Abstract ID: 1752

ANB032, a BTLA Checkpoint Agonist Antibody, Attenuates Dendritic Cell (DC) Maturation and Function: A Novel Mechanism Addressing Atopic Dermatitis Pathophysiology

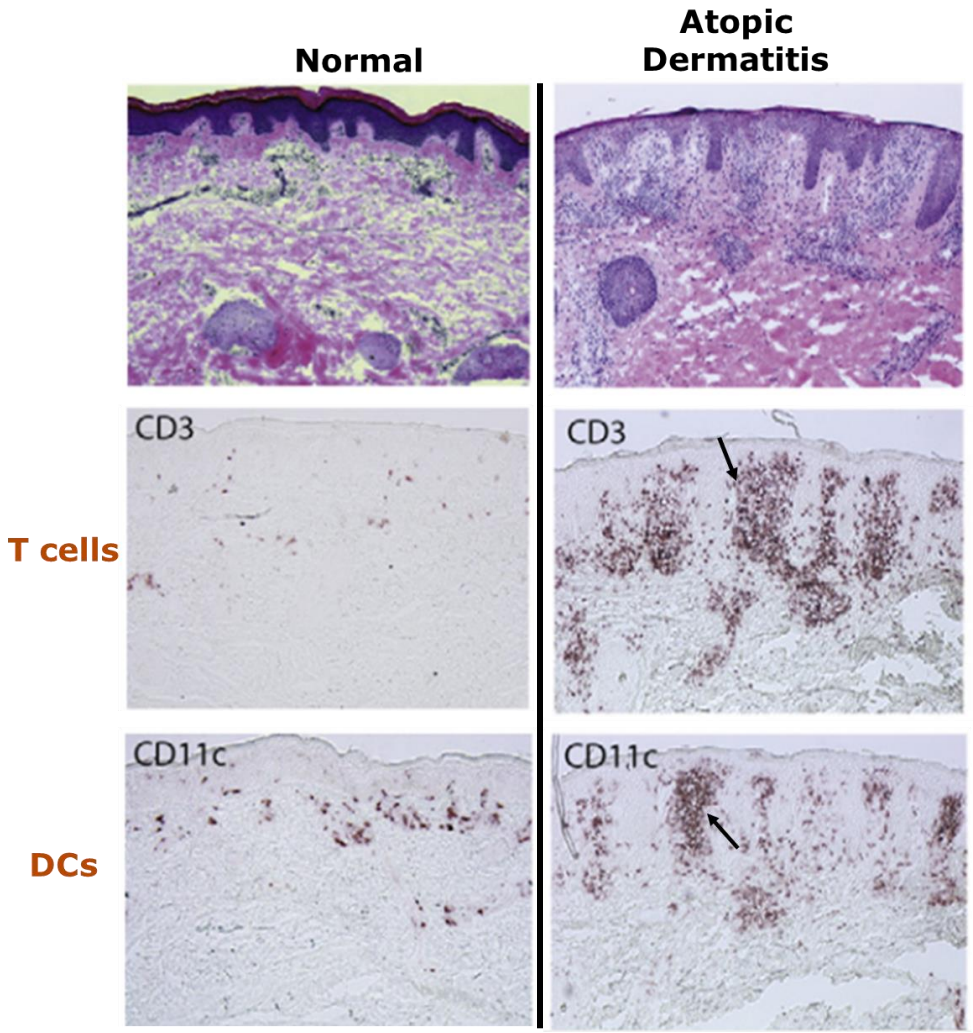
German Muench, Eric Hare, Pejman Soroosh, Stephen Parmley, Paul Lizzul, Martin Dahl

