

SUPPORTING INFORMATION

Particle-based photodynamic therapy based on Indocyanine green modified plasmonic nanostructures for inactivation of Crohn's disease-associated *Escherichia coli*

Roxana Jijie,^{1,2} Tetiana Dumych,³ Li Chengnang,¹ Julie Boukaert,³ Kostiantyn Turcheniuk,¹ Charles-Henri Hage,⁴ Laurent Heliot,⁴ Benoit Cudennec,⁵ Nicoleta Dumitrascu,² Rabah Boukherroub¹ and Sabine Szunerits^{1*}

¹*Institut d'Electronique, de Microélectronique et de Nanotechnologie (IEMN), UMR CNRS8520, Université Lille1, Avenue Poincaré-BP 60069, 59652 Villeneuve d'Ascq, France*

²*Iasi Plasma Advanced Research Center (IPARC), Faculty of Physics, Alexandru Ioan Cuza University of Iasi, Bd. Carol I No. 11, Iasi 700506, Romania*

³*Unité de Glycobiologie Structurale et Fonctionnelle (UGSF), Université Lille 1, CNRS UMR 8576, 59655 Villeneuve d'Ascq, France*

⁴*Laboratoire de physique des Maser, Atomes et Molécules (PhLAM), Université Lille 1, CNRS UMR 8523, 59655 Villeneuve d'Ascq, France*

⁵*Institut Charles Viollette, ProBioGEM, Polytech'Lille, Université Lille 1, Avenue Paul Langevin, 59655 Villeneuve d'Ascq, France*

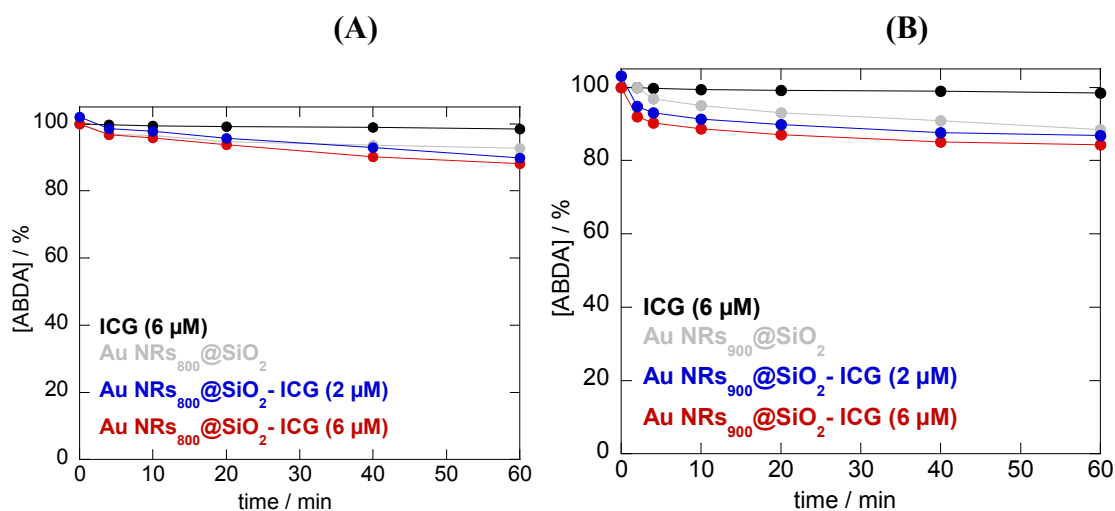


Figure S1. Photo-induced degradation of ABDA (10 μM) under irradiation at 810 nm (1 W cm^{-2}) using a CW laser in the presence of (A) ICG (6 μM) in water +10 % DMSO (black), 300 pM Au NRs₈₀₀@SiO₂ (grey), 300 pM Au NRs₈₀₀@SiO₂-ICG (2 μM) (blue) and 300 pM Au NRs₈₀₀@SiO₂-ICG (6 μM) (red); (B) ICG (6 μM) in water +10 % DMSO (black), 300 pM Au NRs₉₀₀@SiO₂ (grey), 300 pM Au NRs₉₀₀@SiO₂-ICG (2 μM) (blue) and Au 300 pM NRs₉₀₀@SiO₂-ICG (6 μM) (red).

