

**Electronic Supplementary Information (ESI)**

**Orange-Red Silver Emitters for Sensing Application and Bio-imaging**

*Mainak Ganguly,<sup>a</sup> Jayasmita Jana,<sup>b</sup> Bodhisatwa Das,<sup>c</sup> Santanu Dhara,<sup>c</sup> Anjali Pal<sup>d</sup> and  
Tarasankar Pal<sup>\*b</sup>*

<sup>a</sup>Department of Chemistry, Furman University, Greenville, South Carolina-29613, USA

<sup>b</sup>Department of Chemistry, Indian Institute of Technology, Kharagpur-721302, India

<sup>c</sup>School of Medical Science & Technology, Indian Institute of Technology, Kharagpur-721302,  
India

<sup>d</sup>Department of Civil Engineering, Indian Institute of Technology, Kharagpur-721302, India

E-mail: tpal@chem.iitkgp.ernet.in

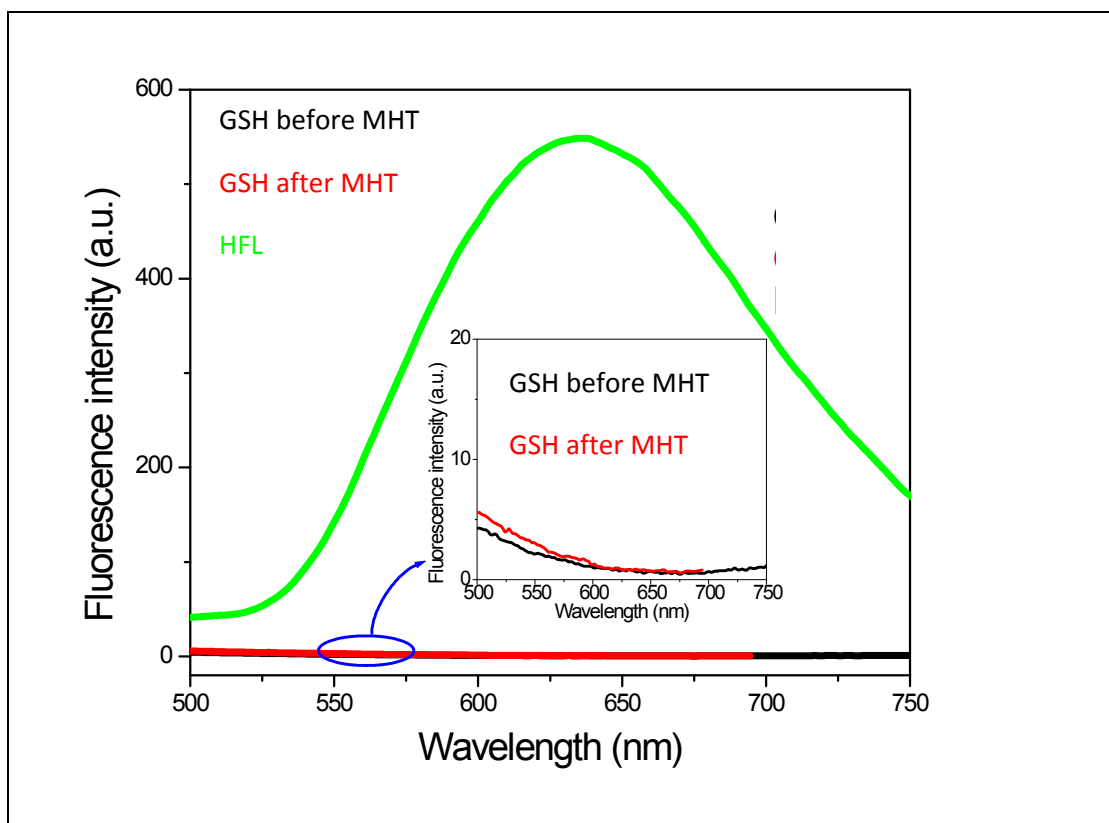


Figure S1: Fluorescence spectral profile of aqueous GSH before and after MHT, and HFL.

Condition: [GSH] =  $1.66 \times 10^{-3}$  M,  $\lambda_{\text{ex}}$ =390 nm.

