

VITAMINS

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A key event in the vitamin D hypothesis of allergy induction is the immature state of dendritic cells. So far, maturity has been mainly described in terms of reduced expression of cell surface marker like CD80. A new study in [Nature](#) now further unravels how the capacity of DC to present antigen may be disturbed. Ubiquitination – the covalent attachment of ubiquitin polymers – of the MHC II β chain ceases on maturation allowing the transport from endosomal compartments to the plasma membrane. Immature cells seem to be capable to some level of peptide-MHC interaction (at least for some selected antigens) although this process is greatly enhanced by maturation of DCs. Semi-maturity is believed to be an important inetrin stage where at least an earlier [review](#) argued

we propose a model in which steady-state migration and partial maturation (semi-maturation) of DCs is embedded as a major component within immune homeostasis, established for permanent and active tolerance induction against self-antigens derived from peripheral tissues by inducing antigen-specific CD4+ Tr cells. Semi-maturation induced by proinflammatory cytokines, such as TNF-alpha, seems to represent a unique developmental tolerogenic stage for DCs, which is based on the absence of proinflammatory cytokine production, despite high expression of MHC II and costimulatory molecules.

Another interesting study in the J Immunol – coined “[alternatively activated dendritic cells](#)” the authors probably talk about the same immature cells (compare with my cartoon summarizing a 2002 paper in [Trend Mol Med](#)). These immature DCs secrete high levels of IL10 (a paradox discussed in my most recent [paper](#)). In addition these DCs produce low amounts of IL12p70, TLR4 and CCR7. What was new to me, was an impressive list of pharmacological agents that suppress DC development: aspirin (also paracetamol?), corticosteroids, cyclosporine A, rapamycin (also other antibiotics?), and finally mycophenolate mofetil.

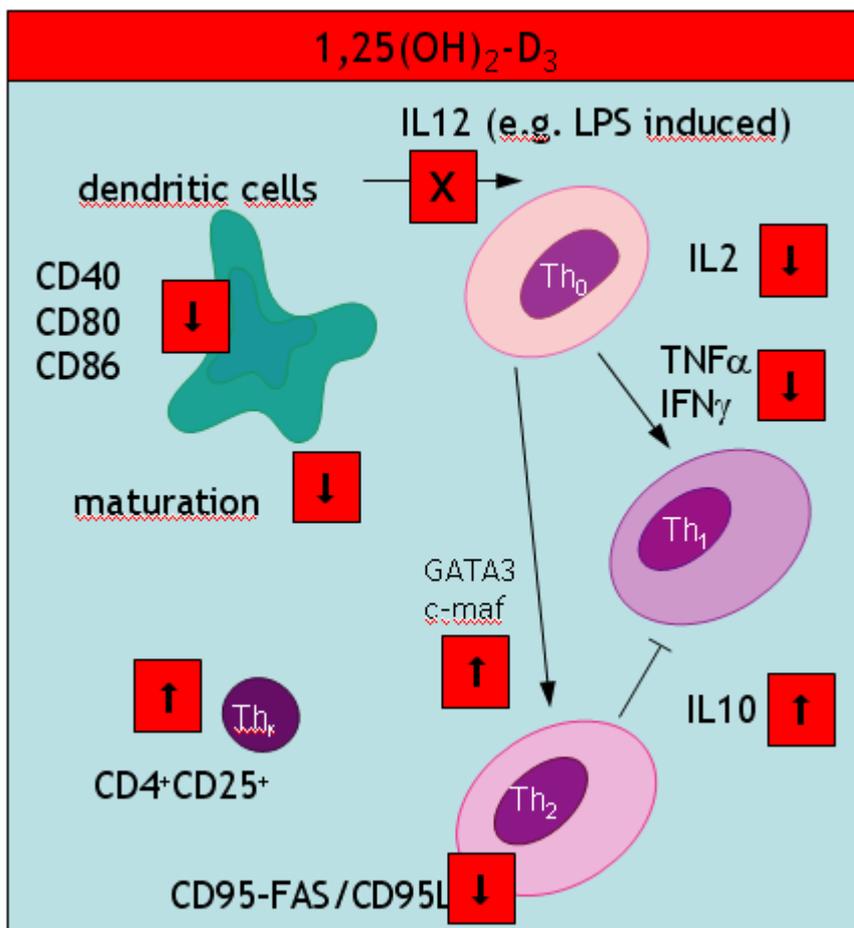
There is also an [update of the IL10 paradox](#): Allergic sensitization may be down regulated by CD40 AGONISTS independent of IL10!

Finally, I would like to understand what immature really do after encountering allergen exposure. A new paper in [nature immunology](https://doi.org/10.1016/j.nim.2006.11.001) says that

immature DC are also thought to carry antigen to lymph nodes and to interact with naive T cells but without a previous maturation stimulus, those interactions result in abortive activation of the T cells, which can be eliminated, rendered unresponsive or induced to differentiate into regulatory T cells.

which still does not answer my question.

Vitamin D actions



Yea, yea.

