Electronic supporting information

Radiosensitizing molybdenum-iodide nanoclusters conjugated with a biocompatible N-(2-hydroxypropyl)methacrylamide copolymer: a step towards radiodynamic therapy

Kaplan Kirakci,[a,] Robert Pola,[b,]* Marina Rodrigues Tavares,[b] Michal Pechar,[b] Tomáš Přibyl,[c] Ivana Křížová,[c] Jaroslav Zelenka,[c] Tomáš Ruml,[c] Tomáš Etrych[b] and Kamil Lang[a]*

[a]*Institute of Inorganic Chemistry of the Czech Academy of Sciences, 250 68 Husinec-Řež, Czech Republic.*

[b]*Institute of Macromolecular Chemistry of the Czech Academy of Sciences, Heyrovského náměstí 2, 162 00 Prague 6, Czech Republic.*

[c]*Department of Biochemistry and Microbiology, University of Chemistry and Technology Prague, Technická 5, 166 28 Praha 6, Czech Republic.*

Content

Figure S1. Size distributions by number of fresh (red) and 8-days old (green, in the case of **1** the formation of large aggregates was observed) PBS dispersions of **1** and **2** at room temperature, as obtained by dynamic light scattering.

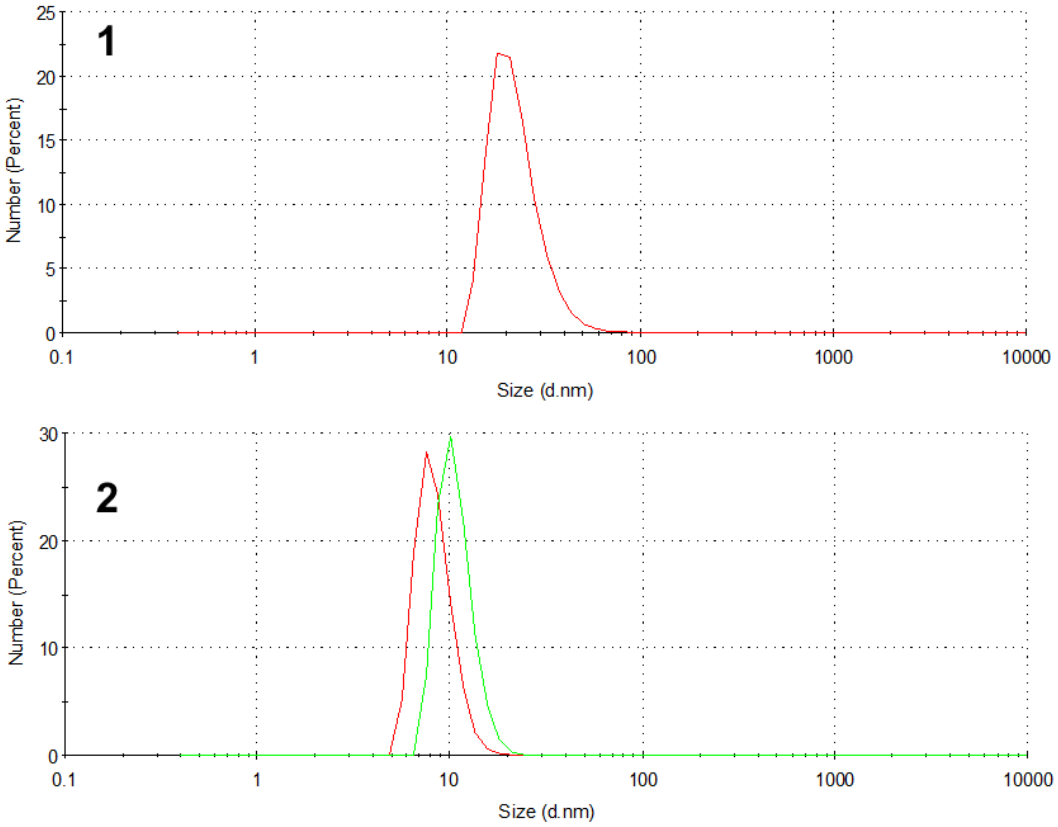

Figure S2. Phosphorescence signal of $O_2(^1\Delta_g)$ produced by **1** and **2** in oxygen-saturated PBS, excited at 400 nm.

