

Curriculum Vitae- Alessandro Usiello

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Alessandro Usiello

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A. Personal Statement

My scientific interest in the field of Neuroscience started in 1994 at the time of my undergraduate 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 receiving the B.Sc. degree, I studied with Dr. Calamandrei (Head of Comparative Psychology Laboratory at the Istituto Superiore di Sanità, Rome) 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. 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 behavioral analyses, 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*, and *Journal of Neuroscience*. After my PhD training in France, I worked as a postdoctoral fellow in Italy at the Centro Nazionale Ricerche (CNR), Monterotondo, Rome. There I collaborated with Dr. Pellizzoni (Head of Molecular Biology laboratory) at a project aimed at disclosing the biochemical role of the survival motor neuron (SMN) protein during embryonic and postnatal mouse life. In this period, I also collaborated with Prof. Simeone (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. I studied with Prof. 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 Nobel Prize Laureate Prof. Greengard (Rockefeller University). During this period, I also validated the first mouse model of L-DOPA-induced dyskinesia in collaboration with Dr A. Cenci (Wallenberg Institute, Lund, Sweden). In 2006, I was granted by Ministero Italiano dell’Università e Della Ricerca (MIUR) to start my carrier as Principal Investigator at CEINGE Biotechnologie Avanzate Institute, Naples, Italy. Since then, I established a network of multidisciplinary collaborations in the field of Translational Neuroscience through scientific studies that included behavioral, biochemical, molecular and electrophysiological approaches in both preclinical models and humans.

Over the last 18 years as Principal Investigator, in collaboration with Prof Robert Nisticò (University of Roma Tor Vergata), Prof Paolo Calabresi (University Cattolica Del Sacro Cuore), Prof Solomon Snyder (John Hopkins Medical School), Prof Gilberto Fisone (Karolinska Institutet), Prof Francesco Salvatore (University of Naples), Prof Emiliana Borrelli (University of California Irvine), Prof Enza Maria Valente (University of Pavia), Prof Diego Centonze (University of Roma Tor Vergata), Dr Enrico Bertini (Ospedale Pediatrico Bambino Gesù, Roma), Prof Jumpei Sasabe (University of Tokyo Kejo), Prof Srinivasa Subramanian (Scripps Research Institute, Florida), Prof Alessandro Bertolino (University of Bari), Prof Livio Pellizzoni and Prof David Sulzer (Columbia University, New York) my research focused on three areas:

- 1) Role of the atypical D-amino acids in regulating NMDA receptors in mammalian brain from preclinical studies to clinical application in Autism Spectrum Disorders and Schizophrenia;
- 2) Neurochemical and metabolomic brain dysfunction in animal models and patients with neurodegenerative diseases: focus on Parkinson Disease, Alzheimer's Disease, Spinal Muscular Atrophy and Multiple Sclerosis;
- 3) Involvement of Dopamine receptors in psychiatric and neurological disorders.

Academic degree list

2003-2004: Post doctoral fellow in Molecular Neuropharmacology Lab (PI Dr Gilberto Fisone) Karolinska Institutet, Stocholm, Sweden.

2002: Researcher at Consiglio Nazionale delle Ricerche, Istituto di Biologia Cellulare Monterotondo

1998 – 2001: PhD in Molecular Neurobiology, (Mentor Emiliana Borrelli) Institut de Génétique et de Biologie Moléculaire et Cellulaire (IGBMC), Strasbourg, France.

1997: Post graduate Fellow in Comparative Psychology Lab (PI Gemma Calamandrei), Istituto Superiore Sanità, Rome, Italy.

1991 – 1996: Bachelor of Science in Biology, University of Rome “La Sapienza”, Rome, Italy

Positions and Employment

2006 -2025 Principal Investigator of Translational Neuroscience Lab at Ceinge Biotechnologie Avanzate, Naples, Italy.

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

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

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

Since 2020 Counsellor of Italian Society of Neuroscience (Behavioural Neuroscience)

Other Experience and Professional Memberships.

2005-2018 Director of Mouse Phenotyping Clinic at Ceinge Biotechnologie Avanzate, Naples, Italy.

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

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

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

2018-2020 Visiting Professor at Scripps Research Institute, Jupiter, Florida, USA.

2018- 2019 Visiting Professor at University of Kyoto, Japan.

2020-2023 Counselor Italian Society for Neuroscience

Funded Grants

2013- **Grant from Italian Ministry of Research and University:** “L-DOPA-induced dyskinesia in Parkinson's disease: new mechanisms and molecular targets”. Role PI

2013-**NARSAD Independent Investigator (USA):** “Role of free D-aspartate in NMDAR-dependent processes of relevance to schizophrenia”. Role PI.

2013- **NARSAD Independent Investigator (USA):** “Interaction between environmentally sensitive DNA methylation and dopamine D2 related genetic variation on schizophrenia phenotypes”- Role: Co-PI.

2015- **Grant from Italian Ministry of Health:** “Role of serotonin in modulating L-DOPA-induced dyskinesia”. Ruolo: Role PI

2017- **Grant from CARIPLO Foundation:** “Dysregulation of serine metabolism in physical and cognitive frailty: characterization of a novel pathobiological mechanism potentially amenable to treatment”. Role Co-PI

2017- **Grant from Italian Ministry of Research and University:** “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

2020- **Grant from Italian Ministry of Research and University:** “Biochemical modulation of D-aspartate metabolism in brain functions”- Role Co PI

2022- **Grant from Italian Ministry of Research and University:** New molecular pathways responsible for mitochondrial derangement in Parkinson's Disease”. Role CoPI

2022-Grant from Italian Ministry of Research and University: “D-aspartate metabolism dysfunction as an emerging biochemical signature in neurodevelopmental psychiatric disorders”- Role PI

2022-Grant #NEXTGENERATIONEU (NGEU) and funded by the Ministry of University and Research (MUR), National Recovery and Resilience Plan (NRRP), project MNESYS (PE0000006) – A Multiscale integrated approach to the study of the nervous system in health and disease (DN. 1553 11.10.2022). Role Co PI

2023-Grant PNRR-MCNT2-2023-12377850 “Assessing central neuromodulation effects on immune-mediated synaptic dysfunction in progressive multiple sclerosis”. Role Co PI

Professor Academy Classes

Università degli Studi della Campania, Luigi Vanvitelli, Caserta.

A.A. 2018-2024 CdLM Molecular Biotechnology - Clinical Biochemistry and Molecular Biology

A.A. 2018-2024 CdL Scienze Biologiche - Basi di Neurobiologia

A.A. 2018-2024 CdLM Scienze della Nutrizione Umana - Clinical Biochemistry.