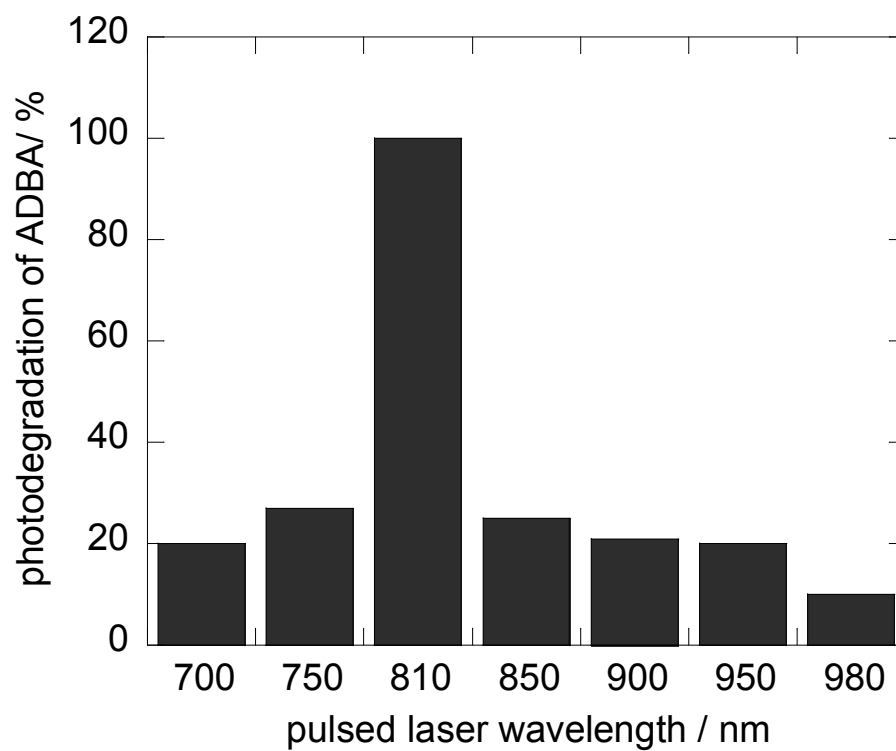


Figure S2: Photo-induced degradation of ABDA (10 μM) using pulsed laser irradiation (1 W cm^{-2}) at different wavelength in the presence of 300 pM Au NRs₉₀₀@SiO₂-ICG (6 μM).

