

PERSONAL INFORMATION

Carmen De Caro

Nationality: Italian

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.

01.2019 – 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".

07.2015 – 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.

20.12.2012 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

Teaching fellow Farmacologia at University "Magna Graecia" di Catanzaro, Italy

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

Oral communication

- 44° Congresso Nazionale della Lega Italiana Contro l'Epilessia 9-11 Giugno 2021 "Is it time to seize the microbiota?"
- Giornata di discussione di epilettologia sperimentale della Lega italiana contro l'Epilessia, Roma Università la Sapienza 22 Gennaio 2020 dal titolo "Investigation on the role of gut microbiota in the

WAG/Rij rat model".

- Convegno Autismo ed Epilessia 20 Dicembre 2019 Rieti titolo "Disinfiammare l'intestino e controllo delle crisi epilettiche. Ci sono link? ".

- 39° Congresso Nazionale della Società Italiana di Farmacologia (SIF), Firenze 20-23 Novembre 2019; titolo "Epilepsy and pain: evaluation of behavioral pain in the WAG/Rij rat model of genetic epilepsy and effects of repeated oral butyrate administration".

- 13th European Congress on Epileptology, Vienna 26-30 Agosto 2018; titolo: "Alpha-lactalbumin protects against pentylenetetrazole-induced seizures in mice reducing intestinal inflammation". *Epilepsia* 2018, 59:Issue 3 pag S39 abstract 076.

- 37° Congresso Nazionale della Società Italiana di Farmacologia (SIF), Napoli 27-30 Ottobre 2015; titolo: "A New Trpm8 Antagonist, In Icilin-Induced Wet-Dog Shake (WDS) And In A Model Of Neuropathic pain"

Publication Track record Author of 52 articles indexed in Pubmed. Scopus H-index: 21. Number of citations on Scopus: 1183

Publications Relevant publications indexed in PUBMED:

1. Turco L, Opallo N, Buommino E, De Caro C, Pirozzi C, Mattace Raso G, Lembo F, Coretti L. Zooming into Gut Dysbiosis in Parkinson's Disease: New Insights from Functional Mapping. *Int J Mol Sci*. 2023 Jun 5;24(11):9777. doi: 10.3390/ijms24119777. PMID: 37298727.
2. Sancandi M, De Caro C, Cypaite N, Marascio N, Avagliano C, De Marco C, Russo E, Constanti A, Mercer A. Effects of a probiotic suspension Symprove™ on a rat early-stage Parkinson's disease model. *Front Aging Neurosci*. 2023 Jan 18;14:986127. doi: 10.3389/fnagi.2022.986127. PMID: 36742204; PMCID: PMC9890174.
3. Bellingacci L, Tallarico M, Mancini A, Megaro A, **De Caro C**, Citraro R, De Sarro G, Tozzi A, Di Filippo M, Sciacaluga M, Russo E, Leo A, Costa C. Non-competitive AMPA glutamate receptors antagonism by perampanel as a strategy to counteract hippocampal hyper-excitability and cognitive deficits in cerebral amyloidosis. *Neuropharmacology*. 2022 Dec 8:109373. doi: 10.1016/j.neuropharm.2022.109373. Epub ahead of print. PMID: 36502868.
4. Iannone LF, Gómez-Eguílaz M, **De Caro C**. Gut microbiota manipulation as an epilepsy treatment. *Neurobiol Dis*. 2022 Nov;174:105897. doi: 10.1016/j.nbd.2022.105897. Epub 2022 Oct 17. PMID: 36257595.
5. Andreozzi F, Di Fatta C, Spiga R, Mannino GC, Mancuso E, Averta C, **De Caro C**, Tallarico M, Leo A, Citraro R, Russo E, De Sarro G, Sesti G. Glucagon induces the hepatic expression of inflammatory markers in vitro and in vivo. *Diabetes Obes Metab*. 2022 Oct 28. doi: 10.1111/dom.14902. Epub ahead of print. PMID: 36305474.
6. Marascio N, **De Caro C**, Quirino A, Mazzitelli M, Russo E, Torti C, Matera G. The Role of the Microbiota Gut-Liver Axis during HCV Chronic Infection: A Schematic Overview. *J Clin Med*. 2022 Oct 8;11(19):5936. doi: 10.3390/jcm11195936. PMID: 36233804; PMCID: PMC9572099.
7. Avagliano C, **De Caro C**, Cuozzo M, Liguori FM, La Rana G, Micheli L, Di Cesare Mannelli L, Ghelardini C, Paciello O, Russo R. Phaseolus vulgaris extract ameliorates high-fat diet-induced colonic barrier dysfunction and inflammation in mice by regulating peroxisome proliferator-activated receptor expression and butyrate levels. *Front Pharmacol*. 2022 Aug 11;13:930832. doi: 10.3389/fphar.2022.930832. PMID: 36034787; PMCID: PMC9403263.

