

*Supplementary Materials*

# Dopamine- and Grape-Seed-Extract-Loaded Solid Lipid Nanoparticles: Interaction Studies between Particles and Differentiated SH-SY5Y Neuronal Cell Model of Parkinson's Disease

Rosanna Mallamaci <sup>1,†</sup>, Debora Musarò <sup>2,†</sup>, Marco Greco <sup>2</sup>, Antonello Caponio <sup>3</sup>, Stefano Castellani <sup>4</sup>, Anas Munir <sup>5</sup>, Lorenzo Guerra <sup>1</sup>, Marina Damato <sup>6</sup>, Giuseppe Fracchiolla <sup>3</sup>, Chiara Coppola <sup>5</sup>, Rosa Angela Cardone <sup>1</sup>, Mehdi Rashidi <sup>5</sup>, Roberta Tardugno <sup>3</sup>, Sara Sergio <sup>2</sup>, Adriana Trapani <sup>3,\*</sup> and Michele Maffia <sup>6,\*</sup>

<sup>1</sup> Department of Biosciences, Biotechnologies and Environment, University of Bari “Aldo Moro”, 70125 Bari, Italy; rosanna.mallamaci@uniba.it (R.M.); lorenzo.guerra1@uniba.it (L.G.); rosaangela.cardone@uniba.it (R.A.C.)

<sup>2</sup> Department of Biological and Environmental Science and Technology, University of Salento, Via Lecce—Monteroni, 73100 Lecce, Italy; debora.musaro@unisalento.it (D.M.); sara.sergio@unisalento.it (S.S.)

<sup>3</sup> Department of Pharmacy-Drug Sciences, University of Bari “Aldo Moro”, Via Orabona 4, 70125 Bari, Italy; antonello.caponio@gmail.com or antonello.caponio@uniba.it (A.C.); giuseppe.fracchiolla@uniba.it (G.F.); roberta.tardugno@uniba.it (R.T.)

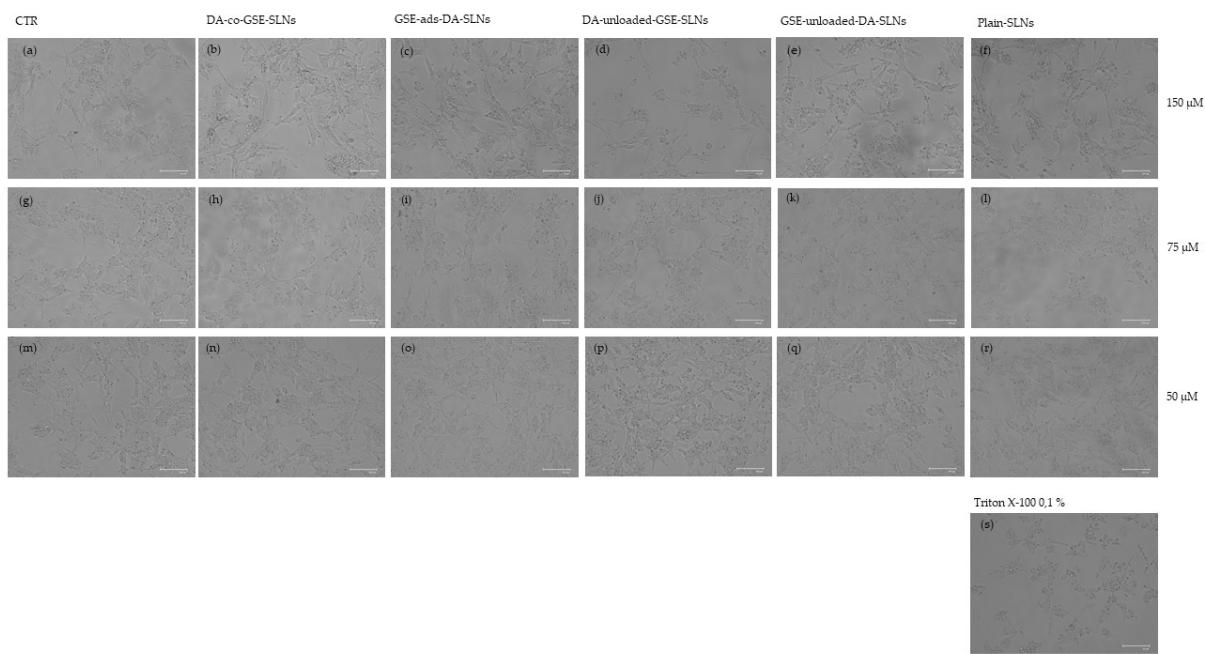
<sup>4</sup> Department of Precision and Regenerative Medicine and Ionian Area (DiMePRe-J), University of Bari “Aldo Moro”, 70125 Bari, Italy; stefano.castellani@uniba.it

<sup>5</sup> Department of Mathematics and Physics “E. De Giorgi”, University of Salento, Via Lecce—Arnesano, 73100 Lecce, Italy; chiara.coppola@unisalento.it (C.C.); mehdi.rashidi@unisalento.it (M.R.)