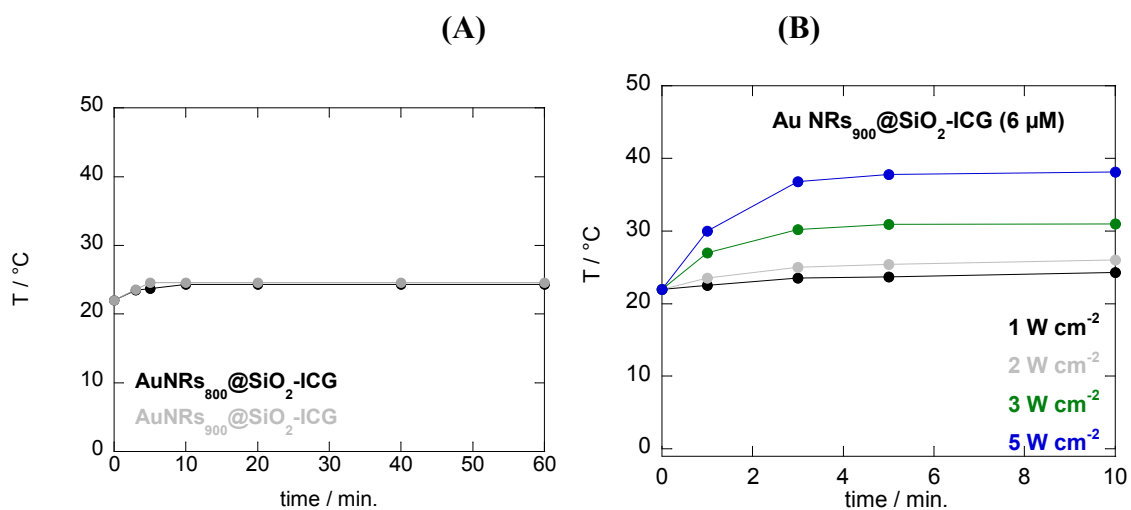


Figure S3 : Photothermal effect upon pulsed laser irradiation of nanostructures at 810 nm: (A) 300 pM Au NR₈₀₀@SiO₂-ICG (6 μM) (black) and 300 pM Au NR₉₀₀@SiO₂-ICG (6 μM) at 1 W cm⁻¹; (B) 300 pM Au NR₉₀₀@SiO₂-ICG (6 μM) at 1 W cm⁻¹ (black), 2 W cm⁻¹ (grey), 3 W cm⁻¹ (green), 5 W cm⁻¹ (blue).

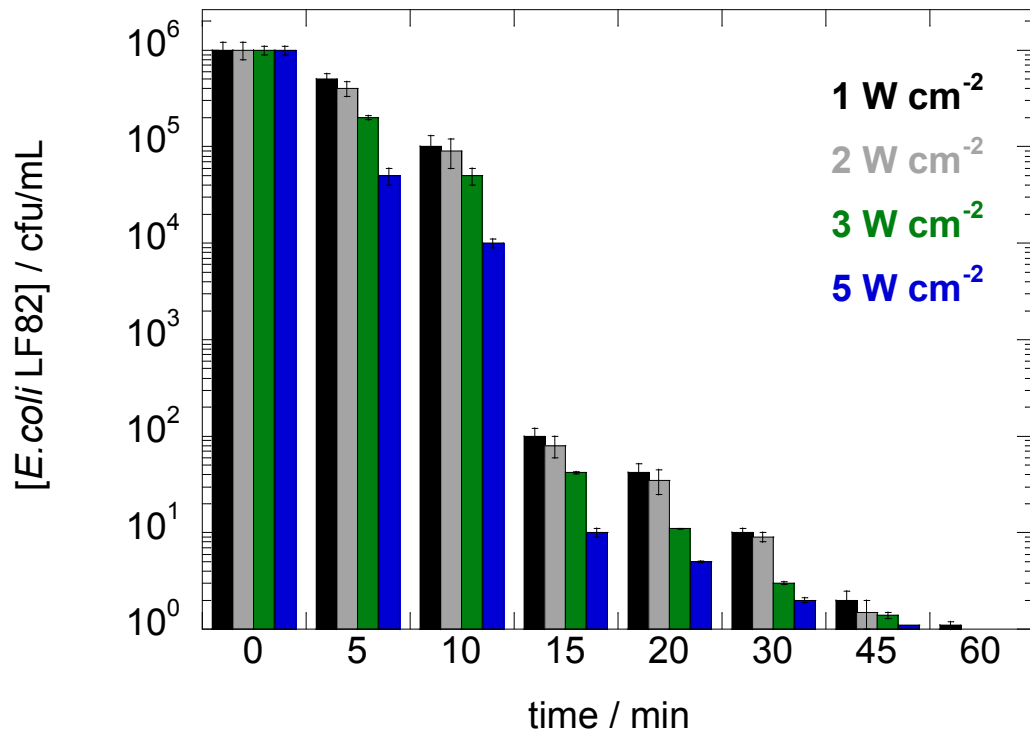


Figure S4: Ablation of *E. coli* LF82 in the presence of 300 pM AuNRs₉₀₀@SiO₂-ICG (6 μM) at 810 nm for different time intervals and laser powers: 1 W cm⁻¹ (black), 2 W cm⁻¹ (grey), 3 W cm⁻¹ (green), 5 W cm⁻¹ (blue).