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SESSION: *Advanced Materials for nanobiotechnology*

Invited talk

Reduced graphene oxide triggers neuronal growth and differentiation by modulating mechano-transduction

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In this work the dissection of the molecular pathways underlying the differentiation effect of reduced graphene oxide (GO) materials in the absence of differentiation agents was investigated. GO was able to induce neuronal differentiation both in cells of neuroectodermal origin but also in human amniotic stem cells. The neuronal differentiated cells grown on GO expressed neuronal markers and increase neurite length.
GO triggered the modulation of mechano-transduction and differentiation pathways, by affecting YAP/TAZ localization outside the nuclei and increasing neuronal differentiation markers. This suggests that the mechano-transduction pathways are responsible for the differentiation process. These results indicate GO as a potential compound for 3D bioprinting with human amniotic stem cells for neuronal repair in traumatic brain injury.