PERSONAL INFORMATION

Giada Cellot

✉ cellot@sissa.it

orcid orcid.org/0000-0001-9198-8402

Research interests Synaptic integrity and plasticity in physio/pathological conditions. Synaptic integration, network signalling and correlated behaviours. Nanotechnology based tools for biomedical applications. Zebrafish neurobiology.

WORK EXPERIENCE

16/09/2023 – Today

Technologist at the International school for advanced studies (SISSA, Italy), Neuroscience Area.
Research project:
"In vivo neurobiology models of anxiety and aging for the combined study of altered behavior, synaptic integrity and plasticity" (in the framework of NextGenerationEU, PNRR project, AGE-It – Improving the understanding of the biology of aging, spoke 2, work package 2).

16/09/2020 – 15/09/2023

Researcher RTDA at the International school for advanced studies (SISSA, Italy), Neuroscience Area.
Research project:
"Graphene based nanomaterials for biomedical applications in neuroscience" (in the framework of European Commission supported Graphene Flagship project, work package 4 - Health and environment and work package 5 - Biomedical technologies).

16/09/2018 – 15/09/2020

Research Fellow at the International school for advanced studies (SISSA, Italy), Neuroscience Area.
Research project: "Small graphene oxide sheets as nanotools for the modulation of excitatory synapses: effects, mechanisms and applications in therapy" (fellowship supported by Fondo Sociale Europeo 2014/2020, Progetto HEaD "HIGHER EDUCATION AND DEVELOPMENT).

01/06/2017 – 10/08/2018

Research Fellow at the University of Leicester (UK), Department of Neuroscience, Psychology & Behaviour.
Research project: "NanoZfish: Restoration of motor dysfunction in vivo through nanomaterials based devices" (fellowship supported by European Commission, H2020, Marie Sklodowska-Curie Actions Individual fellowship -2016).

02/11/2015 – 31/05/2017

Research Associate at the University of Leicester (UK), Department of Neuroscience, Psychology & Behaviour.
Research project: "Early neuronal circuitry dysfunction as a target for treatment of amyotrophic lateral sclerosis", supervisor: Prof. J. McDearmid.

03/10/2011 - 02/10/2015

PostDoc position at the International School for Advanced Studies (SISSA), Neuroscience Area, Trieste, Italy.
Research Project: "Excitatory/Inhibitory balance in cortical microcircuits of animal models of Autism", supervisor: Prof. E. Cherubini.

01/02/2011 - 30/09/2011

PostDoc position at the University of Trieste, Life Sciences Department, Italy.
Research project: "Carbonanobridge: Neuron networking with nano bridges via the synthesis and integration of functionalized carbon nanotubes (supported by European Commission, 7th Framework Programme)", supervisor: Prof. L. Ballerini.

01/01/2010 - 31/12/2010

PostDoc position at the University of Trieste, Life Sciences Department, Italy.

Research project:" Molecular neurosciences of motor neuron disease: in vitro analysis of pathologic and protective mechanisms in a genetic model of amyotrophic lateral sclerosis", supervisor: Prof. L. Ballerini.

EDUCATION AND TRAINING

01/01/2007 - 16/03/2010	Philosophiæ Doctor (PhD) Degree in Neuroscience and Cognitive Sciences at the University of Trieste, Italy.

Research Project: "Towards new generation of neuroimplantable devices: engineering NEUROn/carbon NANOtubes integrated functional units (supported by European Commission, 6th Framework Programme)", supervisor: Prof. L. Ballerini.

01/10/2003 - 20/04/2006	Master's Degree in Medical Biotechnology at the University of Trieste, Italy.
01/10/2000 - 17/07/2003	Bachelor's Degree in Biotechnology at the University of Trieste, Italy.

Other training experience:

- Course of Transgenesis in Zebrafish 2023, at the Department of Biology and Zebrafish Facility, University of Padua.

- School of Physiology and Biophysic 2011, "New technologies for the study of the central nervous system", at the Italian Technology Institute (IIT), Genova, Italy.

- School of Physiology and Biophysic 2010, at the European Laboratory for Non-Linear Spetroscopy, Polo Scientifico di Sesto Fiorentino, Italy.

- Visiting PhD student (Summer 2007) at Prof. Michele Giugliano's laboratory, Ecole polytechnique federale de Lausanne (EPFL), Lausanne, Switzerland.

