

# Multimodal Brain Plasticity and Signaling

CIRB – Équipe de recherche

## PUBLICATIONS 2018-2024

### Peer-Reviewed Articles

1. Leboeuf, M., Vargas-Abonce, S.E., Pez -Hedsieck, E., Dupont, E., Jimenez-Alonso, L., Moya, K.L., and Prochiantz, A. (2023). ENGRAILED-1 transcription factor has a paracrine neurotrophic activity on adult spinal  $\alpha$ -motoneurons. *EMBO Rep.* 24, e56525. <https://doi.org/10.15252/embr.202256525>.
2. Arnaud, K., Moreira, V.O., Vincent, J., Dallerac, G., Dubreuil, C., Dupont, E., Richter, M., M ller, U.C., Rondi-Reig, L., Prochiantz, A., Di Nardo, A.A. (2021). Choroid plexus APP regulates adult brain proliferation and animal behavior. *Life Sci. Alliance* 4, e202000703. <https://doi.org/10.26508/lsa.202000703>.
3. Devienne, G., Picaud, S., Cohen, I., Piquet, J., Tricoire, L., Testa, D., Di Nardo, A.A., Rossier, J., Cauli, B., and Lambolez, B. (2021). Regulation of Perineuronal Nets in the Adult Cortex by the Activity of the Cortical Network. *J Neurosci* 41, 5779–5790. <https://doi.org/10.1523/jneurosci.0434-21.2021>.
4. Harkness, J.H., Gonzalez, A.E., Bushana, P.N., Jorgensen, E.T., Hegarty, D.M., Di Nardo, A.A., Prochiantz, A., Wisor, J.P., Aicher, S.A., Brown, T.E., et al. (2021). Diurnal changes in perineuronal nets and parvalbumin neurons in the rat medial prefrontal cortex. *Brain Struct Funct* 226, 1135–1153. <https://doi.org/10.1007/s00429-021-02229-4>.
5. Vincent, C., Gilabert-Juan, J., Gibel-Russo, R., Alvarez-Fischer, D., Krebs, M.-O., Pen, G.L., Prochiantz, A., and Di Nardo, A.A. (2021). Non-cell-autonomous OTX2 transcription factor regulates anxiety-related behavior in the mouse. *Mol Psychiatr* 26, 6469–6480. <https://doi.org/10.1038/s41380-021-01132-y>.
6. Planques, A., Moreira, V.O., Benacom, D., Bernard, C., Jourden, L., Blugeon, C., Dingli, F., Masson, V., Loew, D., Prochiantz, A., Di Nardo, A.A. (2021). OTX2 Homeoprotein Functions in Adult Choroid Plexus. *Int J Mol Sci* 22, 8951. <https://doi.org/10.3390/ijms22168951>.
7. Ibad, R.T., Quenech'du, N., Prochiantz, A., and Moya, K.L. (2021). OTX2 stimulates adult retinal ganglion cell regeneration. *Neural Regen Res* 17, 690–696. <https://doi.org/10.4103/1673-5374.320989>.
8. Ravel-Godreuil, C., Massiani-Beaudoin, O., Mailly, P., Prochiantz, A., Joshi, R.L., and Fuchs, J.

(2021). Perturbed DNA methylation by Gadd45b induces chromatin disorganization, DNA strand breaks and dopaminergic neuron death. *Iscience* 24, 102756.

<https://doi.org/10.1016/j.isci.2021.102756>.

9. Pensieri, P., Mantilleri, A., Plassard, D., Furukawa, T., Moya, K.L., Prochiantz, A., and Lamonerie, T. (2021). Photoreceptor cKO of OTX2 Enhances OTX2 Intercellular Transfer in the Retina and Causes Photophobia. *Eneuro* 8, ENEURO.0229-21.2021.

<https://doi.org/10.1523/eneuro.0229-21.2021>.

10. Amblard, I., Thauvin, M., Rampon, C., Queguiner, I., Pak, V.V., Belousov, V., Prochiantz, A., Volovitch, M., Joliot, A., and Vriza, S. (2020). H<sub>2</sub>O<sub>2</sub> and Engrailed 2 paracrine activity synergize to shape the zebrafish optic tectum. *Commun Biology* 3, 536. <https://doi.org/10.1038/s42003-020-01268-7>.

11. Torero-Ibad, R., Mazhar, B., Vincent, C., Bernard, C., Dégardin, J., Simonutti, M., Lamonerie, T., Di Nardo, A.A., Prochiantz, A., and Moya, K.L. (2020). OTX2 non-cell autonomous activity regulates inner retinal function. *Eneuro* 7, ENEURO.0012-19.2020.

