Dr. Caterina Maria Leone – *Short Curriculum Vitae*

Personal data

Place and date of birth

Work Address *Department of Human Neuroscience, Sapienza University,*

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E-mail

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Qualifications

MD; PhD (Neuroscience)

Education

1997-2001 High School ("liceo scientifico"), (91/100).

Jan 2006-Jun 2006 Maternity Leave

Sept 2009 MD (110/110 *cum laude*) "Sapienza" University
"Neuropathic itch: pruriceptors distribution and physiopathology"

2011-2016 PhD in Neuroscience cum laude, "Sapienza" University
Tutor: Prof. Giorgio Cruccu
Thesis: "What's behind neuropathic pain? Neurophysiological diagnostic tests investigating mechanisms underlying neuropathic pain"

Jul 2011-Jan 2012 Maternity Leave

Oct 2014-Mar 2015 Maternity Leave

Academic appointments (in reverse chronological order)

Jan 2019–Dec 2021 **Post Doc**
Università degli Studi di Roma "La Sapienza", Roma (Italy)
Department of Human Neuroscience
Research project: ""IMI- PainCare (BioPain subtopic)".

Oct 2017–Sept 2018 **Post Doc**
Università degli Studi di Roma "La Sapienza", Roma (Italy)
Department of Human Neuroscience
Research project: "Neurophysiological tests to disentangle the pathophysiological mechanisms underlying neuropathic pain symptoms".

Jun 2016–May 2017 **Post Doc**
Università degli Studi di Roma "La Sapienza", Roma (Italy)
Department of Human Neuroscience
Research project: "Breaking dogmas: neurophysiological and neuroimaging study on non- nociceptive Aβ fibres mediating pain in healthy humans".

Jan 2015–Dec 2015 **Post Doc**

Università degli Studi di Roma “La Sapienza”, Roma (Italy)
Department of Human Neuroscience
Research project: "Nociceptive-motor integration in patients with central and peripheral pain"

Jan 2011–Oct 2011 **Collaboration Bursary**

Fondazione Don Carlo Gnocchi ONLUS, roma (Italy)
Research activity focused on pathophysiological mechanisms behind neuropathic pain

Jul 2010–Dec 2010 **Collaboration Bursary**

Fondazione Don Carlo Gnocchi ONLUS, roma (Italy)
Research activity focused on pathophysiological mechanisms behind neuropathic itch

2008–2021 **Pre degree trainee/post degree trainee**

Azienda ospedaliera Policlinico Umberto I- UOC patologie neuromuscolari, Roma (Italy) Fields of research:

- Assessment, diagnosis and therapy of neuropathic pain.
- Clinical and neurophysiological evaluation of peripheral neuropathies
- Craniofacial pain: trigeminal neuralgia, atypical facial pain, etc.
- Application of functional neuroimaging in patients with neuropathic pain
- Neurophysiology: ssep, lep, cheps, ceps, mep, baeps, eng, emg, trigeminal reflexes
- Threshold tracking
- Certificate for ICH E6 GCP Investigator site training
- ECCN Hands-on Teaching Course on Nerve and Muscle Excitability Studies, including MScan MUNE, Warsaw Poland

Total post graduate research experience: 12 years

International experience

October 2021	Visiting researcher at the Mannheim Faculty of Medicine c/o Prof. Rolf-Detlef Treede Heidelberg University
Sept 2018-Dec 2021	Research Member (Investigator) of the European project IMI-Paincare Biopain Subtopic (project RCT 1,2 and 3)
Feb 2019-Jul 2019	UCL-Rome project on minimal thermo-nociceptive interactions (MTNIs): 6 months collaboration with Prof. P. Haggard Lab in ICN, London UK
04/06/2017-11/06/2017	European Pain School, Pontignano, Italy

Summary of Publications (2011-2021)

Articles in peer-reviewed journals:	**30**
As first or senior author:	**8**
Number of citations (Scholar):	**508**
H-*index (Scholar)*:	**12**

Funding

1. University Project 2021 as PI: 3.000 EUR
2. University Project 2020 as participant: 10.500 EUR

3. IMI PainCare Biopain subtopic as participant: 558.000 EUR
4. University Project 2016 as co-PI: 4.000 EUR
5. University Project 2015 as participant: 14.000 EUR
6. University Project 2014 as participant: 10.000 EUR
7. University Project 2013 as participant: 8.500 EUR