8. Riva A, Pozzati E, Grasso M, **De Caro C**, Russo E, Verrotti A, Striano P. Targeting the MGBA with -biotics in epilepsy: New insights from preclinical and clinical studies. *Neurobiol Dis.* 2022 Aug;170:105758. doi: 10.1016/j.nbd.2022.105758. Epub 2022 May 17. PMID: 35588991.
9. Avagliano C, Coretti L, Lama A, Pirozzi C, **De Caro C**, De Biase D, Turco L, Mollica MP, Paciello O, Calignano A, Meli R, Lembo F, Mattace Raso G. Dual-Hit Model of Parkinson's Disease: Impact of Dysbiosis on 6-Hydroxydopamine-Insulted Mice-Neuroprotective and Anti-Inflammatory Effects of Butyrate. *Int J Mol Sci.* 2022 Jun 7;23(12):6367. doi: 10.3390/ijms23126367. PMID: 35742813; PMCID: PMC9223521.
10. Fusco F, Perotoni S, Giordano C, Riva A, Iannone LF, **De Caro C**, Russo E, Albani D, Striano P. The microbiota-gut-brain axis and epilepsy from a multidisciplinary perspective: Clinical evidence and technological solutions for improvement of in vitro preclinical models. *Bioeng Transl Med.* 2022 Feb 25;7(2):e10296. doi: 10.1002/btm2.10296. PMID: 35600638; PMCID: PMC9115712
11. Riva A, Pozzati E, Grasso M, De Caro C, Russo E, Verrotti A, Striano P. Targeting the MGBA with -biotics in epilepsy: New insights from preclinical and clinical studies. *Neurobiol Dis.* 2022 Aug;170:105758. doi: 10.1016/j.nbd.2022.105758. Epub 2022 May 17. PMID: 35588991.
12. 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.
13. 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
14. 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.
15. Roberti R, **De Caro C**, Iannone LF, Zaccara G, Lattanzi S, Russo E. Pharmacology of Cenobamate: Mechanism of Action, Pharmacokinetics, Drug-Drug Interactions and Tolerability. *CNS Drugs.* 2021 Jun;35(6):609-618. doi: 10.1007/s40263-021-00819-8. Epub 2021 May 16. PMID: 33993416.
16. **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 Perampanel 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.
17. 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
18. **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.
19. 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.
20. Crupi R, Palma E, Siracusa R, Fusco R, Gugliandolo E, Cordaro M, Impellizzeri D, **De Caro C**,

- Calzetta L, Cuzzocrea S, Di Paola R. Protective Effect of Hydroxytyrosol Against Oxidative Stress Induced by the Ochratoxin in Kidney Cells: in vitro and in vivo Study. *Front Vet Sci.* 2020 Mar 31;7:136. doi: 10.3389/fvets.2020.00136. PMID: 32296717; PMCID: PMC7136456.
21. 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.
 22. **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.
 23. 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.
 24. Pirozzi C, Lama A, Annunziata C, Cavaliere G, **De Caro C**, Citraro R, Russo E, Tallarico M, Iannone M, Ferrante MC, Mollica MP, Mattace Raso G, De Sarro G, Calignano A, Meli R. Butyrate prevents valproate-induced liver injury: In vitro and in vivo evidence. *FASEB J.* 2020 Jan;34(1):676-690. doi: 10.1096/fj.201900927RR. Epub 2019 Nov 26. PMID: 31914696.
 25. 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.
 26. **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.
 27. **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.
 28. Morano A, Palleria C, Citraro R, Nesci V, **De Caro C**, Giallonardo AT, De Sarro G, Russo E, Di Bonaventura C. Immediate and controlled-release pregabalin for the treatment of epilepsy. *Expert Rev Neurother.* 2019 Dec;19(12):1167-1177. doi: 10.1080/14737175.2019.1681265. Epub 2019 Oct 21. PMID: 31623493.
 29. **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.
 30. 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.

