TB Notes

1. Dectin-1:
   1. On Dendritic cells and Macrophages, limited expression on B cells?
   2. important for fungal infections with TLR2
   3. Downstream targets CARD9 and SYK
   4. Makes IL’s to enhance other branches of immune response
   5. Unknown ligand to TB
   6. Different signals without TLR2 for TB; different immune effects
   7. *Mtb* interaction with dectin-1 has been implicated in induction of Th1/Th17 immunity and higher production of IL-12 cytokine by infected DCs ([Rothfuchs et al., 2007](https://www.frontiersin.org/articles/10.3389/fmicb.2019.01173/full" \l "B49); [van de Veerdonk et al., 2010](https://www.frontiersin.org/articles/10.3389/fmicb.2019.01173/full#B55))
   8. Curdlan-stimulated mac’s lead to better CD4 response against TB (<https://www.frontiersin.org/articles/10.3389/fmicb.2019.01173/full>), leads to iNOS and NO production, and better Th17 responses, STAT1 and NFkB activity (all in mice)
2. Dectin-2
   1. Binds MAN-Lam on TB, has similar effects as Dectin-1
   2. Can lead to both inflammatory and anti-inflammatory cytokines in response to MAN-Lam
3. DC-SIGN
   1. Marker for IL-4 induced Macrophages
   2. Expressed on alveolar macrophages and dendritic cells
   3. On Dendritic Cells, important role for dealing with TB
   4. Downregulated leads to proinflammatory cytokines
   5. IL-4 increase leads to progressive TB disease and increased susceptibility to TB infection
   6. Targeted by TB manLAM to induce IL-10 (immunosuppressive) and downregulate IL-12 (for Th1 response)
   7. Interferes with Dectin-1, both are C-type Lectin Receptors (CLR), <https://www.frontiersin.org/articles/10.3389/fimmu.2018.01123/full> (a-d)