

## BIOGRAPHICAL SKETCH

NAME <b>Giuseppe Sciamanna, PhD</b> <small>eRA COMMONS USER NAME (credential, e.g., agency login)</small>	CURRENT POSITION Associate Researcher at University of Rome TorVergata Dept of System Medicine. (Full time serving, <b>from 2014 to 2019</b> )
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### EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	MM/YY	FIELD OF STUDY
University of Urbino Carlo Bo', Urbino, Italy	B.L.	10/2004	Biology
University of Rome TorVergata, Rome, Italy	Ph.D.	12/2008	Neuroscience Basal ganglia
Fondazione Santa Lucia, Rome Italy	PostDoctoral	2009-2014	physiology, Movement disorders, Dystonia

### A. Personal Statement

Dr. Sciamanna is a neurophysiologist with a strong interest and knowledge in basal ganglia physiology in normal and pathological conditions. Research in animals model of movements disorders, such as dystonia, Parkinson's disease, represents the most important portion of his scientific background. He has remarkable technical and theoretical skill in electrophysiological recording coupled with fluorometric measurement, in synaptic plasticity of neostriatum and in cellular and molecular mechanisms of striatal and pallidal neurons. He has a growing interest and knowledge in new technical tools as two-photon microscopy and optogenetics approach for in vitro/in vivo experiments. Dr Sciamanna is currently serving as full time researcher at University of Rome TorVergata and Fondazione Santa Lucia IRCCS, Rome, as independent researcher and coordinating its own research group.

### B. Previous Positions

- **Postdoctoral fellow**, Lab of Neurophysiology and Plasticity, Santa Lucia Foundation, Rome, Italy. Supervisor: professor Antonio Pisani, **January 2009-March 2014**. Field of study: Pathophysiology of Dystonia in animal model.
- **Visiting fellowship**, Université Bordeaux and Centre National de la Recherche Scientifique, Institut des Maladies Neurodégénératives, Bordeaux, France. **January-February 2013**. Supervisor: professor E. Bezard and J. Baufreton. Field of study: Optogenetic investigation of basal ganglia circuits.
- **Visiting fellowship**, Northwestern University, Feinberg School of Medicine, Chicago, USA **November – December 2012**. Supervisor: professor C.S. Chan. Field of study: Optogenetics dissection of basal ganglia circuit.
- **Visiting fellowship**, Center for Interdisciplinary Research in Biology (CIRB), CNRS/ INSERM, College de France, Paris, France, **March 2010**. Supervisor: professor L. Venance. Field of study: physiology of astrocytes.
- **Visiting fellowship**, University of Texas at San Antonio, Dept of Biology, Texas USA, supervisor: professor C.J. Wilson, **2008**. Field of study: striatal GABAergic circuit
- **Graduate researcher**, University of Rome, "TorVergata", Supervisor: professor Antonio Pisani, Rome, Italy, 2005 – 2008. Field of study: Physiology of striatum in normal and pathological condition.

### C Honors

- **Bioeconomy 2014 award**: young researcher in neurodegenerative disease, price for the excellence in research.
- **IBRO student fellowship grants** 2008 supporting a research period at University of Texas at San Antonio (USA) department of Biology, under supervision of professor C.J. Wilson

### D Membership

- Member of Italian Society of Neuroscience (SINS)
- Member of Federation of European Neuroscience Societies (FENS)

### E. Accademic assignments

- University of Rome TorVergata CDL Pharmacy class of Neuroanatomy year: on going
- University of Rome TorVergata, C.D.L. Biologia Cellulare Molecolare e Scienze Biomediche e class of "Tecniche di neurobiologia molecolare", year: on going
- University of Rome TorVergata, CDL Fisioterapia, class of Neuroanatomy, year: on going
- University of Rome TorVergata, CDL Fisioterapia, class of Biologia Applicata, year: 2015/2016