31. Sodano F, Lazzarato L, Rolando B, Spyarakis F, **De Caro C**, Magliocca S, Marabello D, Chegaev K, Gazzano E, Riganti C, Calignano A, Russo R, Rimoli MG. Paracetamol-Galactose Conjugate: A Novel Prodrug for an Old Analgesic Drug. *Mol Pharm*. 2019 Oct 7;16(10):4181-4189. doi: 10.1021/acs.molpharmaceut.9b00508. Epub 2019 Sep 12. PMID: 31465230.
32. 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.
33. Brandolini L, Castelli V, Aramini A, Giorgio C, Bianchini G, Russo R, **De Caro C**, d'Angelo M, Catanesi M, Benedetti E, Giordano A, Cimini A, Allegretti M. DF2726A, a new IL-8 signalling inhibitor, is able to counteract chemotherapy-induced neuropathic pain. *Sci Rep*. 2019 Aug 13;9(1):11729. doi: 10.1038/s41598-019-48231-z. PMID: 31409858PMCID: PMC6692352
34. Micheli L, Lucarini E, Trallori E, Avagliano C, De Caro C, Russo R, Calignano A, Ghelardini C, Pacini A, Di Cesare Mannelli L. Phaseolus vulgaris L. Extract: Alpha-Amylase Inhibition against Metabolic Syndrome in Mice. *Nutrients*. 2019 Aug 1;11(8):1778. doi: 10.3390/nu11081778. PMID: 31374931; PMCID: PMC6723332.
35. 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.
36. Coretti L, Paparo L, Riccio MP, Amato F, Cuomo M, Natale A, Borrelli L, Corrado G, **De Caro C**, Comegna M, Buommino E, Castaldo G, Bravaccio C, Chiariotti L, Berni Canani R, Lembo F. Corrigendum: Gut Microbiota Features in Young Children With Autism Spectrum Disorders. *Front Microbiol*. 2019 May 3;10:920. doi: 10.3389/fmicb.2019.00920. Erratum for: *Front Microbiol*. 2018 Dec 19;9:3146. PMID: 31130927; PMCID: PMC6509565.
37. Berni Canani R, De Filippis F, Nocerino R, Paparo L, Di Scala C, Cosenza L, Della Gatta G, Calignano A, **De Caro C**, Laiola M, Gilbert JA, Ercolini D. Gut microbiota composition and butyrate production in children affected by non-IgE-mediated cow's milk allergy. *Sci Rep*. 2018 Aug 21;8(1):12500. doi: 10.1038/s41598-018-30428-3. PMID: 30131575; PMCID: PMC6104073.
38. Magliocca S, **De Caro C**, Lazzarato L, Russo R, Rolando B, Chegaev K, Marini E, Nieddu M, Burrai L, Boatto G, Cristiano C, Marabello D, Gazzano E, Riganti C, Sodano F, Rimoli MG. Aceclofenac-Galactose Conjugate: Design, Synthesis, Characterization, and Pharmacological and Toxicological Evaluations. *Mol Pharm*. 2018 Aug 6;15(8):3101-3110. doi: 10.1021/acs.molpharmaceut.8b00195. Epub 2018 Jun 27. PMID: 29912563.
39. Aponte M, Ungaro F, d'Angelo I, **De Caro C**, Russo R, Blaiotta G, Dal Piaz F, Calignano A, Miro A. Improving in vivo conversion of oleuropein into hydroxytyrosol by oral granules containing probiotic *Lactobacillus plantarum* 299v and an *Olea europaea* standardized extract. *Int J Pharm*. 2018 May 30;543(1-2):73-82. doi: 10.1016/j.jpharm.2018.03.013. Epub 2018 Mar 8. PMID: 29526619.
40. **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.
41. Russo R, **De Caro C**, Avallone B, Magliocca S, Nieddu M, Boatto G, Troiano R, Cuomo R, Cirillo C, Avagliano C, Cristiano C, La Rana G, Samelli G, Calignano A, Rimoli MG. Ketogal: A Derivative Ketorolac Molecule with Minor Ulcerogenic and Renal Toxicity. *Front Pharmacol*. 2017 Nov 6;8:757. doi: 10.3389/fphar.2017.00757. PMID: 29163153; PMCID: PMC5681857.
42. Maione F, Piccolo M, De Vita S, Chini MG, Cristiano C, **De Caro C**, Lippiello P, Miniaci MC, Santamaria R, Irace C, De Feo V, Calignano A, Mascolo N, Bifulco G. Down regulation of pro-inflammatory pathways by tanshinone IIA and cryptotanshinone in a non-genetic mouse model of Alzheimer's disease. *Pharmacol Res*. 2018 Mar;129:482-490. doi: 10.1016/j.phrs.2017.11.018. Epub 2017 Nov 20. PMID: 29158049.