A.A. 2010-2011 CdLM in Farmacia - Biologia Clinica

Università del Molise

A.A.2007/2008 La Disabilità da cause genetiche e metaboliche (Facoltà di Scienze del Benessere)

A.A.2007/2008 Biochimica speciale. (Facoltà di Scienze del Benessere)

A.A.2008/2010 Genetica e Biologia Molecolare. (Facoltà di Medicina e Chirurgia)

Bibliometric indicators

Total citations: 7592 (Scopus), 10375 (Google Scholar)

H-index: 49 (Scopus), 56 (Google Scholar).

Total Publications: 139 articles

List of Publications (139 articles)

1. Garofalo M, De Simone G, Motta Z, Nuzzo T, De Grandis E, Bruno C, Boeri S, Riccio MP, Pastore L, Bravaccio C, Iasevoli F, Salvatore F, Pollegioni L, Errico F, de Bartolomeis A, **Usiello A** (2024). Decreased free D-aspartate levels in the blood serum of patients with schizophrenia. *Front Psychiatry* 15:1408175.
2. Rampino A, Garofalo M, Nuzzo T, Favia M, Saltarelli S, Masellis R, Asselti MG, Pennacchio TC, Bruzzese D, Errico F, Vidali M, Bertolino A, **Usiello A** (2024). Variations of blood D-serine and D-aspartate homeostasis track psychosis stages. *Schizophrenia (Heidelb)* 10:115.
3. Imarisio A, Yahyavi I, Gasparri C, Hassan A, Avenali M, Di Maio A, Buongarzone G, Galandra C, Picascia M, Filosa A, Monti MC, Pacchetti C, Errico F, Rondanelli M, **Usiello A**, Valente EM (2024a). Serum dysregulation of serine and glycine metabolism as predictive biomarker for cognitive decline in frail elderly subjects. *Translational psychiatry* 14:281.

4. Maddaloni G, Barsotti N, Migliarini S, Giordano M, Nazzi S, Picchi M, Errico F, **Usiello A**, Pasqualetti M (2024). Impact of Serotonin Deficiency on Circadian Dopaminergic Rhythms. *International journal of molecular sciences* 25.
5. Imarisio A, Yahyavi I, Avenali M, Di Maio A, Buongarzone G, Galandra C, Picascia M, Filosa A, Gasparri C, Monti MC, Rondanelli M, Pacchetti C, Errico F, Valente EM, **Usiello A** (2024b). Blood D-serine levels correlate with aging and dopaminergic treatment in Parkinson's disease. *Neurobiol Dis* 192:106413.
6. Hassan A, di Vito R, Nuzzo T, Vidali M, Carlini MJ, Yadav S, Yang H, D'Amico A, Kolici X, Valsecchi V, Panicucci C, Pignataro G, Bruno C, Bertini E, Errico F, Pellizzoni L, **Usiello A** (2024). Dysregulated balance of D- and L-amino acids modulating glutamatergic neurotransmission in severe spinal muscular atrophy. *bioRxiv*.
7. Serra M, Di Maio A, Bassareo V, Nuzzo T, Errico F, Servillo F, Capasso M, Parekh P, Li Q, Thiolat ML, Bezaud E, Calabresi P, Sulzer D, Carta M, Morelli M, **Usiello A** (2023). Perturbation of serine enantiomers homeostasis in the striatum of MPTP-lesioned monkeys and mice reflects the extent of dopaminergic midbrain degeneration. *Neurobiol Dis* 184:106226.
8. Errico F, Gilio L, Mancini A, Nuzzo T, Bassi MS, Bellingacci L, Buttari F, Dolcetti E, Bruno A, Galifi G, Furlan R, Finardi A, Di Maio A, Di Filippo M, Centonze D, **Usiello A** (2023). Cerebrospinal fluid, brain, and spinal cord levels of L-aspartate signal excitatory neurotransmission abnormalities in multiple sclerosis patients and experimental autoimmune encephalomyelitis mouse model. *J Neurochem* 166:534-546.
9. Di Maio A, Nuzzo T, Gilio L, Serra M, Buttari F, Errico F, De Rosa A, Bassi MS, Morelli M, Sasabe J, Sulzer D, Carta M, Centonze D, **Usiello A** (2023). Homeostasis of serine enantiomers is disrupted in the post-mortem caudate putamen and cerebrospinal fluid of living Parkinson's disease patients. *Neurobiol Dis* 184:106203.
10. Nuzzo T, Russo R, Errico F, D'Amico A, Tewelde AG, Valletta M, Hassan A, Tosi M, Panicucci C, Bruno C, Bertini E, Chambery A, Pellizzoni L, **Usiello A** (2023). Nusinersen mitigates neuroinflammation in severe spinal muscular atrophy patients. *Commun Med (Lond)* 3:28.
11. Santillo A, Falvo S, Venditti M, Di Maio A, Chieffi Baccari G, Errico F, **Usiello A**, Minucci S, Di Fiore MM (2023). D-Aspartate Depletion Perturbs Steroidogenesis and Spermatogenesis in Mice. *Biomolecules* 13.
12. Valsecchi V, Errico F, Bassareo V, Marino C, Nuzzo T, Brancaccio P, Laudati G, Casamassa A, Grimaldi M, D'Amico A, Carta M, Bertini E, Pignataro G, D'Ursi AM, **Usiello A** (2023). SMN deficiency perturbs monoamine neurotransmitter metabolism in spinal muscular atrophy. *Commun Biol* 6:1155.
13. Lombardo B, Pagani M, De Rosa A, Nunziato M, Migliarini S, Garofalo M, Terrile M, D'Argenio V, Galbusera A, Nuzzo T, Ranieri A, Vitale A, Leggiero E, Di Maio A, Barsotti N, Borello U, Napolitano F, Mandarino A, Carotenuto M, Heresco-Levy U, Pasqualetti M, Malatesta P, Gozzi A, Errico F, Salvatore F, Pastore L, **Usiello A** (2022). D-aspartate oxidase gene duplication induces social recognition memory deficit in mice and intellectual disabilities in humans. *Translational psychiatry* 12:305.
14. De Rosa A, Di Maio A, Torretta S, Garofalo M, Giorgelli V, Masellis R, Nuzzo T, Errico F, Bertolino A, Subramaniam S, Rampino A, **Usiello A** (2022a). Abnormal RasGRP1 Expression in the Post-Mortem Brain and Blood Serum of Schizophrenia Patients. *Biomolecules* 12.
15. De Rosa A, Fontana A, Nuzzo T, Garofalo M, Di Maio A, Punzo D, Copetti M, Bertolino A, Errico F, Rampino A, de Bartolomeis A, **Usiello A** (2022b). Machine Learning algorithm unveils glutamatergic alterations in the post-mortem schizophrenia brain. *Schizophrenia (Heidelb)* 8:8.
16. Di Maio A, De Rosa A, Pelucchi S, Garofalo M, Marciano B, Nuzzo T, Gardoni F, Isidori AM, Di Luca M, Errico F, De Bartolomeis A, Marcello E, **Usiello A** (2022). Analysis of mRNA and Protein Levels of CAP2, DLG1 and ADAM10 Genes in Post-Mortem Brain of Schizophrenia, Parkinson's and Alzheimer's Disease Patients. *International journal of molecular sciences* 23.

