

ALLERGY, GENETICS

HOW DOES VITAMIN D IMPRINTING WORK?

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I have predicted an epigenetic regulation of vitamin D [converting enzymes](#) in 2010 to explain the programming effect of [vitamin D supplements on later allergy](#). Last week, a first study examining [vitamin D supplement effects in newborns](#) has been published. They compare 400IU versus 3800IU while I am already convinced that 400 IU has some measureable effect.

Hormone stimulus response		Size	Gene(s), pathway(s), protein(s)
Infant methylation gain			
At 4–6 weeks of life	Collagen metabolic processes	1.82	<i>ADMTS2, MMP27, TNXB</i>
	Lung development	1.44	<i>ADMTS2, MGP, PDGFRA, TGFB3</i>
	Ossification	1.35	<i>GNAS, GABBR1, MGP, TGFB3</i>
	Palate development	1.04	<i>PDGFRA, TFGB3, TGFRB3</i>
	In-utero embryonic development	0.94	<i>PDGFRA, TFGB3, TGFRB3, ZMIZ1</i>
	Steroid metabolism	0.85	<i>AMR1C2, CYP7B1, HDLBP</i>
	Synaptosome	0.80	<i>CYFIP2, DOC2A, SNPH</i>
Infant methylation loss			
At 4–6 weeks of life	Regulation of apoptosis	1.61	<i>GIMAP1, MCF2L, SMAD3, DLC1, DBH</i>
	Antigen processing/presentation, MHC class I	1.56	<i>HLA-A, HLA-H, TAP2</i>
	Regulation of Rho signal transduction	1.03	<i>MCF2L, ARHGEF10, DLC1, NGEF</i>
	Metabolic processes	0.99	<i>COQ3, NMNAT3, PDHB</i>

table 2 screenshot of selected rows

So maybe I was wrong with my prediction of a differential CYP24A1 methylation, as the authors now describe CYP7B1. CYP7B1 encodes for 25-hydroxycholesterol 7-alpha-hydroxylase which is more upstream in the synthesis of cholesterol.