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Transgenerational neuroprotection of vegetal extract in neonatal hypoxia-ischemia

Pierre Goudeneche, Camille Guichard, Stéphane Sanchez, M-C Beauvieux, J-F Chateil, Luc Pellerin, Cindy Romain, Julien Cases, Anne-Karine Bouzier-Sore, Hélène Roumes

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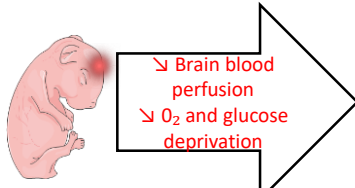
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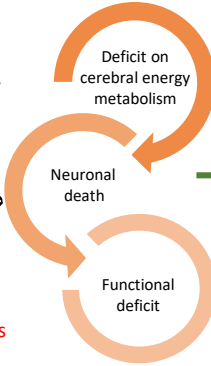
Goudeneche P. 1, Guichard C. 1, Sanchez S. 1, Beauvieux M-C. 1, Chateil J-F., Pellerin L. 2, Romain C. 3, Cases J. 3, Bouzier-Sore A-K. 1, Roumes H. 1
 1 CRMSB - UMR 5536 - CNRS/University of Bordeaux - Bordeaux, France, 2 IRMETIST - Inserm U1313, CHU/University of Poitiers - Poitiers, France, 3 S.A.S. Fytexia - Vendres - FRANCE

Neonatal hypoxia-ischemia (NHI)

- 4 million newborns per year, worldwide
- 15-20% of deaths during the perinatal period
- 25% motor and cognitive deficits



Absence of pharmacological solutions



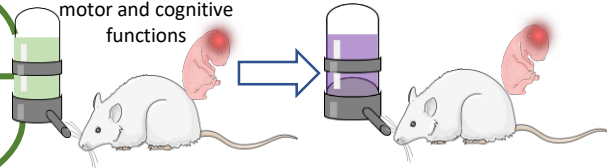
Resveratrol maternal supplementation

- ↳ Brain lesion volume
- ↳ lesion severity
- ↳ Preservation of sensory motor and cognitive functions

→ But low bioavailability
 Dumont et al. Frontiers 2021

Objective

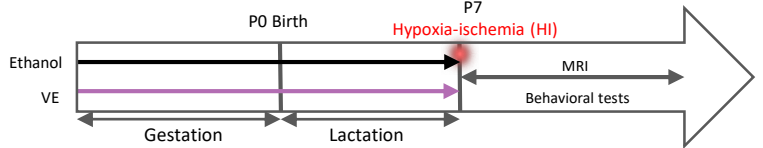
Evaluate effect of a vegetal extract (VE) rich in highly bioavailable polyphenols



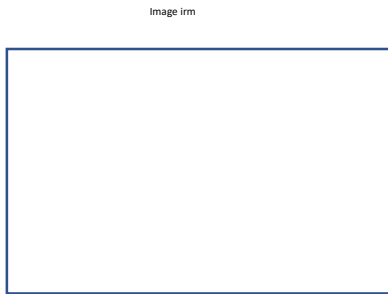
↳ Synergy + ↳ Bioavailability = Neuroprotection ?

Experimental desing

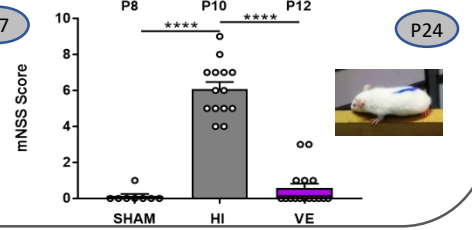
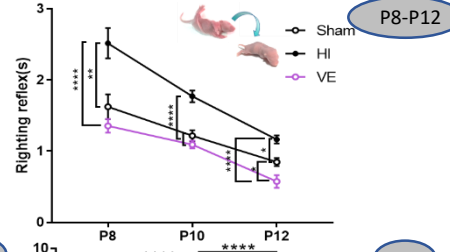
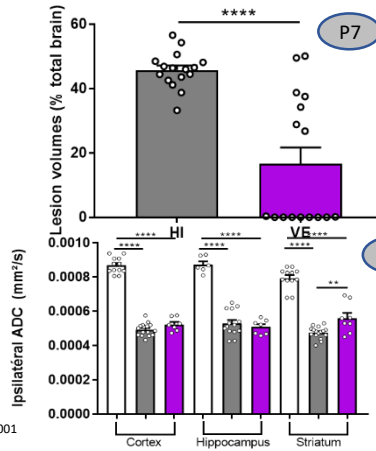
Transgenerational, nutritional neuroprotective approach through maternal supplementation with EV



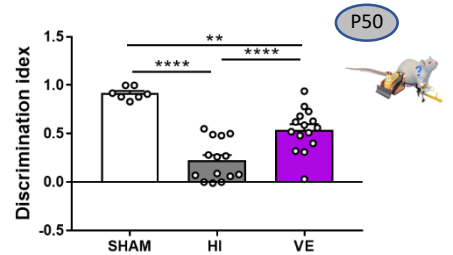
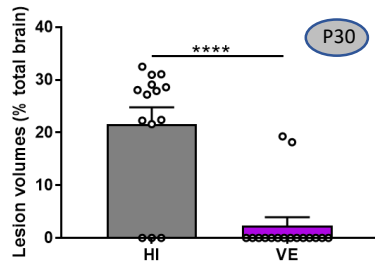
Short-term effect of maternal supplementation with VE



ADC : apparent diffusion coefficient
 mNSS : modified neurological severity score
 AnovaFisher's LSD * p < 0,05 ; ** p < 0,01 ; *** p < 0,001 ; **** p < 0,0001



Long-term effect of maternal supplementation with VE



AnovaFisher's LSD ** p < 0,01 ; **** p < 0,0001

Maternal supplementation with VE lead to short and long-term neuroprotection effects (cortex, hippocampus, striatum) in the context of neonatal HI

Better Bioavailability + Synergic effect → Better neuroprotection

Perspective : developpement of a food supplement, targeting prement woman, to prevent the deleterious effects of neonatal HI