17. Errico F, Marino C, Grimaldi M, Nuzzo T, Bassareo V, Valsecchi V, Panicucci C, Di Schiavi E, Mazza T, Bruno C, D'Amico A, Carta M, D'Ursi AM, Bertini E, Pellizzoni L, **Usiello A** (2022). Nusinersen Induces Disease-Severity-Specific Neurometabolic Effects in Spinal Muscular Atrophy. *Biomolecules* 12.
18. Stampanoni Bassi M, Nuzzo T, Gilio L, Miroballo M, Casamassa A, Buttari F, Bellantonio P, Fantozzi R, Galifi G, Furlan R, Finardi A, De Rosa A, Di Maio A, Errico F, Centonze D, **Usiello A** (2021). Cerebrospinal fluid levels of L-glutamate signal central inflammatory neurodegeneration in multiple sclerosis. *J Neurochem* 159:857-866.
19. Fujii N, Homma H, **Usiello A**, Sweedler J, Hamase K (2021). The significance of D-amino acids in the homochiral world of life. *Biochim Biophys Acta Proteins Proteom* 1869:140565.
20. Grimaldi M, Marino C, Buonocore M, Santoro A, Sommella E, Merciai F, Salviati E, De Rosa A, Nuzzo T, Errico F, Campiglia P, **Usiello A**, D'Ursi AM (2021). Prenatal and Early Postnatal Cerebral d-Aspartate Depletion Influences l-Amino Acid Pathways, Bioenergetic processes, and Developmental Brain Metabolism. *J Proteome Res* 20:727-739.
21. Nuzzo T, Mancini A, Miroballo M, Casamassa A, Di Maio A, Donati G, Sansone G, Gaetani L, Paoletti FP, Isidori A, Calabresi P, Errico F, Parnetti L, **Usiello A** (2021). High performance liquid chromatography determination of L-glutamate, L-glutamine and glycine content in brain, cerebrospinal fluid and blood serum of patients affected by Alzheimer's disease. *Amino Acids* 53:435-449.
22. Serra M, Pinna A, Costa G, **Usiello A**, Pasqualetti M, Avallone L, Morelli M, Napolitano F (2021). Involvement of the Protein Ras Homolog Enriched in the Striatum, Rhes, in Dopaminergic Neurons' Degeneration: Link to Parkinson's Disease. *International journal of molecular sciences* 22.
23. Campanelli F, Marino G, Barsotti N, Natale G, Calabrese V, Cardinale A, Ghiglieri V, Maddaloni G, **Usiello A**, Calabresi P, Pasqualetti M, Picconi B (2021). Serotonin drives striatal synaptic plasticity in a sex-related manner. *Neurobiol Dis* 158:105448.
24. Calabrese V, Di Maio A, Marino G, Cardinale A, Natale G, De Rosa A, Campanelli F, Mancini M, Napolitano F, Avallone L, Calabresi P, **Usiello A**, Ghiglieri V, Picconi B (2020). Rapamycin, by Inhibiting mTORC1 Signaling, Prevents the Loss of Striatal Bidirectional Synaptic Plasticity in a Rat Model of L-DOPA-Induced Dyskinesia. *Front Aging Neurosci* 12:230.
25. De Rosa A, Mastrostefano F, Di Maio A, Nuzzo T, Saitoh Y, Katane M, Isidori AM, Caputo V, Marotta P, Falco G, De Stefano ME, Homma H, **Usiello A**, Errico F (2020). Prenatal expression of D-aspartate oxidase causes early cerebral D-aspartate depletion and influences brain morphology and cognitive functions at adulthood. *Amino Acids* 52:597-617.
26. Nuzzo T, Sekine M, Punzo D, Miroballo M, Katane M, Saitoh Y, Galbusera A, Pasqualetti M, Errico F, Gozzi A, Mothet JP, Homma H, **Usiello A** (2020a). Dysfunctional d-aspartate metabolism in BTBR mouse model of idiopathic autism. *Biochim Biophys Acta Proteins Proteom* 1868:140531.
27. Nuzzo T, Miroballo M, Casamassa A, Mancini A, Gaetani L, Nisticò R, Eusebi P, Katane M, Homma H, Calabresi P, Errico F, Parnetti L, **Usiello A** (2020b). Cerebrospinal fluid and serum d-serine concentrations are unaltered across the whole clinical spectrum of Alzheimer's disease. *Biochim Biophys Acta Proteins Proteom* 1868:140537.
28. Nebbioso A, Manzo F, Miceli M, Conte M, Manente L, Baldi A, De Luca A, Rotili D, Valente S, Mai A, **Usiello A**, Gronemeyer H, Altucci L (2020). Selective class II HDAC inhibitors impair myogenesis by modulating the stability and activity of HDAC-MEF2 complexes. *EMBO Rep* 21:e51028.
29. Palese F, Bonomi E, Nuzzo T, Benussi A, Mellone M, Zianni E, Cisani F, Casamassa A, Alberici A, Scheggia D, Padovani A, Marcello E, Di Luca M, Pittaluga A, **Usiello A**, Borroni B, Gardoni F (2020). Anti-GluA3 antibodies in frontotemporal dementia: effects on glutamatergic neurotransmission and synaptic failure. *Neurobiol Aging* 86:143-155.

