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In our laboratory we conduct excellent research in the areas of neurosciences from basic to clinical.

The Internship will be focused on researching the role of the neuro, immune, endocrine systems and their interplay in the etiopathogenesis of depression and in the mechanism of action of antidepressant drugs both *in vitro* and *in vivo*. Research topics studied in our group encompass many areas that are on the forefront of scientific interest, please see references listed below.

The visiting scientist will take advantage of the expertise within the group with regard to cell culture, gene expression and protein analysis and undertake experiments using a variety of molecular biology techniques.

The scientific laboratories are fully equipped for: cell culture, real time PCR, gene chip exon array, ELISA and immunoblotting, facilities are given in the Institute for fluorescence, confocal microscopy and flow cytometry.

*References*

- Molecular mechanisms underlying the effect of antidepressants in the CNS, with a specific interest on immune-related targets (Alboni et al., 2013; Alboni et al., 2011).
- Animal models of depression to study molecular mechanisms of antidepressant drugs (Benatti et al., 2012; Benatti et al., 2014).
- Use of *in vitro* translationally-valid experimental models to study neurotoxicity (Alboni et al., 2013; Alboni et al., 2014).
- Alboni S, Montanari C, Benatti C, Sanchez-Alavez M, Rigillo G, Blom JM, Brunello N, Conti B, Pariante MC, Tascedda F. Interleukin 18 activates MAPKs and STAT3 but not NF- $\kappa$ B in hippocampal HT-22 cells. *Brain Behav Immun.* 2014 Aug;40:85-94
- Righi Valeria, Luisa Schenetti, Adele Mucci, Stefania Benatti, Fabio Tascedda, Nicoletta Brunello, Alboni Silvia Changes in the NMR Metabolic Profile of Live Human Neuron-Like SH-SY5Y Cells Exposed to Interferon- $\alpha$ 2.. *Journal of Neuroimmune Pharmacology*, 2015. p. 1-11, ISSN: 1557-1890, doi: 10.1007/s11481-015-9641.
- Benatti C, Blom JM, Rigillo G, Alboni S, Zizzi F, Torta R, Brunello N, Tascedda F. Disease-Induced Neuroinflammation and Depression. *CNS Neurol Disord Drug Targets* 2016, 15(4):414-33.
- Alboni S., Poggini S., Garofalo S., Milior G., El Hajj H., Lecours C., Girard I., Gagnon S., Boisjoly-Villeneuve S., Brunello N., Wolfer D.P, Limatola C, Tremblay MÈ, Maggi L, Branchi I. Fluoxetine treatment affects the inflammatory response and microglial function according to the quality of the living environment. *Brain Behavior and Immunity*, 2016 vol. 58, p. 261-271-271.
- Alboni Silvia, van Dijk R M, Poggini Silvia, Milior G, Perrotta M, Drenth T, Brunello Nicoletta, Wolfer D, Limatola C, Amrein I, Cirulli F, Maggi L, Branchi I. Fluoxetine effects on molecular, cellular and behavioral endophenotypes of depression are driven by the living environment. *Molecular Psychiatry* 2017 22, 552–561
- Alboni S, Micioni Di Bonaventura MV, Benatti C, Giusepponi ME, Brunello N, Cifani C. Hypothalamic expression of inflammatory mediators in an animal model of binge eating. *Behav Brain Res.* 2017 Mar 1;320:420-430.