Supplementary Data

A Biocompatible Betaine-functionalized Polycation for Coacervation

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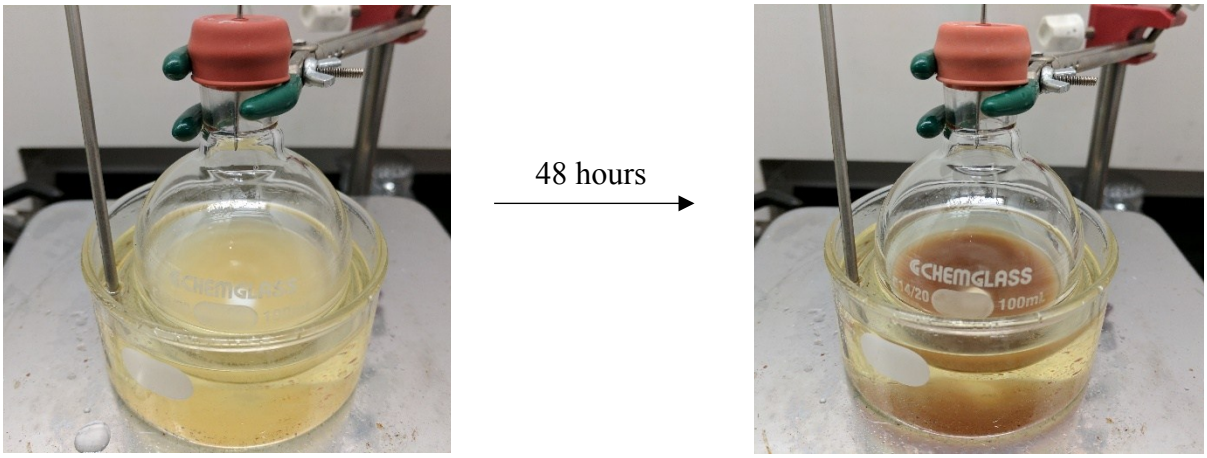
Running Title: Betaine-functionalized Polycation

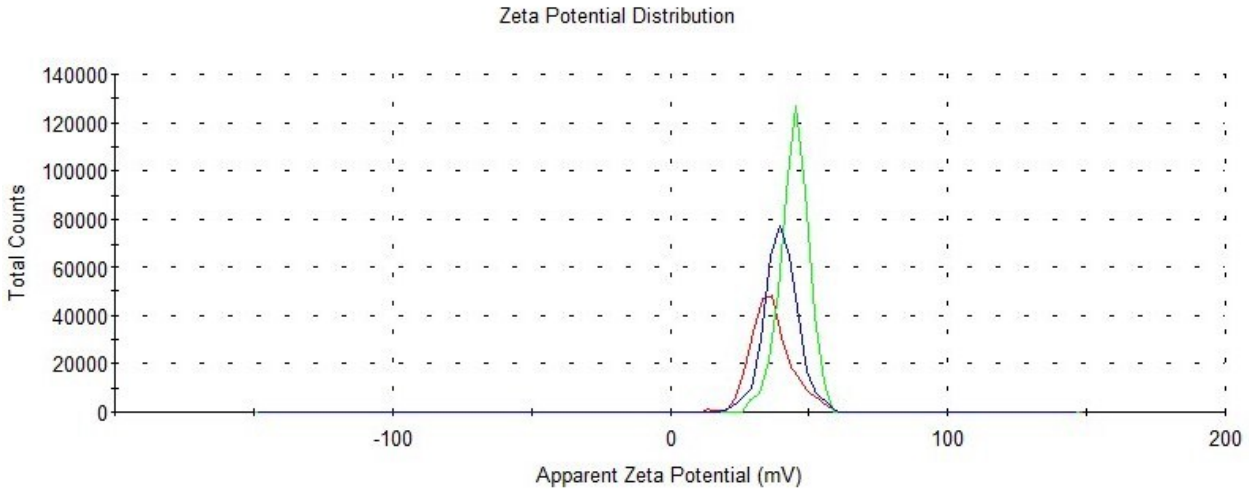
Keywords*:* Betaine, Polycation, Coacervate, Angiogenesis, Anti-bacterial