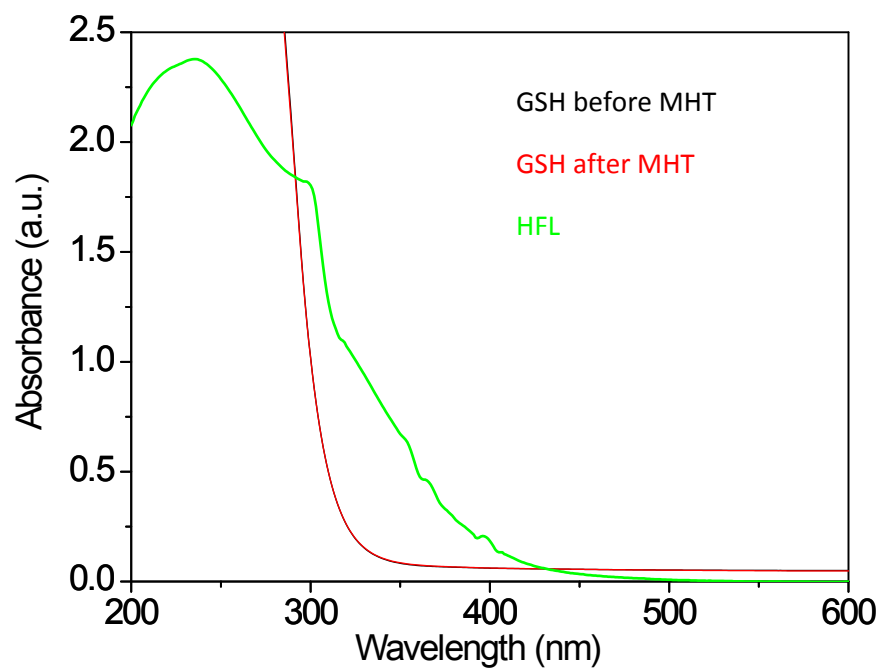


Figure S2: UV-vis spectral profile of aqueous GSH before and after MHT, and HFL.

Condition: [GSH] =  $1.66 \times 10^{-3}$  M.

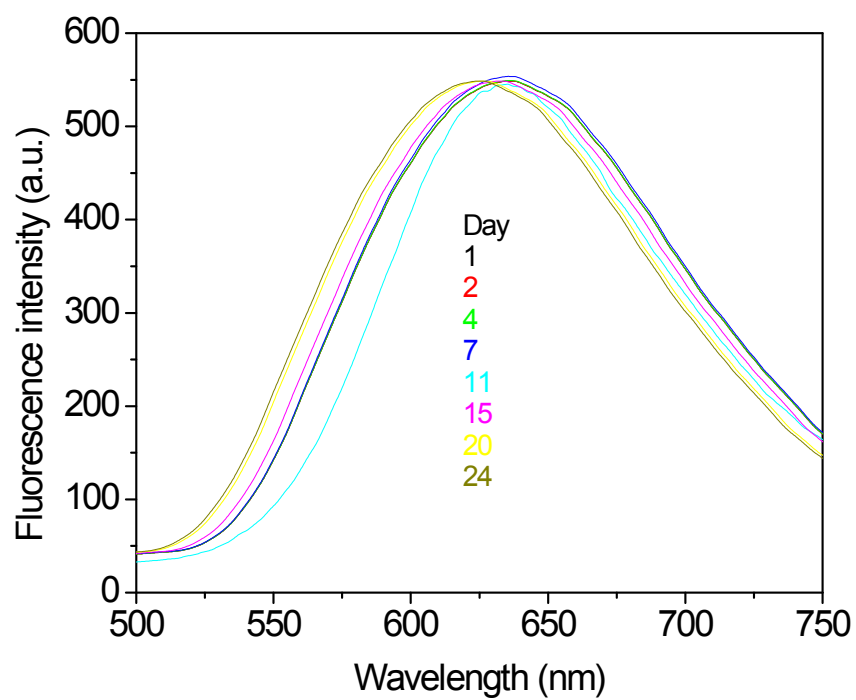


Figure S3: Fluorescent spectral profile of HFL at different time intervals.

