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Team Members

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Emmanuelle Kuhn, PhD Student
Jérôme Nevoux, PhD Student
Ingrid Lema as a PhD Student
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Florian Le Billan, Undergraduate Student

Research Area

Our laboratory is mostly interested in the mechanisms of mineralocorticoid receptor; Our project is to identify and characterize the molecular and cellular mechanisms of MR action by studying both the regulatory elements controlling MR expression and the critical events involved in the tissue-specific action of MR. The ultimate aim is to design new strategies to prevent or cure MR-mediated and -related diseases such as high blood pressure, congestive heart failure, chronic kidney diseases but also mineralocorticoid resistance and disorders of the central nervous system. More recently, several studies revealed a potential link between MR-mediated signaling and the prevalence of the metabolic syndrome which associates a constellation of comorbidities with visceral obesity, hypertension, insulin resistance and dyslipidemia. Thus, MR could be a central player of these pathophysiological disorders. The extended expression profile of MR together with the multiplicity of MR-mediated effects support the need to further study the critical events that govern tissue-specific MR expression and to define the molecular and cellular mechanisms of MR action. Through complementary experimental techniques including cellular, molecular and structural biology, and transcriptomic and proteomic analyses, we plan to examine the expression and tissue-specific function of MR in the context of its pathophysiological implication. and its involvement in human pathophysiology.

Facilities and expertise

New generation sequencing
ChiP
High throughput microscopy
Cell biology
Metabolic investigations

Recent Publications (2012-2104)

Viengchareun S, Lema I, Lamribet K, Keo V, Amazit L, Nevoux J, Martinerie L, Blanchard A, Cheraddi N, Lombès M. Hypertonicity induces renal Tis11b expression and controls mineralocorticoid receptor function through post-transcriptional mechanisms.
J. Am. Soc. Nephrol. (2014) in press

Kuhn E, Bourgeois C, Keo V, Viengchareun S, Muscat A, Meduri G, Le Menuet D, Fève B, Lombès M. Paradoxical resistance to high fat diet-induced obesity in mineralocorticoid receptor overexpressing mice: involvement of macrophage polarization. *Am. J. Physiol. Endo. Metab.* (2014) 306, E75-E90

Kuhn E, Lombès M. The Mineralocorticoid receptor : a new player controlling energy homeostasis *Horm. Mol. Biol. Clin. Invest.* (2013) 15, 59-70.

Martinerie L, Munier M, Le Menuet D, Meduri G, Viengchareun S, Lombès M. The mineralocorticoid signaling pathway throughout development: expression, regulation and pathophysiological implications. *Biochimie* (2013) 95, 148-157

Martinerie L, Pussard E, Meduri G, Delezoide A-L, Boileau P, Lombès M. Lack of Renal 11 Beta-Hydroxysteroid Dehydrogenase type 2 at Birth, a Targeted Temporal Window for Neonatal Glucocorticoid Action in Human and Mice. *PLoS. One.* (2012) 7(2), e31949

Le Menuet D, Munier M, Campostrini G, Lombès M. Mineralocorticoid Receptor and Embryonic Stem Cell models: molecular insights and pathophysiological relevance. *Mol. Cell. Endocrinol.* (2012) 350, 216-222

Munier M, Law F, Meduri G, Le Menuet D, Lombès M. Mineralocorticoid Receptor overexpression facilitates differentiation and promotes survival of embryonic stem cell-derived neurons. *Endocrinology.* (2012) 153, 1330-1340