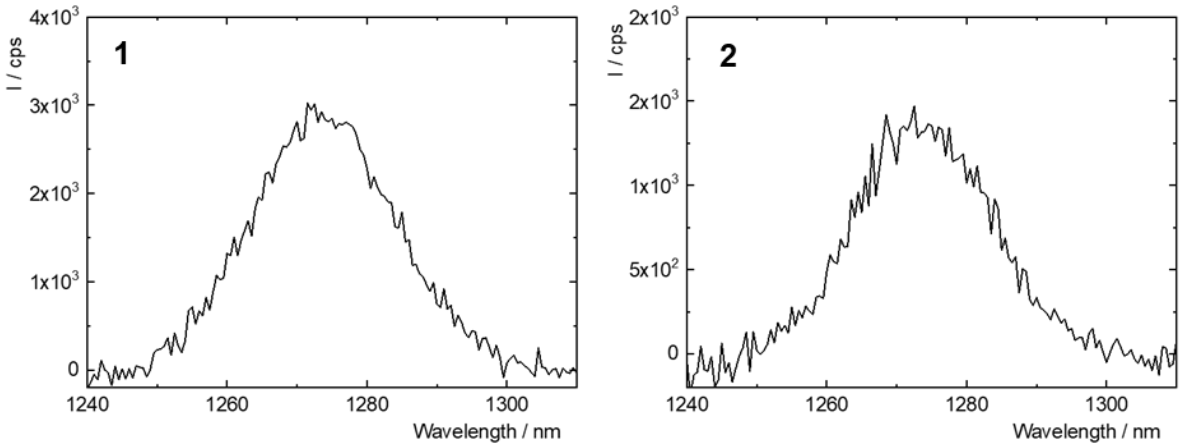

Figure S3. Top: Phosphorescence emission spectra of fresh (black) and 8-days old (red) PBS dispersions of **1** and **2**, excited at 400 nm. Bottom: Phosphorescence decay kinetics recorded at 700 nm of fresh (black) and 8-days old (red) PBS dispersions of **1** and **2**, excited at 405 nm.