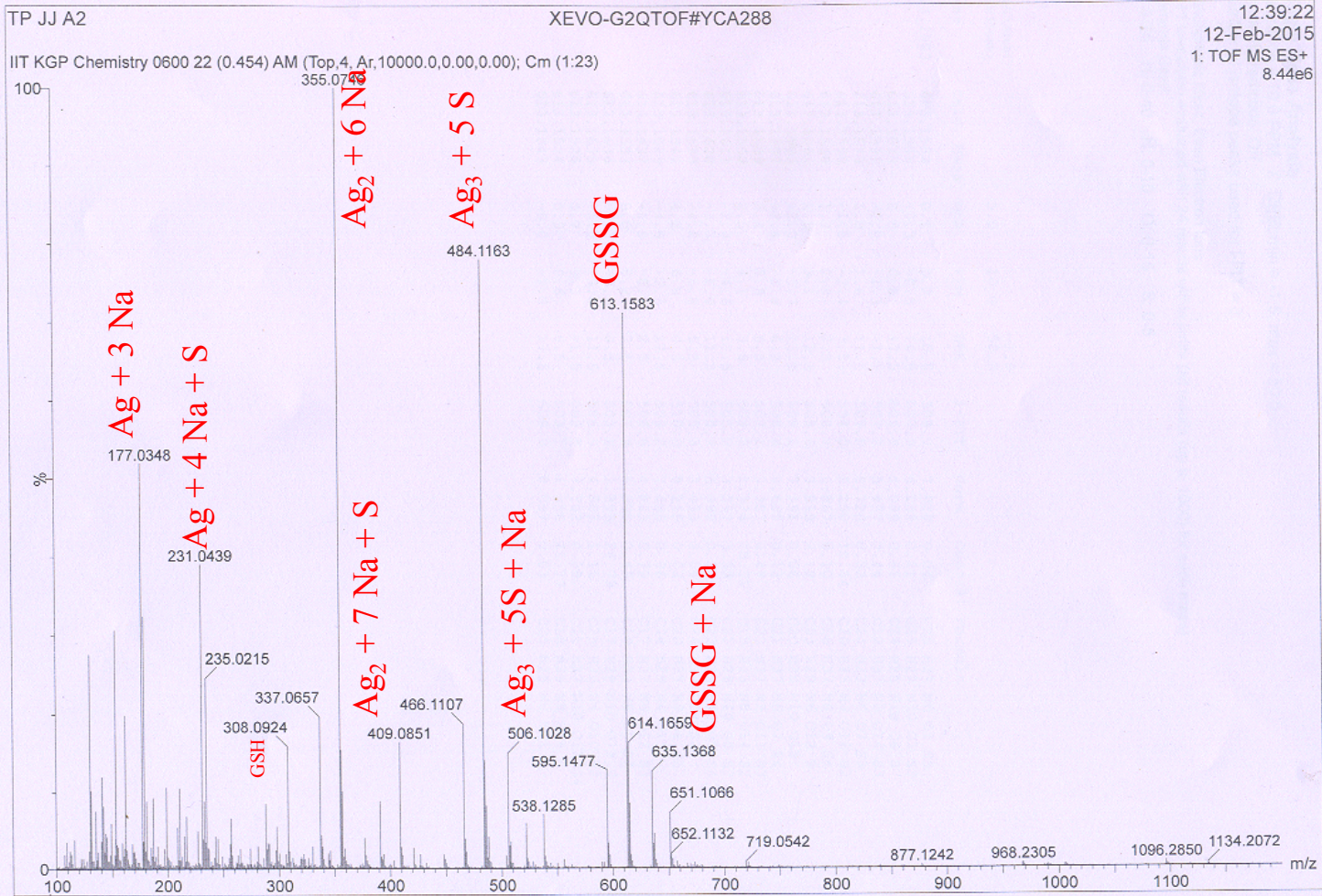


Figure S4(a): ESI mass spectral profile of HFL solution.

