**Supplementary Material**

**Self-assembled Tetrahedral Framework Nucleic Acid Mediated Tumor-associated Macrophages Reprogramming and**

**Enhancing Cancer Immunotherapy**

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**Table S1.** Oligonucleotide sequences used in this work

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| --- | --- |
| Name | Sequence (5’ – 3’) |
| S1 | GTCTGAGGCAGTTGAGAGATCTCGAACATTCCTTTTTTTTTTTTTTTTTTTTT |
| S2 | TAAGTCTGAAGATCCATTTATCACCAGCTGCTGCACGCCATAGTAGACGTATCACCTGTCCTTTTTTTTTTTTTTTTTTTTT |
| S3 | AGCTACTTGCTACACGAGGATCTTCAGACTTAGGAATGTTCGAGATCACATGCGAGGACTCGGTCCAATACCGTACTAACGATTACAGATCAATTTTTTTTTTTTTTTTTTTTT |
| S4 | CAGCTGGTGATAAAACGTGTAGCAAGTAGCTTTGATCTGTAATCGACTCTACGGGAAGAGCTTTTTTTTTTTTTTTTTTTTT |
| S5 | ATGCCCATCCGGCTCACTACTATGGCGTGCAGTTTTTTTTTTTTTTTTTTTTT |
| S6 | CGAGTCCTCGCATGACTCAACTGCCTCAGACGGACAGGTGATACGAGAGCCGGATGGGCATGCTCTTCCCGTAGAGATAGTACGGTATTGGACTTTTTTTTTTTTTTTTTTTTT |
| CpG-Overhang | TCCATGACGTTCCTGATGCTTTTTTTTTAAAAAAAAAAAAAAAAAAAAA |
| F-CpG | FAM-TCCATGACGTTCCTGATGCTTTTTTTTTAAAAAAAAAAAAAAAAAAAAA |
| siRNA (SS)-CpG | TCCATGACGTTCCTGATGCT-linker-CAACAAGUCCUCUGCCAAAGTT |
| siRNA (AS)-Overhang | AAAAAAAAAAAAAAAAAAAAA-linker-CUUUGGCAGAGGACUUGUUGTT |

The red is the RNA bases.

**Table S2.** Primer sequences for quantitative real-time PCR.

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| --- | --- |
| Name | Sequence (5’ – 3’) |
| Il-6 | Forward primer: TACCACTTCACAAGTCGGAGGC  Reverse primer: CTGCAAGTGCATCATCGTTGTTC |
| Il-12b | Forward primer: TTGAACTGGCGTTGGAAGCACG  Reverse primer: CCACCTGTGAGTTCTTCAAAGGC |
| Tnfa | Forward primer: GGTGCCTATGTCTCAGCCTCTT  Reverse primer: GCCATAGAACTGATGAGAGGGAG |
| Gapdh | Forward primer: CATCACTGCCACCCAGAAGACTG  Reverse primer: ATGCCAGTGAGCTTCCCGTTCAG |



**Figure S1.** Atomic force microscope (AFM) images of CpG-siRNA-tFNA.



**Figure S2.** Fluorescence microscope imaging analysis the difference of cellular uptake between CpG and CpG-tFNA.



**Figure S3.** The qPCR results of the proinflammatory cytokine levels.



**Figure S4.** (A) The pictures of microscope showed M0, M1 and M2 phenotype polarization morphological changes. (B) Western blot analysis proteins expression involved in macrophages markers in RAW264.7 cells.