ADDITIONAL INFORMATION

Italian National Academic Qualification (Abilitazione scientifica nazionale)	▪ For Associate Professor in Applied Biology (05/F1), from 04/04/2017 to 04/04/2028. ▪ For Associate Professor in Physiology (05/D1), from 04/04/2017 to 04/04/2028.
Fellowships/Funds	▪ Marie Sklodowska-Curie Individual Fellowship (H2020-MSCA-IF-2016): "NanoZFish: Restoration of motor dysfunction in vivo through nanomaterials based devices". ▪ European Social Fund 2018, Programme POR FSE, Project HEaD Higher education and development, SISSA Operazione 1: "Small graphene oxide sheets as nanotools for the modulation of excitatory synapses: effects, mechanisms and applications in therapy". ▪ Co-PI in the project Age-It, Next Generation EU, PNRR, Investment PE8 - PE0000015 - AGE – IT, awarded to Prof. L. Ballerini as PI. Activities in the Spoke 2: Improving the understanding of the biology of ageing, WP2: Zebrafish as translational model towards healthy aging strategies: linking cognitive, synaptic and protein senescence"
Awards	▪ Travel grant from Societa' Italiana Neuroscienze (SINS) for participating to XV Congress of SINS, October 3-5th 2013 ▪ Travel grant from "The company of biologists" for participating to the 28th International Symposium of Motor Neuron Disease, Boston, December 7-10th 2017 (attachment 4)
Patent	▪ CARBON-NANOTUBE MODULATION OF MYOCYTE CELLS (PCT/US2012/028930; publication number: EP2686422 A2), Mestroni, Ballerini, Long, Caldwell, Prato, Martinelli, **Cellot**, Toma, Zentilin

Teaching and other academic activities

1. Adjunct professor at the University of Trieste (since 2018)

For the Bachelor in Speech therapy:
- Class of Human physiology (30 hours, Academic year 2021/2022)
- Class of Neurophysiology (20 hours, Academic year 2019/2020)
- Class of Otorhinolaryngology Physiology (10 hours, Academic year 2018/2019)
- Class of Otorhinolaryngology Physiology (10 hours, Academic year 2019/2020,)

For the Bachelor in Dental hygiene
- Class of Physiology (30 hours, Academic year 2018/2019)

For the Master in Neuroscience (teaching in English)
- Class of Integrative neurophysiology (16 hours, Academic year 2022/2023).
- Class of Integrative neurophysiology (16 hours, Academic year 2021/2022)
- Seminar activities during Academic years 2018/2019, 2019/2020 and 2020/2021 (8 hours each)
- Member of Graduation Committees for the Master in neuroscience.

2. Teaching and other activities at SISSA for the PhD course in Neurobiology (as RTDA, 2020-2023)
- Class of "Synaptic plasticity" (15 hours, each academic year, teaching in English)
- Other activities of support and formation for PhD students (~ 300 hours/year)
- Member of admission and PhD defense committees for the PhD course.

Publications (n=31)

Peer review journals

first or sharing first authorship =15 publications

* corresponding author(s) = 9 publications

1. Pati E., Franceschi Biagioni A., Casani R., Lozano N., Kostarelos K., **Cellot G.** *, Ballerini L*. Delivery of graphene oxide nanosheets modulates glutamate release and normalizes amygdala synaptic plasticity to improve anxiety-related behavior. Nanoscale. 2023 15, 18581-18591. doi: 10.1039/d3nr04490d.

2. Tortella L., Santini I., Lozano N., Kostarelos K., **Cellot G.** *, Ballerini L*. Graphene Oxide Nanosheets Hamper Glutamate Mediated Excitotoxicity and Protect Neuronal Survival In An In vitro Stroke Model. Chemistry. 2023 29:e202301762. doi: 10.1002/chem.202301762.

3. Di Mauro, G., Amoriello, R., Lozano, N., Carnasciali, A., Guasti, D., Becucci, M., **Cellot G.***, Kostarelos, K., Ballerini, C. *, Ballerini, L*. Graphene oxide nanosheets reduce astrocyte reactivity to inflammation and ameliorate experimental autoimmune encephalomyelitis. ACS Nano 2023, ACS Nano 2023, 17, 3, 1965–1978, doi.org/10.1021/acsnano.2c06609.

4. **Cellot G.** #*, Jacquemin L., Reina G., Franceschi Biagioni A., Fontanini M., Chaloin O., Nishina Y., Bianco A., Ballerini L*. Bonding of neuropeptide Y on graphene oxide for drug delivery applications to the central nervous system. ACS Appl Nano Mater. 2022 5(12):17640-17651. doi: 10.1021/acsanm.2c03409.

