

# Fluorescent Graphitic Carbon Nitride (g-C<sub>3</sub>N<sub>4</sub>)-Embedded Hyaluronic Acid Microgel Composites for Bioimaging and Cancer-Cell Targetability as Viable Theragnostic

Selin S. Suner <sup>1</sup>, Mehtap Sahiner <sup>2</sup>, Sahin Demirci <sup>1</sup>, Evrim Umut <sup>3,4</sup> and Nurettin Sahiner <sup>1,5,6,\*</sup>

<sup>1</sup> Department of Chemistry, Faculty of Science, Canakkale Onsekiz Mart University, 17100 Canakkale, Turkey; sagbasselin@gmail.com (S.S.S.); sahindemirci@gmail.com (S.D.)

<sup>2</sup> Department of Bioengineering, Faculty of Engineering, Canakkale Onsekiz Mart University Terzioğlu Campus, 17100 Canakkale, Turkey; sahinerm78@gmail.com

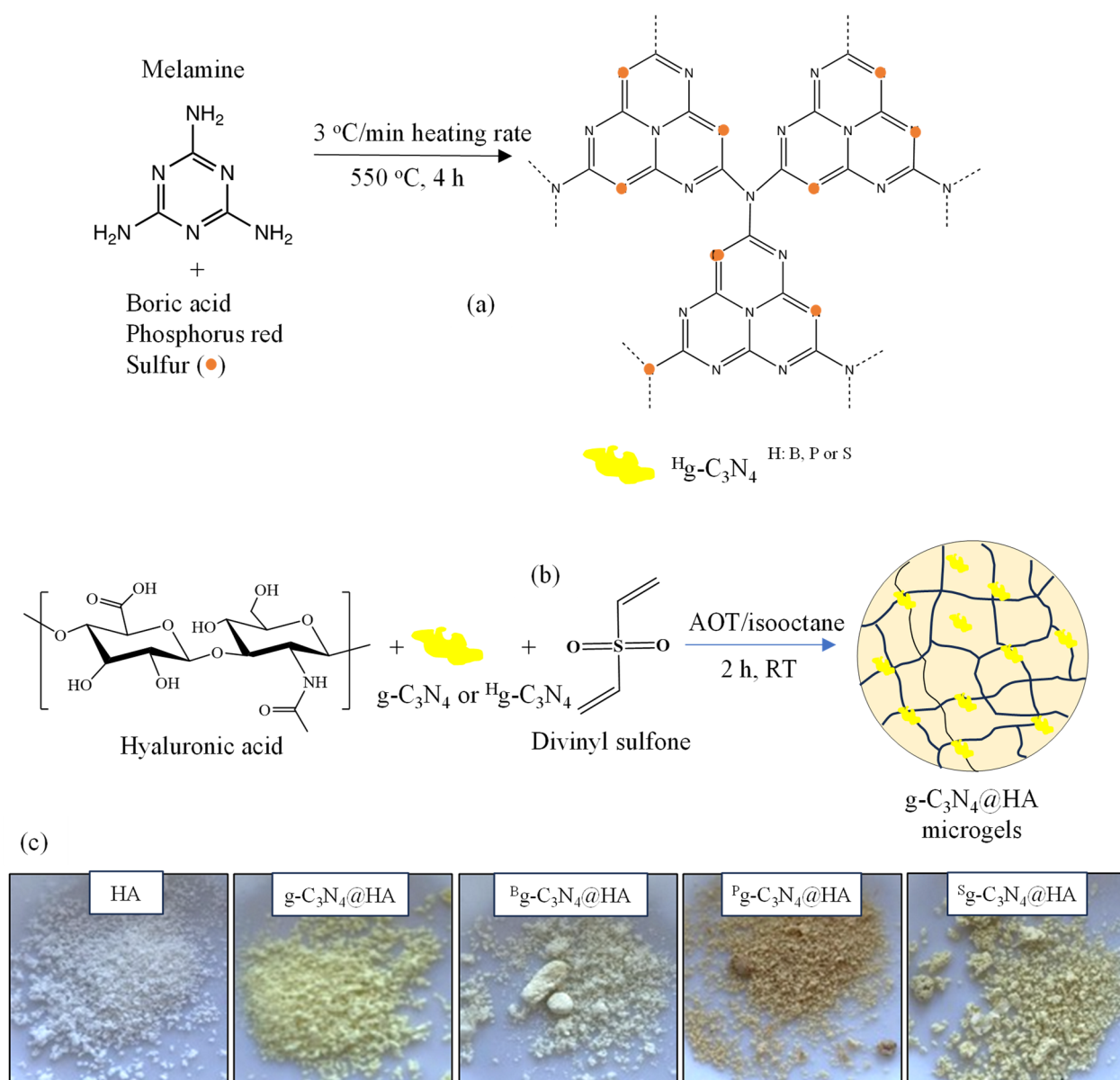
<sup>3</sup> Department of Medical Imaging Techniques, School of Healthcare, Dokuz Eylül University, 35330 Izmir, Turkey; evrim.umut@deu.edu.tr

