*nanomaterials*

MDPI

*Supplementary Materials*

# Tuning the Reduction of Graphene Oxide Nanoflakes Differently Affects Neuronal Networks in the Zebrafish

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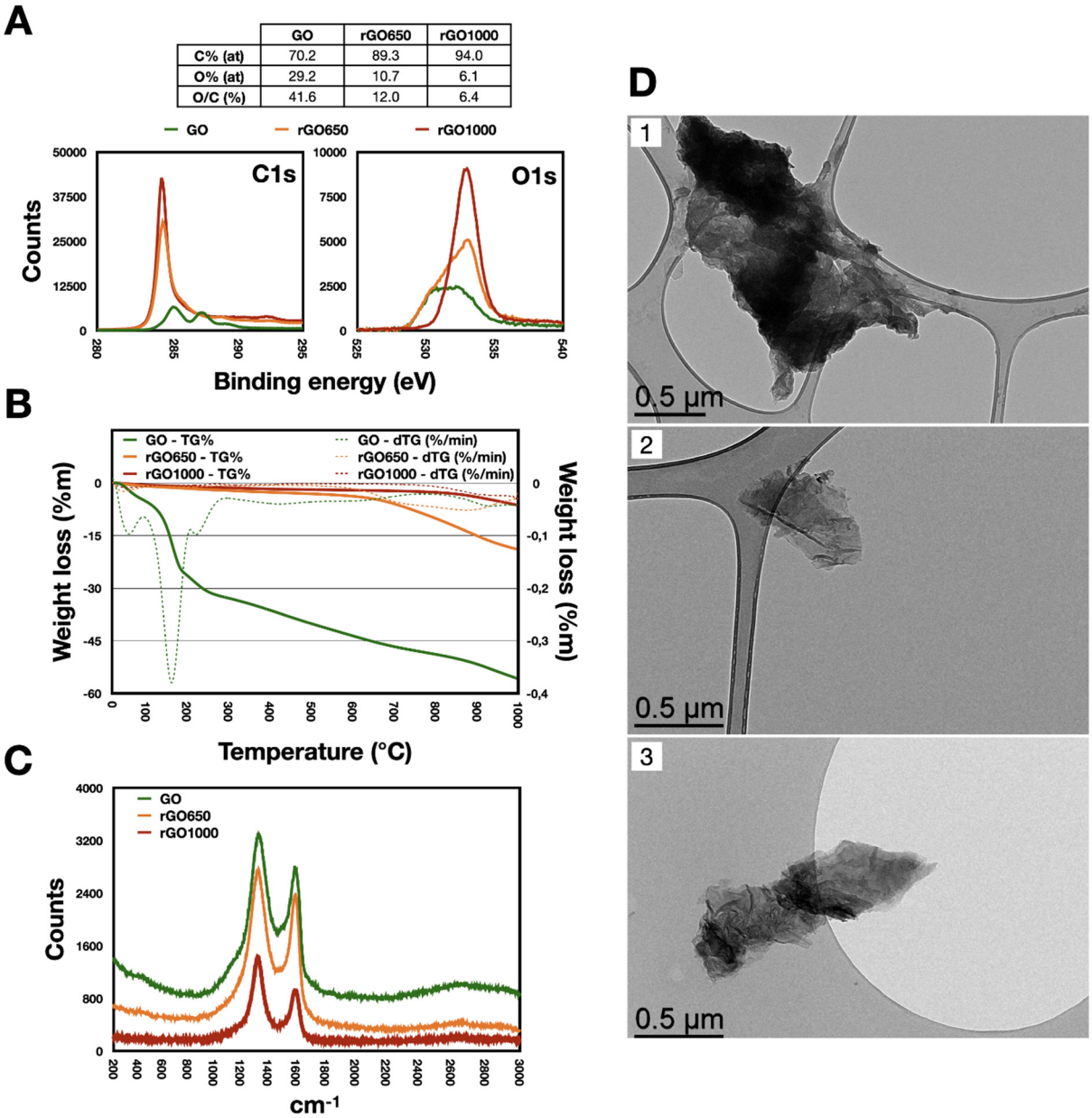


| | GO | rGO650 | rGO1000 |
|---|---|---|---|
| C% (at) | 70.2 | 89.3 | 94.0 |
| O% (at) | 29.2 | 10.7 | 6.1 |
| O/C (%) | 41.6 | 12.0 | 6.4 |