5. Di Mauro G., Rauti R., Casani R., Chimowa G., Galibert A.M., Flahaut E., **Cellot G.***, Ballerini L*. Tuning the reduction of graphene oxide nanoflakes differently affects neuronal networks in the zebrafish. Nanomaterials 2021, 11(9), 2161 https://doi.org/10.3390/nano11092161

6. **Cellot G**. #*, Franceschi Biagioni A., Ballerini L. Nanomedicine and graphene-based materials: advanced technologies for potential treatments of diseases in the developing nervous system. Pediatric Research 2021. 92(1):71-79. doi.org/10.1038/s41390-021-01681-6.

7. Franceschi Biagioni A.#, **Cellot G.**#, Pati E., Lozano N., Ballesteros B., Coimbrac N.C., Kostarelos K., Ballerini L. Graphene oxide prevents lateral amygdala dysfunctional synaptic plasticity and reverts long lasting anxiety behavior in rats. Biomaterials 2021, 271:120749. DOI 10.1016/j.biomaterials.2021.120749

8. Passerini M., Da Re M., Antoni S., **Cellot G**., Tirelli G., Grill V. Smell rehabilitation: recovery of olfactory perception and discrimination in twelve cases of total laryngectomy. International Journal of Health Sciences. 8(4): 1-7, 2020. DOI: 10.15640/ijhs.v8n4a1

9. **Cellot G**. #*, Vranic S., Shin Y., Worsley R., Rodrigues A.F., Busy C., Casiraghi C., Kostarelos K., McDearmid J.R. Graphene oxide nanosheets modulate spinal glutamatergic transmission and modify locomotor behaviour in an in vivo zebrafish model. Nanoscale Horizons 5(8):1250-1263, 2020, DOI: 10.1039/c9nh00777f.

10. Rauti R., **Cellot G.**, D'Andrea P., Colliva A., Scaini D., Tongiorgi E., Ballerini L. BDNF impact on synaptic dynamics: extra or intracellular long-term release differently regulates cultured hippocampal synapses. Mol Brain 13:43, 2020. DOI: 10.1186/s13041-020-00582-9.

11. Secomandi N., Franceschi Biagioni A., Kostarelos K., **Cellot G.***, Ballerini L*. Thin graphene oxide nanoflakes modulate glutamatergic synapses in the amygdala cultured circuits: exploiting synaptic approaches to anxiety disorders. Nanomedicine:NBM 26:102174, 2020. DOI: 10.1016/j.nano.2020.102174.

12. **Cellot G**. [#], La Monica S., Scaini D., Rauti R., Bosi S., Prato M., Gandolfi S., Ballerini L. <u>Successful regrowth of retinal neurons when cultured interfaced to carbon nanotube platforms.</u> Journal of Biomedical Nanotechnology, 13(5):559-565, 2017   DOI: 10.1166/jbn.2017.2364.

13. **Cellot G.** [#], Maggi L., Di Castro M.A., Catalano M., Migliore R., Migliore M., Scattoni M.L., Calamandrei G., Cherubini E. <u>Premature changes in neuronal excitability account for hippocampal network impairment and autistic-like behavior in neonatal BTBR T+tf/J mice</u> Scientific Reports 6:31696, 2016. DOI: 10.1038/srep31696

14. Medelin M., Rancic V., **Cellot G**., Laishram J., Veeraraghavan P., Rossi P., Muzio L., Sivilotti L., Ballerini L. <u>Altered development in GABA co-release shapes glycinergic synaptic currents in cultured spinal slices of the SOD1G93A mouse model of ALS.</u> J Physiol. 594(13):3827-40, 2016. DOI: 10.1113/JP272382

15. **Cellot G**. [#*], Lagonegro P., Tarabella G., Scaini D., Fabbri F., Iannotta S., Prato M., Salviati G., Ballerini L[*]. <u>PEDOT:PSS interfaces support the development of neuronal synaptic networks with reduced neuroglia response in vitro.</u> Front Neurosci. 9:521, 2016. DOI: 10.3389/fnins.2015.00521

16. Fabbro A., Scaini D., León V., Vázquez E., **Cellot G**., Privitera G., Lombardi L., Torrisi F., Tomarchio F., Bonaccorso F., Bosi S., Ferrari A.C., Ballerini L., Prato M. <u>Graphene-based interfaces do not alter target nerve cells.</u> ACS Nano. 10:615-23, 2016. DOI: 10.1021/acsnano.5b05647

17. **Cellot G**. [#], Cherubini E. <u>Reduced inhibitory gate in the barrel cortex of Neuroligin3R451C knock-in mice, an animal model of autism spectrum disorders.</u> Physiological Reports Volume 2, Issue 7, 2014. DOI: 10.14814/phy2.12077

18. **Cellot G**. [#], Cherubini E. <u>GABAergic signaling as therapeutic target for autism spectrum disorders.</u> Front Pediatr. 2:70. 2014. Review. DOI: 10.3389/fped.2014.00070