<sup>4</sup> BioIzmir-Izmir Health Technologies Development and Accelerator Research and Application Center, Dokuz Eylül University, 35330 Izmir, Turkey

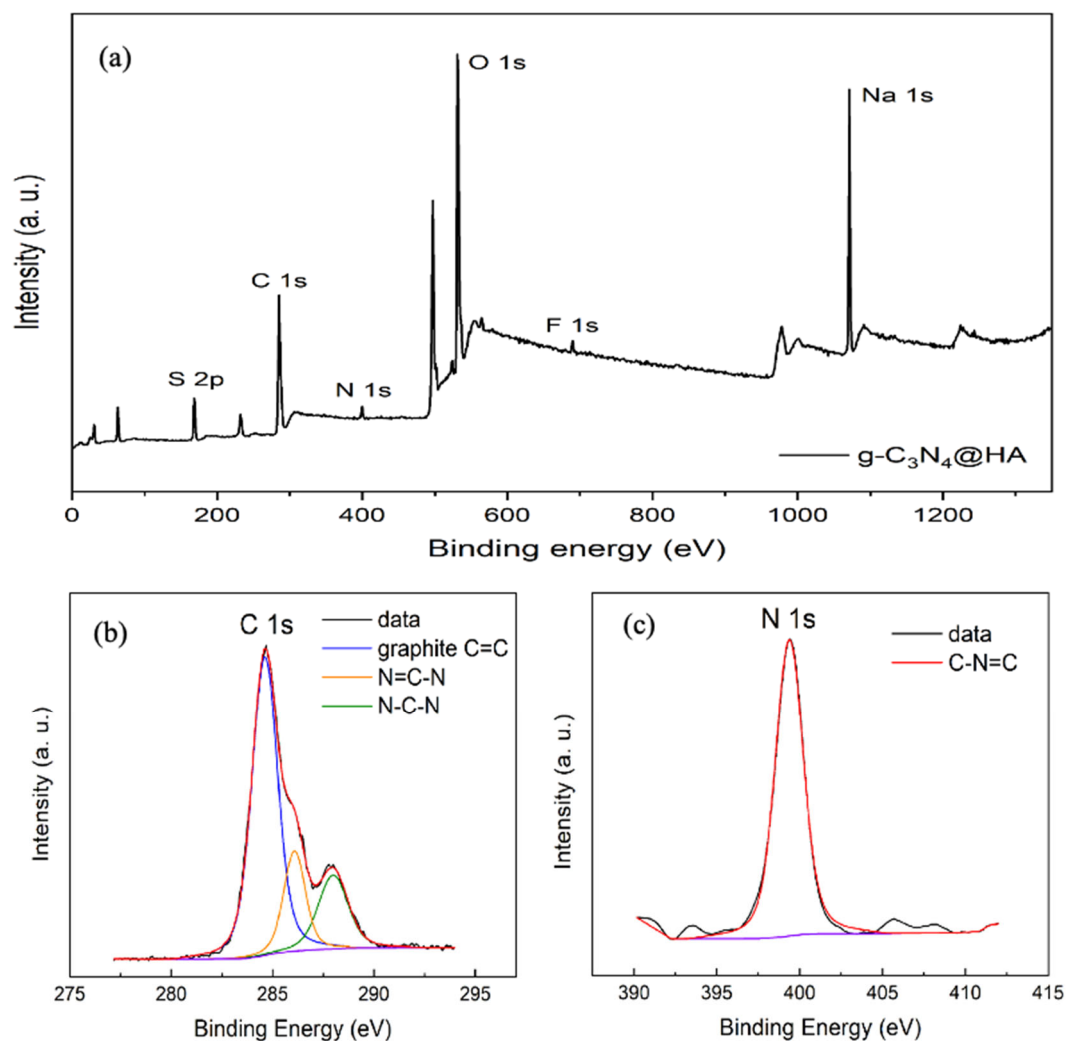
<sup>5</sup> Department of Chemical and Biomolecular Engineering, University of South Florida, Tampa, FL 33620, USA

<sup>6</sup> Department of Ophthalmology, Morsani College of Medicine, University of South Florida, Tampa, FL 33612, USA

