

**PERSONAL
INFORMATION**

Carmen De Caro

Nationality: Italian
Date of birth: 20/07/1987
Gender: *Female*

WORK EXPERIENCE

01.04.2020 – to date Post-doc in Pharmacology at University “Magna Graecia” of Catanzaro, Italy, Department of Science of Health with a project on “Evaluation of neuroinflammatory pathways in autism spectrum disorder (ASD) in comorbidity with epilepsy”

EDUCATION AND TRAINING

01.04.2020 PhD in Life Sciences and Technologies at University “Magna Graecia” of Catanzaro, Italy, Department of Science of Health with thesis on “Biological and pharmacological HDAC inhibitors in a genetic model of epilepsy and in experimental pain models and the role of the microbiome”.

15.02.2018 – 15-08-2018 Training at Italian Drug Agency (AIFA) on national and european pharmaceutical legislation, evaluate and interpret side effects of drugs.

29.01.2019 – 29.07.2022 Visiting PhD student at University College of Cork, Ireland, APC Microbiome Institute to work on project “Targeting the Microbiota-Gut-Brain Axis in a mouse model of Caesarean-section”, under the supervision of Prof. J.F. Cryan.

18.02.2017 Master in Quality Systems: GXP-ISO at University Cattolica del Sacro Cuore, Rome, Italy.

10.05.2016 Doctor Europaeus” (EUA-European University Association) in “Pharmaceutical Sciences” at Department of Pharmacy University “Federico II” of Naples, Italy with thesis on “Pharmacological Characterization of Paracetamol: New Therapeutic Approach to Postoperative Pain”.

20.07.2015 – 20.12.2015 Visiting PhD student at Sintetica S.A. Industry (Mendrisio, Switzerland) to learnt various techniques of development and production for a new formulation of Acetaminophen.

20.12.20 Degree in Pharmacy at University “Federico II” of Naples with an experimental thesis in Pharmacology "Role of short chain fatty acids in pain modulation".
List of principal subjects covered, or skills acquired

- Identification of new therapeutic targets in pain and epilepsy therapy.
- Research on new anticonvulsant and antiepileptic drugs.
- Pharmacology and physiopathology of epilepsies.
- Pharmacology and pathophysiology of epileptogenic processes.
- Study of the comorbidities between epilepsy and neuropsychiatric pathologies.
- Role of microbiota in the development of neurodegenerative diseases.
- Pharmacology and physiopathology of pain.

PERSONAL SKILLS

Mother tongue Italian

Other language English (Level C2)

- Job-related skills**
- Excellent Knowledge of experimental animal models in epilepsy.
 - Excellent Microbial DNA extraction, 16S ribosomal DNA library preparation and sequencing
 - Excellent Knowledge of the instrumentation for the evaluation of pain Threshold (von-Fray, Randall-Selitto, Hot Plate, Hargreaves);
 - Excellent Knowledge of cell culture techniques and cell proliferation and viability tests (MTT assay, Trypan Blue and Nutral Red);
 - Excellent Molecular biology methods (Western Blot and PCR);
 - Excellent Use of gas chromatograph (GC-MS) for the quantification of short-chain fatty acids.
 - Excellent knowledge of experimental animal models of inflammation and pain (carrageenan edema, writhing test, paw licking, neuropathic pain induced by sciatic nerve ligation, post-operative pain, orofacial pain, bronchial alveolus lavage and evaluation of gastric and hepatic toxicity).
 - Excellent knowledge of in vivo methods on mice and rats, with the ability to take organs and tissues and administrations (intra-peritoneal, subcutaneous, oral, and spinal).
 - Excellent knowledge of in vivo methods on mice and rats, with the ability to take organs and tissues and administrations (intra-peritoneal, subcutaneous, oral, and spinal).
 - Excellent ability to draft standard operating procedures (POS) and Final Report according to GLP standards.
 - Excellent knowledge of GraphPad Prism, Quantity One and Image J, Base Space Illumina and Microbiome Analyst platform.

- Prize**
- February 2022 Award "Epilepsia Prize" original research articles published in Epilepsia;
 - November 2020 Award "Alberico Benedicenti" for better scientific activity in the field of pharmacological and toxicology studies.
 - May 2013 Award "Associazione Paola Persico" for best research thesis in pharmacology.

07. 2015 to 11. 2015 Contract of the Coordinated and Continuous Collaboration (Co.Co.Co) as part of the Research Project funded by AIFA entitled "New Therapeutic strategies for children with congenital chloride diarrhea" .

