
BIOGRAPHICAL SKETCH

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NAME: Alessandro Usiello

POSITION TITLE: Full Professor Clinical Molecular Biology

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Karolinska Institutet, Stockholm, Sweden	Post-doc	2003 - 2004	Molecular Neuropharmacology
Consiglio Nazionale Ricerche (CNR), Rome, Italy	Post-doc	2002 – 2003	Developmental Neurobiology
Institut de Génétique et de Biologie Moléculaire et Cellulaire (IGBMC), Strasbourg, France	PhD	1998 – 2001	Molecular Neurobiology
Istituto Superiore di Sanità, Rome, Italy	B.Sc	1996-1997	Behavioral Neuroscience
University of Rome “La Sapienza”, Rome, Italy	B.Sc	1991 - 1996	Biology

A. Personal Statement

My scientific interest in the field of Neuroscience started in 1994 at the time of the Biological Sciences Master training. During this period (December 1994 - October 1996) as an undergraduate student in the Psychobiology and Neuropharmacology Laboratory (University “La Sapienza”, Rome, Italy) I studied with Prof. Oliverio the involvement of dopamine and glutamate receptors interaction in the modulation of spatial memory in rodents. After the Biological Sciences Master degree, (November 1996 - November 1997) I studied with Dr G. Calamandrei (Head of Comparative Psychology Laboratory at the Istituto Superiore di Sanità, Rome) on the role of cholinergic neurons in spatial memory consolidation in rats. Later, (January 1998 - December 2001) as a PhD student in the Molecular Neurobiology Laboratory, headed by Dr E. Borrelli (Institut de Génétique et de Biologie Moléculaire et Cellulaire, Strasbourg, France) I investigated the functional in vivo and in vitro role of the two different isoforms of the dopamine D2 receptor. In particular, by using mouse genetics, cellular and behavioural analysis, I was able to demonstrate that the long isoform of the dopamine D2 receptor (D2L) subserves exclusively at postsynaptic functions, whereas the short isoform (D2S) is responsible for the presynaptic control of the dopaminergic transmission. The results of my PhD research work have been published as first author in Nature, PNAS, Journal of Neuroscience. After the PhD training in France, (January 2002 -January 2003), I worked as a post-doc fellow in Italy at the Centro Nazionale Ricerche (CNR), Monterotondo, Rome. At CNR, with Dr L. Pellizzoni (Head of Molecular Biology laboratory) I was involved in a project aimed at disclosing the biochemical role of the survival motor neuron (SMN) protein during embryonic and postnatal mouse life. Moreover, in this period I also collaborate with Antonio Simeone, Professor at King’s College of London, on the role of Otx2 gene in the proliferation and differentiation of midbrain dopaminergic neurons. At the beginning of 2003, I started a new post-doctoral training in the field of Molecular Neuropharmacology. Consistently, I studied with Prof. G. Fisone (Karolinska Institutet, Stockholm, Sweden) the dopamine

receptors signal transduction processes involved in the striatal action of different drugs, including substances of abuse, antipsychotics and antiparkinsonian agents. This research work was conducted in collaboration with Prof. Paul Greengard, Rockefeller University (Laureate Nobel Prize in Medicine 2000). Moreover, in this period, with Dr A. Cenci (Wallenberg Institute, Lund, Sweden) I attended the first validation of a mouse model L-DOPA-induced dyskinesia. In 2006, I was granted by Ministero Italiano dell' Università e Della Ricerca (MIUR) to start my carrier as Principal Investigator at CEINGE Biotecnologie Avanzate Institute, Naples, Italy. Since then, I established a network of multidisciplinary collaborations that allowed me to devote myself to the laboratory projects in the field of translational Neuroscience through scientific questions that implied at the same time behavioural, biochemical, molecular and electrophysiological approaches in preclinical models and humans. Overall, in the last 10 years, I focused my research in three main projects related to: 1) Molecular mechanisms underpinning L-DOPA-induced dyskinesia; 2) Role of the small GTP-binding protein Rhes in the modulation of striatal dopaminergic transmission; 3) Role of D-aspartate oxidase and its substrate D-aspartic acid in mammalian brain: from preclinical studies to clinical application.

