

INFORMAZIONI PERSONALI

Federica Cordella

OCCUPAZIONE PER LA QUALE
SI CONCORRE
POSIZIONE RICOPERTA
OCCUPAZIONE DESIDERATA
TITOLO DI STUDIO
OBIETTIVO PROFESSIONALE

Post-doc fellowship (01/02/2022 – 31/01/2023)
Research: SSD BIO/09 “Caratterizzazione morfologica della
maturazione postnatale degli astrociti in un modello murino di
sindrome da delezione 22q11” – Telethon foundation

ESPERIENZA
PROFESSIONALE

01/02/2022 – 31/01/2023

Post-doc fellowship

Sapienza university, Rome, P.le Aldo Moro 5, 00185

- Caratterizzazione morfologica della maturazione postnatale degli astrociti in un modello murino di sindrome da delezione 22q11

SSD BIO/09

ISTRUZIONE E FORMAZIONE

01/11/2018 – 31/01/2022

Ph.D

excellent

Center for Life Nano- & Neuro-Science, Rome, Italy

- Cell biology, electrophysiology, confocal microscopy, molecular biology and in vivo models
- Project: "iPSCs-derived cortical organoids: an in vitro model to mimic and investigate neurodegenerative diseases". Study of iPSCs-derived cortical organoids through the development of specific study protocols in order to investigate the onset and progression of the neurodegenerative diseases. The project has been carried out using different technologies such as cell models (cell lines, stem cells and derived-organoids), several technics like confocal microscopy, electrophysiology, calcium imaging, molecular biology and in vivo models

10/2016 – 07/2018

Master degree in Neurobiology

110 cum laude

Sapienza university, Rome, Italy

- Master degree (DM. 270/04) of Neurobiology (CLASSE LM-6). Master degree project: "Systemic antibiotics treatment modulates microglia-synapses interaction through CX3CL1/CX3CR1 axis". The project was focused on the impact of a systemic antibiotic treatment on microglia function and synaptic signaling and has been carried out through the use of cell biology, electrophysiology and in vivo models methods

10/2013 – 10/2016

Bachelor degree in Biology

106/110t

Sapienza university, Rome, Italy

- Bachelor Degree (DM. 270/04) of Biology (CLASSE L-13). Bachelor Degree project: "Characterization of PTSJ from Salmonella Typhimurium: a new transcriptional regulator of the recycling pathway of vitamin B6". Evaluation of the structure and activity mechanisms of PTSJ using electrophoresis techniques, chromatography and spectrophotometry

COMPETENZE PERSONALI

Lingua madre

ITALIANO

INGLESE

COMPRESIONE		PARLATO		PRODUZIONE SCRITTA
Ascolto	Lettura	Interazione	Produzione orale	
C1	C1	B2	B2	

Competenze comunicative

- ABILITY TO ORGANIZE INDEPENDENTLY OR IN GROUP THE WORK AND TO COOPERATE WITH OTHER FIGURES MANAGING THE PRIORITY EVEN IN STRESSFUL SITUATIONS IN ORDER TO MEET DEADLINES AND TARGETS. ABILITY TO WORK EVEN IN INTERDISCIPLINARY PROJECTS AND ALWAYS WILLING TO INCREASE AND INTEGRATE THE EXPERIENCE AND KNOWLEDGE WITH A SENSE OF INITIATIVE. AVAILABILITY TO DISCUSSION AND SCIENTIFIC DEBATE, CONSIDERED EXCELLENT TOOLS TO INCREASE KNOWLEDGE AND TO ENSURE A BETTER JOB. GOOD SCIENTIFIC WRITING SKILLS AND ORAL COMMUNICATION.

