

BIOGRAPHICAL SKETCH

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| NAME | POSITION TITLE | | |
|--|--|-------------|-----------------------------|
| Alessandro Usiello | Associate Professor of Molecular Biology and Clinical Biochemistry, University of Campania L. Vanvitelli. Italy. | | |
| EDUCATION/TRAINING (Begin with <i>baccalaureate</i> or other initial professional education, such as nursing, include <i>postdoctoral training and residency training if applicable.</i>) | | | |
| INSTITUTION AND LOCATION | DEGREE (if applicable) | MM/YY | FIELD OF STUDY |
| University of Rome "La Sapienza", Rome, Italy | Graduate | 1991 – 1996 | Psychobiology |
| Istituto Superiore di Sanità, Rome, Italy | Post Graduate | 1997 | Mouse Behavior |
| Institut de Génétique et de Biologie Moléculaire et Cellulaire (IGBMC), Strasbourg, France | PhD | 1998 – 2001 | Behavioral Neurobiology |
| Cellular Biology laboratory CNR, Rome, Italy | Postdoctoral | 2002 – 2003 | Behavioral Neurobiology |
| Karolinska Institutet, Stocholm, Sweden | Postdoctoral | 2003 - 2004 | Molecular Neuropharmacology |

A. Personal Statement

During my undergraduate and graduate training spent at the laboratory of Psychobiology and Neuropharmacology of University of Roma La Sapienza (Dr Alberto Oliverio) and Istituto Superiore di Sanità (Dr Gemma Calamandrei), besides acquiring basic notions on the animal behavior, I learnt to carry out some of the most used learning and memory paradigms in rodents. As PhD student in Molecular Biology Lab (Dr Emiliana Borrelli) at Institut de Génétique et de Biologie Moléculaire et Cellulaire (IGBMC) in Strasbourg, I worked on the functional characterization of the *in vivo* and *in vitro* features of the two different isoforms of the Dopamine D2 receptor (D2R). The research activity was published in three peer-reviewed journals as *Nature*, *Journal of Neuroscience* and *PNAS*, where I contributed as first author. Soon after the accomplishment of my PhD program, I spent one year, as researcher, in Rome at Cellular Biology Institute of Consiglio Nazionale delle Ricerche (CNR). After that, during 2003-2004 I worked as Post-doctoral fellow in the Molecular Pharmacology Laboratory (Dr Gilberto Fisone) at Karolinka Institutet, Stockholm, Sweden.

Thanks to a "Junior Principal Investigator Grant", financed by Ministero Italiano dell'Università e della Ricerca, I moved from Sweden to Italy in 2005, at Ceinge Biotecnologie Avanzate (CEINGE), Naples, where I founded my own research group. Since the beginning, I worked in scientific research fields covering different aspects of Behavioral Neuroscience. Since 2009, as Senior Principal Investigator at Ceinge Biotecnologie Avanzate (CEINGE), Naples I established a multidisciplinary network with international collaborators, including Dr Solomon Snyder at John Hopkins Medical School, Baltimore, who gave me the great opportunity to move forward in my scientific research. Very recently as Visiting Professor at Scripps Research Institute, (USA) and at Kyoto University, Japan, I've started a tight scientific collaboration with Dr Srinivasa Subramaniam and with Dr. Noriko Fuji, respectively.

Alongside my research activity, from the time I got the position of Associate Professor first at University of Molise in 2006, and then (from 2010 at present) at University of Campania Luigi Vanvitelli, I've been improving also my academic skills, as I became Professor of PhD program at European School of Molecular Medicine, Milan, Italy, Second University of Rome Tor Vergata, Italy, University of Campania Luigi Vanvitelli, Caserta Italy.

B. Positions and Honors

▪ Positions and Employment.

2002. Researcher, Neurobiology, National Research Council (CNR), Rome, Italy;

Since 2005. Principal Investigator Behavioral Neuroscience Lab. at Ceinge Biotecnologie Avanzate, Naples, Italy;

Since 2006. Director of Mouse Behavioral Phenotyping Clinic at Ceinge Biotecnologie Avanzate, Naples, Italy;

Since 2006. Professor of PhD Program at European School of Molecular Medicine (SEMM). Milan, Italy;

2006 – 2009. Associate Professor Clinical Biochemistry and Clinical Molecular Biology, University of Molise, Italy;

Since 2010. Associate Professor Clinical Biochemistry and Clinical Molecular Biology, University of Campania, Luigi Vanvitelli, Caserta, Italy

2011-2014. Professor of PhD Program in Neuroscience at Second University of Rome (Tor Vergata) Roma, Italy;

Since 2014. Professor of PhD Program in Molecular Bioscience at University of Campania. L.Vanvitelli-Caserta, Italy;

▪ Other Experience and Professional Memberships

2010-2015. Visiting Scientist at European Brain Research Institute, Fondazione Rita Levi Montalcini (EBRI), Rome, Italy.

