

### Liquid Metal Nanotransformer for Cancer Treatment

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Among various drug delivery systems, nanocarriers consist of liquid metal are being actively studied. Eutectic Gallium-Indium alloy (EGaIn) liquid metal has been reported to have a low melting point, low toxicity and good tissue/cell penetration. EGaIn has a characteristic property, deforming by the control of light and/or heat irradiations. In this study, we describe transformable liquid metal nanoparticles delivering anti-tumor drug molecules. These “nanotransformer” particles are synthesized through a sonication and an extrusion of either EGaIn solution or EGaIn mixed with amphiphilic lipids. The resulting nanotransformers are loaded with anti-tumor drug, doxorubicin, that can be released upon deformation of EGaIn nanoparticles excited with light. The nanotransformer particles showed no toxicity in mammalian cells. A proper photo-thermal ligand added to the nanotransformer helped increasing the yield of deformed liquid metal nanoparticles, resulting in efficient drug delivery.