30. Nicoletti CG, Monteleone F, Marfia GA, **Usiello A**, Buttari F, Centonze D, Mori F (2020). Oral D-Aspartate enhances synaptic plasticity reserve in progressive multiple sclerosis. *Mult Scler* 26:304-311.
31. Eshraghi M, Ramírez-Jarquín UN, Shahani N, Nuzzo T, De Rosa A, Swarnkar S, Galli N, Rivera O, Tsaprailis G, Scharager-Tapia C, Crynen G, Li Q, Thiolat ML, Bezard E, **Usiello A**, Subramaniam S (2020). RasGRP1 is a causal factor in the development of L-DOPA-induced dyskinesia in Parkinson's disease. *Sci Adv* 6:eaaz7001.
32. **Usiello A**, Di Fiore MM, De Rosa A, Falvo S, Errico F, Santillo A, Nuzzo T, Chieffi Baccari G (2020). New Evidence on the Role of D-Aspartate Metabolism in Regulating Brain and Endocrine System Physiology: From Preclinical Observations to Clinical Applications. *International journal of molecular sciences* 21.
33. Errico F, Cuomo M, Canu N, Caputo V, **Usiello A** (2020). New insights on the influence of free d-aspartate metabolism in the mammalian brain during prenatal and postnatal life. *Biochim Biophys Acta Proteins Proteom* 1868:140471.
34. Ramírez-Jarquín UN, Shahani N, Pryor W, **Usiello A**, Subramaniam S (2020). The mammalian target of rapamycin (mTOR) kinase mediates haloperidol-induced cataleptic behavior. *Translational psychiatry* 10:336.
35. Bifulco M, **Usiello A** (2020). Remembering Paolo Sassone-Corsi. *Cell Death Dis* 11:759.
36. Santillo A, Falvo S, Di Fiore MM, Di Giacomo Russo F, Chieffi P, **Usiello A**, Pinelli C, Baccari GC (2019). AMPA receptor expression in mouse testis and spermatogonial GC-1 cells: A study on its regulation by excitatory amino acids. *J Cell Biochem* 120:11044-11055.
37. 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** (2019a). 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* 317:51-65.
38. 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 (2019). Striatal spreading depolarization: Possible implication in levodopa-induced dyskinetic-like behavior. *Mov Disord* 34:832-844.
39. 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** (2019b). 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* 9:8898.
40. Costa G, Porceddu PF, Serra M, Casu MA, Schiano V, Napolitano F, Pinna A, **Usiello A**, Morelli M (2019). Lack of Rhes Increases MDMA-Induced Neuroinflammation and Dopamine Neuron Degeneration: Role of Gender and Age. *International journal of molecular sciences* 20.
41. Napolitano F, De Rosa A, Russo R, Di Maio A, Garofalo M, Federici M, Migliarini S, Ledonne A, Rizzo FR, Avallone L, Nuzzo T, Biagini T, Pasqualetti M, Mercuri NB, Mazza T, Chambery A, **Usiello A** (2019). The striatal-enriched protein Rhes is a critical modulator of cocaine-induced molecular and behavioral responses. *Sci Rep* 9:15294.
42. Cuomo M, Keller S, Punzo D, Nuzzo T, Affinito O, Coretti L, Carella M, de Rosa V, Florio E, Boscia F, Avvedimento VE, Coccozza S, Errico F, **Usiello A**, Chiariotti L (2019). Selective demethylation of two CpG sites causes postnatal activation of the Dao gene and consequent removal of D-serine within the mouse cerebellum. *Clin Epigenetics* 11:149.
43. Errico F, Nuzzo T, Carella M, Bertolino A, **Usiello A** (2018). The Emerging Role of Altered d-Aspartate Metabolism in Schizophrenia: New Insights From Preclinical Models and Human Studies. *Front Psychiatry* 9:559.

44. Costa G, Pinna A, Porceddu PF, Casu MA, Di Maio A, Napolitano F, **Usiello A**, Morelli M (2018). Rhes Counteracts Dopamine Neuron Degeneration and Neuroinflammation Depending on Gender and Age. *Front Aging Neurosci* 10:163.
45. Napolitano F, D'Angelo L, de Girolamo P, Avallone L, de Lange P, **Usiello A** (2018). The Thyroid Hormone-target Gene Rhes a Novel Crossroad for Neurological and Psychiatric Disorders: New Insights from Animal Models. *Neuroscience* 384:419-428.
46. 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 (2018). Serotonin depletion causes valproate-responsive manic-like condition and increased hippocampal neuroplasticity that are reversed by stress. *Sci Rep* 8:11847.
47. 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 (2018). Antibiotic-induced microbiota perturbation causes gut endocannabinoidome changes, hippocampal neuroglial reorganization and depression in mice. *Brain Behav Immun* 67:230-245.
48. 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 (2018). DNA methylation landscape of the genes regulating D-serine and D-aspartate metabolism in post-mortem brain from controls and subjects with schizophrenia. *Sci Rep* 8:10163.
49. 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** (2017). Decreased free d-aspartate levels are linked to enhanced d-aspartate oxidase activity in the dorsolateral prefrontal cortex of schizophrenia patients. *NPJ Schizophr* 3:16.
50. 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** (2017). Decreased Rhes mRNA levels in the brain of patients with Parkinson's disease and MPTP-treated macaques. *PLoS One* 12:e0181677.
51. Fontanarosa C, Pane F, Sepe N, Pinto G, Trifuoggi M, Squillace M, Errico F, **Usiello A**, Pucci P, Amoresano A (2017). 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* 12:e0179748.
52. 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** (2017). Olanzapine, but not clozapine, increases glutamate release in the prefrontal cortex of freely moving mice by inhibiting D-aspartate oxidase activity. *Sci Rep* 7:46288.
53. Stanic J, Mellone M, Napolitano F, Racca C, Zianni E, Minocci D, Ghiglieri V, Thiolat ML, Li Q, Longhi A, De Rosa A, Picconi B, Bezard E, Calabresi P, Di Luca M, **Usiello A**, Gardoni F (2017). Rabphilin 3A: A novel target for the treatment of levodopa-induced dyskinesias. *Neurobiol Dis* 108:54-64.
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138. **Usiello A**, Sargolini F, Roullet P, Ammassari-Teule M, Passino E, Oliverio A, Mele A (1998). N-methyl-D-aspartate receptors in the nucleus accumbens are involved in detection of spatial novelty in mice. *Psychopharmacology (Berl)* 137:175-183.
139. Adriani W, Felici A, Sargolini F, Roullet P, **Usiello A**, Oliverio A, Mele A (1998). N-methyl-D-aspartate and dopamine receptor involvement in the modulation of locomotor activity and memory processes. *Exp Brain Res* 123:52-59

Autorizzo il trattamento dei dati personali qui riportati ai sensi del regolamento UE 2016/279 (GDPR).

Il sottoscritto consapevole che, ai sensi dell' art. 76 del DPR 445/2000, le dichiarazioni mendaci la falsità negli atti e l' uso di atti falsi sono punite ai sensi del codice penale e delle speciali vigenti in materia, dichiara sotto la propria responsabilità che quanto riportato nel CV corrisponde a verità.

