

Abstract Submitted
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Creating Liquid-core Polymer Nanoparticles Using Flash Nanoprecipitation¹ UGOMMA UGWU-UCHE, EDWARD VAN KEUREN, SOPHIA TAYLOR, YURI CHUNG, Georgetown University, EDWARD VAN KEUREN'S LAB COLLABORATION — Abstract: Nanoscience is seeing significant growth in the area of synthesis and application of multicomponent and/or multifunctional nanoparticles. We're working on methods to synthesize particles containing a liquid core and a polymer shell. We show that liquid core nanoparticles can be formed using flash nanoprecipitation. Flash nanoprecipitation takes a solution and mixes it rapidly with a miscible solvent. Here is our research where we create water core nanoparticles using an inverse process. Briefly, we inject an aqueous solution containing a water-soluble polymer into an organic solvent that is miscible with water. We've characterized the particles with a light scanning electron microscope, recording their widths and radii. The encapsulation of molecules into polymer micro and nanoparticles could potentially provide materials for a number of applications like the use of nano-precipitation in the process of drug formations/delivery and possibly non-invasive surgery. Results could shed more light on how to control final particle size for formation and ensure that active pharmaceutical ingredients are fully encapsulated into the polymer particles.

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