## F. Research Support

- Dystonia Medical Research Foundation (DMRF) call for Basic and Clinical Aspects of Dystonia. Role: Principal Investigator. From **2017 to 2019** Investigation of Striato-Pallidal connections in a mouse model of DYT1 Dystonia.
- Italian Ministry of Health, project "young researcher". Role : Principal investigator. From 1/11/2014 to 31/10/2017 - Optogenetic dissection of Striatum-Globus pallidus connection in a model of DYT1 dystonia;
- Italian Ministry of University and Research, project FIRB. Role: Co-principal investigator, responsible for the research unit. From 01/04/2014 to 31/03/2017 - Involvement of mTORC1 activation in striatal maladaptive changes underlying L-Dopa-induced dyskinesia:

## G Research collaborations

Research collaboration as responsible for in-vitro experiments in the international project PRIPRO, under supervision of prof E. Bezard, Bordeaux Neurocampus INM and the Chinese Academy of Medical Sciences at Institute of Laboratory of Animal Sciences, Beijing China

## H Editorial assignment

Research topic editor at Frontiers System in Neuroscience, 2016-present

## I Invited lectures/Meetings participations

- Speaker at 10th Triennial Meeting of the International Basal Ganglia Society (IBAGS) Ocean Place Resort in Long Branch, New Jersey, USA. From 20-06-2010 to 24-06-2010
- Speaker at European Neurodegenerative Diseases Oxford UK from 20-09-2010 to 21-09-2010
- Speaker at 3rd Biennial Whorkshop on Dystonia: Dystonia and Parkinson's disease, the dopamine connection. Rome Italy from 20-05-2011 to 21-05-2011
- Speaker at 11th International Basal Ganglia Society Meetings (IBAGS), Eilat, Israel from 03-03-2013 to 07-03-2013
- Speaker at 4th biennial Workshop on Dystonia, Circuits and Pathways in Dystonia and Parkinsonism, Rome Italy from 31-05-2013 to 01-06-2013
- Speaker at XV Italian Society of Neuroscience Congress, Rome, Italia from 01-10-2013 to 03-10-2013
- Speaker at 5th Biennial Whorkshop on Dystonia Meeting: controversies in Dystonia e parkinsonism. Rome Italy from 29-05-2015 to 30-05-2015
- Speaker at European neurodegenerative Diseases and Optogenetics Europe, Cambridge UK from 02-11-2015 to 03-11-2015
- Speaker at il 6th Biennial Workshop on Dystonia: "Dystonia: the link between hypo- and hyperkinetic movement disorders?" from 12-05-2017 to 14-05-2017
- Speaker at il XVII Italian Society of Neuroscience Congress, Ischia 1-4 from 01-10-2017 to 04-10-2017
- Speaker at XLVIII Italian Society of Neurology Congress, Napoli from 14-10-2017 to 17-10-2017

## L. Selected Peer-reviewed Publications

1. Schirinzi T\*, **Sciamanna G\*** (co-first), Mercuri NB, Pisani Dystonia as a network disorder: a concept in evolution. Curr Opin Neurol. 2018 May 8 [Epub ahead of print]

