



Mechanistic Insights into the Release of Doxorubicin from Graphene Oxide in Cancer Cells

Erica Quagliarini ^{1,†}, Riccardo Di Santo ^{2,†}, Daniela Pozzi ^{2,*}, Paolo Tentori ^{3,4}, Francesco Cardarelli ⁴ and Giulio Caracciolo ^{2,*}

¹ Department of Chemistry, Sapienza University of Rome, P.le A. Moro 5, 00185 Rome, Italy; erica.quagliarini@uniroma1.it

² Department of Molecular Medicine, Sapienza University of Rome, Viale Regina Elena 291, 00161 Rome, Italy; riccardo.disanto@uniroma1.it

³ Center for Nanotechnology Innovation@NEST (CNI@NEST), Istituto Italiano di Tecnologia, Piazza San Silvestro 12, 56127 Pisa, Italy; paolo.tentori@sns.it

⁴ NEST Laboratory, Scuola Normale Superiore, Piazza San Silvestro 12, 56127 Pisa, Italy; francesco.cardarelli@sns.it

* Correspondence: giulio.caracciolo@uniroma1.it (G.C); daniela.pozzi@uniroma1.it (D.P).

† These authors contributed equally to this work.

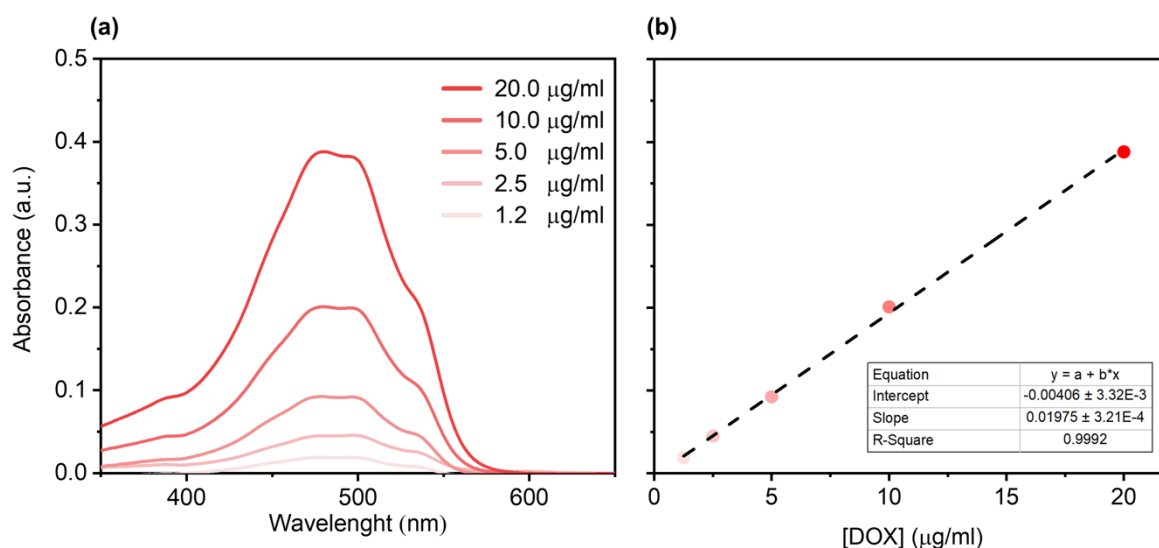


Figure S1. (a) Absorbance spectra of doxorubicin (DOX) at several known concentrations. (b) DOX calibration curve was generated from absorbance values at $\lambda = 480$ nm. The calibration curve was obtained by plotting the absorbance 480 nm versus DOX concentration and was treated by linear regression analysis (dashed line).