Main scientific awards

1. Young investigator best scientific contribution, SINC conference, Milano (2014)
2. IFCN Young Investigator Fellowship (2014)
3. Young investigator best scientific contribution, SINC conference, Verona (2015)
4. SIN Young Investigator Fellowship (2015)
5. YAP project, Young Against Pain (2016)
6. IASP Young Investigator Fellowship (2018)
7. IASP/NeuPSIG Young Investigator Fellowship (2019)
8. Best Ph.D thesis 2015/2016 award "Sapienza" (2019)

Roles in scientific journals

Editorial board member of EC Neurology (ECNE) and Journal of Psychiatry and Psychiatric Disorders;
Topic Editor for the section Neuroscience of Pain for Brain Sciences journal
Reviewer for many impacted journals in the pain field (Frontiers; European Journal of pain; Pain Reports; Neuroscience Letters, Neurological Sciences; Clinical Neurophysiology)

Presentation at International Congresses

- Cooling the skin for assessing small-fibres function (poster)
  ECCN, Warsaw, Poland, 04-07 Jun 2019
- Cooling the skin for assessing small-fibres function (oral)
  Laser and Pain Talks in Europe, Lyon, France, 23-25 May, 2019
- Nociceptive system evaluation in patients with Non Suicidal Self Injury Syndrome. Does the vertex N2 component of the laser evoked potentials may serve as a biomarker of suicidal risk? (poster)
  NeuPSIG, London, UK, 9-11 May,2019
- Trigeminal small-fibers function assessed with cold evoked potentials in humans (poster)
  IASP Congress, Boston, USA, 13-16 Sept 2018
- Nociceptive system evaluation in patients with Non Suicidal Self Injury Syndrome (oral)
  Laser and Pain Talks, Bruxelles, Belgium, 04-06 May, 2017
  Dronabinol inhibits nociceptive transmission in humans. A double-blind randomized control study (poster) *ECCN, Brno, Czech Republic, 30sept-3 oct, 2015*
- Small fibre neuropathy related to bulbar and spinal onset in patients with SLA (poster)
  ECCN, Brno, Czech Republic, 30sept-3 oct, 2015
- Paroxysmal Pain is mediated by non-nociceptive large-myelinated fibres. A neurophysiological study in normal humans. (poster)
  ICCN-IFCN, Berlin, Germany, 21-23 March, 2014
- Painful neuropathy related to gastric bypass surgery for obesity (poster)
  ECCN, Rome, Italy, 21-25 Jun, 2011

Invited Presentations

Symposium on "New insights on human models and neurophysiological biomarkers of central sensitization" ICCN 2022

Workshop on "Neurophysiological biomarkers for central sensitization in humans" EFIC 2022

Invited Lecture on “Novel neurophysiological biomarkers in pain research” Nocions, UC Louvain 2021

Invited Lecture on Neurophysiological Diagnosis of Pain at the IV Course on EEG and Evoked Potentials (SINC 2021)

Invited Lecture on Neurophysiological Diagnosis of Pain at the Course on EEG and Evoked Potentials (SINC 2020)

Workshop on the Quantitative sensory testing among the CASCADE project: Clinical-diagnostic framework of the peripheral nervous system disease and new therapeutic evidences. (2018)

Invited Lecture on Trigeminal reflexes at the XVII Course on EMG and Evoked Potentials (SINC 2018)

Invited Lecture on Trigeminal reflexes at the XVIII Course on EMG and Evoked Potentials (SINC 2019)

Speaker. Pain and Neuroinflammation. *36 National Congress on General Medicine* (2019)

Academic supervision

Undergraduate students
Supervision of 9 bachelor theses at the faculty of Medicine and Surgery, Sapienza University
Graduate students
Supervision of 1 master thesis in Neurology, Department of Human Neuroscience, Sapienza University
Phd student
Supervision of 1 Phd thesis at the Ph.d course on innovative technologies in Diseases of skeleton, skin and oro-cranio-facial district, Sapienza University

Teaching Activity

Mar 2013-Present	Master in Neuropathic pain management at Azienda Ospedaliera S.Andrea Lecture: Diagnosis of neuropathic pain: focus on clinical usefulness of trigeminal reflexes and laser evoked potentials
Oct 2018-Present	Bachelor’s degree course in Medicine and Surgery, Nervous system’s disease, Sapienza University Lecture: Neurophysiological diagnosis