Roma 30 January 2025



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Alessandro Usiello

Nazionalità: Italiana

A. Descrizione personale

Il mio interesse scientifico nel campo delle neuroscienze è iniziato nel 1994, nel corso della mia formazione universitaria. Durante questo periodo (Dicembre 1994 - Ottobre 1996), come studente universitario nel Laboratorio di Psicobiologia e Neurofarmacologia diretto dal Prof. Oliverio presso l'Università "La Sapienza", Roma, Italia, ho studiato il ruolo dell'interazione dei recettori dopaminergici e glutamatergici nella modulazione della memoria spaziale in modelli murini. Dopo aver conseguito la laurea, ho studiato, insieme alla Dott.ssa Calamandrei (responsabile del Laboratorio di Psicologia Comparata presso l'Istituto Superiore di Sanità, Roma), il ruolo dei neuroni colinergici nel consolidamento della memoria spaziale nei ratti. Successivamente (Gennaio 1998 - Dicembre 2001), come studente di dottorato presso il Laboratorio di Neurobiologia Molecolare diretto dalla Dott.ssa Borrelli (Institut de Génétique et de Biologie Moléculaire et Cellulaire, Strasburgo, Francia), ho analizzato il ruolo funzionale delle due diverse isoforme del recettore dopaminergico D2, mediante studi in vivo e in vitro. In particolare, attraverso analisi cellulari e comportamentali svolte su modelli murini genetici, ho dimostrato che l'isoforma lunga del recettore della dopamina D2 (D2L) svolge esclusivamente funzioni postsinaptiche, mentre l'isoforma corta (D2S) è responsabile del controllo presinaptico della trasmissione dopaminergica. I risultati del mio lavoro di ricerca di dottorato sono stati pubblicati, come primo autore, su Nature, PNAS e Journal of Neuroscience. Dopo il conseguimento del dottorato di ricerca in Francia, ho lavorato come borsista post-dottorato in Italia presso il Centro Nazionale Ricerche (CNR), (Monterotondo, Roma), dove ho collaborato con il Dott. Pellizzoni (responsabile del Laboratorio di Biologia Molecolare) ad un progetto mirato a rivelare il ruolo biochimico della proteina Survival Motor Neuron (SMN) durante la vita embrionale e postnatale del topo. Nello stesso periodo ho collaborato inoltre con il Prof. Simeone (King's College of London) nello studio del ruolo del gene Otx2 nella proliferazione e differenziazione dei neuroni dopaminergici del mesencefalo. All'inizio del 2003, ho intrapreso una nuova formazione post-dottorato nel campo della Neurofarmacologia Molecolare. Insieme al Prof. Fisone (Karolinska Institutet, Stoccolma, Svezia) ho studiato i processi di trasduzione del segnale dei recettori striatali della dopamina a seguito dell'interazione con diversi farmaci tra cui sostanze d'abuso, antipsicotici e farmaci anti Parkinsoniani. Questo lavoro di ricerca è stato condotto in collaborazione con il Premio Nobel, Prof. Greengard (Rockefeller University). Durante questo periodo ho validato inoltre il primo modello murino di discinesie indotta da L-DOPA in collaborazione con il dott. A. Cenci (Wallenberg Institute, Lund, Svezia). Nel 2006, grazie ad un finanziamento del Ministero Italiano dell'Università e della Ricerca (MIUR), ho iniziato la mia carriera come Principal Investigator presso il CEINGE Biotecnologie Avanzate, Napoli, Italia. Da allora, ho creato una rete di collaborazioni multidisciplinari nel campo

delle Neuroscienze Traslazionali, attraverso studi scientifici che includevano approcci comportamentali, biochimici, molecolari ed elettrofisiologici sia in modelli preclinici che negli esseri umani. Negli ultimi 18 anni come Principal Investigator, in collaborazione con il Prof. Robert Nisticò (Università di Roma Tor Vergata), il Prof. Paolo Calabresi (Università Cattolica del Sacro Cuore), il Prof. Solomon Snyder (John Hopkins Medical School), il Prof. Gilberto Fisone (Karolinska Institutet), il Prof. Francesco Salvatore (Università di Napoli), la Prof.ssa Emiliana Borrelli (University of California Irvine), la Prof.ssa Enza Maria Valente (Università di Pavia), il Prof. Diego Centonze (Università di Roma Tor Vergata), il Dr Enrico Bertini (Ospedale Pediatrico Bambino Gesù, Roma), il Prof. Jumpei Sasabe (Università di Tokyo Kejo), il Prof. Srinivasa Subramanian (Scripps Research Institute, Florida), il Prof. Alessandro Bertolino (Università di Bari), il Prof. Livio Pellizzoni e il Prof. David Sulzer (Columbia University, New York) la mia ricerca si è concentrata su tre aree:

1) Ruolo dei D-amminoacidi atipici nella regolazione dei recettori NMDA nel cervello dei mammiferi nei disturbi dello spettro Autistico e nella Schizofrenia, dagli studi preclinici all' applicazione clinica;

2) Disfunzione neurochimica e metabolomica cerebrale in modelli animali e in pazienti affetti da malattie neurodegenerative: focus su malattia di Parkinson, malattia di Alzheimer, Atrofia Muscolare Spinale e Sclerosi Multipla;

3) Coinvolgimento dei recettori dopaminergici nei disturbi psichiatrici e neurologici.

Elenco dei titoli accademici

2003 - 2004: Post-doc presso il Laboratorio di Neurofarmacologia Molecolare (PI Dr. Gilberto Fisone) Karolinska Institutet, Stoccolma, Svezia.

2002: Ricercatore presso il Consiglio Nazionale delle Ricerche, Istituto di Biologia Cellulare, Monterotondo, Italia.

1998 - 2001: Dottorato di Ricerca in Neurobiologia Molecolare, (Mentore Emiliana Borrelli) Institut de Génétique et de Biologie Moléculaire et Cellulaire (IGBMC), Strasburgo, Francia.

1997: Borsista post-laurea presso il Laboratorio di Psicologia Comparata (PI Gemma Calamandrei), Istituto Superiore Sanità, Roma, Italia.

1991 - 1996: Laurea in Biologia, Università di Roma "La Sapienza", Roma, Italia.

Posizioni ed impiego

2006 - 2025 Principal Investigator del Laboratorio di Neuroscienze Traslazionali presso il Ceinge Biotechnologie Avanzate, Napoli, Italia.

2006 - 2009 Professore Associato di Biochimica Clinica presso l'Università del Molise, Campobasso, Italia.

2010 - 2019 Professore associato di Biochimica Clinica presso la Seconda Università degli Studi di Napoli, Italia.

Dal 2019 Professore Ordinario di Biochimica Clinica presso l' Università degli Studi della Campania, Luigi Vanvitelli, Caserta, Italia.

Dal 2020 Consigliere della Società Italiana di Neuroscienze (Neuroscienze Comportamentali)

Altre esperienze e affiliazioni professionali.

2005 - 2018 Direttore della Clinica Fenotipica del Topo presso il Ceinge Biotechnologie Avanzate, Napoli, Italia.