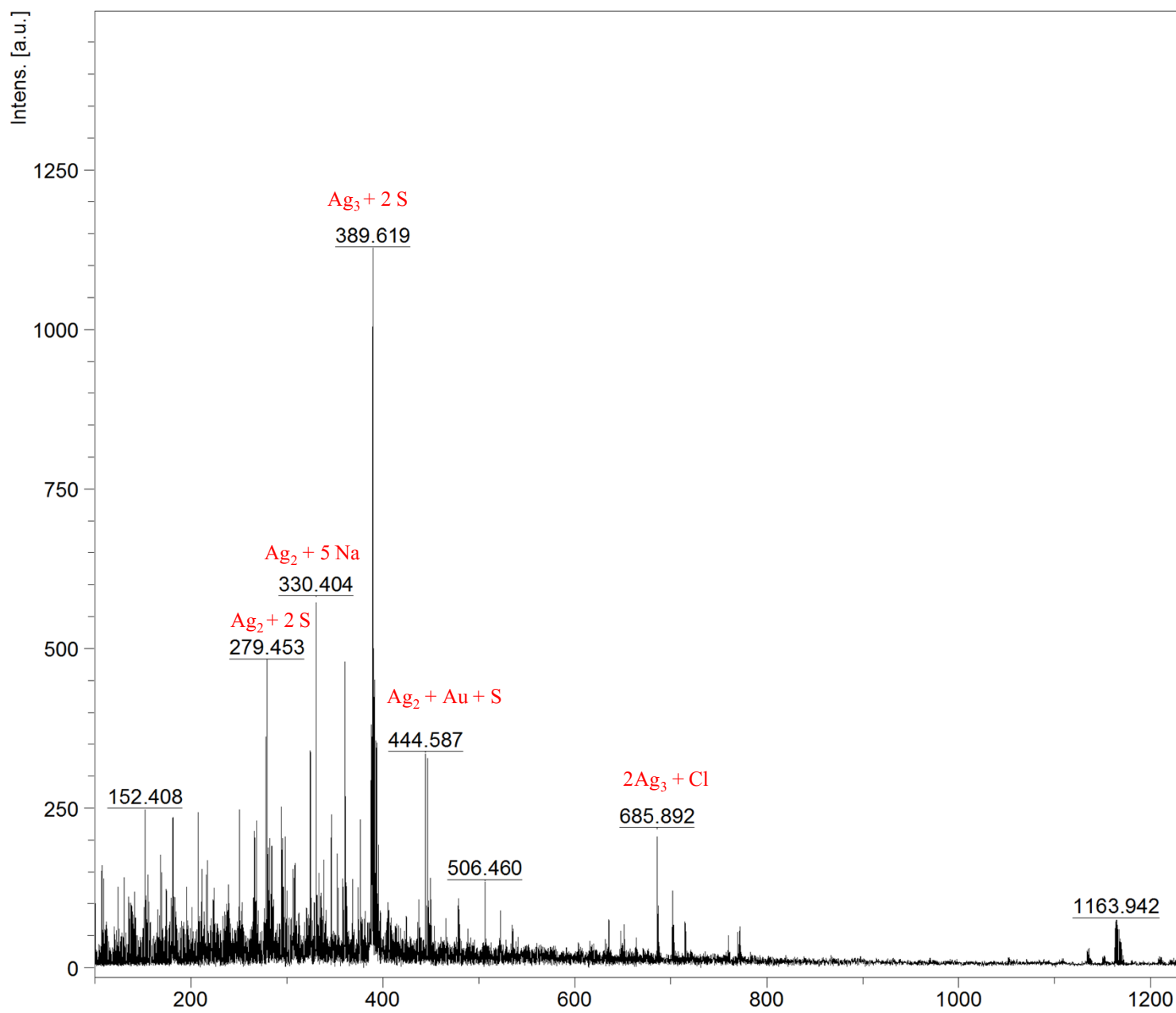


Figure S4(b): MALDI-TOF mass spectral profile of HFL solution (sinapinic acid as matrix).

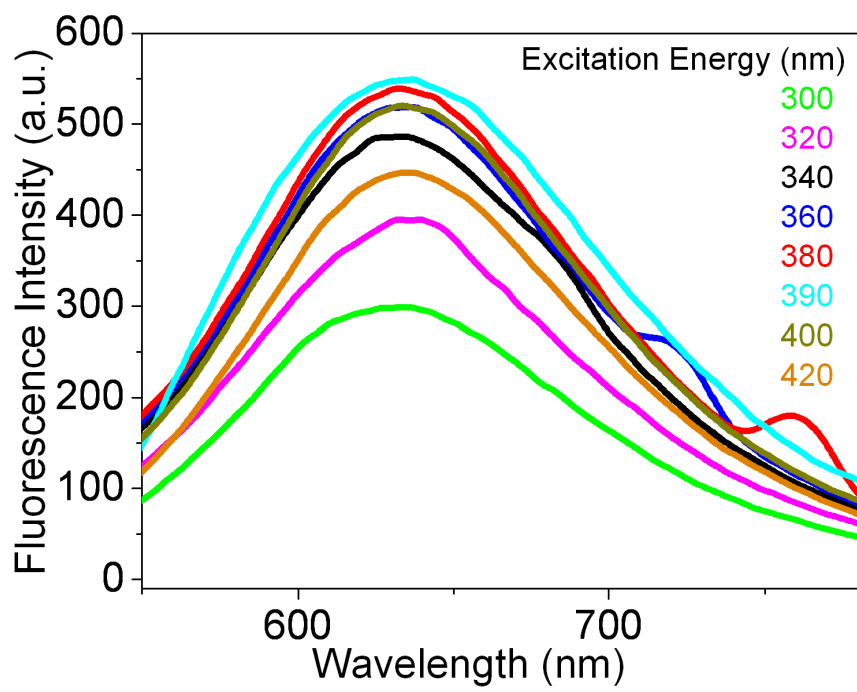


Figure S5: Fluorescence spectral profile of HFL at different excitation energy.