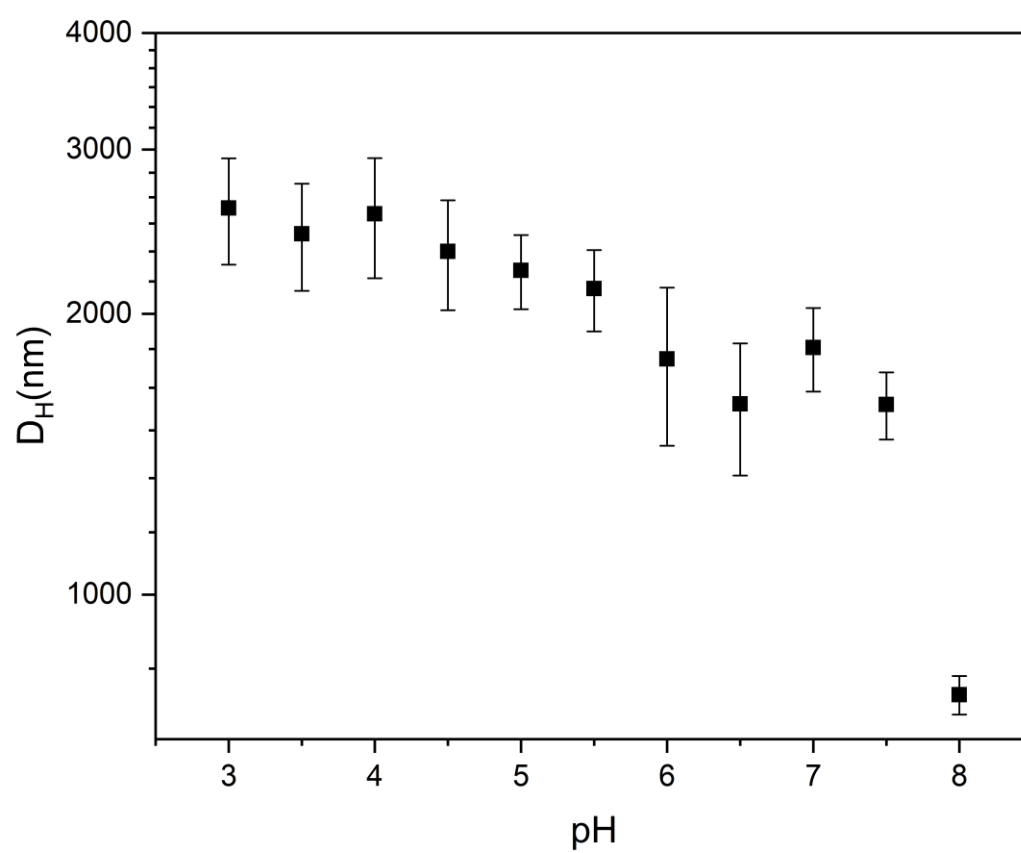


Figure S2. Hydrodynamic diameter (D_H) of GO/DOX complexes as a function of pH solution.

