

The role of FRs in indoor dust in potentiating/ facilitating allergic responses to inhaled allergens

ESR12: Derya Canbaz, MSc

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Leonie van Rijt, PhD



Timo Hamers, PhD

Aim

- » A tremendous increase in both indoor exposure to FRs and prevalence of allergy over the last decades
- » A major exposure route to FRs via inhalation of house dust which also contains allergens, like HDM

THAT'S WHY:

“Investigating possible roles and effects of FRs on the immune response to inhaled allergens in asthma”

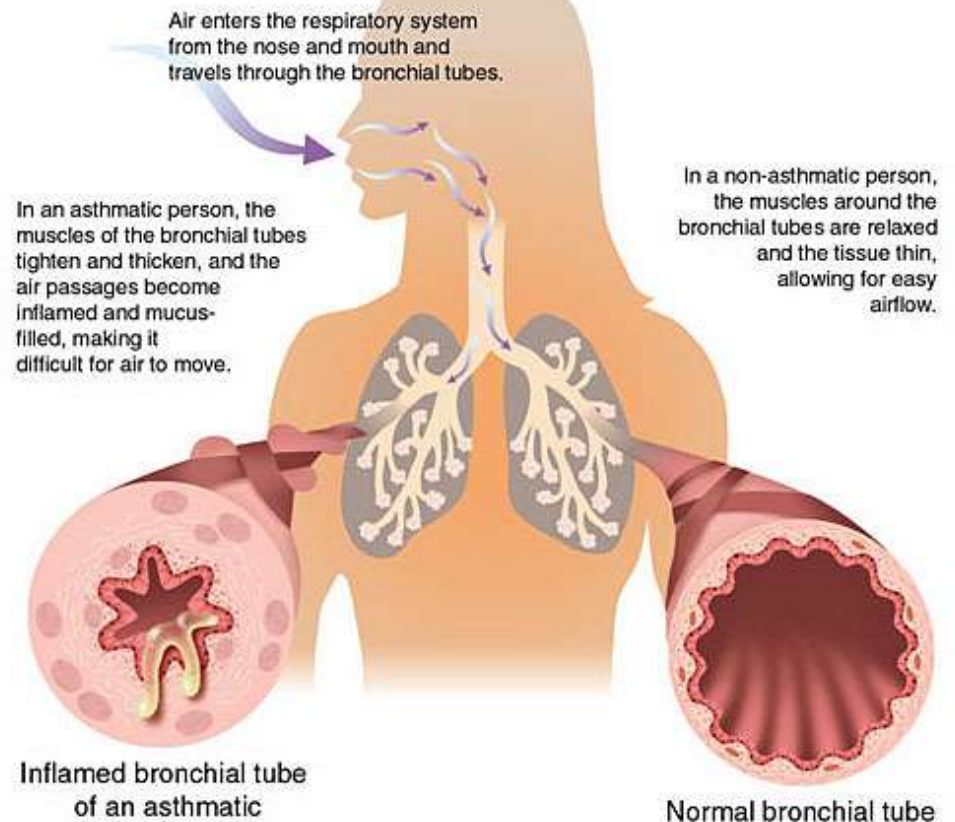
Allergic asthma

» Caused by:



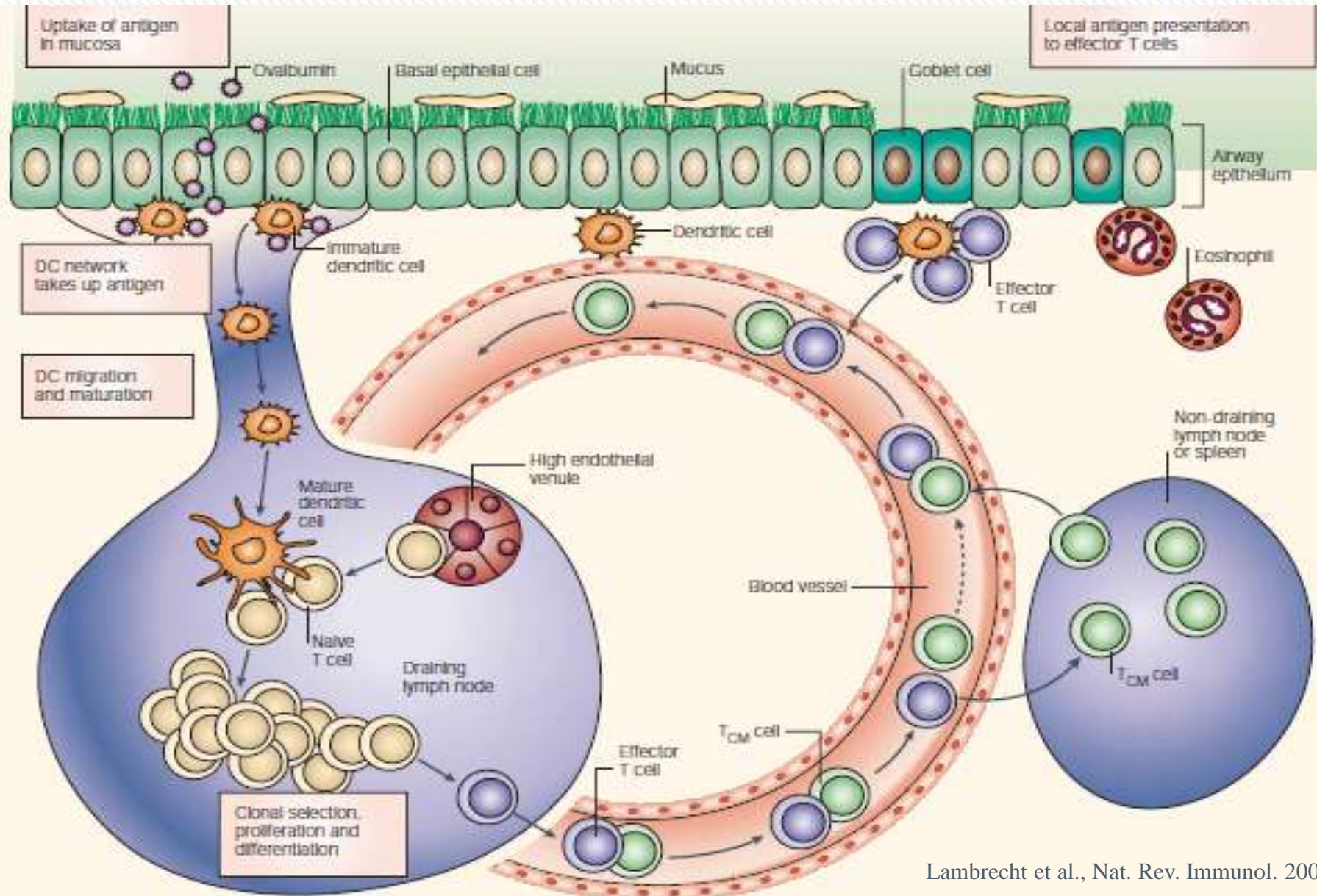
Characterized by:

Why asthma makes it hard to breathe



Source: American Academy of Allergy, Asthma and Immunology

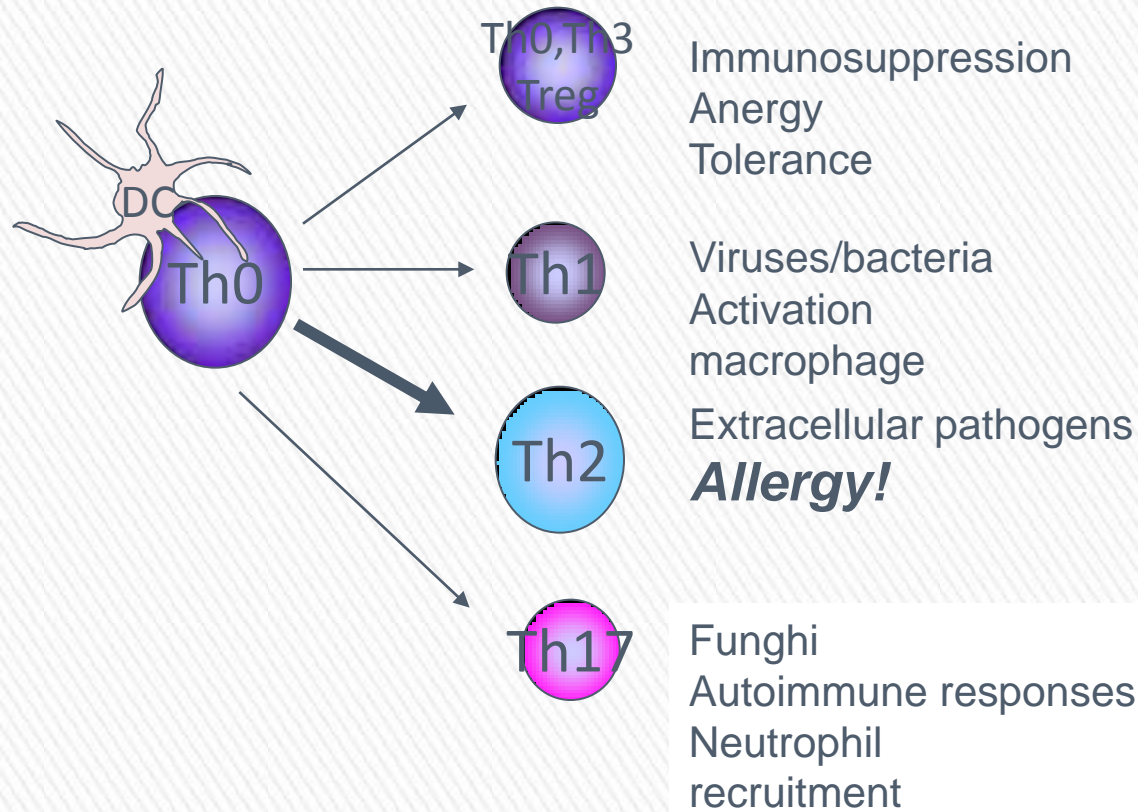
The immune response to inhaled allergen



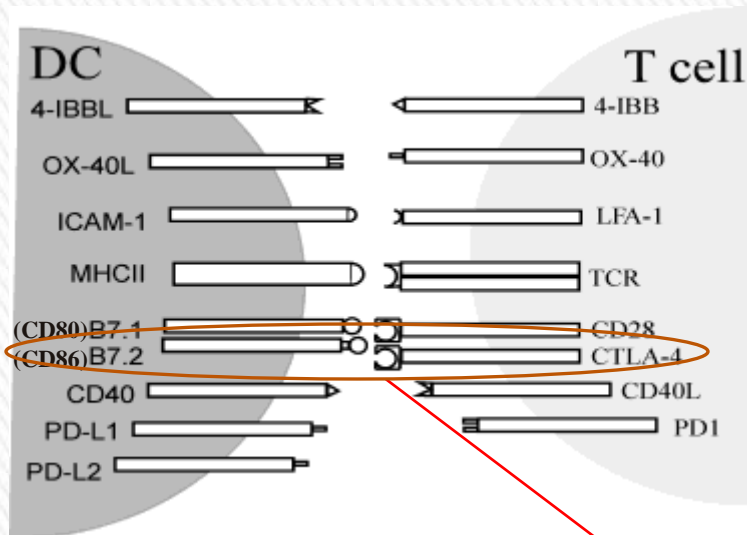
Lambrecht et al., Nat. Rev. Immunol. 2003

T cell stimulation by DCs

- Activated DCs can determine the type of the immune response by skewing naïve T cells towards:



How?

