

How experience can get under the skin

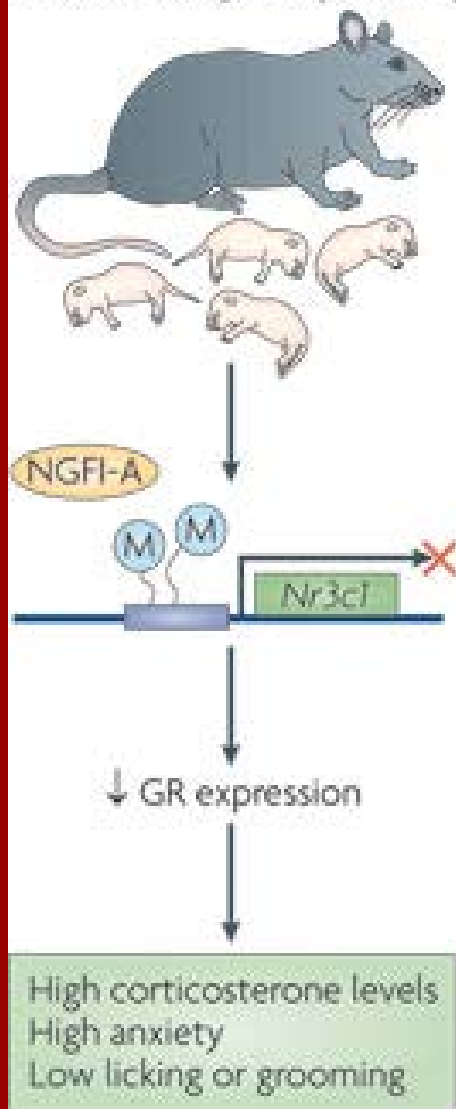
**Effects of early experience into adulthood:  
Michael Meaney's rodent research**

