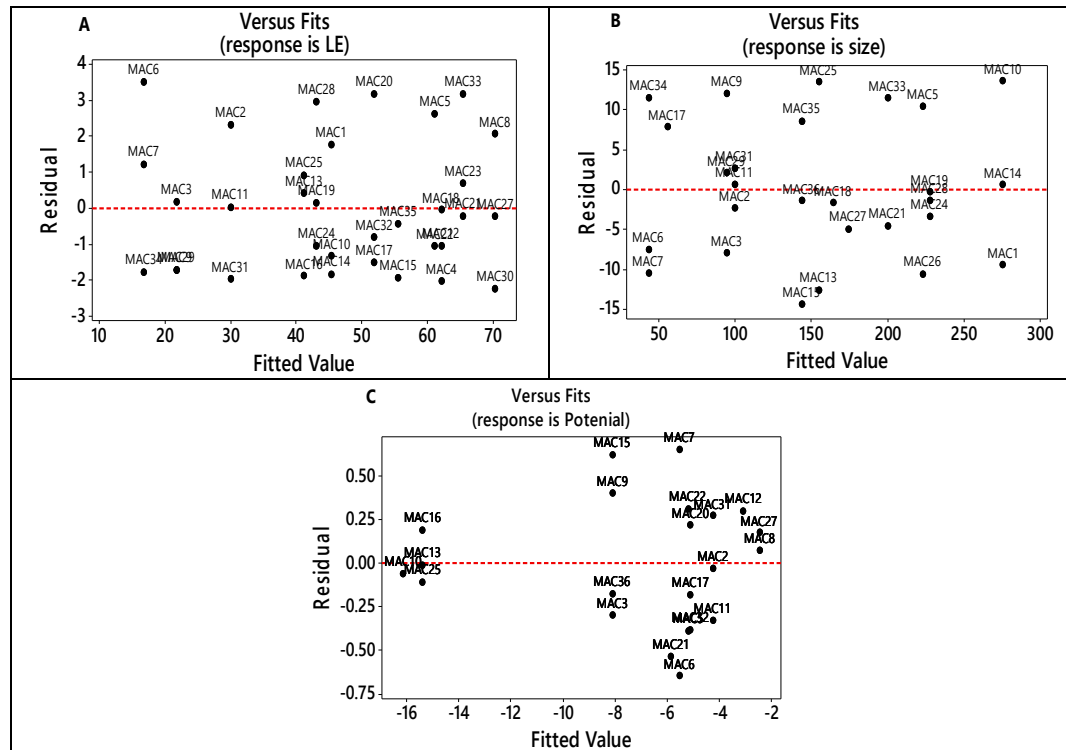


Figure S3 Residuals versus fitted value for LE (A), particles size (B), and zeta potential (C).

#### 4. Residuals versus observation order

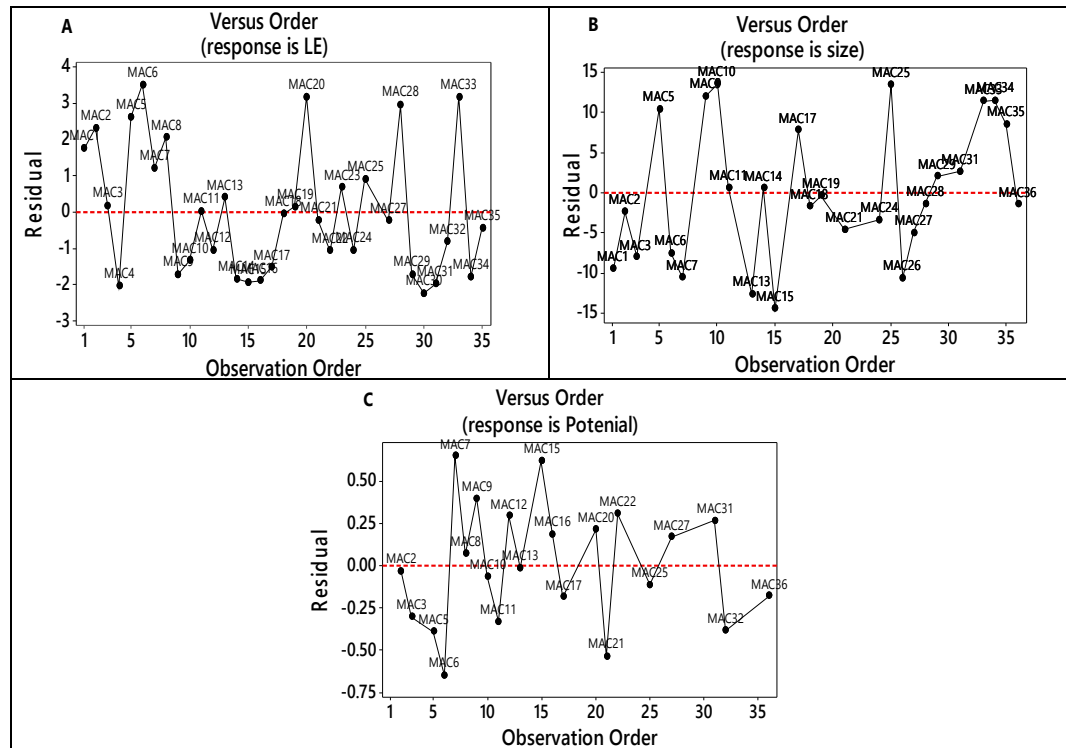


Figure S4. Residuals versus observation order for LE (A), particles size (B) and zeta potential (C).