Dal 2006 Docente del programma di Dottorato presso la Scuola Europea di Medicina Molecolare (SEMM), Milano, Italia.

2010 - 2015 Visiting Scientist presso l'Istituto Europeo di Ricerca sul Cervello (EBRI), Roma, Italia.

Dal 2017 Docente del programma di Dottorato in Scienze Molecolari presso l' Università degli Studi della Campania, Luigi Vanvitelli, Caserta, Italia.

2018 - 2020 Visiting Professor presso lo Scripps Research Institute, Jupiter, Florida, USA.

2018 - 2019 Visiting Professor presso l' Università di Kyoto, Giappone.

2020 - 2023 Consigliere della Società Italiana di Neuroscienze.

Finanziamenti

2013- **Finanziamento del Ministero Italiano dell' Università e della Ricerca:** “L-DOPA-induced dyskinesia in Parkinson's disease: new mechanisms and molecular targets”. Ruolo PI

2013- **NARSAD Independent Investigator (USA):** “Role of free D-aspartate in NMDAR-dependent processes of relevance to schizophrenia”. Ruolo PI.

2013- **NARSAD Independent Investigator (USA):** “Interaction between environmentally sensitive DNA methylation and dopamine D2 related genetic variation on schizophrenia phenotypes”. Ruolo: Co-PI.

2015- **Finanziamento del Ministero della Salute Italiano:** “Role of serotonin in modulating L-DOPA-induced dyskinesia”. Ruolo PI

2017- **Finanziamento della Fondazione CARIPLO:** “Dysregulation of serine metabolism in physical and cognitive frailty: characterization of a novel pathobiological mechanism potentially amenable to treatment”. Ruolo Co-PI

2017- **Finanziamento del Ministero Italiano dell' Università e della Ricerca:** “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”. Ruolo PI

2020- **Finanziamento del Ministero Italiano dell' Università e della Ricerca**: “Biochemical modulation of D-aspartate metabolism in brain functions”. Ruolo Co-PI

2022- **Finanziamento del Ministero Italiano dell' Università e della Ricerca**: New molecular pathways responsible for mitochondrial derangement in Parkinson’s Disease”. Ruolo Co-PI

2022- **Finanziamento del Ministero Italiano dell' Università e della Ricerca**: “D-aspartate metabolism dysfunction as an emerging biochemical signature in neurodevelopmental psychiatric disorders”. Ruolo PI

2022- **Grant #NEXTGENERATIONEU (NGEU)** finanziato dal Ministero dell' Università e della Ricerca (MUR), National Recovery and Resilience Plan (NRRP), project MNESYS (PE0000006) – A Multiscale integrated approach to the study of the nervous system in health and disease (DN. 1553 11.10.2022). Ruolo Co-PI

2023- **Grant PNRR-MCNT2-2023-12377850** “Assessing central neuromodulation effects on immune-mediated synaptic dysfunction in progressive multiple sclerosis”. Ruolo Co-PI

Attività didattiche istituzionali

Università degli Studi della Campania, Luigi Vanvitelli, Caserta.

A.A. 2018-2024 CdLM Molecular Biotechnology - Clinical Biochemistry and Molecular Biology

A.A. 2018-2024 CdL Scienze Biologiche - Basi di Neurobiologia

A.A. 2018-2024 CdLM Scienze della Nutrizione Umana - Clinical Biochemistry.

A.A. 2010-2011 CdLM in Farmacia - Biologia Clinica

Università del Molise

A.A.2007/2008 La Disabilità da cause genetiche e metaboliche (Facoltà di Scienze del Benessere)

A.A.2007/2008 Biochimica speciale. (Facoltà di Scienze del Benessere)

A.A.2008/2010 Genetica e Biologia Molecolare. (Facoltà di Medicina e Chirurgia)

Indicatori bibliometrici

Citazioni totali: 7592 (Scopus), 10375 (Google Scholar)

H-index: 49 (Scopus), 56 (Google Scholar).

Pubblicazioni totali: 139 articles

Lista delle Pubblicazioni (139 articles)

1. Garofalo M, De Simone G, Motta Z, Nuzzo T, De Grandis E, Bruno C, Boeri S, Riccio MP, Pastore L, Bravaccio C, Iasevoli F, Salvatore F, Pollegioni L, Errico F, de Bartolomeis A, **Usiello A** (2024). Decreased free D-aspartate levels in the blood serum of patients with schizophrenia. *Front Psychiatry* 15:1408175.

