

ANNEX 2: CV and previous research achievements

1) Personal Details

Name: Arnau Ramos Prats. Age: 30. Gender: Male.

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Address of the research institution: Friedrich Miescher Institute for Biomedical Research, Maulbeerstrasse 66, 4058 Basel, Switzerland

2) Education

Ph.D. in Neuroscience

2017- 2021 SPIN Excellence PhD Programme, Medical University of Innsbruck, Austria

Thesis: "A role for VIP-expressing interneurons in the mouse anterior insular cortex in salience detection and processing"

Advisor: Prof.Dr. Francesco Ferraguti

M.Sc. Neurosciences

2016-2017 Institute of Neurosciences, Autonomous University of Barcelona, Spain

Thesis "Impact of control over stress during adolescence on striatal D2R+ cells population"

Advisors: Prof.Dr. Antonio Armario & Prof.Dr. Roser Nadal.

B.Sc. Biomedical Sciences

2012-2016 University of Barcelona, Spain

Thesis "Cognitive and behavioural differences between Wistar Han and Dark Agouti rats."

Advisors: Dr. Marion Rivalan & Prof.Dr. York Winter, Charité Universitätsmedizin & Humboldt University of Berlin, Germany

3) Positions

Postdoctoral researcher

08.2023-present Friedrich Miescher Institute for Biomedical Research, Basel, Switzerland

Principal Investigator: Prof.Dr. Andreas Luethi

11.2021-06.2023 Institute of Pharmacology, Medical University of Innsbruck, Austria

Principal Investigator: Prof.Dr. Francesco Ferraguti

PhD Student

09.2017- 11.2021 Institute of Pharmacology, Medical University of Innsbruck, Austria

Principal Investigator: Prof.Dr. Francesco Ferraguti

4) Net Research Experience Calculation:

Net research experience prior to PhD degree: 51 months*70% employment = 35.7 months.

Net research experience after PhD degree: 30 months *100% employment = 30 months.

5) Research interests:

My main research interests lie within systems neuroscience and focus on the computational approach to behavioral phenotyping, neuronal circuit analysis, and brain states in both health and disease. My overarching goal is to unravel the intricate mechanisms underlying behavior and brain function, to ultimately contribute to a deeper understanding of neural circuitry and its perturbations in various physiological and pathological contexts. To achieve this, I apply a combination of research strategies and methodologies:

Multidimensional Approach to Behavior: Leveraging extensive behavioral phenotyping and computational techniques, I aim to decipher intricate patterns within behavioral data that often elude manual analysis. This approach allows the identification of subtle behavioral traits, contributing to a more refined understanding of behavior in various contexts (Alonso et al., 2020). Neuronal Circuits: Investigating the connectivity and dynamics of neuronal circuits is central to my research. By employing cutting-edge analytical approaches such as network mappings (Ramos-Prats et al., 2019) and tools such as optogenetics and calcium imaging (Ramos-Prats et al., 2022), I have successfully mapped out neural pathways involved in distinct behavioral expressions. This approach is aimed at shedding light on the hierarchical organization of brain regions and their interactions, allowing us to elucidate the neural substrates of behavior. Brain States in Health and Disease: Ultimately, most of my studies (Matulewicz et al., 2022; Ramos-Prats et al., 2019; Ramos-Prats et al., 2022; Sanchís-Ollé et al., 2019; Zangrandi et al., 2021) aim at understanding how brain and behavioural states contribute to neurological and neuropsychiatric disorders. By addressing neural activity patterns and functiono-anatomical features across different states, I believe we can identify signatures associated with health and disease to open avenues for developing targeted interventions to restore normal brain function.