B. Academic positions.

Since 2019. Full Professor at University of Campania, Luigi Vanvitelli, Caserta, Italy.

2010-2019. Associate Professor at Second University of Naples, Italy.

2006-2009. Associate Professor at University of Molise, Campobasso, Italy.

Visiting Scientist

2018 Visiting Professor at Scripps Research Institute, Jupiter, Florida, USA.

2018 Visiting Professor at University of Kyoto, Japan.

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

Research Appointments

Since 2006. Principal Investigator of Behavioral Neuroscience Lab at Ceinge Biotecnologie Avanzate, Naples.

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

Other Experience and Professional Memberships.

Since 2015 Member, Italian Neuroscience Society.

Since 2017 Member, Italian Biochemistry Society.

Since 2006 Faculty member of PhD program at the European School of Molecular Medicine, Milan, Italy.

Since 2017 Faculty member of PhD program in Molecular Sciences at University of Campania, Caserta, Italy.

C. Contributions to Science

Role of the small GTP-binding protein Rhes in the modulation of striatal dopaminergic transmission

My group has been working for about 10 years on the role of the small GTP-binding protein, Rhes, in the pathophysiology of the corpus striatum, where it is highly expressed. Striatum represents the largest nucleus of the basal ganglia, involved in the modulation of motor functions and several aspects of cognition, motivation, reinforcement and reward perception, whose abnormalities rely on a variety of psychomotor disorders, ranging from neurological pathologies, such as Parkinson's disease (PD), to psychiatric disorders, including schizophrenia and drug addiction. Thus, I took advantage of a genetically modified mouse model (KO), characterized by the constitutive deletion of the *Rhes* gene. Results so far obtained by my group documented, that, besides rodents, Rhes is expressed in virtually all dopaminergic neurons, namely medium-sized spiny neurons, of both human and non-human primate striata, where it affects dopamine (DA)-and adenosine-dependent transmission. Accordingly, we documented that Rhes KO animals displayed alterations in phenotypes reminiscent of psychiatric illness in humans, including deficits in prepulse inhibition of the startle reflex and, most interestingly, a striking enhancement of behavioral responses elicited by caffeine, phencyclidine, amphetamine and cocaine as well. Moreover, based on the notion that Rhes can interact with and activate striatal mTORC1, one of the key players in L-DOPA-induced dyskinesia in rodent PD models, I found that lack of Rhes attenuated such motor disturbances in 6-OHDA-lesioned Rhes KO mice. In line with a potential role of Rhes in the modulation of dopamine innervation, I find out a significant downregulation of Rhes mRNA levels in the putamen of PD non-human primate model, treated with the neurotoxin MPTP. Overall, these data point out that Rhes is emerging as an important player in orchestrating striatal physiological processes of potential interest for both psychiatric and neurological disorders.

1. Napolitano F, Booth Warren E, Migliarini S, Punzo D, Errico F, Li Q, Thiolat ML, Vescovi AL, Calabresi P, Bezard E, Morelli M, Konradi C, Pasqualetti M, **Usiello A**. Decreased Rhes mRNA levels in the brain of patients with Parkinson's disease and MPTP-treated macaques. **PLoS One**. 2017 Jul 25;12(7): e0181677. PMID:PMC5526584 doi: 10.1371/journal.pone.0181677.
2. Annalisa Pinna, Francesco Napolitano, Barbara Pelosi, Anna Di Maio, Jadwiga Wardas, Maria Antonietta Casu, Giulia Costa, Sara Migliarini, Paolo Calabresi, Massimo Pasqualetti, Micaela Morelli, **Alessandro Usiello**. The Small GTP-Binding Protein Rhes Influences Nigrostriatal-Dependent Motor Behavior During Aging. **Movement Disorders**. 2016 Feb 8. doi: 10.1002/mds.26489.
3. Vitucci D, Di Giorgio A, Napolitano F, Pelosi B, Blasi G, Errico F, Attrotto MT, Gelao B, Fazio L, Taurisano P, Di Maio A, Marsili V, Pasqualetti M, Bertolino A, **Usiello A**. Rasd2 Modulates Prefronto-Striatal Phenotypes in Humans and 'Schizophrenia-Like Behaviors' in Mice. **Neuropsychopharmacology**. 2016 Feb;41(3):916-27. PMID:PMC4707838 doi: 10.1038/npp.

