# Dynamic cooperative glycan assembly blocks binding of bacterial lectins to epithelial cells

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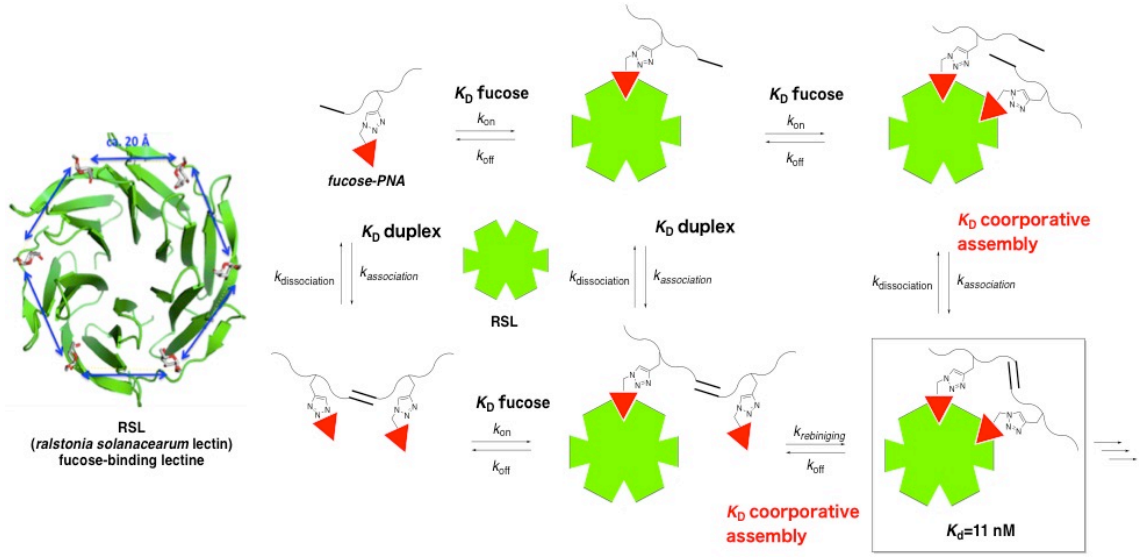
Pathogenic bacterial infection to the host frequently utilizes lectin which recognizes glycan on cell surface of host. Lectin usually has multiple glycan-binding pockets and the multivalent inhibitor which simultaneously blocks multiple pockets is potent anti-bacterial medication strategy.

RSL was successfully blocked by conjugate with fucose and short peptide nucleic acid (PNA) with palindromic sequence ($K_D$=11 nM) in which neither fucose nor PNA had comparable affinity (fucose: $K_D$=2200 nM. PNA: GGCC, self hybridization $K_D$=3800 nM). That suggested that host protein stabilize beneficial dimer formation. This conjugate had $IC_{50}$ of 555 nM to inhibit the binding of fucose-binding lectin BambL to epithelial cells with efficiency of more than 700-hold compared to L-fucose.




1) T. Machida, A. Novoa, É. Gillon, S. Zheng, J. Claudinon, T. Eierhoff, A. Imberty, W. Römer, N. Winssinger, *Angew. Chem. Int. Ed*. **2017**, *in press.*