2. Rampino A, Garofalo M, Nuzzo T, Favia M, Saltarelli S, Masellis R, Asselti MG, Pennacchio TC, Bruzzese D, Errico F, Vidali M, Bertolino A, **Usiello A** (2024). Variations of blood D-serine and D-aspartate homeostasis track psychosis stages. *Schizophrenia (Heidelb)* 10:115.
3. Imarisio A, Yahyavi I, Gasparri C, Hassan A, Avenali M, Di Maio A, Buongarzone G, Galandra C, Picascia M, Filosa A, Monti MC, Pacchetti C, Errico F, Rondanelli M, **Usiello A**, Valente EM (2024a). Serum dysregulation of serine and glycine metabolism as predictive biomarker for cognitive decline in frail elderly subjects. *Translational psychiatry* 14:281.
4. Maddaloni G, Barsotti N, Migliarini S, Giordano M, Nazzi S, Picchi M, Errico F, **Usiello A**, Pasqualetti M (2024). Impact of Serotonin Deficiency on Circadian Dopaminergic Rhythms. *International journal of molecular sciences* 25.
5. Imarisio A, Yahyavi I, Avenali M, Di Maio A, Buongarzone G, Galandra C, Picascia M, Filosa A, Gasparri C, Monti MC, Rondanelli M, Pacchetti C, Errico F, Valente EM, **Usiello A** (2024b). Blood D-serine levels correlate with aging and dopaminergic treatment in Parkinson's disease. *Neurobiol Dis* 192:106413.
6. Hassan A, di Vito R, Nuzzo T, Vidali M, Carlini MJ, Yadav S, Yang H, D'Amico A, Kolici X, Valsecchi V, Panicucci C, Pignataro G, Bruno C, Bertini E, Errico F, Pellizzoni L, **Usiello A** (2024). Dysregulated balance of D- and L-amino acids modulating glutamatergic neurotransmission in severe spinal muscular atrophy. *bioRxiv*.
7. Serra M, Di Maio A, Bassareo V, Nuzzo T, Errico F, Servillo F, Capasso M, Parekh P, Li Q, Thiolat ML, Bezard E, Calabresi P, Sulzer D, Carta M, Morelli M, **Usiello A** (2023). Perturbation of serine enantiomers homeostasis in the striatum of MPTP-lesioned monkeys and mice reflects the extent of dopaminergic midbrain degeneration. *Neurobiol Dis* 184:106226.
8. Errico F, Gilio L, Mancini A, Nuzzo T, Bassi MS, Bellingacci L, Buttari F, Dolcetti E, Bruno A, Galifi G, Furlan R, Finardi A, Di Maio A, Di Filippo M, Centonze D, **Usiello A** (2023). Cerebrospinal fluid, brain, and spinal cord levels of L-aspartate signal excitatory neurotransmission abnormalities in multiple sclerosis patients and experimental autoimmune encephalomyelitis mouse model. *J Neurochem* 166:534-546.
9. Di Maio A, Nuzzo T, Gilio L, Serra M, Buttari F, Errico F, De Rosa A, Bassi MS, Morelli M, Sasabe J, Sulzer D, Carta M, Centonze D, **Usiello A** (2023). Homeostasis of serine enantiomers is disrupted in the post-mortem caudate putamen and cerebrospinal fluid of living Parkinson's disease patients. *Neurobiol Dis* 184:106203.
10. Nuzzo T, Russo R, Errico F, D'Amico A, Tewelde AG, Valletta M, Hassan A, Tosi M, Panicucci C, Bruno C, Bertini E, Chambery A, Pellizzoni L, **Usiello A** (2023). Nusinersen mitigates neuroinflammation in severe spinal muscular atrophy patients. *Commun Med (Lond)* 3:28.
11. Santillo A, Falvo S, Venditti M, Di Maio A, Chieffi Baccari G, Errico F, **Usiello A**, Minucci S, Di Fiore MM (2023). D-Aspartate Depletion Perturbs Steroidogenesis and Spermatogenesis in Mice. *Biomolecules* 13.
12. Valsecchi V, Errico F, Bassareo V, Marino C, Nuzzo T, Brancaccio P, Laudati G, Casamassa A, Grimaldi M, D'Amico A, Carta M, Bertini E, Pignataro G, D'Ursi AM, **Usiello A** (2023). SMN deficiency perturbs monoamine neurotransmitter metabolism in spinal muscular atrophy. *Commun Biol* 6:1155.
13. Lombardo B, Pagani M, De Rosa A, Nunziato M, Migliarini S, Garofalo M, Terrile M, D'Argenio V, Galbusera A, Nuzzo T, Ranieri A, Vitale A, Leggiero E, Di Maio A, Barsotti N, Borello U, Napolitano F, Mandarino A, Carotenuto M, Heresco-Levy U, Pasqualetti M, Malatesta P, Gozzi A, Errico F, Salvatore F, Pastore L, **Usiello A** (2022). D-aspartate oxidase gene duplication induces social recognition memory deficit in mice and intellectual disabilities in humans. *Translational psychiatry* 12:305.
14. De Rosa A, Di Maio A, Torretta S, Garofalo M, Giorgelli V, Masellis R, Nuzzo T, Errico F, Bertolino A, Subramaniam S, Rampino A, **Usiello A** (2022a). Abnormal RasGRP1 Expression in the Post-Mortem Brain and Blood Serum of Schizophrenia Patients. *Biomolecules* 12.

15. De Rosa A, Fontana A, Nuzzo T, Garofalo M, Di Maio A, Punzo D, Copetti M, Bertolino A, Errico F, Rampino A, de Bartolomeis A, **Usiello A** (2022b). Machine Learning algorithm unveils glutamatergic alterations in the post-mortem schizophrenia brain. *Schizophrenia (Heidelb)* 8:8.
16. Di Maio A, De Rosa A, Pelucchi S, Garofalo M, Marciano B, Nuzzo T, Gardoni F, Isidori AM, Di Luca M, Errico F, De Bartolomeis A, Marcello E, **Usiello A** (2022). Analysis of mRNA and Protein Levels of CAP2, DLG1 and ADAM10 Genes in Post-Mortem Brain of Schizophrenia, Parkinson's and Alzheimer's Disease Patients. *International journal of molecular sciences* 23.
17. Errico F, Marino C, Grimaldi M, Nuzzo T, Bassareo V, Valsecchi V, Panicucci C, Di Schiavi E, Mazza T, Bruno C, D'Amico A, Carta M, D'Ursi AM, Bertini E, Pellizzoni L, **Usiello A** (2022). Nusinersen Induces Disease-Severity-Specific Neurometabolic Effects in Spinal Muscular Atrophy. *Biomolecules* 12.
18. Stampanoni Bassi M, Nuzzo T, Gilio L, Miroballo M, Casamassa A, Buttari F, Bellantonio P, Fantozzi R, Galifi G, Furlan R, Finardi A, De Rosa A, Di Maio A, Errico F, Centonze D, **Usiello A** (2021). Cerebrospinal fluid levels of L-glutamate signal central inflammatory neurodegeneration in multiple sclerosis. *J Neurochem* 159:857-866.
19. Fujii N, Homma H, **Usiello A**, Sweedler J, Hamase K (2021). The significance of D-amino acids in the homochiral world of life. *Biochim Biophys Acta Proteins Proteom* 1869:140565.
20. Grimaldi M, Marino C, Buonocore M, Santoro A, Sommella E, Merciai F, Salviati E, De Rosa A, Nuzzo T, Errico F, Campiglia P, **Usiello A**, D'Ursi AM (2021). Prenatal and Early Postnatal Cerebral d-Aspartate Depletion Influences l-Amino Acid Pathways, Bioenergetic processes, and Developmental Brain Metabolism. *J Proteome Res* 20:727-739.
21. Nuzzo T, Mancini A, Miroballo M, Casamassa A, Di Maio A, Donati G, Sansone G, Gaetani L, Paoletti FP, Isidori A, Calabresi P, Errico F, Parnetti L, **Usiello A** (2021). High performance liquid chromatography determination of L-glutamate, L-glutamine and glycine content in brain, cerebrospinal fluid and blood serum of patients affected by Alzheimer's disease. *Amino Acids* 53:435-449.
22. Serra M, Pinna A, Costa G, **Usiello A**, Pasqualetti M, Avallone L, Morelli M, Napolitano F (2021). Involvement of the Protein Ras Homolog Enriched in the Striatum, Rhes, in Dopaminergic Neurons' Degeneration: Link to Parkinson's Disease. *International journal of molecular sciences* 22.
23. Campanelli F, Marino G, Barsotti N, Natale G, Calabrese V, Cardinale A, Ghiglieri V, Maddaloni G, **Usiello A**, Calabresi P, Pasqualetti M, Picconi B (2021). Serotonin drives striatal synaptic plasticity in a sex-related manner. *Neurobiol Dis* 158:105448.
24. Calabrese V, Di Maio A, Marino G, Cardinale A, Natale G, De Rosa A, Campanelli F, Mancini M, Napolitano F, Avallone L, Calabresi P, **Usiello A**, Ghiglieri V, Picconi B (2020). Rapamycin, by Inhibiting mTORC1 Signaling, Prevents the Loss of Striatal Bidirectional Synaptic Plasticity in a Rat Model of L-DOPA-Induced Dyskinesia. *Front Aging Neurosci* 12:230.
25. De Rosa A, Mastrostefano F, Di Maio A, Nuzzo T, Saitoh Y, Katane M, Isidori AM, Caputo V, Marotta P, Falco G, De Stefano ME, Homma H, **Usiello A**, Errico F (2020). Prenatal expression of D-aspartate oxidase causes early cerebral D-aspartate depletion and influences brain morphology and cognitive functions at adulthood. *Amino Acids* 52:597-617.
26. Nuzzo T, Sekine M, Punzo D, Miroballo M, Katane M, Saitoh Y, Galbusera A, Pasqualetti M, Errico F, Gozzi A, Mothet JP, Homma H, **Usiello A** (2020a). Dysfunctional d-aspartate metabolism in BTBR mouse model of idiopathic autism. *Biochim Biophys Acta Proteins Proteom* 1868:140531.
27. Nuzzo T, Miroballo M, Casamassa A, Mancini A, Gaetani L, Nisticò R, Eusebi P, Katane M, Homma H, Calabresi P, Errico F, Parnetti L, **Usiello A** (2020b). Cerebrospinal fluid and serum d-serine concentrations are unaltered across the whole clinical spectrum of Alzheimer's disease. *Biochim Biophys Acta Proteins Proteom* 1868:140537.
28. Nebbioso A, Manzo F, Miceli M, Conte M, Manente L, Baldi A, De Luca A, Rotili D, Valente S, Mai A, **Usiello A**, Gronemeyer H, Altucci L (2020). Selective class II HDAC inhibitors impair