4. 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. PMID:PMC3267880 DOI:10.1038/nn.2994;

Role of D-aspartate oxidase and its substrate D-aspartic acid in mammalian brain: from preclinical studies to clinical application.

In the last decade, my Team worked in deciphering the enigmatic cerebral role of D-aspartate oxidase (Ddo) and its substrate D-Asp in mammalian brain. Overall, our preclinical data indicate that D-Asp exists in the brain at extracellular level where it is able to influence NMDAR-dependent *in vitro* and *in vivo* functions. Moreover, besides to its direct agonistic activities upon post synaptic NMDAR, we reported that free D-Asp is also able to trigger a considerable release of glutamate in the prefrontal cortex of freely moving mice through the presynaptic activation of NMDA, AMPA and mGlu5 receptors. Consistently, greater D-Asp concentrations are able to enhanced cerebral metabolism, hippocampal NMDAR-dependent Long-Term Potentiation, dendritic length, spine density and spatial memory in D-Asp-treated mice and rats. However, if exposure to non-physiologically elevated D-Asp levels lasts for the entire lifetime of animals, a progressive NMDAR-dependent cell-death was reported in the hippocampus, cortex and substantia nigra of *DDO* knockout mice, thus suggesting a striking neuroprotective role of DDO on brain aging. Nonetheless, transient administration of D-Asp to old mice and in human patient with multiple sclerosis can restore the physiological age-related decay of hippocampal NMDA-related LTP and increased cortical trans-synaptic glutamatergic transmission and synaptic plasticity reserve, respectively. Thus, we discover that besides its beneficial effect on hippocampus-dependent processes in preclinical models, preliminary evidence in humans are indicating a potential role for D-Asp supplementation in treating neurologic and psychiatric disorders.

1. Nuzzo T, Punzo D, Devoto P, Rosini E, Paciotti S, Sacchi S, Li Q, Thiolat ML, Véga C, Carella M, Carta M, Gardoni F, Calabresi P, Pollegioni L, Bezard E, Parnetti L, Errico F, **Usiello A**. The levels of the NMDA receptor co-agonist D-serine are reduced in the substantia nigra of MPTP-lesioned macaques and in the cerebrospinal fluid of Parkinson's disease patients. **Sci Rep.** 2019 Jun 20;9(1):8898. PMID:PMC6586824 doi: 10.1038/s41598-019-45419-1.
2. 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. PMID:PMC6601755 doi: 10.1523/JNEUROSCI.3881-15.2016.
3. 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**. D-aspartate regulates neuronal dendritic morphology, synaptic plasticity, gray matter volume and brain activity in mammals. **Translational Psychiatry** 2014; 4(e417):1-9. PMID:PMC4119226 DOI:10.1038/tp.2014.59;
4. 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. PMID:PMC6671035 DOI:10.1523/JNEUROSCI.1618-08.2008;

L-DOPA-induced dyskinesia in Parkinson's disease rodent models: new mechanisms and molecular targets.

L-DOPA-induced motor complications represent a major clinical problem in Parkinson's disease (PD). Pharmacological dopamine replacement with L-DOPA causes abnormal involuntary movements in the vast majority of the patients. Since 2005 I focused my research activity in exploring the involvement of different dopamine, serotonin and glutamatergic receptors in regulating the onset and magnitude of LID in preclinical models.