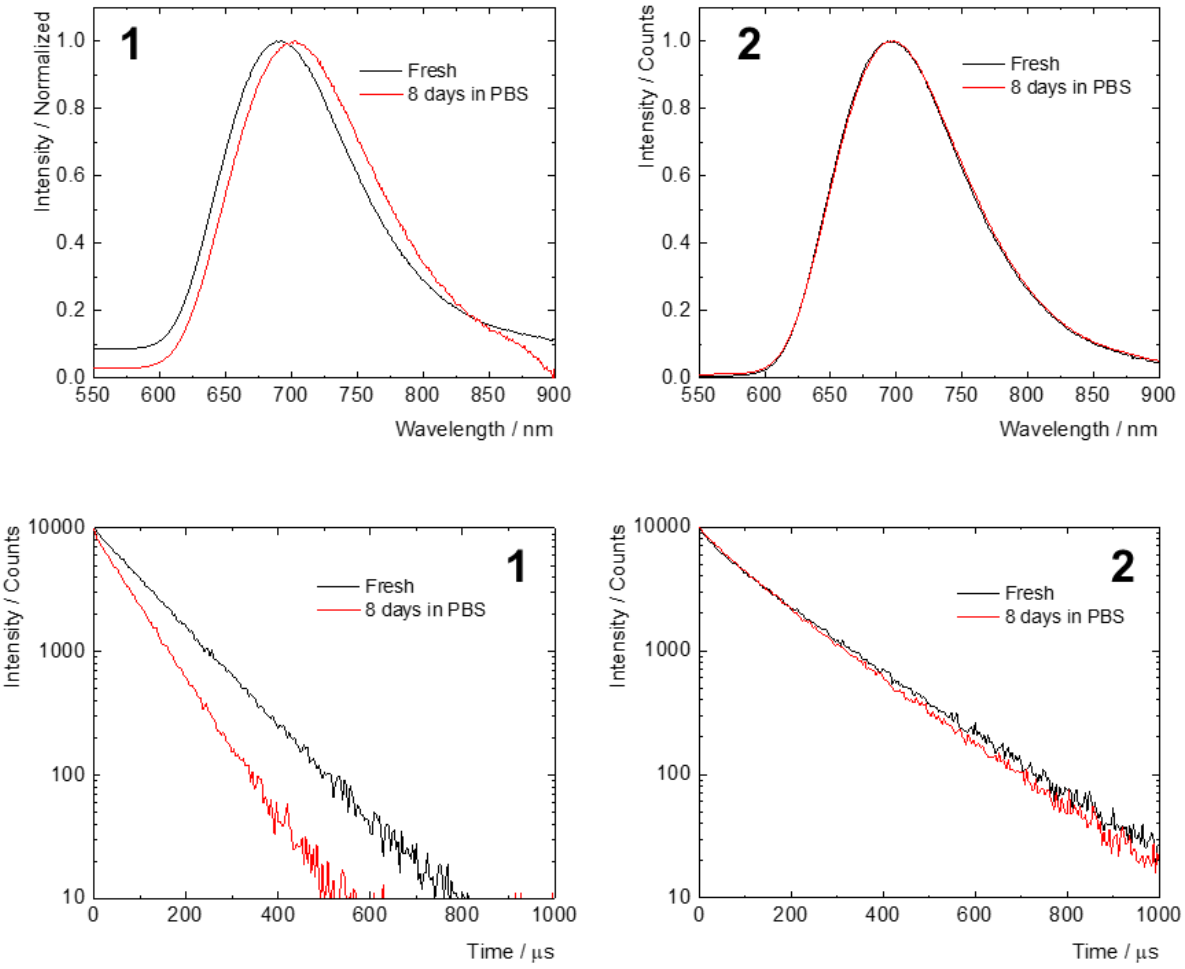

Figure S4. Toxicity of **1** and **2** toward HeLa cells in media with indicated concentration; **(A)** dark toxicity, 24 h loading without FBS; **(B)** phototoxicity, 24 h loading without FBS, illuminated with 460 nm light (18 mW cm $^{-2}$, 15 min).

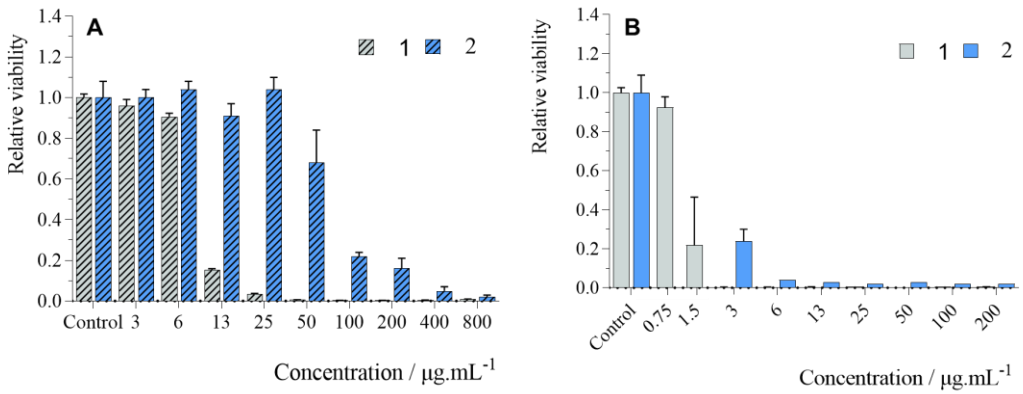

Figure S5. Uptake of **2** in HeLa cells analyzed by flow cytometry: (A) incubation times 1, 4, and 24 h, concentration of **2** was 0.4 mg mL^{-1}. (B) incubation time was 24 h, concentrations of **2** in the range of 0.1-0.4 mg mL^{-1}.