**Figure S1. Characterization of GO and rGO materials.** Data are reported for the nanosheet of GO (green) and for the thermally reduced forms, at 650 °C (orange) and at 1000 °C (red). (A) XPS analysis and its Oxygen/Carbon quantification. (B) TGA analysis showing the weight loss after thermal treatment. (C) Raman spectroscopy. (D) Transmission electron microscopy of GO (1), rGO650 (2) and rGO1000 (3).

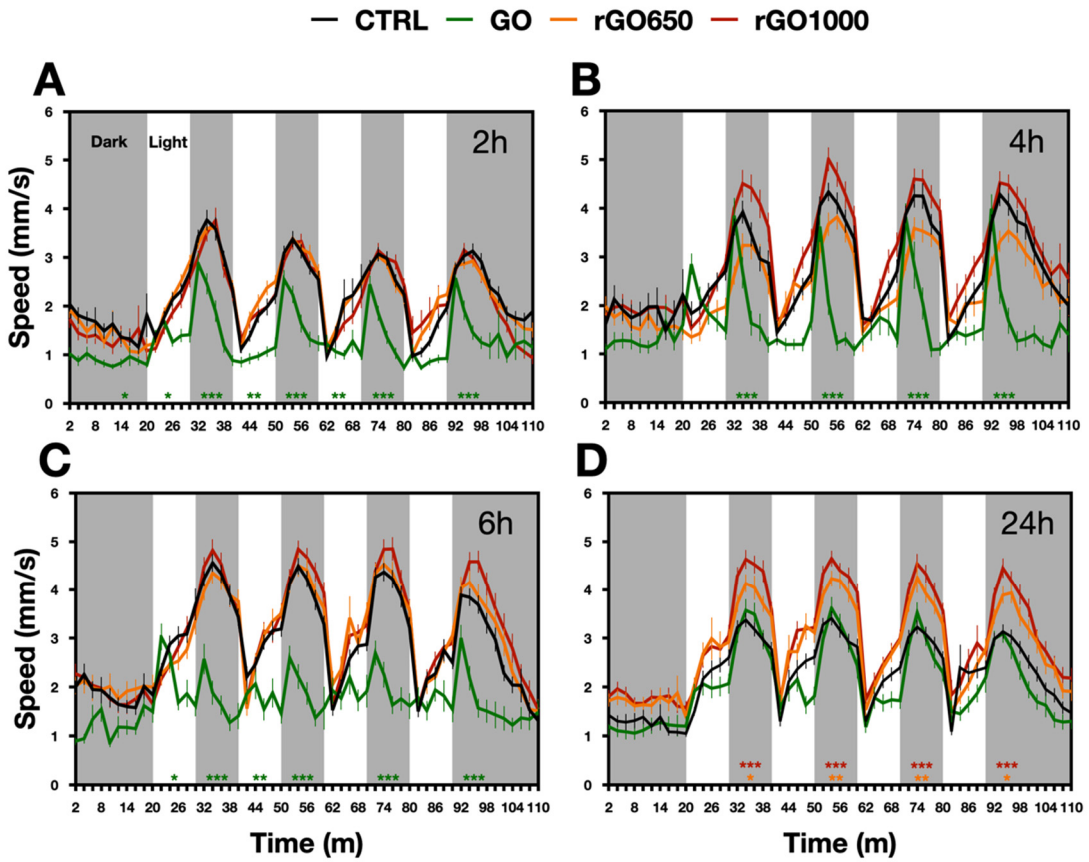


**Figure S2. GO and rGO induces modifications in swimming speed.** Locomotor activity of larvae subjected to light and dark alternating 10 minutes periods was analyzed for swimming speed. Animals were treated with GO (in green), rGO650 (in orange), rGO1000 (in red) or were untreated (control, in black). Different incubation times were used: 2 (A), 4 (B), 6 (C) and 24 (D) hours. Statistical significance are showed * P<0.033, ** P<0.002, *** P<0.001.