1. De Iure A, Napolitano F, Beck G, Quiroga Varela A, Durante V, Sciacaluga M, Mazzocchetti P, Megaro A, Tantucci M, Cardinale A, Punzo D, Mancini A, Costa C, Ghiglieri V, Tozzi A, Picconi B, Papa SM, **Usiello A**, Calabresi P. Striatal spreading depolarization: Possible implication in levodopa-induced dyskinetic-like behavior. **Movement Disorders** 2019 Feb 13. doi: 10.1002/mds.27632.
2. Tronci E, Napolitano F, Muñoz A, Fidalgo C, Rossi F, Björklund A, **Usiello A**, Carta M. BDNF over-expression induces striatal serotonin fiber sprouting and increases the susceptibility to L-DOPA-induced dyskinesia in 6-OHDA-lesioned rats. **Experimental Neurology** 2017 Jul 27;297:73-81. doi: 10.1016/j.expneurol.2017.07.017.
3. Brugnoli A, Napolitano F, **Usiello A**, Morari M. Genetic deletion of Rhes or pharmacological blockade of mTORC1 prevent striato-nigral neurons activation in levodopa-induced dyskinesia. **Neurobiology of Disease** 2016 Jan;85:155-63. doi: 10.1016/j.nbd.2015.10.020. Epub 2015 Oct 29.
4. Francesco Errico, Alessandra Bonito-Oliva, Vincenza Bagetta, Daniela Vitucci, Rosaria Romano, Elisa Zianni, Francesco Napolitano, Silvia Marinucci, Monica Di Luca, Paolo Calabresi, Gilberto Fisone, Manolo Carta, Barbara Picconi, Fabrizio Gardoni, **Alessandro Usiello**. Higher free D-aspartate and N-methyl-D-aspartate levels prevent striatal depotentiation and anticipate L-DOPA-induced dyskinesia. **Experimental Neurology** 09/2011; 232(2):240-50. DOI:10.1016/j.expneurol.2011.09.013;

D. Additional Information: Research Support and/or Scholastic Performance

Ongoing Research Support

2019-2021 Research project University of Campania, L. Vanvitelli. Caserta, Italy. "Role of D-Aspartate on testis morphology and function at adulthood". Role Co-PI EURO 189. 000

2017-2020 Research project of University and Research Minister, PRIN, MIUR (Italy). "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 PI; EURO 393. 650.

2017-2019 Research project CARIPO (Italy): "Dysregulation of serine metabolism in physical and cognitive frailty: characterization of a novel pathobiological mechanism potentially amenable to treatment". Role Co-PI EURO 126. 000.

Completed Research Support

2015-2018. Research Project of Italian Health Minister: "Role of serotonin in modulating L-DOPA-induced dyskinesia"- Role PI; EURO 110. 000

2011-2014 Research project of University and Research Minister, PRIN, (Italy): "L-DOPA-induced dyskinesia in Parkinson's disease: new mechanisms and molecular targets"- Role PI; EURO 125. 000

2013 NARSAD Independent Investigator (USA): "Role of free D-aspartate in NMDAR-dependent processes of relevance to schizophrenia" – Role PI; EURO 100. 000

2013 NARSAD Independent Investigator (USA): "Interaction between environmentally sensitive DNA methylation and dopamine D2 related genetic variation on schizophrenia phenotypes"- Role Co-PI; EURO 100. 000

Publications List

1. Nuzzo T, Punzo D, Devoto P, Rosini E, Paciotti S, Sacchi S, Li Q, Thiolat ML, Véga C, Carella M, Carta M, Gardoni F, Calabresi P, Pollegioni L, Bezard E, Parnetti L, Errico F, **Usiello A**. The levels of the NMDA receptor co-agonist D-serine are reduced in the substantia nigra of MPTP-lesioned macaques and in the cerebrospinal fluid of Parkinson's disease patients. **Sci Rep**. 2019 Jun 20;9(1):8898. doi: 10.1038/s41598-019-45419-1.
2. Lack of Rhes Increases MDMA-Induced Neuroinflammation and Dopamine Neuron Degeneration: Role of Gender and Age. Costa G, Porceddu PF, Serra M, Casu MA, Schiano V, Napolitano F, Pinna A, **Usiello A**, Morelli M. **Int J Mol Sci**. 2019 Mar 28;20(7). pii: E1556. doi: 10.3390/ijms20071556.
3. Nuzzo T, Feligioni M, Cristino L, Pagano I, Marcelli S, Iannuzzi F, Imperatore R, D'Angelo L, Petrella C, Carella M, Pollegioni L, Sacchi S, Punzo D, De Girolamo P, Errico F, Canu N, **Usiello A**. Free d-aspartate triggers NMDA receptor-dependent cell death in primary cortical neurons and perturbs JNK activation, Tau phosphorylation, and protein SUMOylation in the cerebral cortex of mice lacking d-aspartate oxidase activity. **Exp Neurol**. 2019 Feb 26;317:51-65. doi: 10.1016/j.expneurol.2019.02.014.
4. Santillo A, Falvo S, Di Fiore MM, Di Giacomo Russo F, Chieffi P, **Usiello A**, Pinelli C, Baccari GC. AMPA receptor expression in mouse testis and spermatogonial GC-1 cells: A study on its regulation by excitatory amino acids. **J Cell Biochem**. 2019 Feb 14. doi: 10.1002/jcb.28382.
5. De Iure A, Napolitano F, Beck G, Quiroga Varela A, Durante V, Sciaccaluga M, Mazzocchetti P, Megaro A, Tantucci M, Cardinale A, Punzo D, Mancini A, Costa C, Ghiglieri V, Tozzi A, Picconi B, Papa SM, **Usiello A**, Calabresi P. Striatal spreading depolarization: Possible implication in levodopa-induced dyskinetic-like behavior. **Movement Disorders** 2019 Feb 13. doi: 10.1002/mds.27632.
6. Nicoletti CG, Monteleone F, Marfia GA, **Usiello A**, Buttari F, Centonze D, Mori F. Oral D-Aspartate enhances synaptic plasticity reserve in progressive multiple sclerosis. **Multiple Sclerosis**. 2019 Feb 7:1352458519828294. doi: 10.1177/1352458519828294.
7. Errico F, Nuzzo T, Carella M, Bertolino A, **Usiello A**. The Emerging Role of Altered d-Aspartate Metabolism in Schizophrenia: New Insights From Preclinical Models and Human Studies. **Front Psychiatry**. 2018 Nov 6;9:559. doi: 10.3389/fpsy.2018.00559. eCollection 2018.