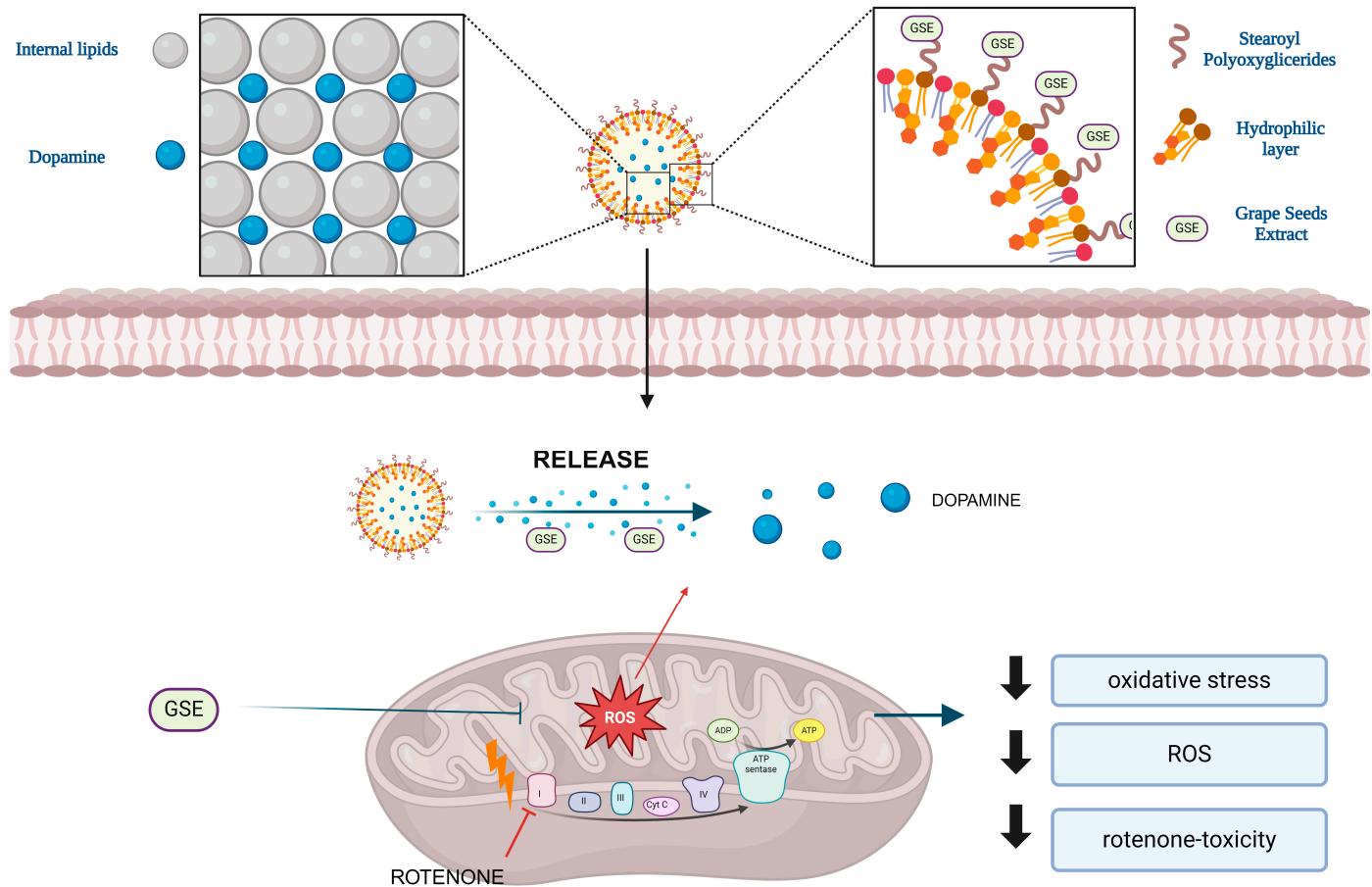
<sup>6</sup> Department of Experimental Medicine, University of Salento, Via Lecce—Monteroni, 73100 Lecce, Italy; marina.damato@unisalento.it

\* Correspondence: adriana.trapani@uniba.it (A.T.); michele.maffia@unisalento.it (M.M.); Tel.: +39-0805-442114 (A.T.); +39-0832-298670 (M.M.)

† These authors have contributed equally to this work.



**Figure S1.** Phase contrast images of cellular morphology of differentiated SH-SY5Y cells after (b, h, n) DA-co-GSE-SLNs, (c, i, o) GSE-ads-DA-SLNs, (d, j, p) DA-unloaded-GSE-SLNs, (e, k, q) GSE-unloaded-DA-SLNs, (f, l, r) plain-SLNs and (s) TRITON X-100 treatments at the indicated volumes and DA concentrations for 24 hours. (a, g, m) Differentiated SH-SY5Y cells without treatments. Magnification: 20 X. Scala bar = 100  $\mu$ m.



**Scheme S1.** Scheme of GSE-SLNs cellular pathway. The image was created with BioRender.com.