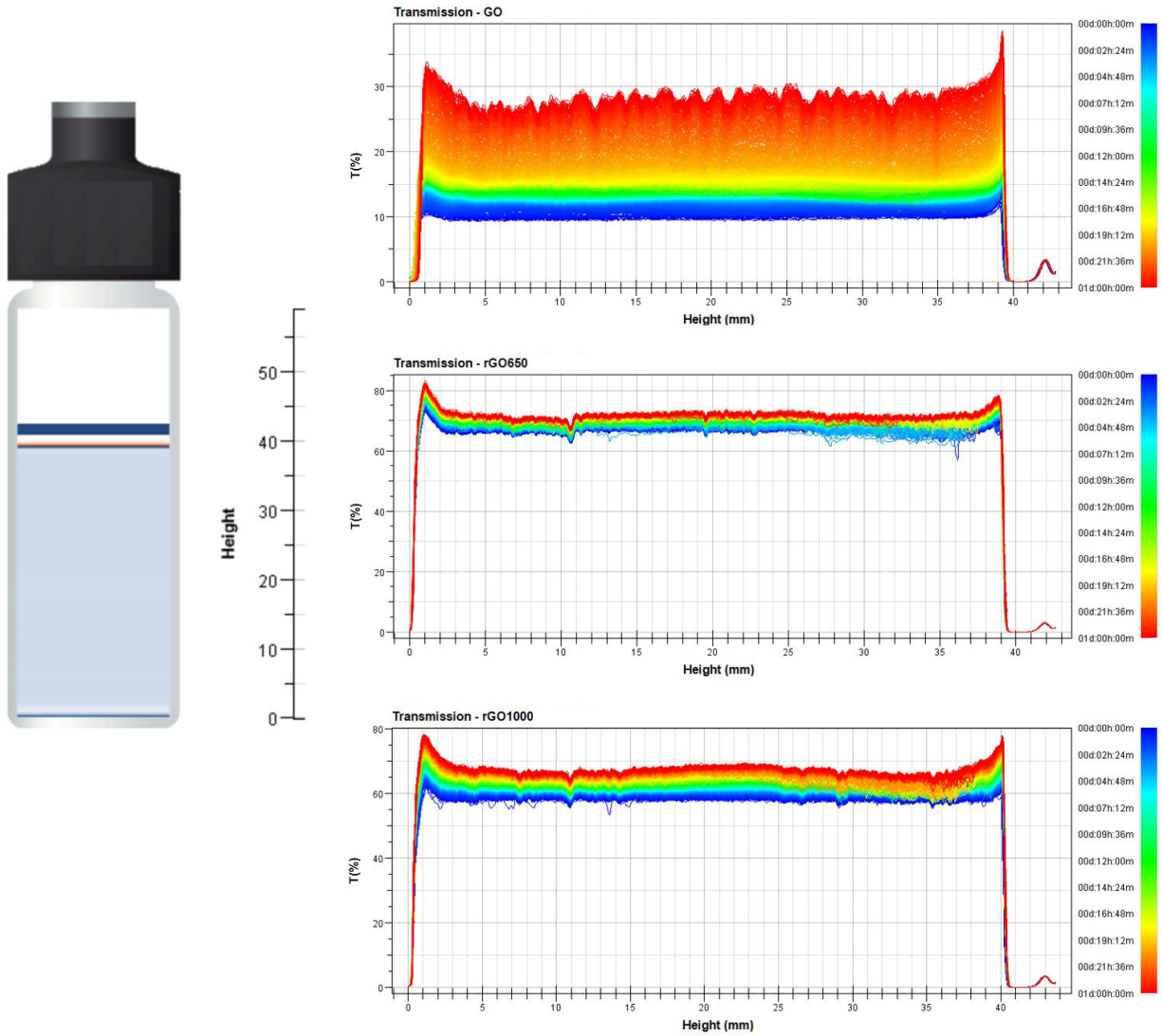


**Figure S3.** Turbiscan analysis: transmission vs time (24hours monitoring) for GO, rGO650 and rGO1000 (raw transmission data). The transition from blue to red goes from the beginning to the end of the monitoring.

