Transcription Factor Preferences of Bacterial Detection Proteins

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Interactions between NOD2 and TLR4 bacterial receptors play an important role in the maintenance of intestinal homeostasis. Dysregulation of the NOD2 inhibition of TLR4 has been highly associated with the inflammatory immune disease Crohn's Disease. However, the mechanisms behind this important interaction are unclear. Western blot and ELISA analyses were performed to determine if these receptors have differing preferences for NF-kB subunits and if this preference could account for the observed inhibitory interaction between NOD2 and TLR4. It was found that NOD2 stimulation caused less RELA to be translocated into the nuclei of cells than TLR4 stimulation. This data concludes that the RELA subunit is preferentially activated by TLR4. Further research is required to see if the other commonly inflammatory REL subunits show similar behavior, and if the anti-inflammatory subunit p50 is preferred by NOD2 activation.