ALLERGY, GENETICS, VITAMINS

SINGLE VITAMIN D BOLUS AND HLA ACCESSIBLE CHROMATIN

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We have already recently seen that gene methylation in newborns can be changed by maternal vitamin D supplementation.
This is now confirmed in a single individual who was exposed to an oral bolus of 2000 µg of vitamin D3. Even within one day, effects could be observed.

Consistently accessible chromatin was detected at 5,205 genomic loci, the 853 most prominent of which a self-organizing map algorithm classified into early, delayed and non-responding genomic regions: 70 loci showed already after one day and 361 sites after two days significant ($p < 0.0001$) chromatin opening or closing. Interestingly, more than half of these genomic regions overlap with transcription start sites, but the change of chromatin accessibility at these sites has no direct effect on the transcriptome.

Early responses are described for SUN1 (funny in this context :-), FBF1 and WRAP73. Overall the genomic region around the human leukocyte antigen (HLA) cluster in chromosome 6 showed the highest normalized density of accessible chromatin explaining the immunosuppressive effect of sunshine.