

BIOGRAPHICAL SKETCH

NAME Paola Palanza		POSITION TITLE Full Professor of Applied Biology, Department of Medicine and Surgery-Unit of Neuroscience, University of Parma (Italy)	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	MM/YY	FIELD OF STUDY
University of Parma, Italy	Laurea (5 yrs course equivalent to a Master Sc; graduated with 110/110 <i>Summa Cum Laude</i>).	03/1987	Biology
University of Florence, Parma and Pisa, Italy (inter-university graduate program)	Ph.D.	05/1992	Behavioral Biology
University of Venice, Italy	Postdoctoral	11/1995	Environment and Behavioral Development
University of Missouri-Columbia, USA	Postdoctoral	08/1997	Endocrine Disruptors and neurobehavioral development

A. Personal Statement

As a faculty at the University of Parma I have a research laboratory that focuses on developing ethologically relevant animal models of psychopathology in rodents, where the goal is to replicate symptom complexes, and on the analysis of gene-environment interactions in neurobehavioral development and vulnerability to disorders, with particular regard to the role of gender and early life events. My laboratory is internationally recognized for the study of mice behavioral biology (social behavior, aggression, stress, gender differences, development) and is fully equipped for all kinds of behavioral tests and analysis as well as endocrinological and biochemical/molecular correlates. I have high expertise in planning, conducting and interpreting preclinical studies, integrating behavioral, endocrine, metabolic, immune and neurobiological approaches. I have conducted an extensive research on social and emotional behavior in mice, with particular regard to the issues of sex differences, maternal behavior and developmental events, such as stress or exposure to environmental endocrine disruptors. Furthermore, we have developed a male model of psychosocial stress with high face and construct validity for depression-like disorders. We are keen in developing a robust and comparable model of stress-related depression in female mice, where the goal is to replicate specific depression symptoms as indicated by clinical data (anhedonia, reduced motivation, emotionality, memory disturbance and inability to cope with complex problems, activity disorder, feeding disorders, etc). We have applied these established mouse models to the investigation of the role of the NPY-1R limbic system in relation to sex and maternal environment. In addition, I work in collaboration with pharmacologists, pediatricians, gynecologists, psychiatrists and endocrinologists to improve translation from preclinical research into clinical research and reverse.

B. Positions and Honors

B1. Positions and Employment

1998-2003	Assistant professor in Ethology and Comparative Animal Psychology, Faculty of Psychology, University of Bologna, Italy
1999-2000	Researcher in Zoology (tenure track), Department of Evolutionary and Functional Biology, University of Parma, Italy.
2000-2016	Associate Professor (tenured), Department of Evolutionary and Functional Biology, University of Parma, Italy.
2016-present	Full Professor, Department of Medicine and Surgery – Unit of Neuroscience, University of Parma, Italy

B2. Other Experience and Professional Memberships

Co-Director of the International School of Ethology of the Ettore Majorana Centre for Scientific Culture
 President of the Foundation Bioparco di Roma (Rome Zoo).
 Board of Advisors, Graduate program in Neuroscience & Behavioral Biology
 Member, Italian Society of Ethology
 Member, Italian Association for Biology and Genetic

B3. GRANTS

Current:

Funding Agency	Grant Type	Role	Title	Period	Amount
European Commission	EC LIFE18 ENV/IT/000460	Project Leader	Mother and infant dyads: lowering the impact of endocrine disrupting Chemicals in milk for a healthy Life (LIFE-MILCH)	2019-26	3.450.000
Ministry of University and Research (MUR),	National Recovery and Resilience Plan (NRRP)	PI-task 4.1	MNESYS-A Multiscale integrated approach to the study of the nervous system in health and disease- Task 4.1: Impact of the social and physical environment on early development and disease susceptibility.	2023-26	240.000

Completed

Funding Agency	Grant Type	Role	Title	Years	Amount
MIUR (Italian Ministry of University and Research)	Research Projects of National Relevance (PRIN)	Principal investigator	Behavior as a biomarker of developmental exposure to estrogenic endocrine disruptors	2000-2002	€ 48,000
University of Parma	Intramural Funds for Research (FIL)	Principal investigator	Sex differences in behavior: role of endogenous hormones and EEDs	2002-2008	€ 45,000
Private Company: Zealand Pharma A/S, Glostrup, Danimarca	Drug Discovery Program	Co-Investigator	Effects of peripheral TLQP-21 treatment on mice adipose organ physiology, sympathetic activation and cardiac histology	2007-2008	€ 15,000
Private company: Takeda Cambridge (UK)	Research Advancement	Principal investigator	Behavioural characterization of the C129 strain of mice for response to social stress and sex differences	2008-2009	€ 50,000