AnaptysBio, Inc.
San Diego, CA, USA

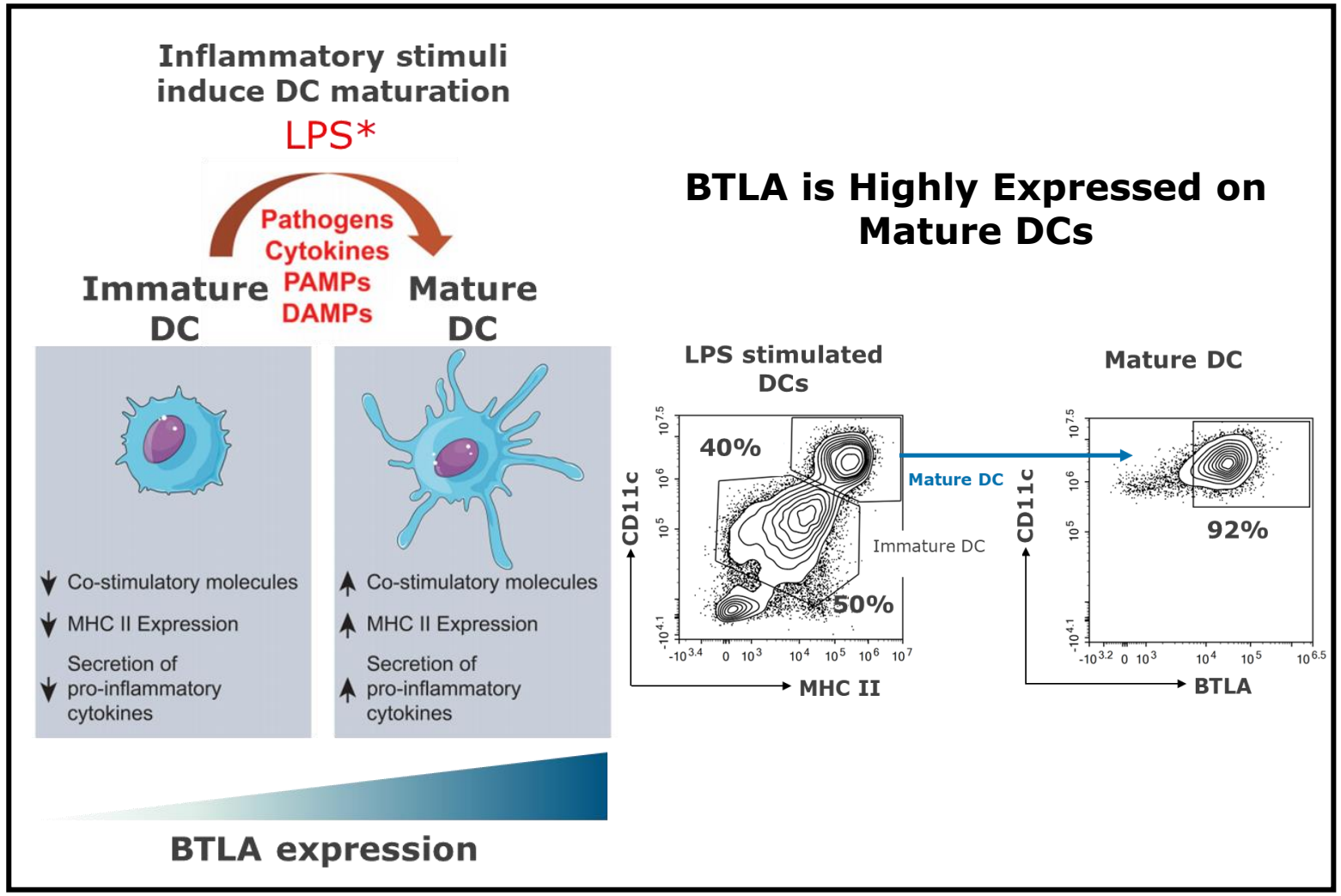
Disclosures: GM was an Anaptys employee when this research was conducted. All other authors are employees and stockholders of Anaptys.

Dendritic Cells (DCs) in AD and BTLA Expression on DC subsets

Elevated T Cells and DCs are Hallmarks of AD Skin



Guttman-Yassky et al, JACI, 2011.