6) Academic Publications

1. **Ramos-Prats, A.**, Kölldorfer, J., Paolo, E., Zeidler, M., Schmid, G., & Ferraguti, F. (2019). An Appraisal of the Influence of the Metabotropic Glutamate 5 (mGlu5) Receptor on Sociability and Anxiety. *Front Mol Neurosci*, 12, 30. <https://doi.org/10.3389/fnmol.2019.00030>
2. **Ramos-Prats, A.**, Paradiso, E., Castaldi, F., Sadeghi, M., Mir, M. Y., Hörtnagl, H., Göbel, G., & Ferraguti, F. (2022). VIP-expressing interneurons in the anterior insular cortex contribute to sensory processing to regulate adaptive behavior. *Cell Rep*, 39(9), 110893. <https://doi.org/10.1016/j.celrep.2022.110893>
3. Zangrandi, L., Schmuckermair, C., Ghareh, H., Castaldi, F., Heilbronn, R., Zernig, G., Ferraguti, F., & **Ramos-Prats, A.** (2021). Loss of mGluR5 in D1 Receptor-Expressing Neurons Improves Stress Coping. *Int J Mol Sci*, 22(15). <https://doi.org/10.3390/ijms22157826>

4. Sadeghi, M., **Ramos-Prats, A.**, Neto, P., Castaldi, F., Crowley, D., Matulewicz, P., Paradiso, E., Freysinger, W., Ferraguti, F., & Goebel, G. (2023). Localization and Registration of 2D Histological Mouse Brain Images in 3D Atlas Space. *Neuroinformatics*, 21(3), 615-630. <https://doi.org/10.1007/s12021-023-09632-8>
5. Matulewicz, P., **Ramos-Prats, A.**, Gómez-Santacana, X., Llebaria, A., & Ferraguti, F. (2022). Control of Theta Oscillatory Activity Underlying Fear Expression by mGlu(5) Receptors. *Cells*, 11(22). <https://doi.org/10.3390/cells11223555>
6. Alonso, L., Peeva, P., **Ramos-Prats, A.**, Alenina, N., Winter, Y., & Rivalan, M. (2020). Inter-individual and inter-strain differences in cognitive and social abilities of Dark Agouti and Wistar Han rats. *Behav Brain Res*, 377, 112188. <https://doi.org/10.1016/j.bbr.2019.112188>
7. Sanchís-Ollé, M., Fuentes, S., Úbeda-Contreras, J., Lalanza, J. F., **Ramos-Prats, A.**, Armario, A., & Nadal, R. (2019). Controllability affects endocrine response of adolescent male rats to stress as well as impulsivity and behavioral flexibility during adulthood. *Sci Rep*, 9(1), 3180. <https://doi.org/10.1038/s41598-019-40061-3>
8. Rahimi, S., Salami, P., Matulewicz, P., Schmuck, A., Bukovac, A., **Ramos-Prats, A.**, Tasan, R. O., & Drexel, M. (2023). The role of subicular VIP-expressing interneurons on seizure dynamics in the intrahippocampal kainic acid model of temporal lobe epilepsy. *Exp Neurol*, 370, 114580. <https://doi.org/10.1016/j.expneurol.2023.114580>
9. **Ramos-Prats, A.**, Matulewicz, P., Edenhofer, M. L., Wang, K. Y., Yeh, C. W., Fajardo-Serrano, A., Kress, M., Kummer, K., Lien, C. C., & Ferraguti, F. (2024). Loss of mGlu(5) receptors in somatostatin-expressing neurons alters negative emotional states. *Mol Psychiatry*. <https://doi.org/10.1038/s41380-024-02541-5>

7) Additional 10 research achievements:

Research Grants:

2021 Dr. Legerlotz-Stiftung. *Amount: 10.000€*

Travel Grants:

2022 FENS/IBRO travel grant

2021 ANA travel grant

2019 NENS exchange grant

Prizes and honours:

2022 MUI Scientist to Watch

2021 Best Poster Award from the E.J of Neurosci., mGlu meeting, Taormina, Italy

2021 Best Oral Presentation Award, ANA meeting Salzburg

2017 SPIN Excellence PhD program scholarship

Scientific outreach

2019-2021 Organizer of the Life Science Meeting Innsbruck

2018-2021 SPIN PhD program student representative