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Foundation Compagnia di San Paolo, Turin, Italy	Neuroscience Project	Principal Investigator	Conditional knockout NPY-Y1R mice as an experimental model to study vulnerability to psychopathology	2009-2012	€ 42,000
MIUR (Italian Ministry of University and Research)	Research Projects of National Relevance (PRIN 2008PLKP3E_002)	Principal Investigator	Behavioral analysis and response to stress in conditional Knockout NPY-Y1R mice	03/22/2010- 09/22/2012	€ 58,000
MIUR (Italian Ministry of University and Research)	Research Projects of National Relevance (PRIN 20107MSMA4_005)	Principal Investigator	Effect of substances of abuse, psychoactive drugs, stress and maternal care on brain development and vulnerability to psychopathology	02/01/2013- 02/01/2016	€172.857
MUR (Italian Ministry of University and Research)	PNRA - National Research Program in Antartic:	CoPI	TEARplay - Tear-film Evolution in Antarctic Region: bioinstrumental, biochemical and behavioural PLAYers	2020-23	€35.000

B4. FELLOWSHIPS:

1988-92	Italian National Doctoral Scholarship
1993-95	Post Doctoral Fellowship of the University of Venice – Environmental Sciences
1996-97	CNR-NATO Advanced Research Fellowship, the Division of Biology, University of Missouri-Columbia (USA)

B5. REVIEWER FOR SCIENTIFIC JOURNALS: Aggressive Behavior; Animal Behaviour; Behavioral Ecology; Behavioral Brain Research; Behavioral Processes; Brain Research Bulletin; Brain Behavioral Sciences; Environmental Health Perspectives; Environmental Reviews; Ethology Ecology Evolution; Hormones and Behavior; Journal of Reprod. and Fertility; Neuroscience and Biobehavioral Reviews; Nature Comm.; Nature Neuroscience; Neurotoxicology; Neurotoxicology and Teratology; Pharmacology Biochemistry and Behavior; Physiology and Behavior; PNAS; Psychoneuroendocrinology; Psychopharmacology; The Royal Society - Proceedings

B6-Teaching

- Biology and Genetic (6 cfu, 60 hours), Medicine and Surgery (2020-present)
- Experimental Models (6 cfu, 47 hours), Master in Biotechnology for Medicine, Veterinary and Pharmacy (2010-present);
- Biology of Behavior (5cfu, 35 hours), c.i. Psicobiology and Ethology (8 cfu), Master in Psicobiology and Cognitive Neuroscience (2014-present);
- Evolution of Mammalian teeth – (1 cfu, 10 hours) Dentistry School.
- Applied Biology and Ethology, Professional education, (3 cfu-30 hrs)

B7. Scientific meeting

Co-Director of the International School of Ethology, Ettore Majorana Center for scientific Culture: organization of 18 workshops since 2019 (<https://centromajorana.it/ethology/>)

2015 XXVI Convegno della Società Italiana di Etologia, Parma 24-26 giugno 2015.

2014 Brainstorming Symposium on “Obesity, diabetes, metabolic Syndrome and Endocrine Disrupting Chemicals, Parma 18-21 May 2014

B8. INVITED LECTURES/KEY SPEAKER (last 10 years)

2025-Joint Congress ESA-ESPE 2025, Copenhagen May 10-13, 2025

2025 – 10th Mediterranean Neuroscience Society, Chania, Greece 7-11 June 2025.

2024- 56th Seminars of Planetary Emergencies- Environment and Health session, Erice 9-14 August 2024

2022- 48th workshop of the International School of Ethology on “Darwin in Medicine: Why Evolution is relevant for research and medical practice” Erice, 19-24 April 2022

2024- SABV Symposium “Addressing Challenges and Paving future steps in basic and clinical research”, Bern (CH), June 12-14, 2024

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2022- Gordon Research Conference on Environmental Endocrine Disruptors “Integration of Human, Environmental and Model System Data”, Newry, ME, USA, June 19-24 2022
2022- International Symposium “Sex as a biological variable in biomedical research: needs, challenges, and future steps” Berna (CH) June 8-11 2022
2019 – 46th workshop of the International School of Ethology on “Ethology, Psychology, Psychiatry: An Evolutionary Approach. Erice 22-27 October 2019
2019- 45th workshop of the International School of Ethology on “Sex Differences, dimorphisms, divergences: impact on brain and behaviour in health and disease”. Erice, 20-25 maggio 2019.
2018-Workshop “Endocrine Disrupting Chemicals and Developmental Origins of Health and Disease”, Reggio Emilia, 23 febbraio 2018
2016-40th Workshop of the International School of Ethology on “Translational Neuroscience & Mental Disorders – bridging the gap between animal models and the human condition” 4-9 novembre 2016, Erice Italy.
2016- 49th Seminars of Planetary Emergencies - Erice (Italy) 19-24 agosto 2016
2015- 9th World Congress on Developmental Origins of Health and Disease (DOHaD 2015), Cape Town South Africa, 8-11 November 2015