Supplementary Figure 1: B-PED Synthesis



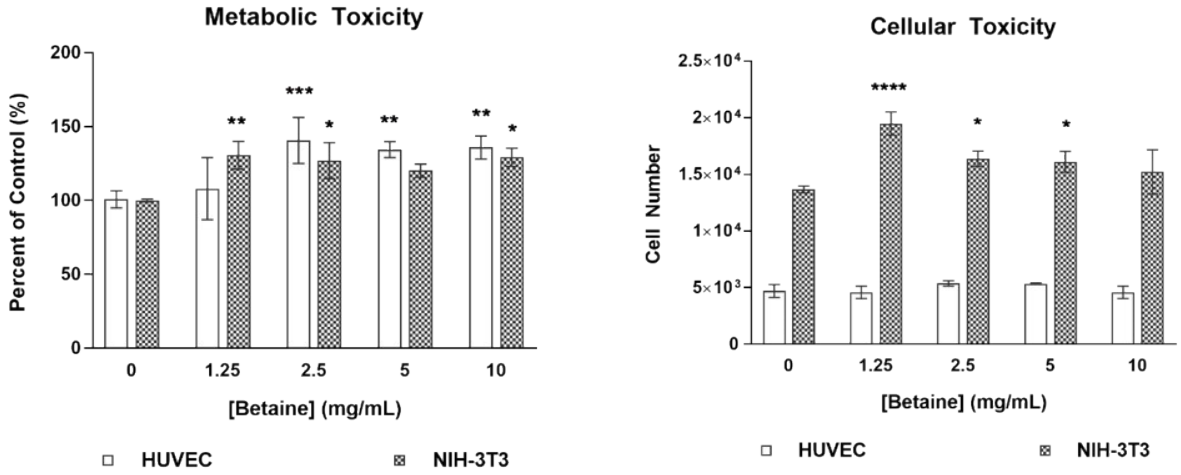
Conjugation of betaine onto PED yields a dark amber-colored product.

Supplementary Figure 2: Zeta Potential of B-PED



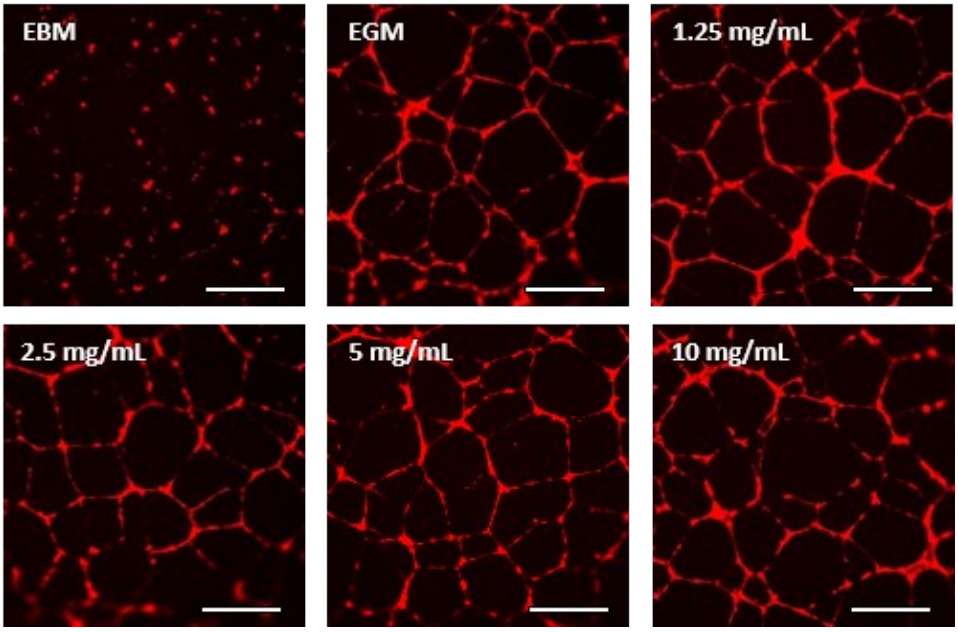
B-PED has an average zeta potential of 42.0 ± 2.3 mV.

