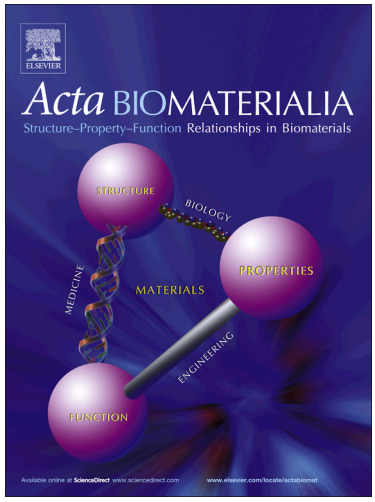

Full length article

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PII: S1742-7061(18)30149-1
DOI: https://doi.org/10.1016/j.actbio.2018.03.029
Reference: ACTBIO 5371

To appear in: *Acta Biomaterialia*

Received Date: 11 September 2017
Revised Date: 8 March 2018
Accepted Date: 14 March 2018

Please cite this article as: Wang, Y., Barhoumi, A., Tong, R., Wang, W., Ji, T., Deng, X., Li, L., Lyon, S.A., Reznor, G., Zurakowski, D., Kohane, D.S., $BaTiO_3$-core Au-shell Nanoparticles for Photothermal Therapy and Bimodal Imaging, *Acta Biomaterialia* (2018), doi: https://doi.org/10.1016/j.actbio.2018.03.029

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ABSTRACT:

We report sub-100 nm metal-shell (Au) dielectric-core ($BaTiO_3$) nanoparticles with bimodal imaging abilities and enhanced photothermal effects. The nanoparticles efficiently absorb light in the near infrared range of the spectrum and convert it to heat to ablate tumors. Their $BaTiO_3$ core, a highly ordered non-centrosymmetric material, can be imaged by second harmonic generation, and their Au shell generates two-photon luminescence. The intrinsic dual imaging capability allows investigating the distribution of the nanoparticles in relation to the tumor vasculature morphology during photothermal ablation. Our design enabled *in vivo* real-time tracking of the BT-Au-NPs and observation of their thermally-induced effect on tumor vessels.

Keywords:
Photothermal therapy; Near-infrared absorption; Metal-shell dielectric-core nanoparticles; Second harmonic generation imaging; Two-photon luminescence imaging.