B9. Honors

1989 School of Ethology - Ettore Majorana Center for Scientific Culture -workshop on: Fear and Defense, Erice (Italy), graduate student award
1990 School of Ethology - Ettore Majorana Center for Scientific Culture -workshop on: Infanticide and parental care, Erice (Italy), graduate student award
1994 Best Young Investigator Communication, XI World Meeting of the International Society of Researches on Aggression, Delray Beach (FL-USA), July 1994
1995 Post doctoral travel award, Psychopharmacological Conference, Morzine, France.
1998 Travel Award, Gordon Research Conference on Environmental Endocrine Disruptors, Plymouth NH (USA), 12-17 July 1998
1998 ECNP Young Investigator Award, 11th European Conference of Neuropsychopharmacology, Paris, France, 31 oct-4 nov 1998
2000 Travel award, School of Neurogenetics: Focus on mouse genomics, Protland (OR-USA)
2002 Travel Award, Gordon Research Conference on Environmental Endocrine Disruptors

C. Contributions to Science

My research focuses on the analysis of gene-environment interactions in neuro-behavioral development and individual susceptibility to psychiatric and metabolic disorders, with particular regard to the role of sex differences, maternal environment, endocrine disruptors, and stress. I am author of 114 papers on international peer-reviewed journal; for a complete list of publications please see:

https://scholar.google.it/citations?hl=en&user=uf0LA4QAAAAJ&view_op=list_works&sortby=pubdate

Main research achievements:

- Sex differences in behavior: neuroendocrine bases and adaptive significance.
- The role of limbic NPY-1R in aggressive and emotional behavior, metabolic functions and reproduction in relation to sex and early maternal environment
- Effects of early exposure to endocrine disrupters on development, reproduction and behavior in mouse models and humans..
- Social stress and vulnerability to psychopathologies.
- Neurochemical basis of anxiety and aggression: Ethopharmacological analysis.
- Social organization of mice colonies in artificial territories and female competitive strategies.

The House mouse is the main animal model.

C1. Selected Peer-reviewed Publications (Selected from 119 peer-reviewed publications)

1. Palanza P., Morley-Fletcher S., La Viola G. (2001). Novelty seeking in periadolescent mice: Gender differences and influence of intrauterine position. Physiology and Behavior, 72: 255-262
2. Palanza P. (2001). Animal models of anxiety and depression: How are females different? Neuroscience and Biobehavioral Review 25(3): 219-233.
3. Palanza P., Gioiosa L., Parmigiani S. (2001). Social Stress in mice: gender differences and effects of estrous cycle and social dominance. Physiology and Behavior 73: 411-420.