Memberships of scientific societies

International Association for the study of pain (IASP), since January 2017
Neuropathic Pain Special Interest Group (NeuPSIG), since January 2017
Italian Society of Clinical Neurophysiology (SINC), since 2013
Italian Society of Neurology (SIN), since 2013

Major collaborations

Prof. Rolf-Detlef Treede, Department of Neurophysiology, Mannheim Center for Translational Neurosciences (MCTN), Medical Faculty Mannheim, University of Heidelberg, Mannheim, Germany.
Prof. André Mouraux, Institute of Neuroscience (IoNS), UCLouvain, Brussels, Belgium.
Prof.Luis Garcia-Larrea, Lyon Neurosciences Center Research Unit Inserm U 1028, Pierre

Wertheimer Hospital, Hospices Civils de Lyon, Lyon 1 University, Lyon, France
Prof. Valery Legrain, Institute of Neuroscience (IoNS), UCLouvain, Brussels, Belgium
Prof. Giandomenico Iannetti, Italian Institute of technology (IIT), Rome, Italy
Prof. Massimiliano Valeriani, Ospedale pediatrico Bambin Gesù (OPBG), Rome Italy
Prof. Massimo Leandri, Dipartimento di scienze chirurgiche e diagnostiche integrate, Genova
Prof. André Dufour, Laboratoire d'Imagerie et de Neurosciences Cognitives (LINC), University of Strasbourg (UNISTRA), Strasbourg

Scientific Publication, total citations >508

The N13 spinal component of somatosensory evoked potentials is modulated by heterotopic noxious conditioning stimulation suggesting an involvement of spinal wide dynamic range neurons.
Di Pietro G, Di Stefano G, **Leone C**, Lionardo AD, Sgrò E, Blockeel AJ, Caspani O, Garcia-Larrea L, Mouraux A, Phillips KG, Treede RD, Valeriani M, Truini A.
Neurophysiol Clin. 2021 Oct 28:S0987-7053(21)00088-5. doi: 10.1016/j.neucli.2021.09.001. Epub ahead of print. PMID: 34756635.

Modulation of the N13 component of the somatosensory evoked potentials in an experimental model of central sensitization in humans.
Di Lionardo A, Di Stefano G, **Leone C**, Di Pietro G, Sgro E, Malara E, Cosentino C, Mollica C, Blockeel AJ, Caspani O, Garcia-Larrea L, Mouraux A, Treede RD, Phillips KG, Valeriani M, Truini A. Sci Rep. 2021 Oct 21;11(1):20838. doi: 10.1038/s41598-021-00313-7. PMID: 34675309; PMCID: PMC8531029.

How different experimental models of secondary hyperalgesia change the nociceptive flexion reflex
C. Leone, A Di Lionardo, G Di Pietro, G Di Stefano, P Falco, AJ Blockeel, O Caspani, L Garcia-Larrea, A Mouraux, KG Phillips, RD Treede, A Truini
Clin Neurophysiol. 2021 Oct 5;132(12):2989-2995. doi: 10.1016/j.clinph.2021.08.018. Online ahead of print.
PMID: 34715423

Dissecting pain processing in adolescents with Non-Suicidal Self Injury: Could suicide risk lurk among the electrodes?
Leone C, Galosi S, Mollica C, Fortunato M, Possidente C, Milone V, Misuraca S, Berillo L, Truini A, Cruccu G, Ferrara M, Terrinoni A.
Eur J Pain. 2021 May 13. doi: 10.1002/ejp.1793.

Human surrogate models of central sensitization: a critical review and practical guide.
Quesada C, Kostenko A, Ho I, **Leone C**, Nochi Z, Stouffs A, Wittayer M, Caspani O, Finnerup NB, Mouraux A, Pickering G, Tracey I, Truini A, Treede RD, Garcia-Larrea L.
Eur J Pain. 2021 Mar 23. doi: 10.1002/ejp.1768. Online ahead of print.

