



**Figure S1. GelMA-DOPA@MT promotes the differentiation of osteoblasts in vitro (BMSC) .**

A) Representative images showing ARS and ALP staining, with red and black arrows indicating calcium nodules. Scale bar: 50 μm. B & C) Quantitative analysis of ARS and ALP staining. n = 3 per group, \* p < 0.05, \*\* p < 0.01, vs. the GelMA-DOPA@MT group. D) qPCR analysis of the expression of the osteogenic genes Osterix, ALP and OCN in the experimental group, n = 3 per group, \* p < 0.05, \*\* p < 0.01, vs. the GelMA-DOPA@MT group.

| Well ID       | Name | Well | 450   | Count | Mean   | Std Dev  | Well ID       | Name | Well | 450   | Count | Mean   | Std Dev  | Well ID       | Name | Well | 450   | Count | Mean   | Std Dev  |
|---------------|------|------|-------|-------|--------|----------|---------------|------|------|-------|-------|--------|----------|---------------|------|------|-------|-------|--------|----------|
| GeIMA         | 1DAY | A1   | 0.321 | 5     | 0.3054 | 0.022832 | GeIMA         | 3DAY | C4   | 0.654 | 5     | 0.6624 | 0.029134 | GeIMA         | 7DAY | C4   | 2.52  | 5     | 2.6264 | 0.358914 |
|               |      | A2   | 0.289 |       |        |          |               |      | C5   | 0.622 |       |        |          |               |      | C5   | 2.887 |       |        |          |
|               |      | A3   | 0.275 |       |        |          |               |      | C6   | 0.698 |       |        |          |               |      | C6   | 2.042 |       |        |          |
|               |      | A4   | 0.312 |       |        |          |               |      | C7   | 0.656 |       |        |          |               |      | C7   | 2.873 |       |        |          |
|               |      | A5   | 0.33  |       |        |          |               |      | C8   | 0.682 |       |        |          |               |      | C8   | 2.81  |       |        |          |
| GeIMA-COOH    |      | B1   | 0.319 | 5     | 0.3088 | 0.00795  | GeIMA-COOH    |      | D4   | 0.671 | 5     | 0.66   | 0.01063  | GeIMA-COOH    |      | D4   | 2.519 | 5     | 2.581  | 0.334452 |
|               |      | B2   | 0.299 |       |        |          |               |      | D5   | 0.671 |       |        |          |               |      | D5   | 2.909 |       |        |          |
|               |      | B3   | 0.31  |       |        |          |               |      | D6   | 0.656 |       |        |          |               |      | D6   | 2.585 |       |        |          |
|               |      | B4   | 0.313 |       |        |          |               |      | D7   | 0.647 |       |        |          |               |      | D7   | 2.833 |       |        |          |
|               |      | B5   | 0.303 |       |        |          |               |      | D8   | 0.655 |       |        |          |               |      | D8   | 2.059 |       |        |          |
| GeIMA-DOPA    |      | C1   | 0.298 | 5     | 0.2998 | 0.01033  | GeIMA-DOPA    |      | E4   | 0.621 | 5     | 0.6484 | 0.029712 | GeIMA-DOPA    |      | E4   | 2.814 | 5     | 2.5938 | 0.19585  |
|               |      | C2   | 0.315 |       |        |          |               |      | E5   | 0.688 |       |        |          |               |      | E5   | 2.684 |       |        |          |
|               |      | C3   | 0.299 |       |        |          |               |      | E6   | 0.619 |       |        |          |               |      | E6   | 2.387 |       |        |          |
|               |      | C4   | 0.286 |       |        |          |               |      | E7   | 0.667 |       |        |          |               |      | E7   | 2.698 |       |        |          |
|               |      | C5   | 0.301 |       |        |          |               |      | E8   | 0.647 |       |        |          |               |      | E8   | 2.386 |       |        |          |
| GeIMA-DOPA@MT |      | D1   | 0.312 | 5     | 0.302  | 0.011225 | GeIMA-DOPA@MT |      | F4   | 0.659 | 5     | 0.657  | 0.017607 | GeIMA-DOPA@MT |      | F4   | 2.786 | 5     | 2.645  | 0.306976 |
|               |      | D2   | 0.302 |       |        |          |               |      | F5   | 0.665 |       |        |          |               |      | F5   | 2.108 |       |        |          |
|               |      | D3   | 0.288 |       |        |          |               |      | F6   | 0.681 |       |        |          |               |      | F6   | 2.765 |       |        |          |
|               |      | D4   | 0.294 |       |        |          |               |      | F7   | 0.643 |       |        |          |               |      | F7   | 2.873 |       |        |          |
|               |      | D5   | 0.314 |       |        |          |               |      | F8   | 0.637 |       |        |          |               |      | F8   | 2.693 |       |        |          |

**Table S1. The quantitive results of CCK8 staining.**