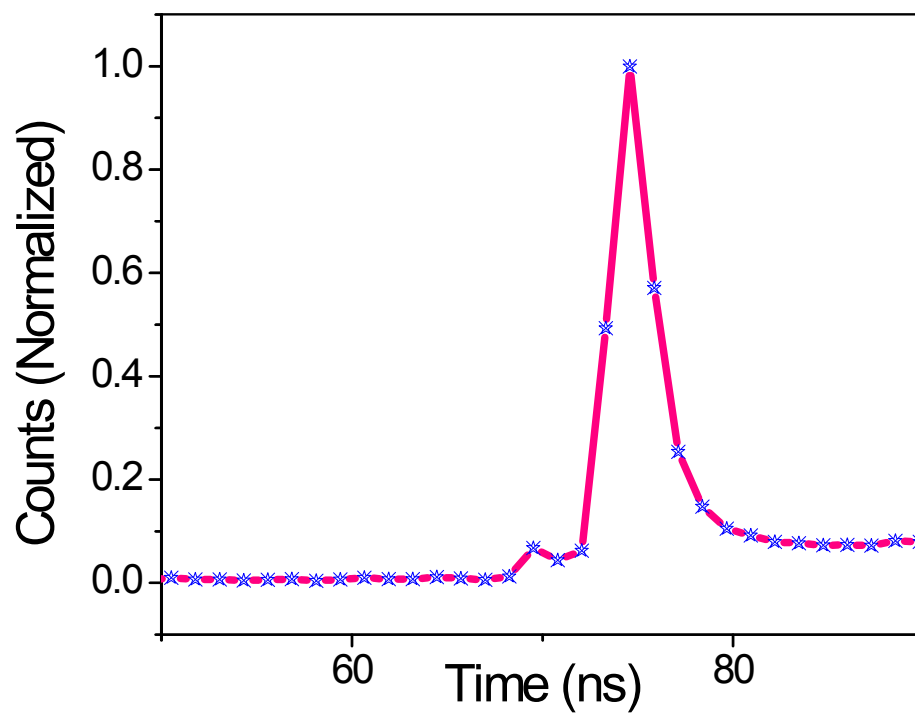


Figure S6: Fluorescence decay profile of HFL solution.



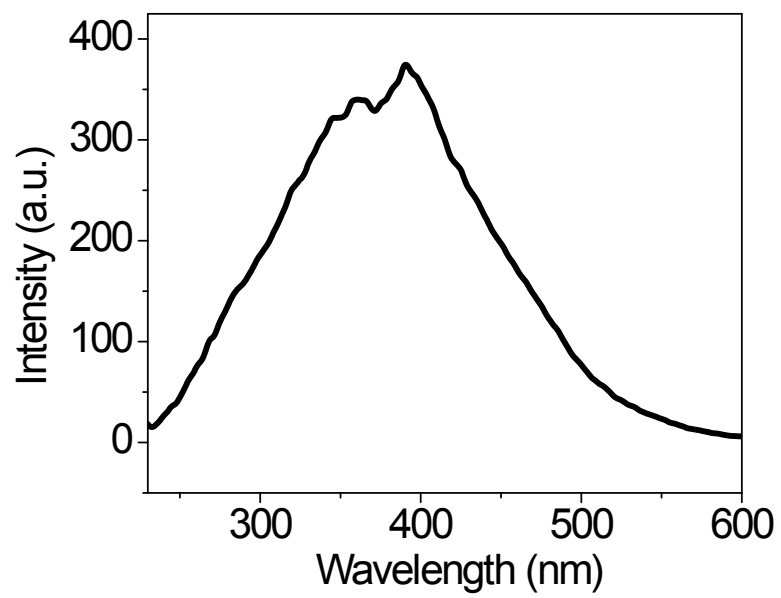


Figure S7: Excitation spectral profile of HFL when emission maximum is 635 nm.