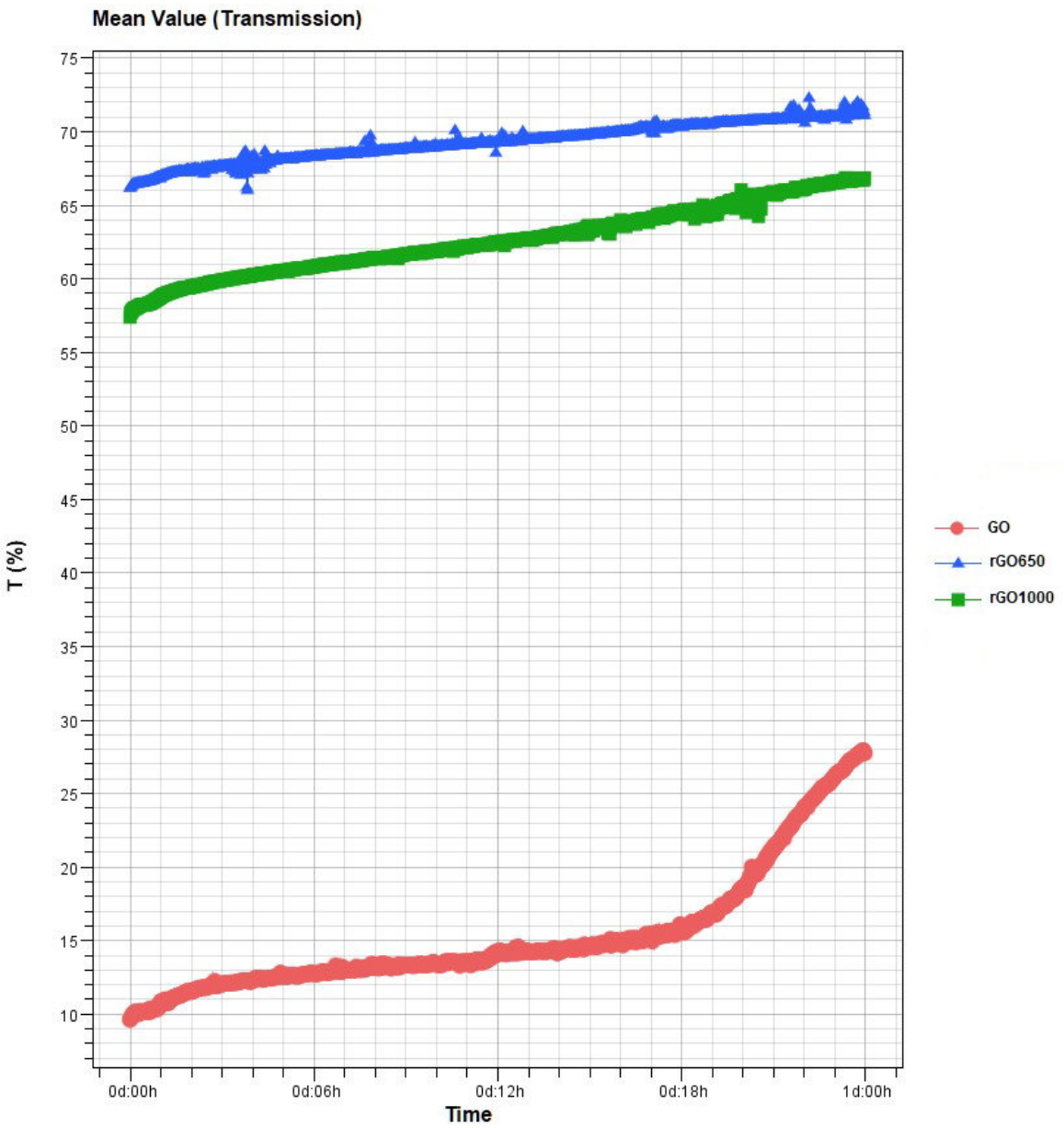


**Figure S4.** Turbiscan analysis: mean transmission value *vs* time (24 hours monitoring) for GO, rGO650 and rGO1000.

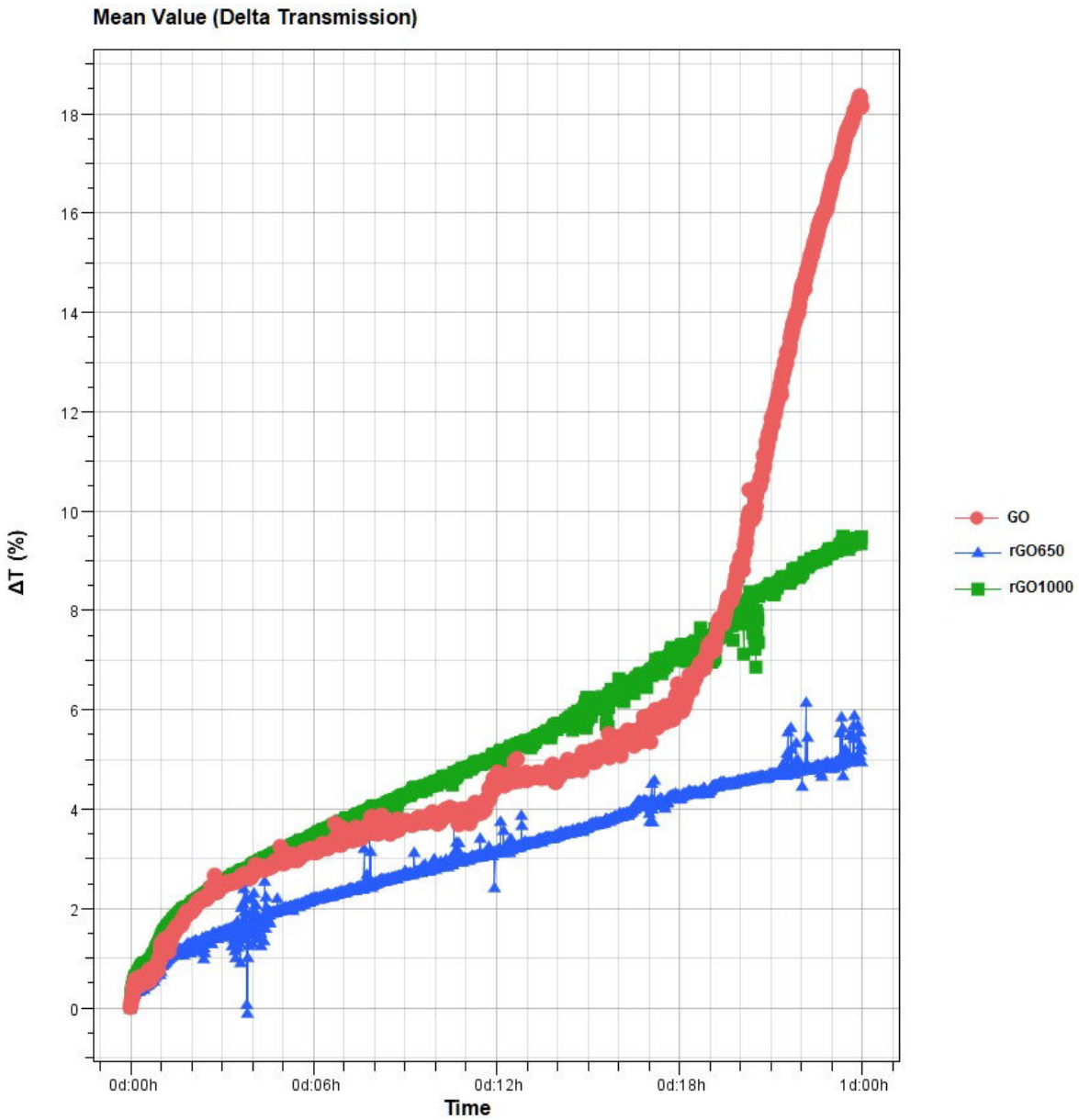


**Figure S5.** Turbiscan analysis: variation of the mean transmission (24 hours monitoring) for GO, rGO650 and rGO1000. Data were normalized to the initial transmission for each sample for easier comparison of the behavior of the 3 samples, independently of their actual transmission value.