ADDITIONAL INFORMATION

Projects 29.08.2019 - 29.04.2023 PRIN Control of Neuroinflammation by PPAR ligands in Epilepsy, Autism and their comorbidity, University Magna graecia of Catanzaro

Publication Track record Author of 42 articles indexed in Pubmed. Scopus H-index: 18. Number of citations on Scopus: 797

- Publications** Relevant publications indexed in PUBMED:
1. Tallarico M, Leo A, Guarnieri L, Zito MC, **De Caro C**, Nicoletti F, Russo E, Constanti A, De Sarro G, Citraro R. N-acetylcysteine aggravates seizures while improving depressive-like and cognitive impairment comorbidities in the WAG/Rij rat model of absence epilepsy. *Mol Neurobiol.* 2022 May;59(5):2702-2714. doi: 10.1007/s12035-021-02720-3. Epub 2022 Feb 15. PMID: 35167014.
 2. Leo A*, **De Caro C***, Mainardi P, Tallarico M, Nesci V, Marascio N, Striano P, Russo E, Constanti A, De Sarro G, Citraro R. Increased efficacy of combining prebiotic and postbiotic in mouse models relevant to autism and depression. *Neuropharmacology.* 2021 Oct 15;198:108782. doi: 10.1016/j.neuropharm.2021.108782. Epub 2021 Sep 4. PMID: 34492286. * Equally contributed

3. Di Costanzo M, Biasucci G, Maddalena Y, Di Scala C, **De Caro C**, Calignano A, Canani RB. Lactose Intolerance in Pediatric Patients and Common Misunderstandings About Cow's Milk Allergy. *Pediatr Ann.* 2021 Apr;50(4):e178-e185. doi: 10.3928/19382359-20210312-01. Epub 2021 Apr 1. PMID: 34039171.
4. **De Caro C**, Cristiano C, Avagliano C, Cuozzo M, La Rana G, Aviello G, De Sarro G, Calignano A, Russo E, Russo R. Analgesic and Anti-Inflammatory Effects of Peramppanel in Acute and Chronic Pain Models in Mice: Interaction With the Cannabinergic System. *Front Pharmacol.* 2021 Feb 1;11:620221. doi: 10.3389/fphar.2020.620221. PMID: 33597883; PMCID: PMC7883473.
5. Citraro R*, Lembo F*, **De Caro C***, Tallarico M, Coretti L, Iannone LF, Leo A, Palumbo D, Cuomo M, Buommino E, Nesci V, Marascio N, Iannone M, Quirino A, Russo R, Calignano A, Constanti A, Russo E, De Sarro G. First evidence of altered microbiota and intestinal damage and their link to absence epilepsy in a genetic animal model, the WAG/Rij rat. *Epilepsia.* 2021 Feb;62(2):529-541. doi: 10.1111/epi.16813. Epub 2021 Jan 11. PMID: 33428780.* Equally contributed
6. **De Caro C**, Di Cesare Mannelli L, Branca JJV, Micheli L, Citraro R, Russo E, De Sarro G, Ghelardini C, Calignano A, Russo R. Pain Modulation in WAG/Rij Epileptic Rats (A Genetic Model of Absence Epilepsy): Effects of Biological and Pharmacological Histone Deacetylase Inhibitors. *Front Pharmacol.* 2020 Dec 3;11:549191. doi: 10.3389/fphar.2020.549191. PMID: 33343343; PMCID: PMC7745735.
7. Paparo L, Nocerino R, Ciaglia E, Di Scala C, **De Caro C**, Russo R, Trinchese G, Aitoro R, Amoroso A, Bruno C, Di Costanzo M, Passariello A, Messina F, Agangi A, Napolitano M, Voto L, Gatta GD, Pisapia L, Montella F, Mollica MP, Calignano A, Puca A, Berni Canani R. Butyrate as a bioactive human milk protective component against food allergy. *Allergy.* 2021 May;76(5):1398-1415. doi: 10.1111/all.14625. Epub 2020 Nov 16. PMID: 33043467; PMCID: PMC8247419.
8. Cifani C, Avagliano C, Micioni Di Bonaventura E, Giusepponi ME, **De Caro C**, Cristiano C, La Rana G, Botticelli L, Romano A, Calignano A, Gaetani S, Micioni Di Bonaventura MV, Russo R. Modulation of Pain Sensitivity by Chronic Consumption of Highly Palatable Food Followed by Abstinence: Emerging Role of Fatty Acid Amide Hydrolase. *Front Pharmacol.* 2020 Mar 16;11:266. doi: 10.3389/fphar.2020.00266. PMID: 32231568; PMCID: PMC7086305.
9. **De Caro C**, Raucci F, Saviano A, Cristiano C, Casillo GM, Di Lorenzo R, Sacchi A, Laneri S, Dini I, De Vita S, Chini MG, Bifulco G, Calignano A, Maione F, Mascolo N. Pharmacological and molecular docking assessment of cryptotanshinone as natural-derived analgesic compound. *Biomed Pharmacother.* 2020 Jun;126:110042. doi: 10.1016/j.biopha.2020.110042. Epub 2020 Mar 20. PMID: 32203893.
10. Nocerino R, De Filippis F, Cecere G, Marino A, Micillo M, Di Scala C, **De Caro C**, Calignano A, Bruno C, Paparo L, Iannicelli AM, Cosenza L, Maddalena Y, Della Gatta G, Coppola S, Carucci L, Ercolini D, Berni Canani R. The therapeutic efficacy of *Bifidobacterium animalis* subsp. *lactis* BB-12® in infant colic: A randomised, double blind, placebo-controlled trial. *Aliment Pharmacol Ther.* 2020 Jan;51(1):110-120. doi: 10.1111/apt.15561. Epub 2019 Dec 3. PMID: 31797399; PMCID: PMC6973258.
11. **De Caro C**, Cristiano C, Avagliano C, Bertamino A, Ostacolo C, Campiglia P, Gomez-Monterrey I, La Rana G, Gualillo O, Calignano A, Russo R. Characterization of New TRPM8 Modulators in Pain Perception. *Int J Mol Sci.* 2019 Nov 7;20(22):5544. doi: 10.3390/ijms20225544. PMID: 31703254; PMCID: PMC6888553.
12. **De Caro C**, Iannone LF, Citraro R, Striano P, De Sarro G, Constanti A, Cryan JF, Russo E. Can we 'seize' the gut microbiota to treat epilepsy? *Neurosci Biobehav Rev.* 2019 Dec;107:750-764. doi: 10.1016/j.neubiorev.2019.10.002. Epub 2019 Oct 15. PMID: 31626816.
13. **De Caro C**, Leo A, Nesci V, Ghelardini C, di Cesare Mannelli L, Striano P, Avagliano C, Calignano A, Mainardi P, Constanti A, Citraro R, De Sarro G, Russo E. Intestinal inflammation increases convulsant activity and reduces antiepileptic drug efficacy in a mouse model of epilepsy. *Sci Rep.* 2019 Sep 27;9(1):13983. doi: 10.1038/s41598-019-50542-0. PMID: 31562378; PMCID:

PMC6764994.

14. Citraro R, Iannone M, Leo A, **De Caro C**, Nesci V, Tallarico M, Abdalla K, Palma E, Arturi F, De Sarro G, Constanti A, Russo E. Evaluation of the effects of liraglutide on the development of epilepsy and behavioural alterations in two animal models of epileptogenesis. *Brain Res Bull.* 2019 Nov;153:133-142. doi: 10.1016/j.brainresbull.2019.08.001. Epub 2019 Aug 27. PMID: 31470253.
15. Leo A, **De Caro C**, Nesci V, Tallarico M, De Sarro G, Russo E, Citraro R. Modeling poststroke epilepsy and preclinical development of drugs for poststroke epilepsy. *Epilepsy Behav.* 2020 Mar;104(Pt B):106472. doi: 10.1016/j.yebeh.2019.106472. Epub 2019 Aug 17. PMID: 31427267.
16. Citraro R, Leo A, **De Caro C**, Nesci V, Gallo Cantafio ME, Amodio N, Mattace Raso G, Lama A, Russo R, Calignano A, Tallarico M, Russo E, De Sarro G. Effects of Histone Deacetylase Inhibitors on the Development of Epilepsy and Psychiatric Comorbidity in WAG/Rij Rats. *Mol Neurobiol.* 2020 Jan;57(1):408-421. doi: 10.1007/s12035-019-01712-8. Epub 2019 Jul 31. PMID: 31368023.
17. **De Caro C**, Russo R, Avagliano C, Cristiano C, Calignano A, Aramini A, Bianchini G, Allegretti M, Brandolini L. Antinociceptive effect of two novel transient receptor potential melastatin 8 antagonists in acute and chronic pain models in rat. *Br J Pharmacol.* 2018 May;175(10):1691-1706. doi: 10.1111/bph.14177. Epub 2018 Apr 14. PMID: 29485712; PMCID: PMC5913409.
18. **De Caro C**, Leo A, Citraro R, De Sarro C, Russo R, Calignano A, Russo E. The potential role of cannabinoids in epilepsy treatment. *Expert Rev Neurother.* 2017 Nov;17(11):1069-1079. doi: 10.1080/14737175.2017.1373019. Epub 2017 Sep 4. PMID: 28845714.
19. Avagliano C, Russo R, **De Caro C**, Cristiano C, La Rana G, Piegari G, Paciello O, Citraro R, Russo E, De Sarro G, Meli R, Mattace Raso G, Calignano A. Palmitoylethanolamide protects mice against 6-OHDA-induced neurotoxicity and endoplasmic reticulum stress: In vivo and in vitro evidence. *Pharmacol Res.* 2016 Nov;113(Pt A):276-289. doi: 10.1016/j.phrs.2016.09.004. Epub 2016 Sep 8. PMID: 27616549.
20. Russo R, **De Caro C**, Avagliano C, Cristiano C, La Rana G, Mattace Raso G, Berni Canani R, Meli R, Calignano A. Sodium butyrate and its synthetic amide derivative modulate nociceptive behaviors in mice. *Pharmacol Res.* 2016 Jan;103:279-91. doi: 10.1016/j.phrs.2015.11.026. Epub 2015 Dec 8. PMID: 26675718.

Collaborations International collaboration:

- University College of Cork, Ireland APC Microbiome Institute: Role of gut microbiota in epilepsy,

National collaboration:

- Department of Pharmacy University "Federico II" of Naples: Pharmacological Effect of Perampanel, a new AMPA antagonist, in acute and chronic pain models.

- Kolfarma Srl for the development of the project on: Effects of Alphalactoalbumin (ALAC) in experimental models of epilepsy and intestinal inflammation.

Catanzaro, 25.05.2022