Real-world effectiveness and tolerability of carbamazepine and oxcarbazepine in 354 patients with trigeminal neuralgia.
Di Stefano G, De Stefano G, **Leone C**, Di Lionardo A, Di Pietro G, Sgro E, Mollica C, Cruccu G, Truini A. Eur J Pain. 2021 Jan 11. doi: 10.1002/ejp.1727. Online ahead of print. PMID: 33428801

Differential involvement of myelinated and unmyelinated nerve fibers in painful diabetic polyneuropathy.
Galosi E, Di Pietro G, La Cesa S, Di Stefano G, **Leone C**, Fasolino A, Di Lionardo A, Leonetti F, Buzzetti R, Mollica C, Cruccu G, Truini A.
Muscle Nerve. 2021 Jan;63(1):68-74. doi: 10.1002/mus.27080. Epub 2020 Oct 31.
PMID: 32996600

Conduction velocity of the cold spinal pathway in healthy humans
Leone C, Di Lionardo A, Diotallevi G, Mollica C, Di Pietro G, Di Stefano G, La Cesa S, Cruccu G, Truini A.. Eur J Pain. 2020 Nov;24(10):1923-1931. doi: 10.1002/ejp.1640. Epub 2020 Sep 6. PMID: 32735696.

Small-fibre pathology has no impact on somatosensory system function in patients with Fibromyalgia
Fasolino A, Di Stefano G, **Leone C**, Galosi E, Gioia C, Lucchino B, Terracciano A, Di Franco M,

Cruccu G, Truini A Pain 2020 Oct;161(10):2385-2393. doi: 10.1097/j.pain.0000000000001920.

Concomitant continuous pain in patients with trigeminal neuralgia is associated with trigeminal nerve root atrophy.

Di Stefano G, De Stefano G, **Leone C**, Cruccu G, Tardioli S, Cartocci G, Fiorelli M, Truini A, Caramia F. Cephalalgia. 2020 Nov;40(13):1502-1510. doi: 10.1177/0333102420949206. Epub 2020 Aug 13. PMID: 32791919

What's behind neuropathic pain?: Neurophysiological diagnostic tests investigating mechanisms underlying neuropathic pain.

Leone C. Book. Sapienza Università Editrice. 2020 Jun. DOI: 10.13133/9788893771368

The new micropatterned interdigitated electrode for selective assessment of the nociceptive system.

Di Stefano G, Di Lionardo A, La Cesa S, Di Pietro G, Fasolino A, Galosi E, **Leone C**, Cruccu G, Marinelli L, Leandri M, Truini A.

Eur J Pain. 2020 Feb 16. doi: 10.1002/ejp.1545

Pain due to Ehlers-Danlos syndrome is associated with deficit of the endogenous pain-inhibitory control

Leone C, Celletti C, Gaudiano G, Puglisi PA, Fasolino A, Cruccu G, Camerota F, Truini A

Pain Medicine, 2020 Sep 1;21(9):1929-1935. doi: 10.1093/pm/pnaa038. PMID: 32176287.

The conditioned pain modulation effect. Functional assessment of the diffuse noxious inhibitory control in humans. Review.

Leone C., Truini A

J Clin Neurophysiol. 2019 Nov;36(6):430-436

Cooling the skin for assessing small-fibre function

Leone C, A Dufour, G Di Stefano, A Fasolino, A Di Lionardo, S La Cesa, E Galosi, M Valeriani, M Nolano, G Cruccu, A Truini

Pain, 2019 Apr 10.

A pain in the skin. Regenerating nerve sprouts are distinctly associated with ongoing burning pain in patients with diabetes.

Galosi E, La Cesa S, Di Stefano G, Karlsson P, Fasolino A, **Leone C**, Biasiotta A, Cruccu G, Truini A.

Eur J Pain. 2018 Nov;22(10):1727-1734. doi: 10.1002/ejp.1259. Epub 2018 Jul 9.

Skin denervation does not alter cortical potentials to surface concentric electrode stimulation: A comparison with laser evoked potentials and contact heat evoked potentials.

La Cesa S, Di Stefano G, **Leone C**, Pepe A, Galosi E, Alu F, Fasolino A, Cruccu G, Valeriani M, Truini A.

Eur J Pain. 2018 Jan;22(1):161-169. doi: 10.1002/ejp.1112. Epub 2017 Sep 12.

Pain-motor integration in the primary motor cortex in Parkinson's disease.

Suppa A, **Leone C**, Di Stasio F, Marsili L, Di Santo A, Biasiotta A, La Cesa S, Truini A, Cruccu G, Berardelli A.

Brain Stimul. 2017 Jul - Aug;10(4):806-816. doi: 10.1016/j.brs.2017.04.130. Epub 2017 Apr 30. PMID: 28506878

Diagnostic accuracy of laser-evoked potentials in diabetic neuropathy.