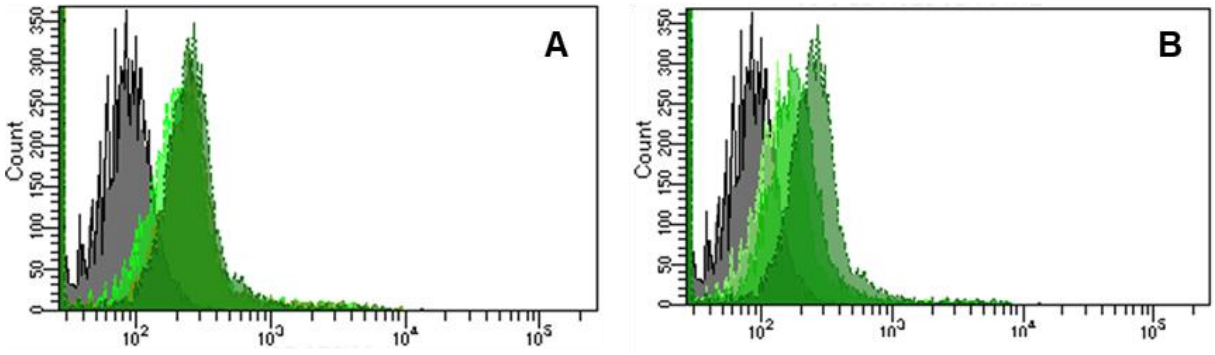

Figure S6. Cellular colocalization of **1** in HeLa cells obtained by confocal laser scanning microscopy. (A) WGA-FITC, green: cell membrane; Mo_6, red: cluster; Merge: cell membrane and cluster together. (B) LysoTracker, green: lysosomes; Mo_6, red: cluster; Merge: lysosomes and cluster together. White bars represent 10 µm.

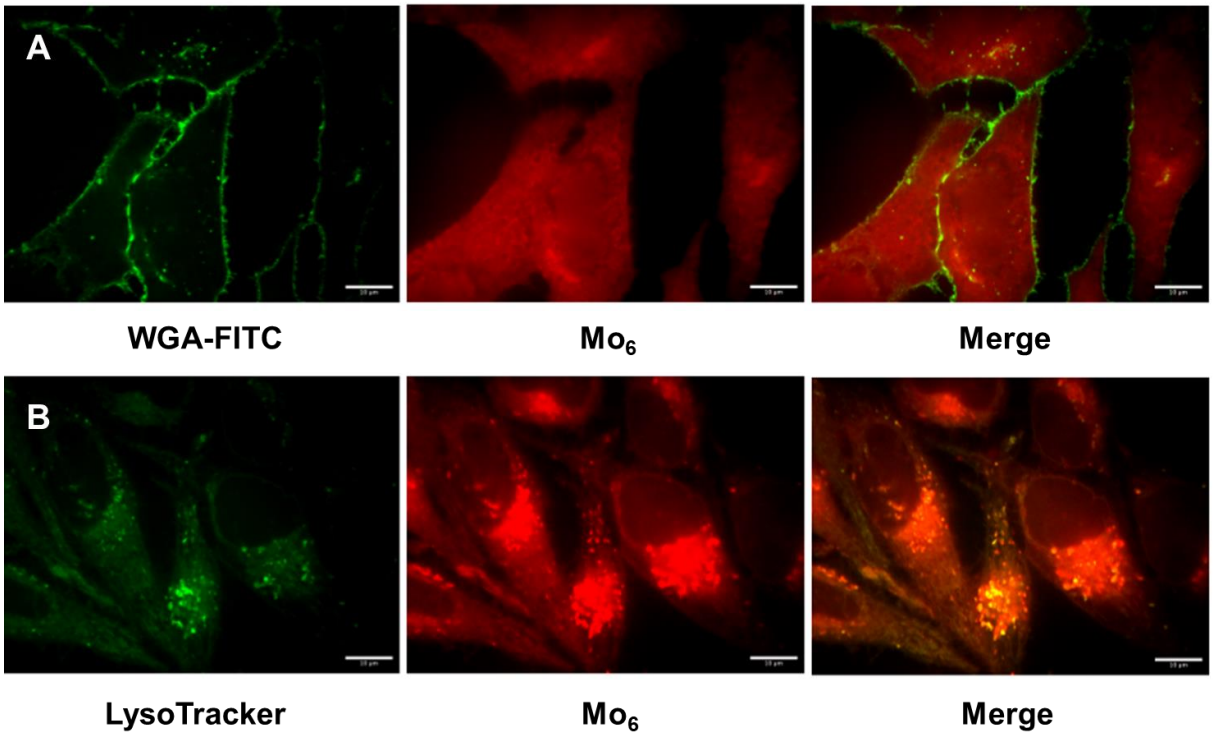

Figure S7. Radiotoxicity of **1** towards HeLa cells using an incubation concentration 65 µg mL^{-1}, 24 h incubation in the full medium (5% FBS), irradiated with a X-RAD 225XL X-ray source (upper energy limit is 225 keV); * represents statistically significant differences according to the Students's t-test ($p < 0.05$).