2018. Visiting Professor at University of Kyoto, Japan.

2018-2019. Visiting Professor at Scripps Institute, Jupiter, Florida, USA.

C. Selected Peer-reviewed Publications (15 best peer-reviewed publications)

1. **A Usiello**, J H Baik, F Rougé-Pont, R Picetti, A Dierich, M LeMeur, P V Piazza, E Borrelli: Distinct functions of the two isoforms of dopamine D2 receptors. **Nature** **2000**; 408(6809):199-203. DOI:10.1038/35041572;
2. Niklas Lindgren*, **Alessandro Usiello***, Michel Goiny, John Haycock, Eric Erbs, Paul Greengard, Tomas Hokfelt, Emiliana Borrelli, Gilberto Fisone: Distinct roles of dopamine D2L and D2S receptor isoforms in the regulation of protein phosphorylation at presynaptic and postsynaptic sites. **Proceedings of the National Academy of Sciences** **2003**; 100(7): 4305-9. DOI:10.1073/pnas.0730708100; (*co-first author)
3. Ludovic Collin, **Alessandro Usiello**, Eric Erbs, Carole Mathis, Emiliana Borrelli: Motor training compensates for cerebellar dysfunctions caused by oligodendrocyte ablation. **Proceedings of the National Academy of Sciences** **2004**; 101(1):325-30. DOI:10.1073/pnas.0305994101;
4. Diego Centonze, **Alessandro Usiello**, Cinzia Costa, Barbara Picconi, Eric Erbs, Giorgio Bernardi, Emiliana Borrelli, Paolo Calabresi: Chronic haloperidol promotes corticostriatal long-term potentiation by targeting dopamine D2L receptors. **The Journal of Neuroscience**: **2004**; 24(38):8214-22. DOI:10.1523/JNEUROSCI.1274-04.2004;
5. Mikael Andersson, **Alessandro Usiello**, Anders Borgkvist, Laura Pozzi, Cecilia Dominguez, Allen A Fienberg, Per Svenningsson, Bertil B Fredholm, Emiliana Borrelli, Paul Greengard, Gilberto Fisone: Cannabinoid action depends on phosphorylation of dopamine- and cAMP-regulated phosphoprotein of 32 kDa at the protein kinase A site in striatal projection neurons. **The Journal of Neuroscience**: **2005**; 25(37):8432-8. DOI:10.1523/JNEUROSCI.1289-05.2005;
6. Marc Welter, Daniela Vallone, Tarek A Samad, Hamid Meziane, **Alessandro Usiello**, Emiliana Borrelli: Absence of dopamine D2 receptors unmasks an inhibitory control over the brain circuitries activated by cocaine. **Proceedings of the National Academy of Sciences** **2007**; 104(16):6840-5. DOI:10.1073/pnas.0610790104;
7. Silvia Rossi, Valentina De Chiara, Alessandra Musella, Hajime Kusayanagi, Giorgia Mataluni, Giorgio Bernardi, **Alessandro Usiello**, Diego Centonze: Chronic psychoemotional stress impairs cannabinoid-receptor-mediated control of GABA transmission in the striatum. **The Journal of Neuroscience** : **2008**; 28(29):7284-92. DOI:10.1523/JNEUROSCI.5346-07.2008;