Di Stefano G, La Cesa S, **Leone C**, Pepe A, Galosi E, Fiorelli M, Valeriani M, Lacerenza M, Pergolini M, Biasiotta A, Cruccu G, Truini A.

Pain. 2017 Jun;158(6):1100-1107. doi: 10.1097/j.pain.0000000000000889.

An observational study assessing peripheral neuropathy related to multiple myeloma.

Leone C, Federico V, La Cesa S, Russo E, Di Stefano G, Finsinger P, Labriola R, Cruccu G, Petrucci MT, Truini A.

Neurol Sci. 2016 Mar 9. [Epub ahead of print]

Central sensitization as the mechanism underlying pain in joint hypermobility syndrome/Ehlers-Danlos syndrome, hypermobility type.

Di Stefano G, Celletti C, Baron R, Castori M, Di Franco M, La Cesa S, **Leone C**, Pepe A, Cruccu G, Truini A, Camerota F.

Eur J Pain. 2016 Feb 26. doi: 10.1002/ejp.856. [Epub ahead of print]

Trigeminal isolated sensory neuropathy (TISN) and FOSMN syndrome: despite a dissimilar disease course do they share common pathophysiological mechanisms?

Cruccu G, Pennisi EM, Antonini G, Biasiotta A, di Stefano G, La Cesa S**, Leone C**, Raffa S, Sommer C, Truini A.
BMC Neurol. 2014 Dec 19;14:248. doi: 10.1186/s12883-014-0248-2.

Clinical, neurophysiological, and skin biopsy findings in peripheral neuropathy associated with hepatitis C virus-related cryoglobulinemia.

Biasiotta A, Casato M, La Cesa S, Colantuono S, Di Stefano G, **Leone C**, Carlesimo M, Piroso S, Cruccu G, Truini A.
J Neurol. 2014 Apr;261(4):725-31. doi: 10.1007/s00415-014-7261-7. Epub 2014 Feb 6

Does the epidermal nerve fibre density measured by skin biopsy in patients with peripheral neuropathies correlate with neuropathic pain?

Truini A, Biasiotta A, Di Stefano G, **Leone C**, La Cesa S, Galosi E, Piroso S, Pepe A, Giordano C, Cruccu G.
Pain. 2014 Apr;155(4):828-32. doi: 10.1016/j.pain.2014.01.022. Epub 2014 Jan 31.

Neurophysiological assessment of small midlateral medullary syndromes.

Alibardi A, Gorini M, **Leone C**, Pagliuca G, Colonnese C, Fattapposta F, Missori P, Greco D, Pierelli F, Marinelli L, Currà A.
Clin Neurophysiol. 2014 Mar 14. pii: S1388-2457(14)00127-8. doi: 10.1016/j.clinph.2014.03.002.

Peripheral nociceptor sensitization mediates allodynia in patients with distal symmetric polyneuropathy.

Truini A, Biasiotta A, Di Stefano G, La Cesa S, **Leone C**, Cartoni C, Leonetti F, Casato M, Pergolini M, Petrucci MT, Cruccu G.
J Neurol. 2012 Oct 9.

Laboratory tools for assessing neuropathic pain.

Di Stefano G, La Cesa S, Biasiotta A, **Leone C**, Pepe A, Cruccu G, Truini A.
Neurol Sci. 2012 May;33 Suppl 1:S5-7.

Palmitoylethanolamide Restores Myelinated-Fibre Function in Patients with Chemotherapy-Induced Painful Neuropathy.

Truini A, Biasiotta A, Di Stefano G, Cesa SL, **Leone C**, Cartoni C, Federico V, Petrucci MT, Cruccu G.
CNS Neurol Disord Drug Targets. 2012 Jan 10

Pathophysiological mechanisms of neuropathic pain

Leone C , Antonella Biasiotta , Silvia La Cesa , Giulia Di Stefano , Giorgio Cruccu , Andrea Truini
Future Neurology, Jul 2011, Vol. 6, No. 4, Pages 497-509.

Topographical distribution of warmth, burning and itch sensations in healthy humans.

Truini A, **Leone C**, Di Stefano G, Biasiotta A, La Cesa S, Teofoli P, Padua L, Cruccu G.Neurosci Lett. 2011 Mar 15.

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