

Development of visceral smooth muscle and associated pathologies

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Acronym: DIGEST

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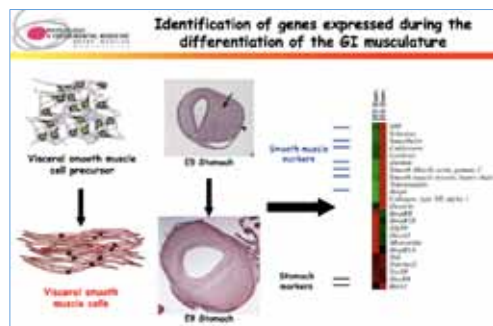
Research brief

The contraction of the smooth muscle under the control of the autonomous enteric nervous system (ENS) and the interstitial cells of Cajal (ICC) ensures the motility of the digestive tract. The dysfunction of even just one cell type can be responsible to the development of gastrointestinal neuromuscular pathology (GINMD) in infants and adults. We showed that molecular pathways involved during the embryonic development of visceral smooth muscle cell (SMC) are altered and that their misexpression may be responsible for GINMD.

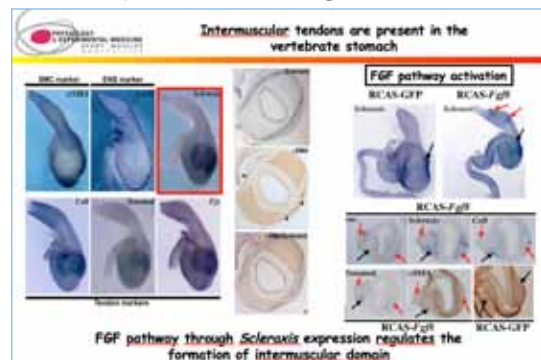
The main focus of our research is to identify the molecular mechanisms that govern the development and differentiation of the visceral smooth muscle. Using both avian and mouse animal models, we investigate the function of BMP signaling pathway and RNA binding proteins during this process. Moreover, our interface with clinicians allows us to translate our findings into pathophysiology field.

With this approach, we aim to identify the molecular and cellular mechanisms that control the development of the colonic wall in order to understand the etiology of GINMP. From identified functional, cellular and molecular visceral smooth muscle abnormalities, we project to develop various therapeutic strategies to reduce muscle dysfunction and to correct motility disorders.

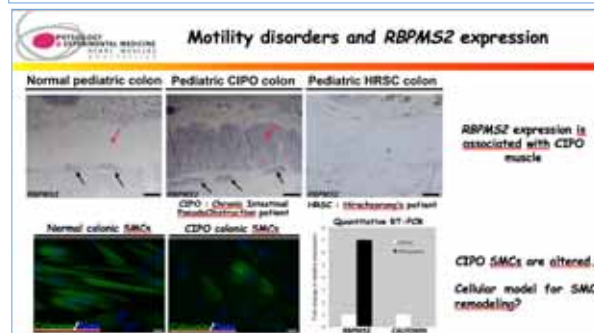
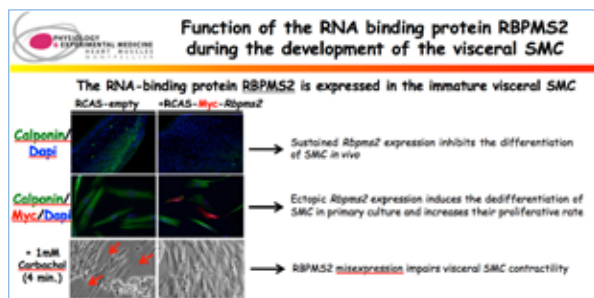
Avian Model to study the visceral SMC



Development of the digestive tract



Physiopathology of the visceral SMCs



Publications associated with ANR grant

- Notarnicola C, Rouleau C, Le Guen L, Faure S, de Santa Barbara P. 2011. Role of the RNA binding protein RBPM52 during gastrointestinal SMC development. In review to *Gastroenterology*.
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- Notarnicola C, Le Guen L, Fort P, Faure S, de Santa Barbara P. 2008. Dynamic expression patterns of RhoV/Chp and RhoU/Wrh during chicken embryonic development. *Dev Dyn*. 237:1165-71.

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