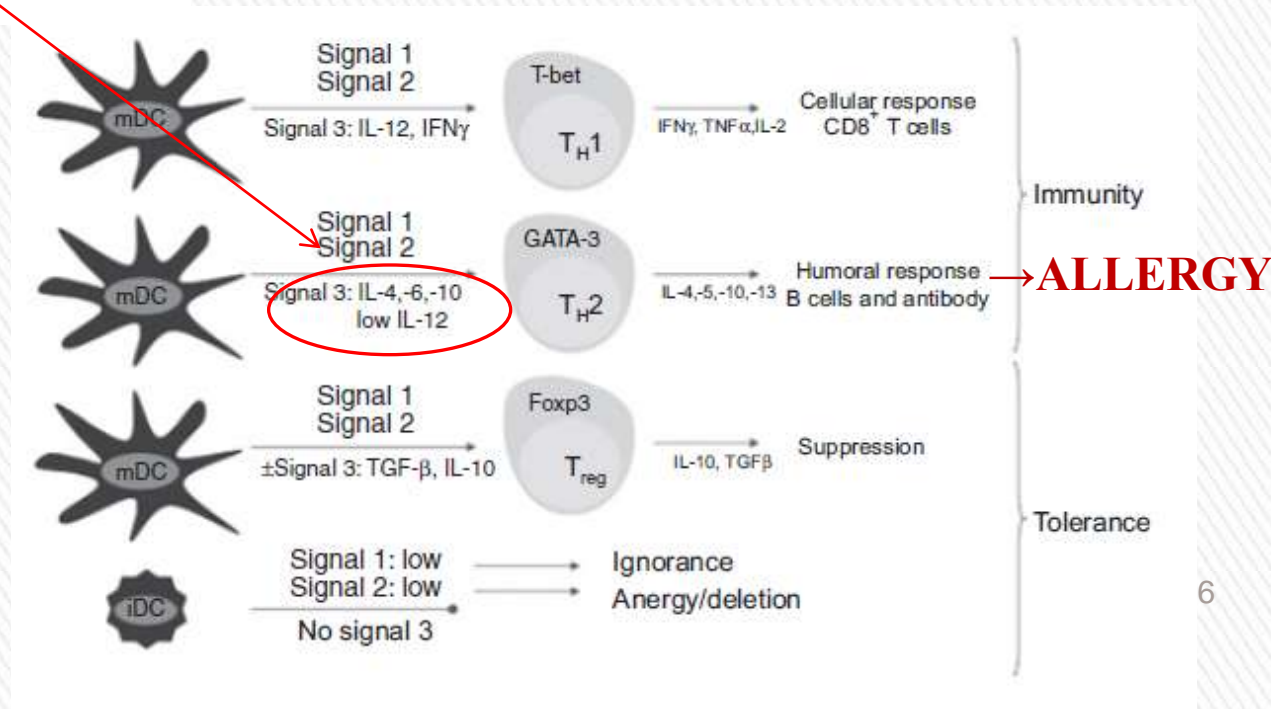


Signal 0: Interaction of antigen with DC

Signal 1: Antigen presentation by ligation of MHCII-antigen with TCR

Signal 2: Activation of T cells by costimulatory molecules

Signal 3:
Differentiation of T cells by cytokines



Preliminary experiments (in vitro)

Setup:



BONE MARROW ISOLATION + 10 DAYS GMCSF



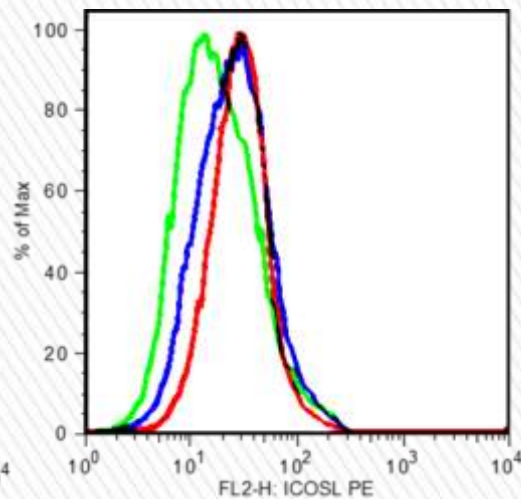
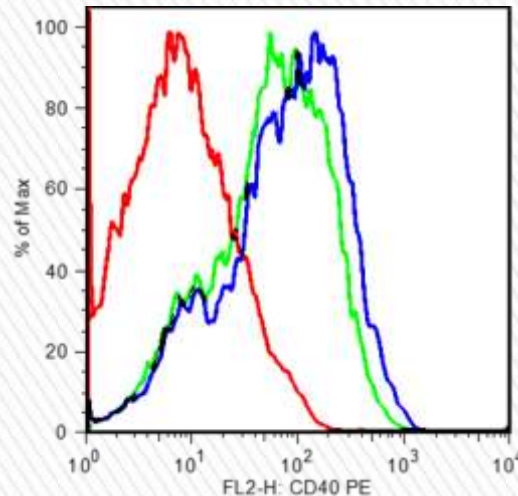
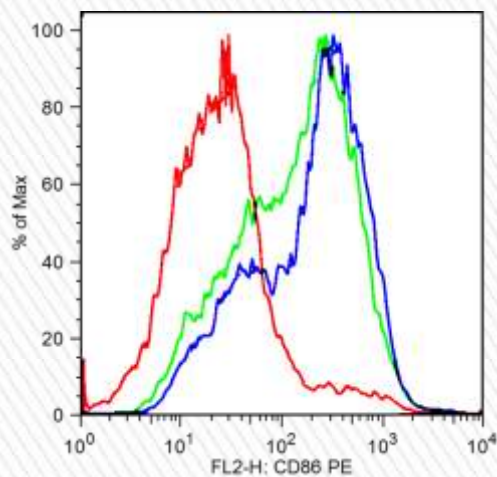
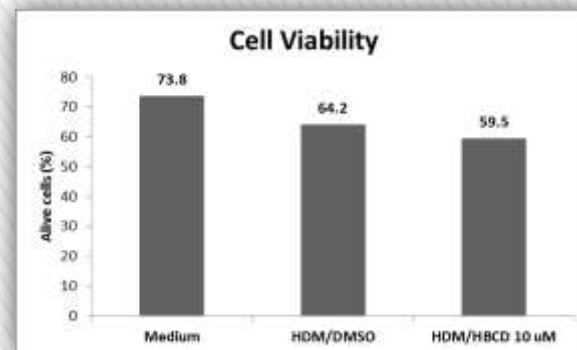
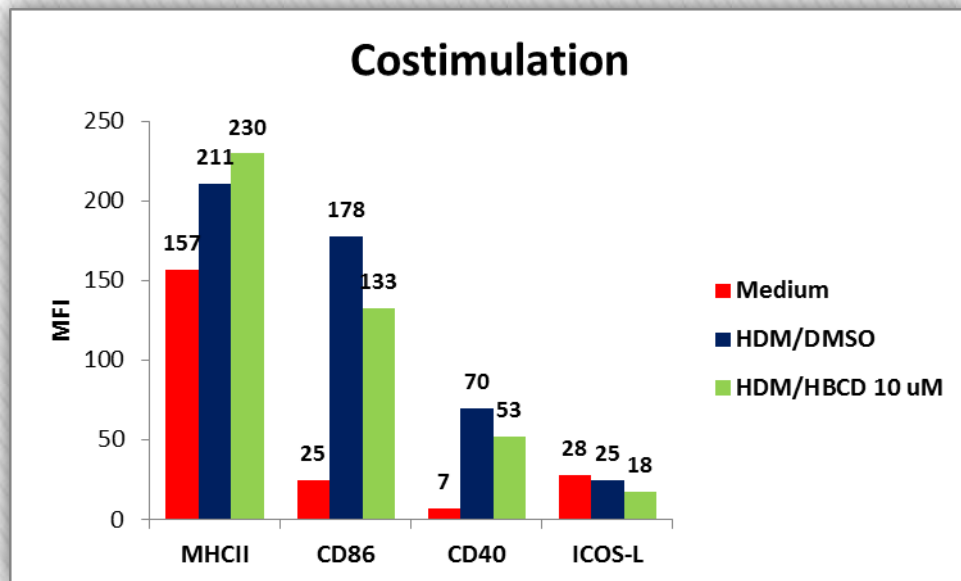
**DENDRITIC CELLS; PULSE WITH ANTIGEN (HDM)
EXPOSE TO FLAME RETARDANT (HBCD)**