- myogenesis by modulating the stability and activity of HDAC-MEF2 complexes. *EMBO Rep* 21:e51028.
29. Palese F, Bonomi E, Nuzzo T, Benussi A, Mellone M, Zianni E, Cisani F, Casamassa A, Alberici A, Scheggia D, Padovani A, Marcello E, Di Luca M, Pittaluga A, **Usiello A**, Borroni B, Gardoni F (2020). Anti-GluA3 antibodies in frontotemporal dementia: effects on glutamatergic neurotransmission and synaptic failure. *Neurobiol Aging* 86:143-155.
 30. Nicoletti CG, Monteleone F, Marfia GA, **Usiello A**, Buttari F, Centonze D, Mori F (2020). Oral D-Aspartate enhances synaptic plasticity reserve in progressive multiple sclerosis. *Mult Scler* 26:304-311.
 31. Eshraghi M, Ramírez-Jarquín UN, Shahani N, Nuzzo T, De Rosa A, Swarnkar S, Galli N, Rivera O, Tsaprailis G, Scharager-Tapia C, Crynen G, Li Q, Thiolat ML, Bezard E, **Usiello A**, Subramaniam S (2020). RasGRP1 is a causal factor in the development of l-DOPA-induced dyskinesia in Parkinson's disease. *Sci Adv* 6:eaaz7001.
 32. **Usiello A**, Di Fiore MM, De Rosa A, Falvo S, Errico F, Santillo A, Nuzzo T, Chieffi Baccari G (2020). New Evidence on the Role of D-Aspartate Metabolism in Regulating Brain and Endocrine System Physiology: From Preclinical Observations to Clinical Applications. *International journal of molecular sciences* 21.
 33. Errico F, Cuomo M, Canu N, Caputo V, **Usiello A** (2020). New insights on the influence of free d-aspartate metabolism in the mammalian brain during prenatal and postnatal life. *Biochim Biophys Acta Proteins Proteom* 1868:140471.
 34. Ramírez-Jarquín UN, Shahani N, Pryor W, **Usiello A**, Subramaniam S (2020). The mammalian target of rapamycin (mTOR) kinase mediates haloperidol-induced cataleptic behavior. *Translational psychiatry* 10:336.
 35. Bifulco M, **Usiello A** (2020). Remembering Paolo Sassone-Corsi. *Cell Death Dis* 11:759.
 36. Santillo A, Falvo S, Di Fiore MM, Di Giacomo Russo F, Chieffi P, **Usiello A**, Pinelli C, Baccari GC (2019). AMPA receptor expression in mouse testis and spermatogonial GC-1 cells: A study on its regulation by excitatory amino acids. *J Cell Biochem* 120:11044-11055.
 37. 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** (2019a). 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* 317:51-65.
 38. 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 (2019). Striatal spreading depolarization: Possible implication in levodopa-induced dyskinetic-like behavior. *Mov Disord* 34:832-844.
 39. 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** (2019b). 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* 9:8898.
 40. Costa G, Porceddu PF, Serra M, Casu MA, Schiano V, Napolitano F, Pinna A, **Usiello A**, Morelli M (2019). Lack of Rhes Increases MDMA-Induced Neuroinflammation and Dopamine Neuron Degeneration: Role of Gender and Age. *International journal of molecular sciences* 20.
 41. Napolitano F, De Rosa A, Russo R, Di Maio A, Garofalo M, Federici M, Migliarini S, Ledonne A, Rizzo FR, Avallone L, Nuzzo T, Biagini T, Pasqualetti M, Mercuri NB, Mazza T, Chambery A, **Usiello A** (2019). The striatal-enriched protein Rhes is a critical modulator of cocaine-induced molecular and behavioral responses. *Sci Rep* 9:15294.
 42. Cuomo M, Keller S, Punzo D, Nuzzo T, Affinito O, Coretti L, Carella M, de Rosa V, Florio E, Boscia F, Avvedimento VE, Coccozza S, Errico F, **Usiello A**, Chiariotti L (2019). Selective

- demethylation of two CpG sites causes postnatal activation of the Dao gene and consequent removal of D-serine within the mouse cerebellum. *Clin Epigenetics* 11:149.
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Autorizzo il trattamento dei dati personali qui riportati ai sensi del regolamento UE 2016/279 (GDPR).

Il sottoscritto consapevole che, ai sensi dell' art. 76 del DPR 445/2000, le dichiarazioni mendaci la falsità negli atti e l' uso di atti falsi sono punite ai sensi del codice penale e delle speciali vigenti in materia, dichiara sotto la propria responsabilità che quanto riportato nel CV corrisponde a verità.

Roma 30 Gennaio 2025

Alessandro Usello