Supplementary Figure 3: Toxicity of Betaine



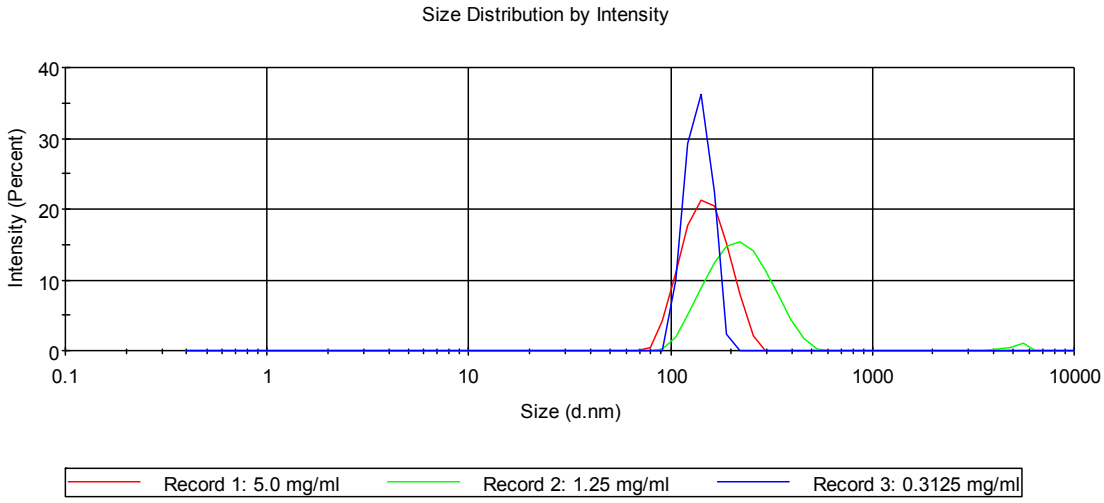
Soluble betaine is added exogenously to cells and incubated for 24 hours. Cytotoxicity is assessed via CellTiter-Blue and PicoGreen (n=3, mean ± SD, *p<0.05, **p<0.01, ***p<0.0001 compared to control).

Supplementary Figure 4: Effect of Betaine on In-vitro Angiogenesis



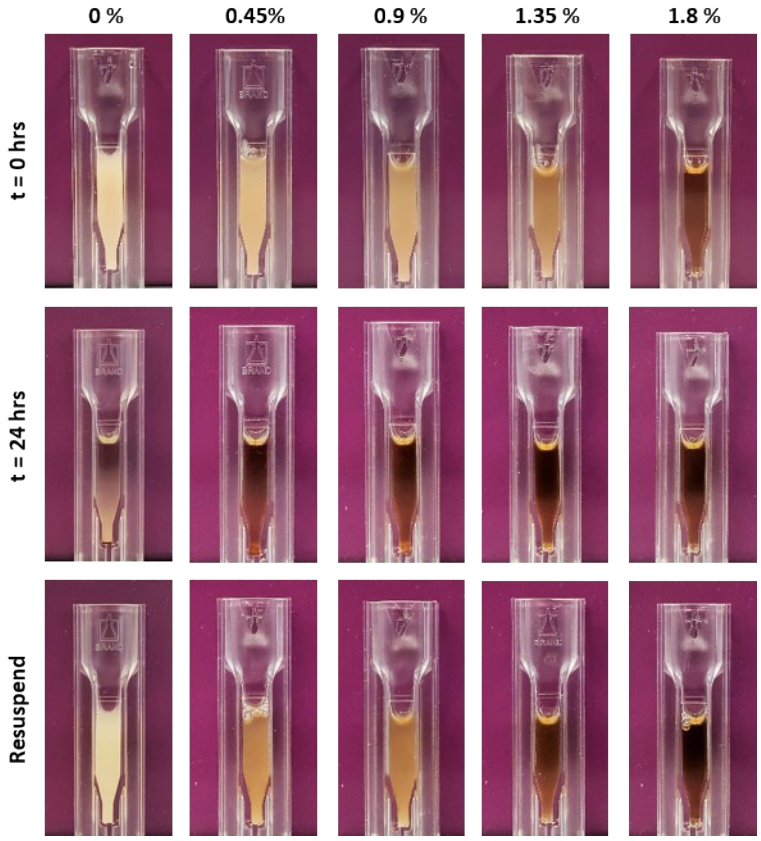
Exogenously added betaine has no effect on HUVEC tube formation (EBM: endothelial basal media, EGM: endothelial growth media). Cells are imaged 16 hours post-seeding (red: RFP, scale bar: 200 μm).

Supplementary Figure 5: [B-PED] vs Size



Different [B-PED] used in anti-bacterial experiments show no self-assembly or aggregation events.

Supplementary Figure 6: [NaCl] vs Coacervate Stability



B-PED/heparin coacervates show a progressive decrease in turbidity with increasing [NaCl] (w/v). After 24 hours, the sedimented coacervate aggregate is re-agitated with a pipette.

Supplementary Table 1: [NaCl] vs Coacervate Size and PDI

[NaCl] (% w/v)	Average Diameter (nm)	Average. PDI
0.0	1477.7	0.166
0.9	1098.5	0.241
1.8	250.1	0.883