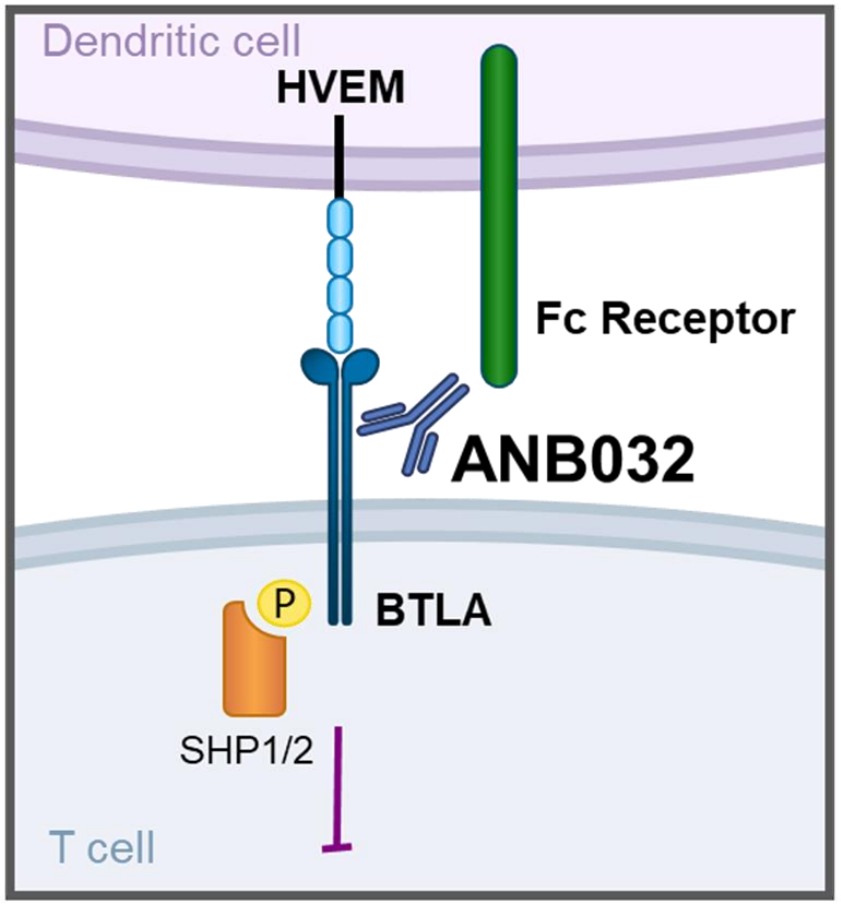


BTLA is Highly Expressed on Mature DCs

Adapted from Frontiers in Immunology. 2019 Jan 21;9:3176 ; * LPS=Lipopolysaccharide (a TLR4 agonist).

BTLA is a Key Node of Immune Regulation and Target for ANB032

B and T Lymphocyte Attenuator (BTLA): Potent modulator of T cells, B cells, and dendritic cells



Proposed Mechanism of Action for ANB032

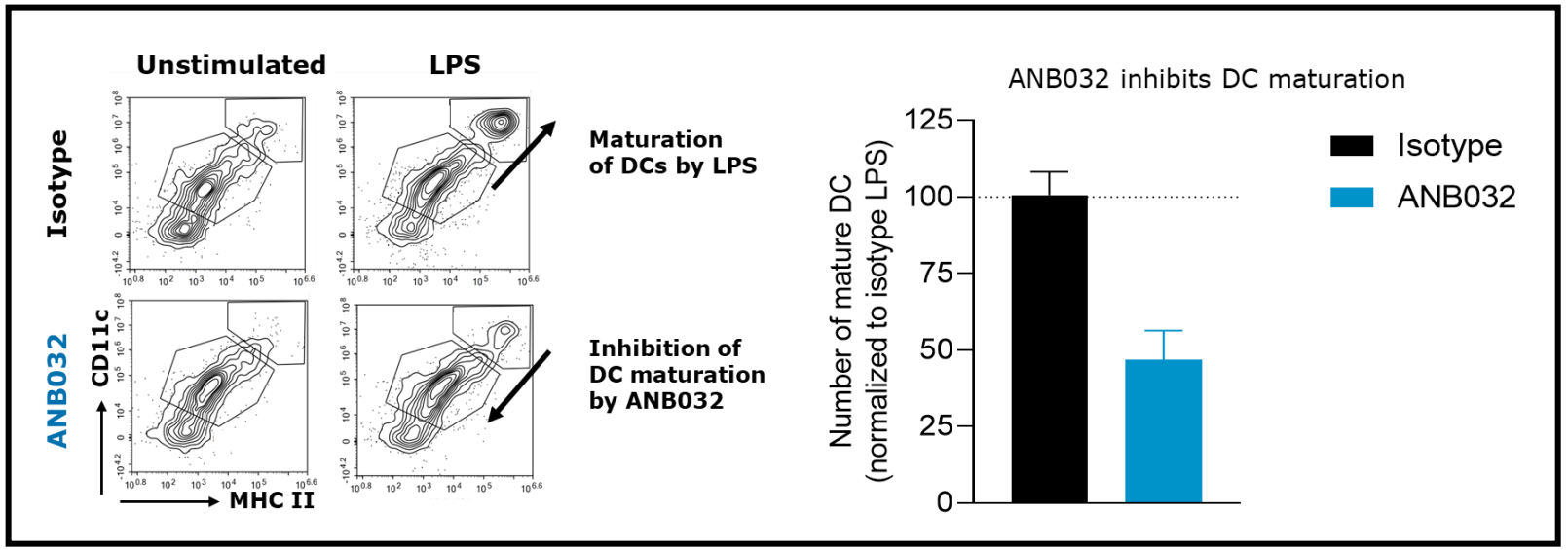
ANB032: IgG4 antibody (non-depleting)

