

Supplemental Materials

The highly negative charged GO in water had stronger electrical repulsion than the attractive van der Waals forces lead to higher stability of GO in water. In addition, the nanoscale GO had higher edge-to-area ratio resulting in higher ionized functional groups at the edges and stronger electrical repulsion. However, even highly negative charged nanoscale GO would aggregate at high ionic concentrations of salts due to charge screening. For example, NaCl solution will decrease the thickness of electric double layer of GO, resulting in weaker electrical repulsion and lower stability. Therefore, Figure S1 showed that the nanoscale GO in water had significantly higher stability than GO in PBS and Medium solution. To apply GO under physiological conditions, PEI conjugation method in our research is used to promote the stability.

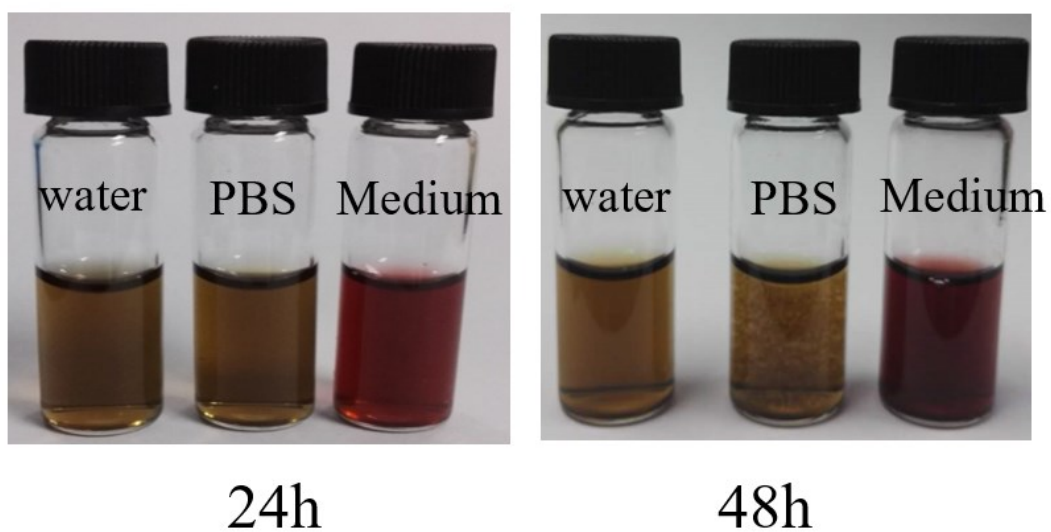


Figure S1: The stability study of nanoscale GO in water, PBS and Medium solution in 24 h and 48 h.