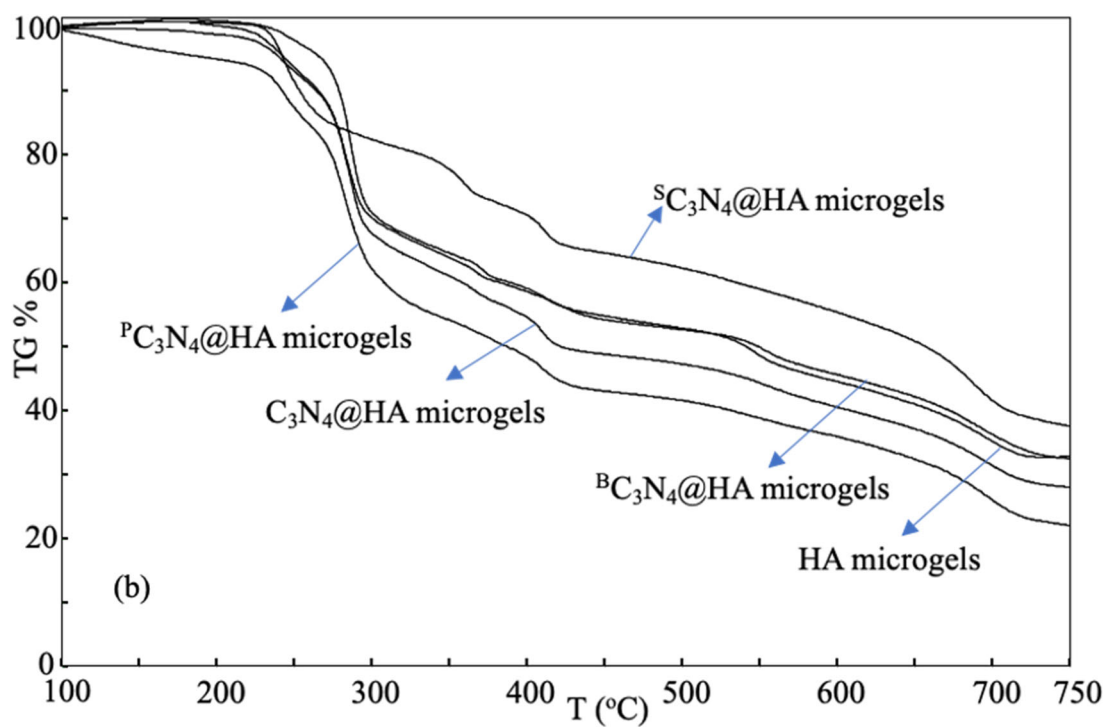
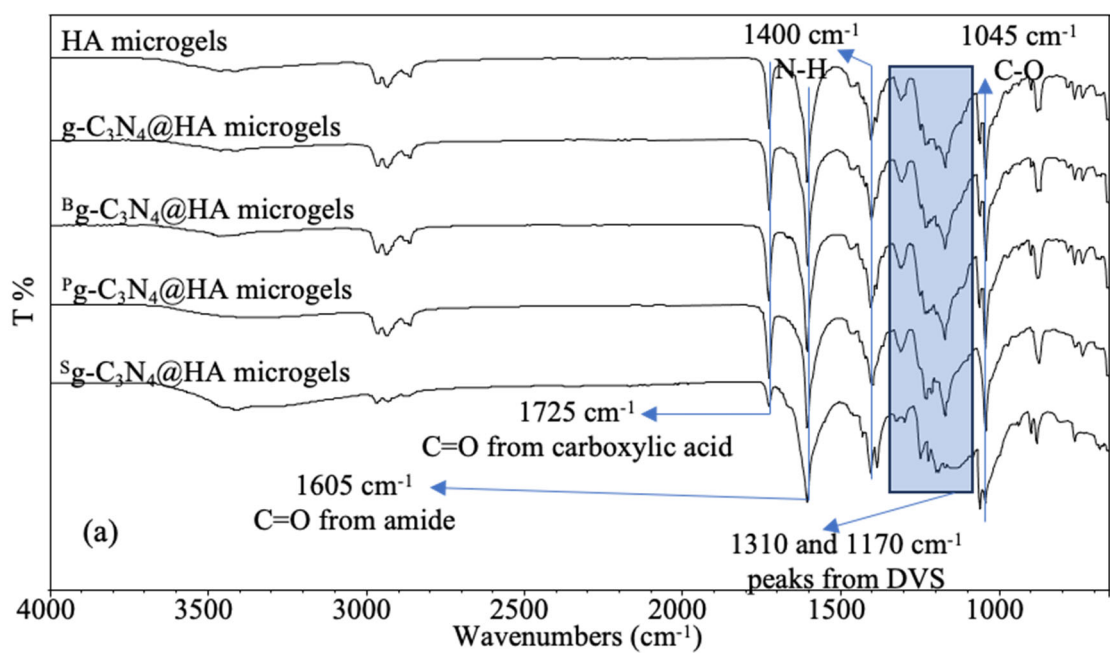
\* Correspondence: sahin71@gmail.com or nsahiner@usf.edu



**Figure S1.** The schematic presentation of synthesis of (a)  $\text{g-C}_3\text{N}_4$ , and heteroatom doped  $\text{g-C}_3\text{N}_4$  ( $\text{Hg-C}_3\text{N}_4$ , H: B, P, S), (b)  $\text{g-C}_3\text{N}_4$  embedded HA microgels ( $\text{g-C}_3\text{N}_4@\text{HA}$  microgel), and (c) digital camera images of prepared HA and  $\text{g-C}_3\text{N}_4@\text{HA}$  microgels.



**Figure S2.** (a) The XPS spectra of undoped g-C<sub>3</sub>N<sub>4</sub>@HA microgels obtained by survey scan and (b) theoretical fits for high resolution C 1S, and (c) N 1S peaks showing the decomposition into individual contributions from different atoms.



**Figure S3.** (a) FT-IR spectrum, and (b) TGA thermograms of prepared g-C<sub>3</sub>N<sub>4</sub> structures embedded HA microgels.