Competenze professionali

- Autonomy tested in the laboratory as regards the cell biology, electrophysiology, confocal microscopy (spinning disk, laser scanning, two photons), molecular biology and in vivo models (mice) in the fields of neurodegenerative diseases and microbiota-microglia neurons interaction in physiological conditions.
 - Excellent ability to manipulate primary cell cultures, immortalized and cancer stem cells from patients, assessing cellular response to drugs and cellular interactions in order to study specific biological behaviors Use of induced pluripotent stem cells (iPSCs) in order to both develop a cortical organoids as a new in vitro tool to investigate functional neuronal network in both physiological and pathological conditions and microglial population, to assess their role in the functional maturation of neurons.
- Use of animal models to both assess the microbiota-microglianeurons crosstalk in both physiological and pathological condition, and to evaluate pathological AD markers into mouse retina.
 - Excellent application of electrophysiological techniques, immunofluorescence methods, PCR, real time PCR, Western blot. Experience in electrophoresis techniques.
 - Confocal Microscopy: Preparation of samples for confocal microscope analysis and staining starting from cellular models and both mouse and retina slices obtained from mouse models. Nikon Eclipse Ti equipped with X-Light V2 spinning disk (CrestOptics), LDI laser source (89 North) and Prime BSI Scientific CMOS (sCMOS) camera, 6.5 μm pixels (Photometrics) with a 10x/0.25 Plan E air objective and a 60x/1.4 PlanApo I oil objective. Confocal microscope FV10i (Olympus), monophoton configuration, equipped with 10x/0.40 air objective and a 60x/1.35 water objective. Metamorph software version 7.10.2 (Molecular Devices) was used to acquire immunofluorescence images. Data analysis through ImageJ software, Metamorph software, Huygens software.
 - Cell Culture: Use of immortalized cancer cell lines (U251; GL15); Use of induced-pluripotent stem cell (iPSCs) (iPS28 and IVS10+16 cell lines).
 - Cell viability using Trypan blue assay. RNA and cDNA: RNA extraction from iPSCs samples by the use of E.Z.N.A.® Total RNA Kit I | Omega Bio-tek.
 - Use of PCR techniques in order to obtain cDNA from iPSCs samples. Quantitative PCR (qPCR) in order to confirm the gene expression of neuronal and microglial markers.
 - Histopathology: Tissue processing and preparation of histological preparations: fixation, paraffin embedding, freezing in liquid nitrogen, microtome cut, cut to the cryostat, the hematoxylin-eosin staining, histochemical staining, immunohistochemistry, immunofluorescence.
 - Electrophysiology: In vitro and in vivo electrophysiological recordings. Mouse derived brain/retina processing and preparation for electrophysiological recordings of both neurons and microglial cells using patch clamp techniques. Use of both current clamp and voltage clamp configuration to assess cell functionality in both physiological and pathological condition

Patente di guida

B

ULTERIORI INFORMAZIONI

Pubblicazioni

- 1. **Cordella, F.**; Sanchini, C.; Rosito, M.; Ferrucci, L.; Pediconi, N.; Cortese, B.; Guerrieri, F.; Pascucci, G.R.; Antonangeli, F.; Peruzzi, G.; Giubettini, M.; Basilico, B.; Pagani, F.; Grimaldi, A.; D'Alessandro, G.; Limatola, C.; Ragozzino, D.; Di Angelantonio, S. Antibiotics Treatment Modulates Microglia– Synapses Interaction. *Cells* 2021, 10, 2648.
- 2. Latina V, Giacobuzzo G, **Cordella F**, Balzamino BO, Micera A, Varano M, Marchetti C, Malerba F, Florio R, Ercole BB, La Regina F, Atlante A, Coccarello R, Di Angelantonio S, Calissano P, Amadoro G. Systemic delivery of a specific antibody targeting the pathological N-terminal truncated

tau peptide reduces retinal degeneration in a mouse model of Alzheimer's Disease. *Acta Neuropathol Commun.* 2021 Mar 9;9(1):38. doi: 10.1186/s40478-021-01138-1. PMID: 33750467; PMCID: PMC7942014.

▪ 3. Brighi C, **Cordella F**, Chiriatti L, Soloperto A, Di Angelantonio S. Retinal and Brain Organoids: Bridging the Gap Between in vivo Physiology and in vitro Micro-Physiology for the Study of Alzheimer's Diseases. *Front Neurosci.* 2020 Jun 17;14:655. doi: 10.3389/fnins.2020.00655. PMID: 32625060; PMCID: PMC7311765.

▪ 4. **Cordella F**, Brighi C, Soloperto A, Di Angelantonio S. Stem cell-based 3D brain organoids for mimicking, investigating, and challenging Alzheimer's diseases. *Neural Regen Res.* 2022 Feb;17(2):330-332. doi: 10.4103/1673-5374.317976. PMID: 34269204.