8. Maddaloni G, Migliarini S, Napolitano F, Giorgi A, Nazzi S, Biasci D, De Felice A, Gritti M, Cavaccini A, Galbusera A, Franceschi S, Lessi F, Ferla M, Aretini P, Mazzanti CM, Tonini R, Gozzi A, **Usiello A**, Pasqualetti M. Serotonin depletion causes valproate-responsive manic-like condition and increased hippocampal neuroplasticity that are reversed by stress. **Scientific Report** 2018 Aug 7;8(1):11847. doi: 10.1038/s41598-018-30291-2.
9. Keller S, Punzo D, Cuomo M, Affinito O, Coretti L, Sacchi S, Florio E, Lembo F, Carella M, Copetti M, Coccozza S, Balu DT, Errico F, **Usiello A***, Chiariotti L.* DNA methylation landscape of the genes regulating D-serine and D-aspartate metabolism in post-mortem brain from controls and subjects with schizophrenia. **Scientific Report** 2018 Jul 5;8(1):10163. doi: 10.1038/s41598-018-28332-x. (*Co-Corresponding)
10. Costa G, Pinna A, Porceddu PF, Casu MA, Di Maio A, Napolitano F, **Usiello A**, Morelli M. Rhes Counteracts Dopamine Neuron Degeneration and Neuroinflammation Depending on Gender and Age. **Front Aging Neurosci.** 2018 May 31;10:163. doi: 10.3389/fnagi.2018.00163. eCollection 2018.
11. Napolitano F, D'Angelo L, De Girolamo P, Avallone L, De Lange P, **Usiello A**. The Thyroid Hormone-target Gene Rhes a Novel Crossroad for Neurological and Psychiatric Disorders: New Insights from Animal Models. **Neuroscience.** 2018 Aug 1;384:419-428. doi: 10.1016/j.neuroscience.2018.05.027. Epub 2018 May 30. Review.
12. Guida F, Turco F, Iannotta M, De Gregorio D, Palumbo I, Sarnelli G, Furiano A, Napolitano F, Boccella S, Luongo L, Mazzitelli M, **Usiello A**, De Filippis F, Iannotti FA, Piscitelli F, Ercolini D, de Novellis V, Di Marzo V, Cuomo R, Maione S. Antibiotic-induced microbiota perturbation causes gut endocannabinoidome changes, hippocampal neuroglial reorganization and depression in mice. **Brain Behav Immun.** 2017 Sep 7. pii: S0889-1591(17)30417-8. doi: 10.1016/j.bbi.2017.09.001.
13. Jennifer Stanic, Manuela Mellone, Francesco Napolitano, Elisa Zianni, Claudia Racca, Daiana Minocci, Veronica Ghiglieri, Marie-Laure Thiolat, Qin Li, Annalisa Longhi, Arianna De Rosa, Barbara Picconi, Erwan Bezard, Paolo Calabresi, Monica Di Luca, **Alessandro Usiello**, Fabrizio Gardoni. Rabphilin 3A: a novel target for the treatment of levodopa-induced dyskinesias. **Neurobiology of Disease** 2017 Aug 17. pii: S0969-9961(17)30181-X. doi: 10.1016/j.nbd.2017.08.001
14. Tronci E, Napolitano F, Muñoz A, Fidalgo C, Rossi F, Björklund A, **Usiello A**, Carta M. BDNF over-expression induces striatal serotonin fiber sprouting and increases the susceptibility to L-DOPA-induced dyskinesia in 6-OHDA-lesioned rats. **Experimental Neurology** 2017 Jul 27;297:73-81. doi: 10.1016/j.expneurol.2017.07.017.