4. Palanza P., Howdeshell K., Parmigiani S., vom Saal FS (2002). Exposure during fetal life or in adulthood to the estrogenic endocrine disrupter bisphenol A alters maternal behavior in mice. Environmental Health Perspectives, 110(suppl.3): 415-422.
5. Bartolomucci, A., Gioiosa L., Chirieleison A., Ceresini G., Parmigiani S., Palanza P. (2004). Cross fostering in mice: behavioral and physiological carry-over effects in adulthood. GENES BRAIN BEHAVIOR, 3:115-122.
6. Bartolomucci A., Pederzani T., Sacerdote P., Panerai A.E., Parmigiani S., Palanza P. (2004). Behavioral and physiological characterization of male mice under chronic psychosocial stress. PSYCHONEUROENDOCRINOLOGY, 29:899-910.
7. Bartolomucci, A., Gioiosa L., Chirieleison A., Ceresini G., Parmigiani S., Palanza P. (2004). Age at group formation alters behavior and physiology in male but not female mice. PHYSIOLOGY AND BEHAVIOR 82(2-3):425-34.
8. Palanza P., Della Seta D., Ferrari PF, Parmigiani S. (2005). Female competition in wild house mice depends upon timing of female/male settlement and kinship between females. ANIMAL BEHAVIOUR, 69(6): 1259-1271.
9. Gioiosa L, Fissore E., Ghirardelli G., Parmigiani S., Palanza P. (2007). Developmental exposure to low doses of environmental estrogens alters sex differences in exploration and emotional behavior in mice. HORMONES AND BEHAVIOR, 52(3):307-16.
10. Bartolomucci A, Cabassi A, Govoni P, Ceresini G, Cero C, Berra D, Dadomo H, Franceschini P, Dell'Omo G, Parmigiani S, Palanza P (2009) Metabolic consequences and vulnerability to diet-induced obesity in male mice under chronic social stress. PLoS ONE 4(1): e4331-pp12.
11. Bertocchi I, Oberto A., Longo A., Mele P., Sabetta M., Bartolomucci A., Palanza P., Sprengel R., Eva C. 2011 Conditional knockout unravels a novel role of limbic Y1 receptor in regulating body weight and anxiety that is modulated by maternal care. Proc Natl Acad Sci USA. 108(48):19395-400.
12. Gioiosa L., Parmigiani S., vom Saal FS., Palanza P. 2013. Effects of bisphenol A on emotional behavior depend upon timing of exposure, age at testing and gender in mice. Hormones and Behavior 63:598–605.
13. Longo A., Oberto A, Mele P., Mattiello L., Pisu M., Palanza P., Serra, MR, Eva C. 2015. NPY-Y1 coexpressed with NPY-Y5 receptors modulate anxiety but not mild social stress response in mice. Genes Brain & Behav, 4(7):534-42.
14. Statello R, Carnevali L, Paterlini S, Gioiosa L, Bertocchi I, Oberto A, Eva C, Palanza* P, Sgoifo* A. (*contributed equally) 2017. Reduced NPY Y1 receptor hippocampal expression and signs of decreased vagal modulation of heart rate in mice. Physiology and Behavior, 172:31-39.
15. Palanza P. 2017. The “Plastic” Mother. Endocrinology 158 (3): 461-463.
16. Palanza P, Parmigiani S. 2017. How does sex matter? Behavior, stress and animal models of neurobehavioral disorders. Neuroscience and Biobehavioral Reviews 76(A):134-143. doi: 10.1016/j.neubiorev.2017.01.037
17. Dadomo H, Gioiosa L., Cigalotti J, Ceresini G, Parmigiani, S., Palanza P. 2018. What is stressful for females? Differential effects of unpredictable environmental or social stress in CD1 female mice. Hormones and Behavior, 98:22-32. doi: 10.1016/j.yhbeh.2017 (IF 3.6)
18. Longo A, Fadda M, Graduate, Brasso M, Mele P, Palanza, P, Nanavaty I, Bertocchi I, Oberto A, Eva C. 2018. Conditional inactivation of Npy1r gene in mice induces behavioural inflexibility and orbitofrontal cortex hyperactivity that are reversed by escitalopram. Neuropharmacology, 133:12-22.
19. Eva C., Oberto A, Longo A, Palanza P., Bertocchi I. 2020. Sex differences in behavioral and metabolic effects of gene inactivation: the Neuropeptide Y and Y receptors in the brain. Neurosci Biobehav. Rev 119:333-347. doi: 10.1016/j.neubiorev.2020.09.020
20. Bertocchi I, Oberto A, Longo A, Palanza P and Eva C. 2020. Conditional inactivation of Npy1r gene in mice induces sex-related differences of metabolic and behavioral functions. Hormones & Behavior, 125:104824. doi: 10.1016/j.yhbeh.2020.104824
21. Paterlini S, Panelli R, Gioiosa L, Parmigiani S, Franceschini P, Bertocchi I, Oberto A, Bartolomucci A, Eva C, Palanza P. 2021. Conditional Inactivation of Limbic Neuropeptide Y-1 Receptors Increases Vulnerability to Diet-Induced Obesity in Male Mice. International Journal of Molecular Sciences. 22(16):8745. <https://doi.org/10.3390/ijms22168745>
22. Oberto, A., Bertocchi, I., Longo, A., Bonzano, S., Paterlini, S., Meda, C., Torre, S.D., Palanza, P., Maggi, A., Eva, C. 2022. Hypothalamic NPY-Y1R Interacts with Gonadal Hormones in Protecting Female Mice against Obesity and Neuroinflammation. Int. J. Mol. Sci. 2022, 23, 6351. <https://doi.org/10.3390/ijms23116351>
23. Brambilla MM, Perrone S, Shulhai A, Ponzi D, Paterlini S, Pisani F, Rollo D, Pelosi D, Street ME, Palanza P. 2025. Systematic review on Endocrine Disrupting Chemicals in breastmilk and neuro-behavioral development: insight into the early ages of life. Neuroscience and Biobehavioral Rev. 169:106028. doi: 10.1016/j.neubiorev.2025.106028