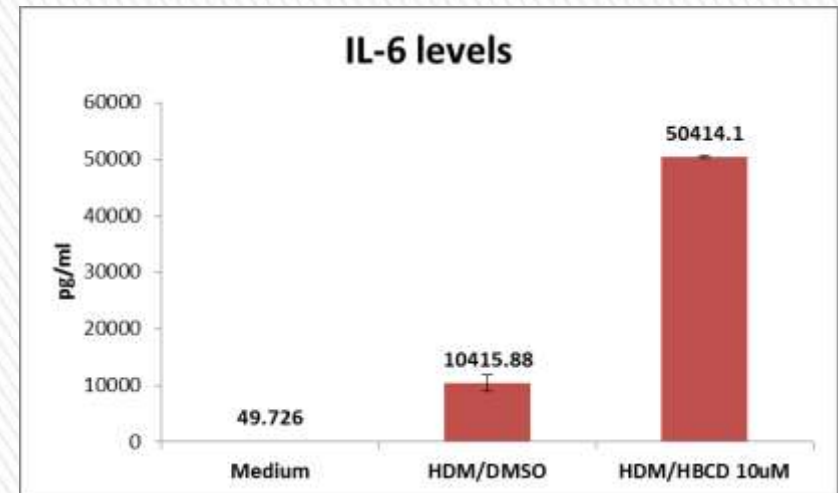
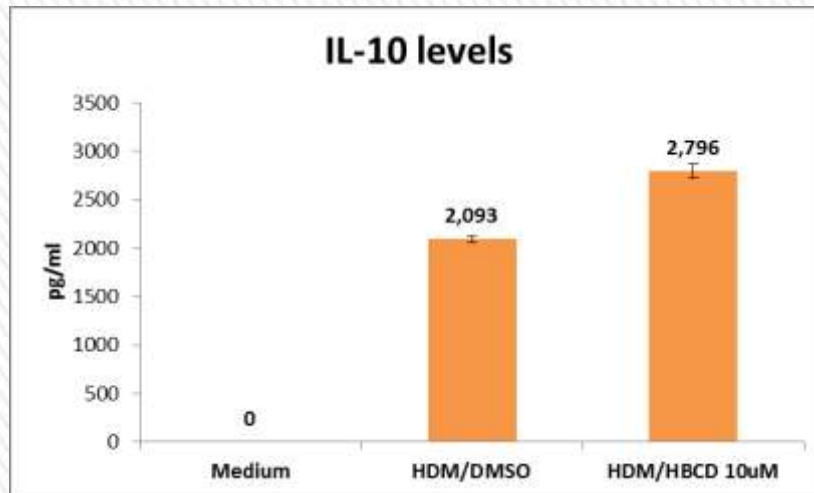
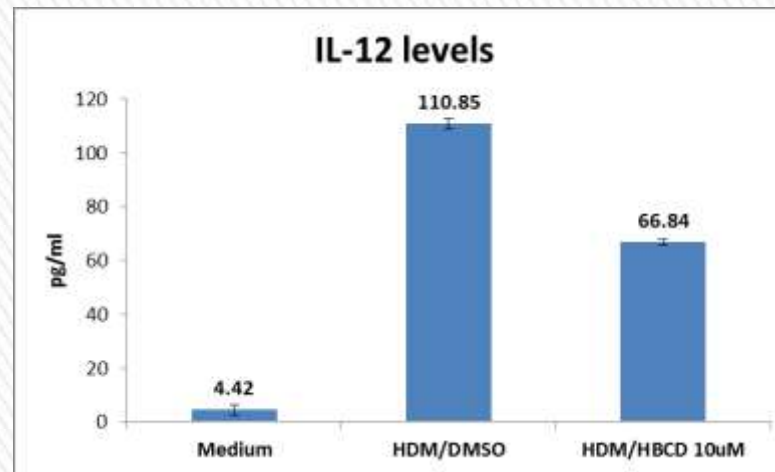
**FACS ANALYSIS FOR DETECTING COSTIMULATORY MOLECULES
+ ELISA OF SUPERNATANTS FOR CYTOKINE PRODUCTION**



Results (FACS)



Results (ELISA)



The NET EFFECT on immune response: INDEFINITE !

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Future plans

➤ FRs monitored in INFLAME WPs 1 and 2

Group 1

PBDEs 28, 47, 99, 100, 153, 154, 183, and 209

Tetrabromobisphenol-A (TBBP-A)

Hexabromocyclododecane (HBCD – a, b, and g- diastereomers)

Decabromodiphenylethane (DBDPE)

1,2-bis(2,4,6-tribromophenoxy)ethane (BTBPE)

2-ethylhexyl 2,3,4,5-tetrabromophthalate (TBPH)

2-ethylhexyl 2,3,4,5-tetrabromobenzoate (TBB)

Triphenyl phosphate (TPP)

Tri(2,3-dichloropropyl) Phosphate (TDCPP)

Bor GM My Tri(2-butoxyethyl)phosphate (TBEP)

Tri(2-chloroethyl)phosphate (TCEP)

Tri(monochloropropyl)phosphate (TCPP)

Group 2

Tetrabromobisphenol A-bis(2,3-dibromopropylether (TBBPA-DBPE)

Syn-dechlorane plus (syn-DP)

Anti-dechlorane plus (anti-DP)

De FA EL Tris(2,3-dibromopropyl)isocyanurate (TDBPIC)

Pentabromobenzylalcohol (PBBA)

Brominated polystyrene

Pentabromotoluene (PBT)

Pentabromomethylbenzene (PBEB)

itisation:

Intratracheal
stillation DC



THANK YOU FOR LISTENING 😊