43. **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.
44. Berni Canani R, De Filippis F, Nocerino R, Laiola M, Paparo L, Calignano A, **De Caro C**, Coretti L, Chiariotti L, Gilbert JA, Ercolini D. Specific Signatures of the Gut Microbiota and Increased Levels of Butyrate in Children Treated with Fermented Cow's Milk Containing Heat-Killed *Lactobacillus paracasei* CBA L74. *Appl Environ Microbiol*. 2017 Sep 15;83(19):e01206-17. doi: 10.1128/AEM.01206-17. PMID: 28733284; PMCID: PMC5601345.
45. Russo R, Cristiano C, Avagliano C, **De Caro C**, La Rana G, Raso GM, Canani RB, Meli R, Calignano A. Gut-brain Axis: Role of Lipids in the Regulation of Inflammation, Pain and CNS Diseases. *Curr Med Chem*. 2018;25(32):3930-3952. doi: 10.2174/0929867324666170216113756. PMID: 28215162.
46. Aitoro R, Simeoli R, Amoroso A, Paparo L, Nocerino R, Pirozzi C, di Costanzo M, Meli R, **De Caro C**, Picariello G, Mamone G, Calignano A, Nagler CR, Berni Canani R. Extensively hydrolyzed casein formula alone or with *L. rhamnosus* GG reduces β -lactoglobulin sensitization in mice. *Pediatr Allergy Immunol*. 2017 May;28(3):230-237. doi: 10.1111/pai.12687. Epub 2017 Jan 24. PMID: 27992668.
47. 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.
48. Tronino D, Offerta A, Ostacolo C, Russo R, **De Caro C**, Calignano A, Puglia C, Blasi P. Nanoparticles prolong N-palmitoylethanolamide anti-inflammatory and analgesic effects in vivo. *Colloids Surf B Biointerfaces*. 2016 May 1;141:311-317. doi: 10.1016/j.colsurfb.2016.01.058. Epub 2016 Feb 1. PMID: 26866893.
49. 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.
50. Tronino D, Russo R, Ostacolo C, Mazzolari A, **De Caro C**, Avagliano C, Laneri S, La Rana G, Sacchi A, Della Valle F, Vistoli G, Calignano A. Improvement of Topical Palmitoylethanolamide Anti-Inflammatory Activity by Pegylated Prodrugs. *Mol Pharm*. 2015 Sep 8;12(9):3369-79. doi: 10.1021/acs.molpharmaceut.5b00397. Epub 2015 Aug 24. PMID: 26289562.
51. Catanzano O, D'Esposito V, Acierno S, Ambrosio MR, **De Caro C**, Avagliano C, Russo P, Russo R, Miro A, Ungaro F, Calignano A, Formisano P, Quaglia F. Alginate-hyaluronan composite hydrogels accelerate wound healing process. *Carbohydr Polym*. 2015 Oct 20;131:407-14. doi: 10.1016/j.carbpol.2015.05.081. Epub 2015 Jun 16. PMID: 26256201.
52. Mattace Raso G, Pirozzi C, d'Emmanuele di Villa Bianca R, Simeoli R, Santoro A, Lama A, Di Guida F, Russo R, **De Caro C**, Sorrentino R, Calignano A, Meli R. Palmitoylethanolamide treatment reduces blood pressure in spontaneously hypertensive rats: involvement of cytochrome p450-derived eicosanoids and renin angiotensin system. *PLoS One*. 2015 May 7;10(5):e0123602. doi: 10.1371/journal.pone.0123602. PMID: 25951330; PMCID: PMC4423982.

RESEARCH INTERESTS:

- 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.

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: Evaluation of neuroinflammatory pathways in autism spectrum disorder (ASD) in comorbidity with epilepsy
- Kolfarma Srl for the development of the project on: Effects of Alphalactoalbumin (ALAC) in experimental models of epilepsy and intestinal inflammation.

Catanzaro, 11.06.2023