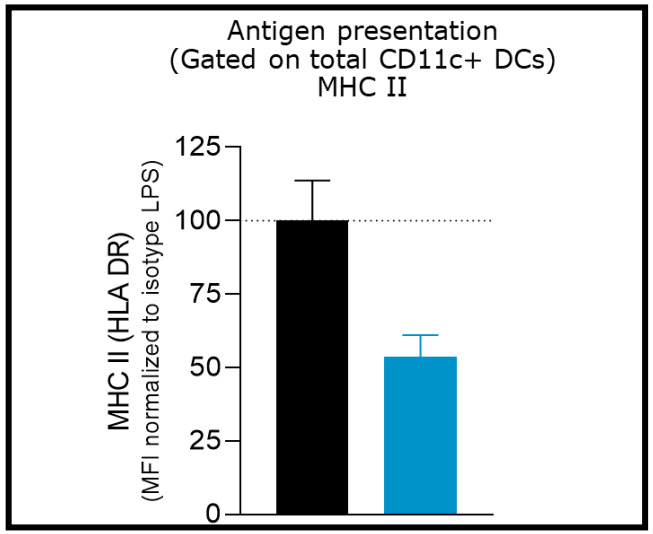
- Binds to BTLA on membrane proximal epitope
- Fc receptor binding profile contributes to differentiated potency
- Non-blocking of HVEM engagement

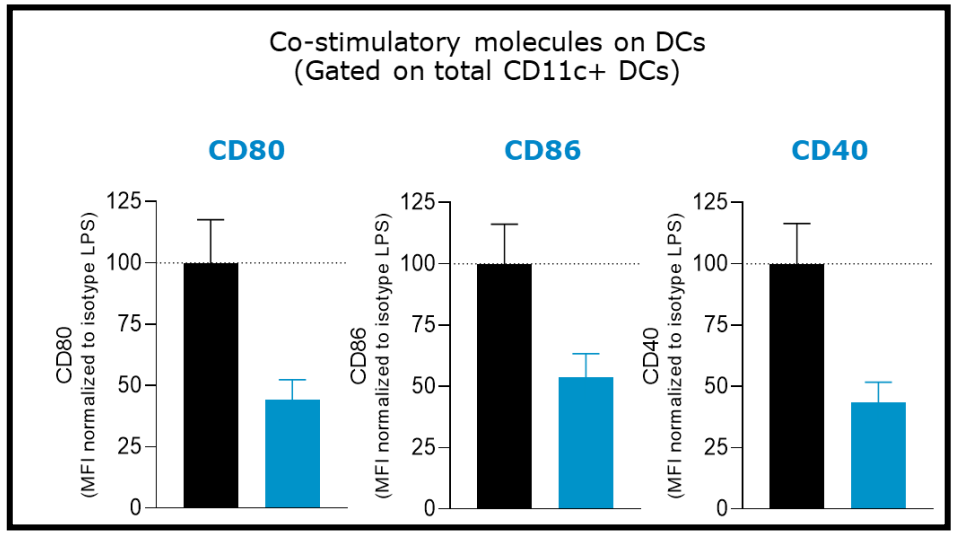
ANB032's agonist signal modulates immune cells

- Inhibits activated T cell proliferation
- Reduces inflammatory cytokine secretion
- Modulates DC function, including inducing T regs

ANB032 Reduced DC Maturation, Antigen Presentation, and Co-stimulatory Molecule Expression In Vitro