15. Napolitano F, Booth Warren E, Migliarini S, Punzo D, Errico F, Li Q, Thiolat ML, Vescovi AL, Calabresi P, Bezard E, Morelli M, Konradi C, Pasqualetti M, **Usiello A**. Decreased Rhes mRNA levels in the brain of patients with Parkinson's disease and MPTP-treated macaques. **PLoS One**. **2017** Jul 25;12(7):e0181677. doi: 10.1371/journal.pone.0181677. eCollection 2017.
16. Fontanarosa C, Pane F, Sepe N, Pinto G, Trifuoggi M, Squillace M, Errico F, **Usiello A**, Pucci P, Amoresano A. Quantitative determination of free D-Asp, L-Asp and N-methyl-D-aspartate in mouse brain tissues by chiral separation and Multiple Reaction Monitoring tandem mass spectrometry. **PLoS One**. **2017** Jun 29;12(6):e0179748. doi: 10.1371/journal.pone.0179748. eCollection 2017.
17. Nuzzo T, Sacchi S, Errico F, Keller S, Palumbo O, Florio E, Punzo D, Napolitano F, Copetti M, Carella M, Chiariotti L, Bertolino A, Pollegioni L, **Usiello A**. Decreased free d-aspartate levels are linked to enhanced d-aspartate oxidase activity in the dorsolateral prefrontal cortex of schizophrenia patients. **NPJ Schizophrenia** **2017** Apr 6;3:16. doi: 10.1038/s41537-017-0015-7. eCollection 2017.
18. Pratelli M, Migliarini S, Pelosi B, Napolitano F, Usiello A, Pasqualetti M. Perturbation of Serotonin Homeostasis during Adulthood Affects Serotonergic Neuronal Circuitry. *eNeuro*. 2017 Apr 11;4(2). pii: **ENEURO** **2017** .0376-16.2017. doi: 10.1523/ENEURO.0376-16.2017. eCollection 2017 Mar-Apr.
19. Sacchi S, Novellis V, Paolone G, Nuzzo T, Iannotta M, Belardo C, Squillace M, Bolognesi P, Rosini E, Motta Z, Frassinetti M, Bertolino A, Pollegioni L, Morari M, Maione S, Errico F, **Usiello A**. Olanzapine, but not clozapine, increases glutamate release in the prefrontal cortex of freely moving mice by inhibiting D-aspartate oxidase activity. **Scientific Report** **2017** Apr 10;7:46288. doi: 10.1038/srep46288.
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21. Affinito O, Scala G, Palumbo D, Florio E, Monticelli A, Miele G, Avvedimento VE, **Usiello A**, Chiariotti L, Cocozza S. Modeling DNA methylation by analyzing the individual configurations of single molecules. **Epigenetics**. **2016** Dec;11(12):881-888.

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23. Palazzo E, Luongo L, Guida F, Marabese I, Romano R, Iannotta M, Rossi F, D'Aniello A, Stella L, Marmo F, **Usiello A**, de Bartolomeis A, Maione S, de Novellis V. D-Aspartate drinking solution alleviates pain and cognitive impairment in neuropathic mice. **Amino Acids**. 2016 Jul;48(7):1553-67. doi: 10.1007/s00726-016-2205-4.
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