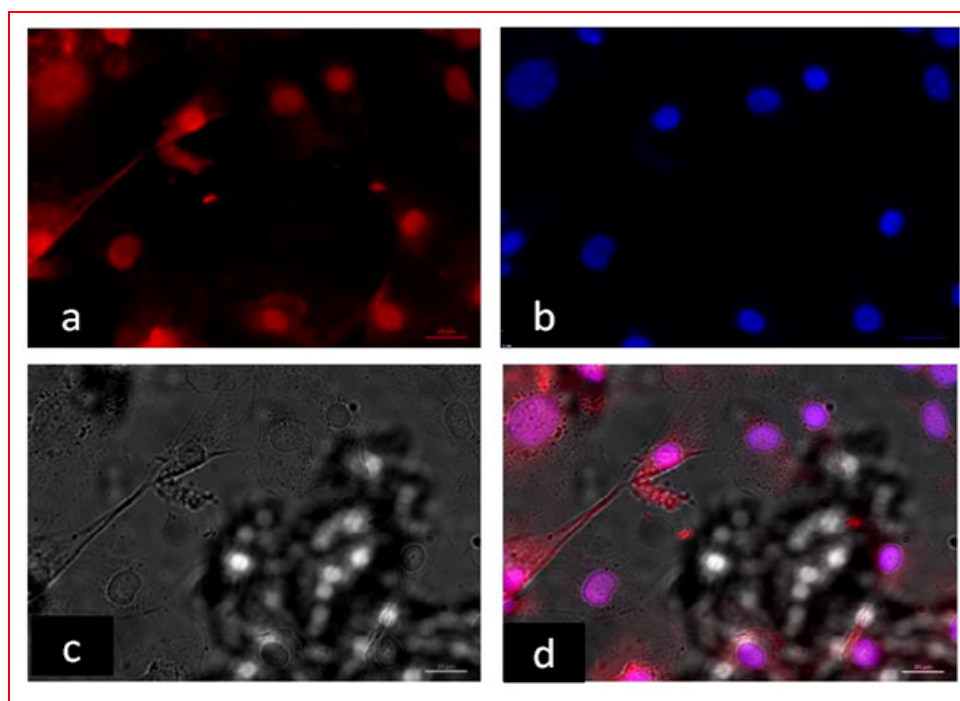
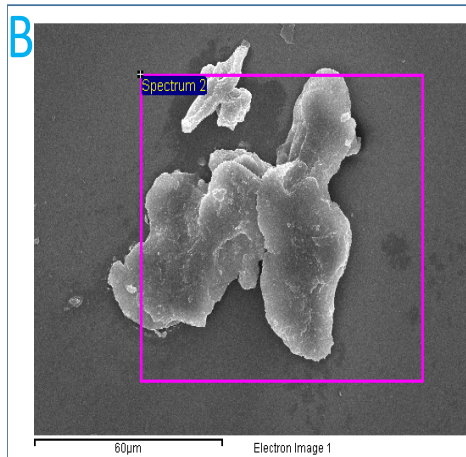
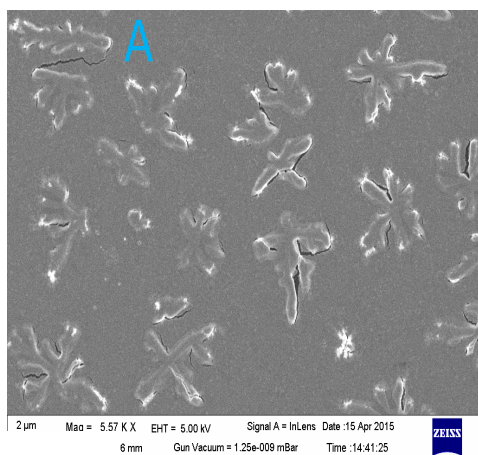


Figure S8: Image captured for Ag@Au clusters (a), nuclear staining via DAPI (b), DIC image (c) and merged image (d) for MG-63 cells.



Element	Weight%	Atomic%
S K	41.96	76.41
Ag L	26.08	14.12
Au M	31.97	9.48
Totals	100.00	

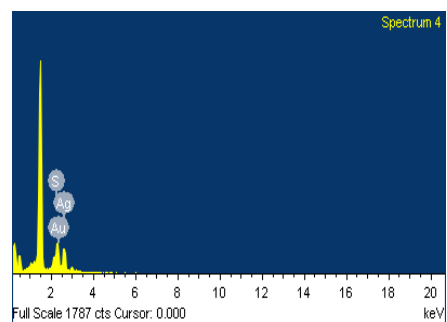


Figure S9: (A) SEM image and (B) selected area EDX analysis of the MG-63 cell after HFL treatment, used for cell-imaging experiment.