<https://doi.org/10.1523/eneuro.0012-19.2020>.

12. Thomasson, N., Pioli, E., Friedel, C., Monseur, A., Lavaur, J., Moya, K.L., Bezard, E., Bousseau, A., and Prochiantz, A. (2019). Engrailed-1 induces long-lasting behavior benefit in an experimental Parkinson primate model. *Movement Disord* 34, 1082–1084.

<https://doi.org/10.1002/mds.27714>.

13. Kaddour, H., Coppola, E., Di Nardo, A.A., Poupon, C.L., Mailly, P., Wizenmann, A., Volovitch, M., Prochiantz, A., and Pierani, A. (2019). Extracellular Pax6 Regulates Tangential Cajal–Retzius Cell Migration in the Developing Mouse Neocortex. *Cereb Cortex*.

<https://doi.org/10.1093/cercor/bhz098>.

14. Abonce, S.E.V., Leboeuf, M., Prochiantz, A., and Moya, K.L. (2019). Homeoprotein Neuroprotection of Embryonic Neuronal Cells. *Eneuro* 6, ENEURO.0061-19.2019.

<https://doi.org/10.1523/eneuro.0061-19.2019>.

15. Planques, A., Moreira, V.O., Dubreuil, C., Prochiantz, A., and Di Nardo, A.A. (2019). OTX2 Signals from the Choroid Plexus to Regulate Adult Neurogenesis. *Eneuro* 6, ENEURO.0262-18.2019.

<https://doi.org/10.1523/eneuro.0262-18.2019>.

16. Thé, F.-X.B. de, Rekaik, H., Peze-Heidsieck, E., Massiani-Beaudoin, O., Joshi, R.L., Fuchs, J., and Prochiantz, A. (2018). Engrailed homeoprotein blocks degeneration in adult dopaminergic neurons through LINE-1 repression. *Embo J* 37, e97374.

<https://doi.org/10.15252/emboj.201797374>.

17. Apulei, J., Kim, N., Testa, D., Ribot, J., Morizet, D., Bernard, C., Jourden, L., Blugeon, C., Nardo, A.A.D., and Prochiantz, A. (2018). Non-cell Autonomous OTX2 Homeoprotein Regulates Visual Cortex Plasticity Through Gadd45b/g. *Cereb. Cortex* 29, 2384–2395.

<https://doi.org/10.1093/cercor/bhy108>.

## Reviews

1. Di Nardo, A.A., and Prochiantz, A. (2024). Therapeutic value of homeoprotein signaling pathways. *Front. Neurosci.* 18, 1359523. <https://doi.org/10.3389/fnins.2024.1359523>.

2. Gibel-Russo, R., Benacom, D., and Di Nardo, A.A. (2022). Non-Cell-Autonomous Factors Implicated in Parvalbumin Interneuron Maturation and Critical Periods. *Front. Neural Circuits* 16, 875873. <https://doi.org/10.3389/fncir.2022.875873>.

3. Di Nardo, A.A., Joliot, A., and Prochiantz, A. (2020). Homeoprotein transduction in neurodevelopment and physiopathology. *Sci Adv* 6, eabc6374. <https://doi.org/10.1126/sciadv.abc6374>.
4. Testa, D., Prochiantz, A., and Di Nardo, A.A.(2019). Perineuronal nets in brain physiology and disease. *Semin Cell Dev Biol* 89, 125–135. <https://doi.org/10.1016/j.semcd.2018.09.011>.
5. Di Nardo, A.A., Fuchs, J., Joshi, R.L., Moya, K.L., and Prochiantz, A. (2018). The Physiology of Homeoprotein Transduction. *Physiol Rev* 98, 1943–1982. <https://doi.org/10.1152/physrev.00018.2017>.
6. Prochiantz, A. How to navigate counter dogmatic research findings. *EMBO J* 37, e98945 (2018). <https://dx.doi.org/10.15252/emj.201898945>

## Editorials

1. Germain, S. & Di Nardo, A.A. Editorial: Matrix Proteins. *Sem Cell Dev Biol* 89, 99 (2019). <https://dx.doi.org/10.1016/j.semcd.2019.03.001>

## Book Chapters

1. Prochiantz A. & Di Nardo A. A. Shuttling homeoproteins and their biological significance. In: Langel Ü. (eds) *Cell Penetrating Peptides. Methods in Molecular Biology*, vol 2383. Humana, New York, NY. (2022) [https://dx.doi.org/10.1007/978-1-0716-1752-6\\_2](https://dx.doi.org/10.1007/978-1-0716-1752-6_2)

## Books

1. Prochiantz, A. *Singe toi-même*. Editions Odile Jacob, Paris 2019.