8. Francesco Errico, Silvia Rossi, Francesco Napolitano, Valeria Catuogno, Enza Topo, Gilberto Fisone, Antimo D'Aniello, Diego Centonze, **Alessandro Usiello**: D-aspartate prevents corticostriatal long-term depression and attenuates schizophrenia-like symptoms induced by amphetamine and MK-801. **The Journal of Neuroscience**: **2008**;28(41):10404-14. DOI:10.1523/JNEUROSCI.1618-08.2008;
9. Francesco Napolitano, Alessandra Bonito-Oliva, Mauro Federici, Manolo Carta, Francesco Errico, Salvatore Magara, Giuseppina Martella, Robert Nisticò, Diego Centonze, Antonio Pisani, Howard H Gu, Nicola B Mercuri, **Alessandro Usiello**: Role of Aberrant Striatal Dopamine D-1 Receptor/cAMP/Protein Kinase A/DARPP32 Signaling in the Paradoxical Calming Effect of Amphetamine. **The Journal of Neuroscience**: **2010**; 30(33):11043-56. DOI:10.1523/JNEUROSCI.1682-10.2010;
10. Giuseppe Blasi, Francesco Napolitano, Gianluca Ursini, Paolo Taurisano, Raffaella Romano, Grazia Caforio, Leonardo Fazio, Barbara Gelao, Annabella Di Giorgio, Luisa Iacovelli, Lorenzo Sinibaldi, Teresa Popolizio, **Alessandro Usiello**, Alessandro Bertolino: DRD2/AKT1 interaction on D2 c-AMP independent signaling, attentional processing, and response to olanzapine treatment in schizophrenia. **Proceedings of the National Academy of Sciences** **2011**; 108(3):1158-63. DOI:10.1073/pnas.1013535108;
11. Srinivasa Subramaniam, Francesco Napolitano, Robert G Mealer, Seyun Kim, Francesco Errico, Roxanne Barrow, Neelam Shahani, Richa Tyagi, Solomon H Snyder, **Alessandro Usiello**: Rhes, a striatal-enriched small G protein, mediates mTOR signaling and L-DOPA-induced dyskinesia. **Nature Neuroscience** **2011**; 15(2):191-3. DOI:10.1038/nn.2994;
12. Silvia Rossi, Lucia Sacchetti, Francesco Napolitano, Valentina De Chiara, Caterina Motta, Valeria Studer, Alessandra Musella, Francesca Barbieri, Monica Bari, Giorgio Bernardi, Mauro Maccarrone, **Alessandro Usiello**, Diego Centonze: Interleukin-1 β Causes Anxiety by Interacting with the Endocannabinoid System. **The Journal of Neuroscience**: **2012**; 32(40):13896-13905. DOI:10.1523/JNEUROSCI.1515-12.2012;
13. F. Errico, R. Nisticò, Annabella Di Giorgio, M. Squillace, D. Vitucci, A. Galbusera, S. Piccinin, D. Mango, L. Fazio, S. Middei, S. Trizio, N. B. Mercuri, M. A. Teule, D. Centonze, A. Gozzi, G. Blasi, A. Bertolino, **A. Usiello**: Free D-aspartate regulates neuronal dendritic morphology, synaptic plasticity, gray matter volume and brain activity in mammals. **Translational Psychiatry** **2014**; 4(e417):1-9. DOI:10.1038/tp.2014.59;
14. F Errico, V D'Argenio, F Sforazzini, F Iasevoli, M Squillace, G Guerri, F Napolitano, T Angrisano, A Di Maio, S Keller, D Vitucci, A Galbusera, L Chiariotti, A Bertolino, A de Bartolomeis, F Salvatore, A Gozzi, **A Usiello**: A role for D-aspartate oxidase in schizophrenia and in schizophrenia-related symptoms induced by phencyclidine in mice. **Translational Psychiatry** **2015**; 5(2):e512. DOI:10.1038/tp.2015.2;
15. D. Punzo, F. Errico, L. Cristino, S. Sacchi, S. Keller, C. Belardo, L. Luongo, T. Nuzzo, R. Imperatore, E. Florio, V. De Novellis, O. Affinito, S. Migliarini, G. Maddaloni, M. J. Sisalli, M. Pasqualetti, L. Pollegioni, S. Maione, L. Chiariotti, **A. Usiello**: Age-Related Changes in D-Aspartate Oxidase Promoter Methylation Control Extracellular D-Aspartate Levels and Prevent Precocious Cell Death during Brain Aging. **The Journal of Neuroscience**: **2016** Mar 9;36(10):3064-78. doi: 10.1523/JNEUROSCI.3881-15.2016.

D. Research Support

Ongoing Research Support

2019 Progetto di Ricerca di Interesse Nazionale PRIN (Italia): "Investigating the brain signature of the embryonic endogenous NMDA and mGLU5 receptors agonist, D-aspartate, in the development and maturation of cerebral circuitry associated to structural, functional and behavioural phenotypes with relevance to psychiatric disorders"- **Role of PI and National Coordinator: 393. 650 euros.**

2017 Research Projects CARIPO: "Dysregulation of serine metabolism in physical and cognitive frailty: characterization of a novel pathobiological mechanism potentially amenable to treatment". **Role of PI: 126. 000 euros.**

2015: Research Projects Ministry of Health (Italy): "Role of serotonin in modulating L-DOPA-induced dyskinesia". **Role of PI: 100. 000 euros.**

Completed Research Support

2013: NARSAD Independent Investigator Grant – Brain & Behaviour Research Foundation: “Role of free D-aspartate in NMDAR-dependent Processes of Relevance of Schizophrenia”.

Role of PI: 100.000 dollars

2013: NARSAD Independent Investigator Grant – Brain & Behaviour Research Foundation: “Interaction between environmentally sensitive DNA methylation and dopamine D2 related genetic variation on schizophrenia phenotypes”.

Role of Co-PI: 100.000 dollars

2013: Progetto di Ricerca di Interesse Nazionale PRIN: “L-DOPA-induced dyskinesia in Parkinson’s disease: new mechanisms and molecular targets”.

Role of PI: 125. 000 euros