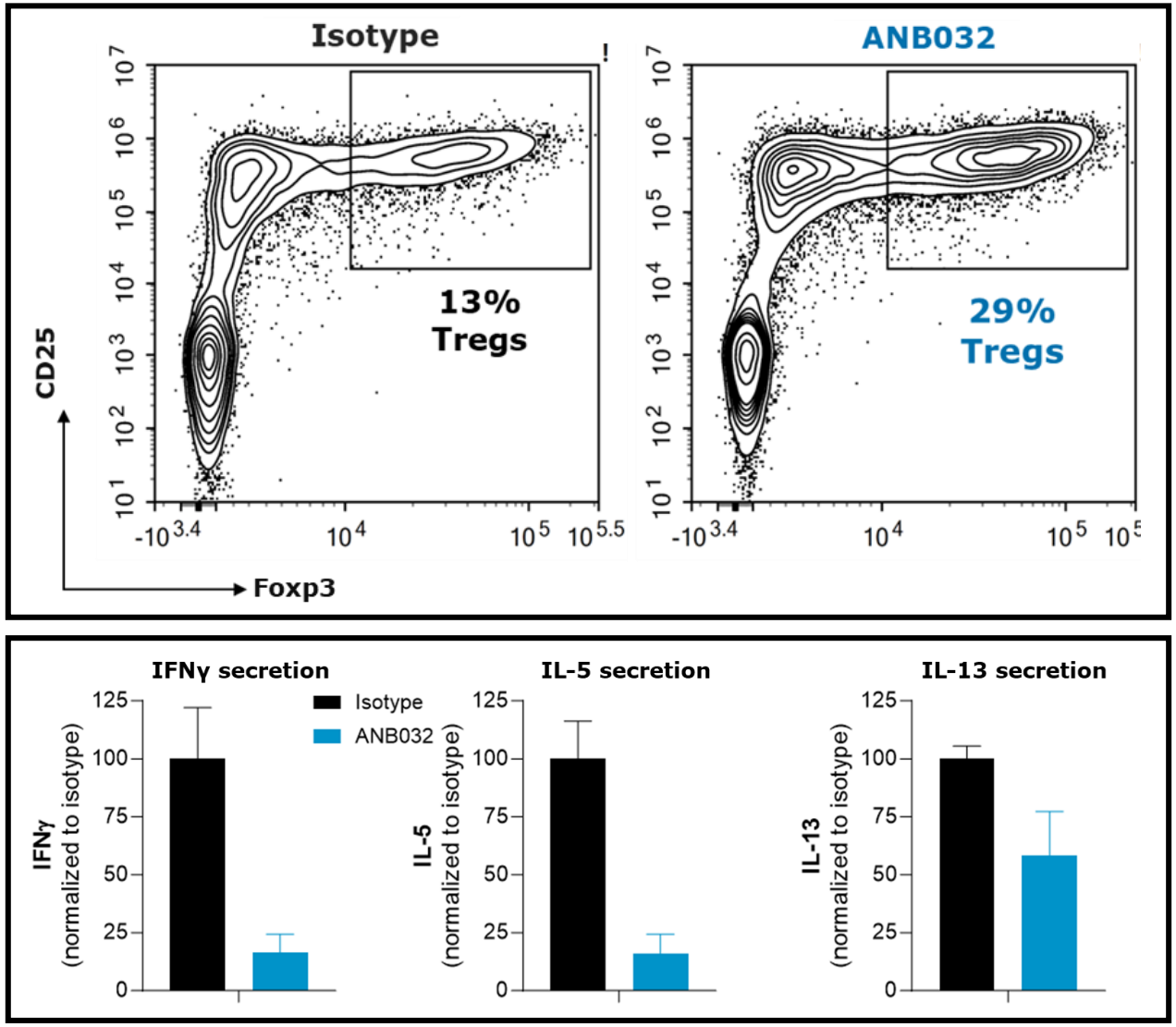






Muench, et al. Presented at the American Academy of Dermatology Meeting, San Diego, March 8-12, 2024.

ANB032-treated DCs Induced Functional Tregs and Reduced Inflammatory Cytokines in a MLR Assay



Muench, et al. Presented at the American Academy of Dermatology Meeting, San Diego, March 8-12, 2024.

Conclusion

- BTLA is highly expressed on mature DCs
- BTLA agonism in vitro resulted in:
  - Inhibition of DC maturation and reduction of antigen presentation and co-stimulatory molecule expression
  - Modulation of DC function to boost inducible Foxp3+ Tregs and inhibit effector T cells and inflammatory cytokine production
  - Induced Tregs while inhibiting DCs
- ANB032 is currently being evaluated in an ongoing Phase 2 study in moderate-to-severe atopic dermatitis (NCT05935085)