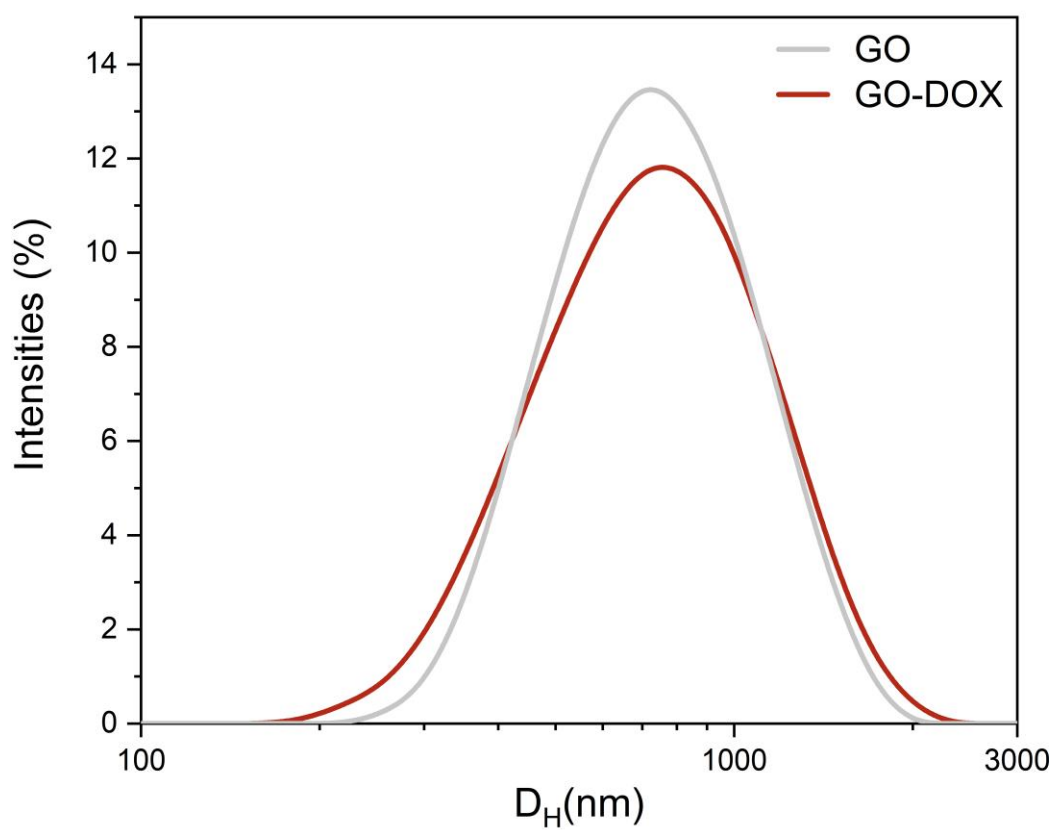


Figure S3. D_H intensity-weighted distribution of pristine GO and GO/DOX complexes.

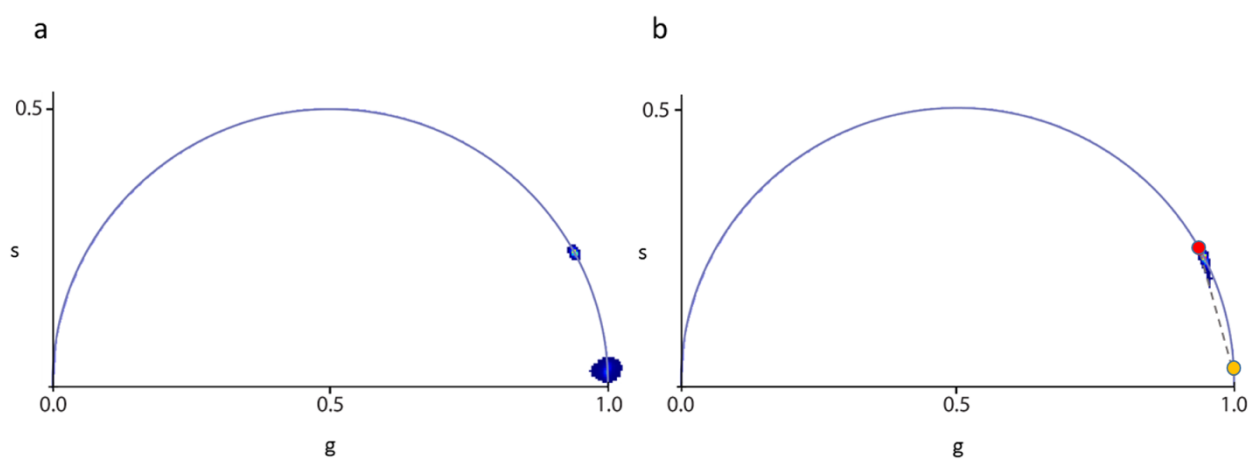


Figure S4. (a) The red circle highlights the experimental lifetime of DOX in aqueous solution (1 ns). The blue circle highlights the experimental lifetime of pristine graphene-oxide (GO) in aqueous solution. (b) The experimental cluster of GO-DOX is a linear combination of the two components, GO and DOX (represented by the red and blue dots).