19. Raciti M., Granzotto M., Duc M.D., Fimiani C., **Cellot G**., Cherubini E., Mallamaci A. <u>Reprogramming fibroblasts to neural-precursor-like cells by structured overexpression of pallial patterning genes.</u> Mol Cell Neurosci. 57:42-53, 2013. DOI: 10.1016/j.mcn.2013.10.004

20. Martinelli V. , **Cellot G**., Fabbro A., Bosi S., Mestroni L., Ballerini L. <u>Improving cardiac myocytes performance by carbon nanotubes platforms</u> Front Physiol. 4:239, 2013. Review DOI: 10.3389/fphys.2013.00239

21. **Cellot G**. [#], Cherubini E. <u>Functional role of ambient GABA in refining neuronal circuits early in postnatal development</u>. Front Neural Circuits. 7:136 2013. Review. DOI: 10.3389/fncir.2013.00136

22. Martinelli V. [#], **Cellot G**. [#], Toma F.M., Long C.S., Caldwell J.H., Zentilin L., Giacca M., Turco A., Prato M., Ballerini L., Mestroni L. <u>Carbon nanotubes instruct physiological growth and functionally mature syncytia: non-genetic engineering of cardiac myocytes</u> ACS Nano. 7(7):5746-56 2013 DOI: 10.1021/nn4002193

23. Griguoli M., **Cellot G**., Cherubini E. <u>In hippocampal oriens interneurons anti-Hebbian long-term potentiation requires cholinergic signaling via α7 nicotinic acetylcholine receptors</u> J Neurosci. 33:1044-9, 2013 DOI: 10.1523/JNEUROSCI.1070-12.2013

24. Martinelli V. [#], **Cellot G.** [#], Toma F.M., Long C.S., Caldwell J.H., Zentilin L., Giacca M., Turco A., Prato M., Ballerini L., Mestroni L. <u>Carbon nanotubes promote growth and spontaneous electrical activity in cultured cardiac myocytes.</u> Nano Lett. 12:1831-8, 2012 DOI: 10.1021/nl204064s

25. **Cellot G**. [#],Toma F.M., Varley Z.K., Laishram J., Villari A., Quintana M., Cipollone S., Prato M., Ballerini L. <u>Carbon nanotube scaffolds tune synaptic strength in cultured neural circuits: novel frontiers in nanomaterial-tissue interactions.</u> J Neurosci. 31:12945-53, 2011 DOI: 10.1523/JNEUROSCI.1332-11.2011

26. Fabbro A., **Cellot G**., Prato M., Ballerini L. <u>Interfacing neurons with carbon nanotubes: (re)engineering neuronal signalling.</u> Prog Brain Res, 194:241-52, 2011. Review DOI: 10.1016/B978-0-444-53815-4.00003-0

27. **Cellot G**. [#], Ballerini L., Prato M., Bianco A. <u>Neurons are able to internalize soluble carbon nanotubes: new opportunities or old risks?</u> Small Vol. 6 pp: 2630-3, 2010. DOI: 10.1002/smll.201000906

28. Gaillard C., **Cellot G**., Li S., Toma F., Dumortier H., Spalluto G., Cacciari B., Prato M., Ballerini L., Bianco A. <u>Carbon nanotubes carrying cell-adhesion peptides do not interfere with neuronal functionality.</u> Advanced Materials, Vol. 21 pp: 1-6, 2009 DOI: 10.1002/adma.200900050

29. Sucapane A., **Cellot G**., Prato M., Giugliano M., Parpura V., Ballerini L. <u>Interactions between cultured neurons and carbon nanotubes: a nanoneuroscience vignette</u> Journal of Nanoneuroscience Vol. 1, pp: 10–16, 2009. Review. DOI: 10.1166/JNS.2009.002

30. **Cellot G.** [#], Cilia E., Cipollone S., Rancic V, Sucapane A, Giordani S, Gambazzi L, Markram H, Grandolfo M, Scaini D, Gelain F, Casalis L, Prato M, Giugliano M, Ballerini L. <u>Carbon nanotubes might improve neuronal performance by favouring electrical Shortcuts</u>. Nature Nanotechnology Vol. 4, pp:126-33, 2009 DOI: 10.1038/nnano.2008.374

Chapter in books

31. Fabbro A., Toma F., **Cellot G**., Prato M., Ballerini L. Carbon nanotubes and neuronal performance" in Nanomedicine and the nervous system. Edited by Ross J. Hunter, Science Publishers, Enfield, United States, 2012. ISBN: 978-1-57808-728-0

Autorizzo il trattamento dei dati personali nelle modalità previste dal Regolamento UE 2016/679