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Dual Modal Ultra-Bright Nanodots with Aggregation-Induced Emission and Gadolinium-Chelation for Vascular Integrity and Leakage Detection

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Abstract

The study of blood brain barrier (BBB) functions is important for neurological disorder research. However, the lack of suitable tools and methods has hampered the progress of this field. Herein, we present a hybrid nanodot strategy, termed AIE-Gd dots, comprising of a fluorogen with aggregation-induced emission (AIE) characteristics as the core to provide bright fluorescence for optical imaging, and gadolinium (Gd) for accurate quantification of vascular leakage *via* inductively-coupled plasma mass spectrometry (ICP-MS). In this report, we demonstrate that AIE-Gd dots enable direct visualization of brain vascular networks under

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