2. **Sciamanna G**, Ponterio G, Mandolesi G, Bonsi P, and Pisani A. Optogenetic stimulation reveals distinct modulatory properties of thalamostriatal vs corticostriatal glutamatergic inputs to fast-spiking interneurons. **Sci Rep**. 2015 Nov 17;5:16742 doi: 10.1038/srep16742
3. **Sciamanna G**, Napolitano F, Pelosi B, Bonsi P, Vitucci V, Nuzzo T, Punzo D, Ponterio G, Pasqualetti M, Pisani A and Usiello A. Rhes regulates dopamine D2 receptor transmission in striatal cholinergic interneurons. **Neurobiol Disease**. 2015 Sci Rep. 2015 Jul 20;5:10933
4. **Sciamanna G**, Ponterio G, Tassone A, Maltese M, Madeo G, Martella G, Poli S, Schirinzi T, Bonsi P, Pisani A. Negative allosteric modulation of mGlu5 receptor rescues striatal D2 dopamine receptor dysfunction in rodent models of DYT1 dystonia. **Neuropharmacology**. 2014 Oct;85:440-50. doi: 10.1016/j.neuropharm.2014.06.013. Epub 2014 Jun 19. PMID: 24951854
5. **Sciamanna G**, Tassone A, Mandolesi G, Pugliesi F, Ponterio G, Martella G, Madeo G, Bernardi G, Standaert DG, Bonsi P, and Antonio Pisani. Cholinergic Dysfunction Alters Synaptic Integration between Thalamostriatal and Corticostriatal Inputs in DYT1 Dystonia. **J Neurosci**. 2012 Aug 29;32(35):11991-2004.
6. **Sciamanna G**, Hollis R, Ball C, Martella G, Tassone A, Marshall A, Parsons D, Li X, Yokoi F, Zhang L, Li Y, Pisani A, Standaert DG (n.d.) Cholinergic dysregulation produced by selective inactivation of the dystonia-associated protein torsinA. **Neurobiol Dis**. 2012 Sep;47(3):416-27. Epub 2012 May 3.
7. **Sciamanna G**, Wilson CJ; The ionic mechanism of gamma-resonance in rat striatal fast-spiking neurons. **J. Neurophysiol**. 2011 Dec;106(6):2936-49. Epub 2011 Aug 31. PMID:21880937
8. **Sciamanna G**, Tassone A, Martella G, Mandolesi G, Puglisi F, Cuomo D, Madeo G, Ponterio G, Standaert DG, Bonsi P, Pisani A. Developmental Profile of the Aberrant Dopamine D2 Receptor Response in Striatal Cholinergic Interneurons in DYT1 Dystonia **PlosONE** 2011;6(9):e24261. Epub 2011 Sep 2. PMID: 21912682
9. **Sciamanna G**, Bonsi P, Tassone A, Cuomo D, Tschertner A, Viscomi MT, Martella G, Sharma N, Bernardi G, Standaert DG, Pisani A. Impaired striatal D2 receptor function leads to enhanced GABA transmission in a mouse model of DYT1 dystonia. **Neurobiol Disease**. 2009 Apr;34(1):133-45 PMID:20227500
10. Maltese M, Stanic J, Tassone A, **Sciamanna G**, Ponterio G, Vanni V, Martella G, Imbriani P, Bonsi P, Mercuri NB, Gardoni F, Pisani A Early structural and functional plasticity alterations in a susceptibility period of DYT1 dystonia mouse striatum. **Elife**. 2018 Mar 5;7.
11. Ponterio G, Tassone A, **Sciamanna G**, Vanni V, Meringolo M, Santoro M, Mercuri NB, Bonsi P, Pisani A. Enhanced mu opioid receptor-dependent opioidergic modulation of striatal cholinergic transmission in DYT1 dystonia. **Mov Disord**. 2018 Feb
12. Maltese M, Martella G, Imbriani P, Schuermans J, Billion K, **Sciamanna G**, Farook F, Ponterio G, Tassone A, Santoro M, Bonsi P, Pisani A, Goodchild RE. Abnormal striatal plasticity in a YTH1/SGCE myoclonus dystonia mouse model is reversed by adenosine A2A receptor inhibition. **Neurobiol Disease**. 2017 Dec;108
13. Imbriani P, **Sciamanna G**, Santoro M, Schirinzi T, Pisani A. Promising rodent models in Parkinson's disease. **Parkinsonism Relat Disord**. 2018 Jan;46 Suppl 1:S10-S14. 2017 Jul 27.
14. Maltese M, Martella G, Madeo G, Fagiolo I, Tassone A, Ponterio G, **Sciamanna G**, Burbaud P, Conn PJ, Bonsi P, Pisani A. Anticholinergic drugs rescue synaptic plasticity in DYT1 dystonia:

Role of M1 muscarinic receptors. **Mov Disord.** 2014 Nov;29(13):1655-65. doi: 10.1002/mds.26009. Epub 2014 Sep 4