▪ 5. Brighi C, Salaris F, Soloperto A, **Cordella F**, Ghirga S, de Turris V, Rosito M, Porceddu PF, D'Antoni C, Reggiani A, Rosa A, Di Angelantonio S. Novel fragile X syndrome 2D and 3D brain models based on human isogenic FMRPKO iPSCs. *Cell Death Dis.* 2021 May 15;12(5):498. doi: 10.1038/s41419-021-03776-8. PMID: 33993189; PMCID: PMC8124071.

▪ **Cordella, F.**; Ferrucci, L.; D'Antoni, C.; Ghirga, S.; Brighi, C.; Soloperto, A.; Gigante, Y.; Ragozzino, D.; Bezzi, P.; Di Angelantonio, S. Human iPSC-Derived Cortical Neurons Display Homeostatic Plasticity. *Life* **2022**, *12*, 1884. <https://doi.org/10.3390/life12111884>

Presentazioni

1. Glial cells-neuron crosstalk in CNS in health and disease | 1-3 October 2020. Virtual meeting. Neuroscience Institute Cavalieri Ottolenghi and Department of Neuroscience Rita Levi-Montalcini, University of Turin, Italy. Poster presentation: Alteration of microglia function and synaptic activity induced by antibiotic treatment. F.Cordella, L.Ferrucci, C. Sanchini, M.Rosito, M.Giubettini, B.Basilico, B.Cortese, F.Pagani D.Ragozzino, S. Di Angelantonio."
2. BraYn Conference | Milan, 14-16 November 2019. Poster presentation "Dysbiosis induces an alteration of microglial function and synaptic signaling." F.Cordella, L.Ferrucci, C.Sanchini, M.Rosito, M.Giubettini, B.Basilico, B.Cortese, F.Pagani D.Ragozzino, S. Di Angelantonio
3. BraYn Conference | Pisa, 20-22 October 2021. Poster presentation "Role of the autosomal dominant IVS10+16 Tau mutation in hPSC- derived cortical organoids development and function. F.Cordella, A. Soloperto, E. Parente, C. D'antoni, L. Mautone, C. Sanchini, M. Rosito, S. Di Angelantonio
4. FENS forum | Paris, 8-14 July 2022. Abstract accepted and Poster presentation "Impaired neuronal maturation in a human iPSC derived cortical organoid model of Tauopathy" F.Cordella, E. Parente, L.Mautone, S.Ghirga, C. D'antoni, C. Sanchini, A.Soloperto S. Di Angelantonio

Conferenze

1. BraYn Conference – Milan, Italy – November, 14-16 2019
2. Glial cells-neuron crosstalk in CNS health and disease – October, 1-3 2020 – Virtual meeting
3. BraYn Conference – Pisa, Italy – October, 20-22 2021
4. FENS forum – Paris – July, 8-14 2022

Riconoscimenti e premi

1. IIT PhD fellowship (01/11/2018 to 31/01/2022)
2. "Fare ricerca" fellowship – Regione Lazio

Appartenenza a gruppi / associazioni

1. SINS - italian society in Neuroscience from 2020 - ongoing

Corsi

- 22/11/2018 – to 23/11/2018: University of Rome "Sapienza", " 3rd Synanet workshop in Rome", Italy -Animal welfare in neuroscience research
- 5/12/2019 - CERC, Rome, Italy - Workshop di aggiornamento conforme al modulo 2.13- attuazione del principio delle 3R " La tecnologia nella ricerca scientifica, un contributo alla Reduction"
- 27/04/2020 - to 28/04/2020 University of Rome "Sapienza", Italy ▪ 29/06/2021 Corso di formazione "vedere per credere: tecniche di microscopia in campo biomedico", Fondazione Golinelli, Italy
- 14/04/2021-15/04/21 Scientific volume imaging – Virtual svi Huygens workshop

- 16/09/2020 Fondazione italiana scienze della vita – FISV symposium “ SARS- COV2 biology and COVID-19 : current research perspective “

Dati personali Autorizzo il trattamento dei miei dati personali ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 "Codice in materia di protezione dei dati personali".

_la sottoscritta dichiara di essere consapevole che il presente *curriculum vitae* sarà pubblicato sul sito istituzionale dell'Ateneo, nella Sezione "Amministrazione trasparente", nelle modalità e per la durata prevista dal d.lgs. n. 33/2013, art. 15.

Data 13/01/2023

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