High levels of maternal care

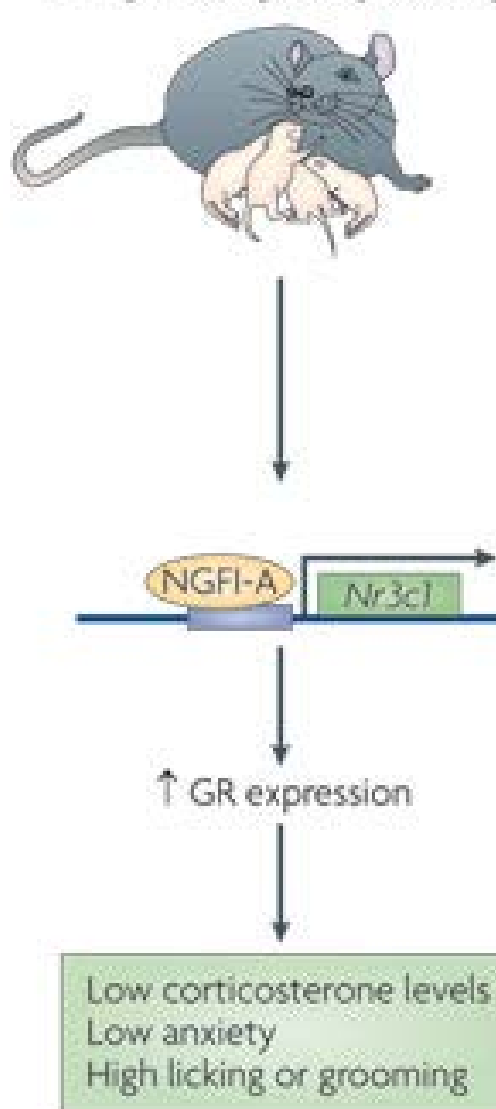


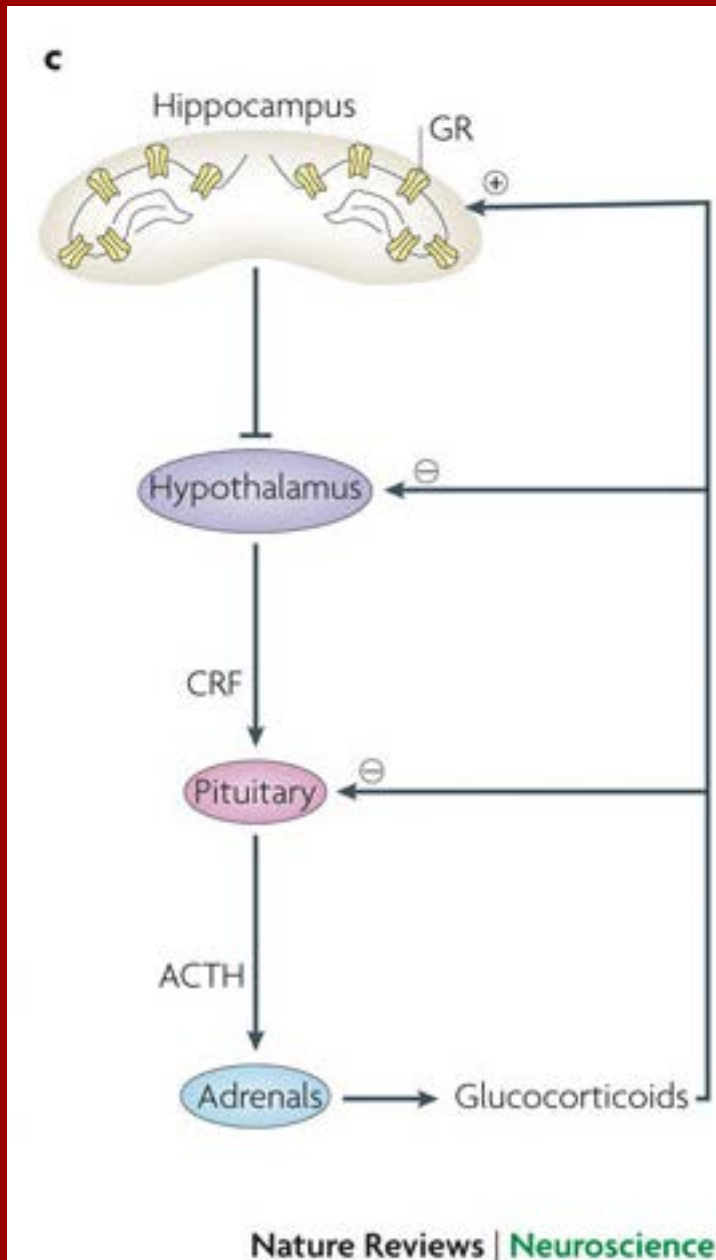
Low levels of maternal care

**a Low licking and grooming**



**b High licking and grooming**



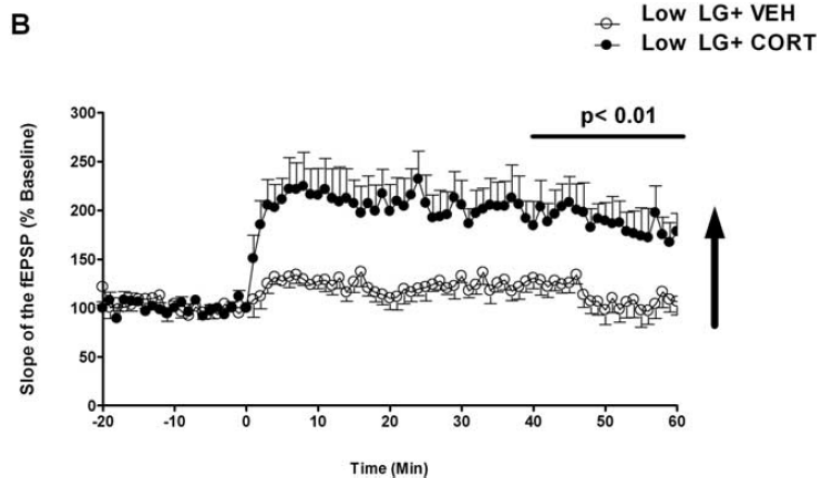
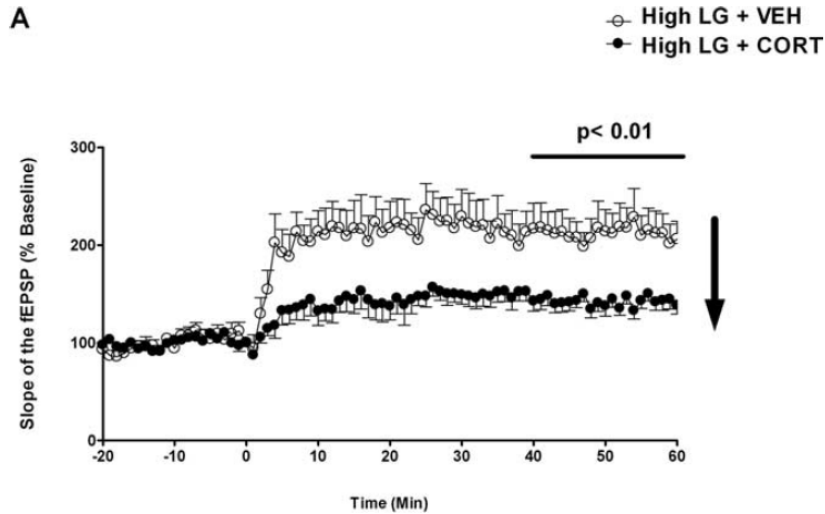


Hackman, Farah, & Meaney.  
Nat Rev Neurosci. 2010

History of high  
maternal care:  
CORT  
*decreases* LTP

History of low  
maternal care:  
CORT  
*increases* LTP

Champagne et al., 2008 J Neuroscience.



# Low maternal care in rats causes:

- Epigenetic modification of the GR gene promotor, which can persist into adulthood and can be passed to offspring
- Glucocorticoid insensitivity & altered HPA functioning
- Alterations in synaptic neuroplasticity in hippocampus

# Meaney's program of research

- Striking evidence of the lasting effects of EXPERIENCE on biological and behavioral functioning
- Example of how “nurture” becomes “nature”
- Many aspects of this research translate to humans, but humans are more complex (& it's not only about the mother!)