15. Martella G, Maltese M, Nisticò R, Schirinzi T, Madeo G, **Sciamanna G**, Ponterio G, Tassone A, Mandolesi G, Vanni V, Pignatelli M, Bonsi P, Pisani A (2014). Regional specificity of synaptic plasticity deficits in a knock-in mouse model of DYT1 dystonia. **Neurobiol Disease**, vol. 65, ISSN: 0969-9961, doi: 10.1016/j.nbd.2014.01.016
16. Ponterio G, Tassone A, **Sciamanna G**, Riahi E, Vanni V, Bonsi P, Pisani A. Powerful inhibitory action of mu opioid receptors (MOR) on cholinergic interneuron excitability in the dorsal striatum. **Neuropharmacology**. 2013 Dec;75:78-85.doi:10.1016/j.neuropharm.2013.07.006.
17. Grundmann K, Glockle N, Martella G, Sciamanna G, Hauser TK, Yu LB, Castaneda S, Pichler B, Fehrenbacher B, Schaller M, Nuscher B, Haass C, Hettich J, Yue ZY, Nguyen HP, Pisani A, Riess O, Ott T (2012). Generation of a novel rodent model for DYT1 dystonia. **Neurobiol Disease**, vol. 47, p. 61-74, ISSN: 0969-9961, doi: 10.1016/j.nbd.2012.03.024
18. Pisani V, Madeo G, Tassone A, **Sciamanna G**, Maccarrone M, Stanzione P, Pisani A (2011). Homeostatic changes of the endocannabinoid system in Parkinson's disease. **Mov Disord.** Feb 1;26(2):216-22. doi: 10.1002/mds.23457
19. Martella G, Madeo G, Schirinzi T, Tassone A, **Sciamanna G**, Spadoni F, Stefani A, Shen J, Pisani A, Bonsi P Altered (2011) profile and D2-dopamine receptor modulation of high voltage-activated calcium current in striatal medium spiny neurons from animal models of Parkinson's disease. **Neuroscience**. Mar 17;177:240-51. doi: 10.1016/j.neuroscience.2010.12.057
20. Napolitano F, Pasqualetti M, Usiello A, Santini E, Pacini G, **Sciamanna G**, Errico F, Tassone A, Di Dato V, Martella G, Cuomo D, Fisone G, Bernardi G, Mandolesi G, Mercuri NB, Standaert DG, Pisani A (2010). Dopamine D2 receptor dysfunction is rescued by adenosine A2A receptor antagonism in a model of DYT1 dystonia. **Neurobiol Disease**, vol. 38, p. 434-445, ISSN: 0969-9961, doi: 10.1016/j.nbd.2010.03.003
21. Martella G, Tassone A, **Sciamanna G**, Platania P, Cuomo D, Viscomi MT, Bonsi P, Cacci E, Biagioni S, Usiello A, Bernardi G, Sharma N, Standaert DG, Pisani A Impairment of bidirectional synaptic plasticity in the striatum of a mouse model of DYT1 dystonia: role of endogenous acetylcholine. **Brain**.2009 Sep;132(Pt 9):2336-49
22. Bonsi P, **Sciamanna G**, Mitrano DA, Cuomo D, Bernardi G, Platania P, Smith Y, Pisani A. Functional and ultrastructural analysis of group I mGluR in striatal fast-spiking interneurons. **Eur J Neurosci**. 2007 Mar;25(5):1319-31. PMID: 17425558
23. Bonsi P, Cuomo D, Ding J, **Sciamanna G**, Ulrich S, Tscherter A, Bernardi G, Surmeier DJ, Pisani A. Endogenous serotonin excites striatal cholinergic interneurons via the activation of 5-HT<sub>2C</sub>, 5-HT<sub>6</sub>, and 5-HT<sub>7</sub> serotonin receptors: implications for extrapyramidal side effects of serotonin reuptake inhibitors. **Neuropsychopharmacology**. 2007 Aug;32(8):1840-54. Epub 2007 Jan 3. PMID:17203014