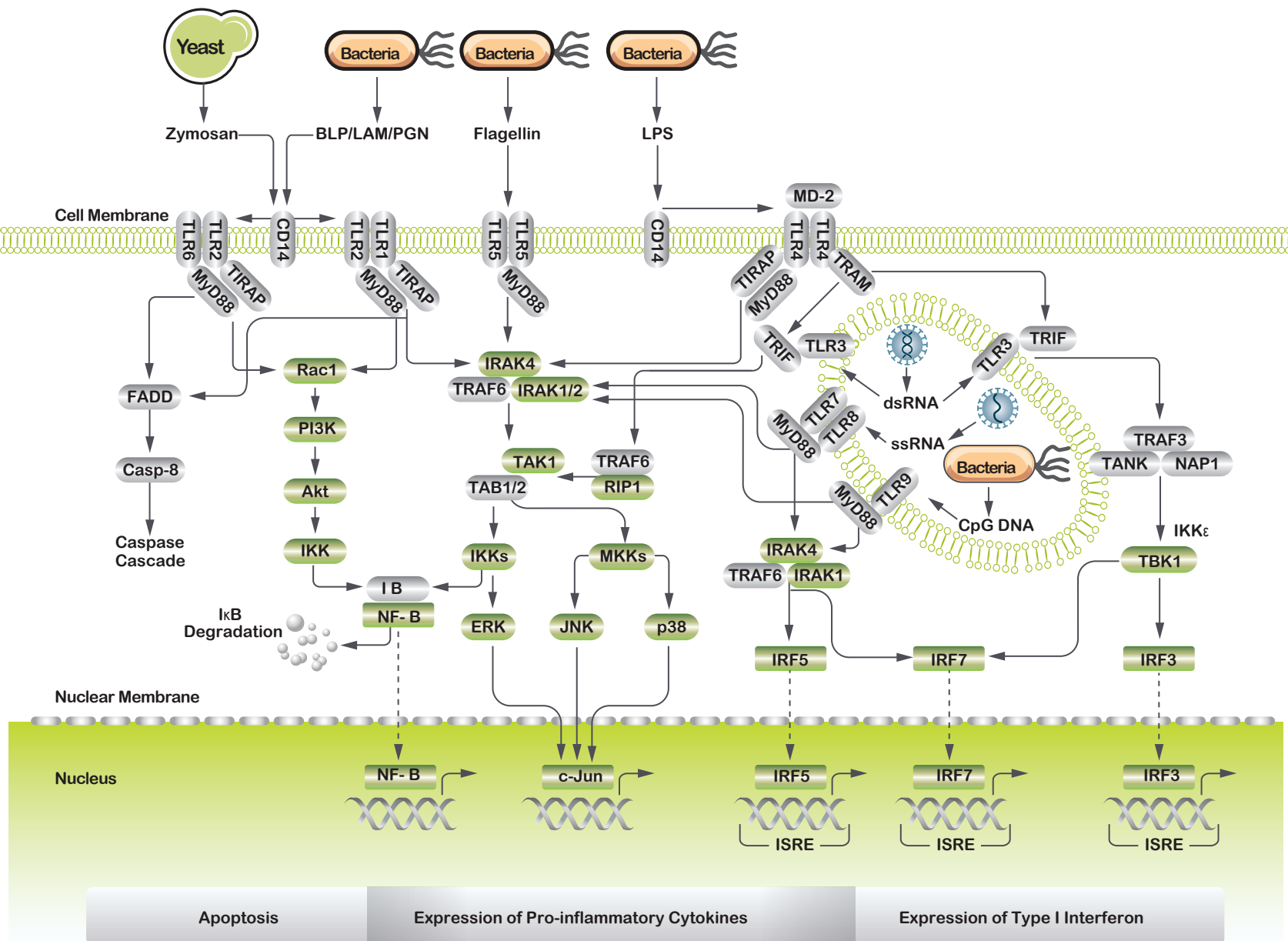


Toll-like Receptor(TLR) Signaling



Toll-like receptors (TLRs) are membrane-bound receptors identified as homologs of Toll in *Drosophila*. TLRs play crucial roles in the innate immune system by recognizing various ligands of pathogen-associated molecular patterns (PAMPs, e.g. dsRNA) derived from various microbes or damage-associated molecular patterns (DAMPs) derived from damaged cell contents (not shown). TLRs localize to the cell surface or to intracellular compartments (e.g. endosome). Homo- or heterodimer formation initiates signaling to the two major downstream adaptor proteins, MyD88 and TRIF. TIRAP conducts the signal from TLR4 to MyD88, and TRAM mediates the signal from TLR4 to TRIF. TLR engagement induces formation of the Myddosome, which is based on MyD88 and also contains IRAK1 and IRAK4. IRAK1 activation induces TRAF6 activation following K63-linked polyubiquitination on TRAF6 itself and TAK1. TAK1 activation leads to the activation of IKK complex-NF-κB and MAPKs (e.g. ERK, JNK, p38). MAPK activation leads to AP1 (e.g. c-jun) activation. TLR engagement also induces TRIF activation following TRAF6 and TRAF3 recruitment. TRAF3 recruits TBK1 and IKK ϵ for IRFs phosphorylation and expression of interferon- β . Abbreviations: dsRNA, double-stranded RNA; ssRNA, single-stranded RNA; BLP, Bacteria Lipoprotein; LAM, lipoarabinomannan; PGN, peptidoglycan; ISRE, Interferon-sensitive response

Key Products for TLR Signaling

| Target Name | Cat.No. | Reactivity | Applications | Citations |
|--|------------|-----------------|--------------|------------------------|
| TLR2 | bs-1019R | Human,Mouse,Rat | WB,IHC-P | PubMed |
| TLR4 | bs-20595R | Human,Mouse,Rat | WB,FCM | PubMed |
| TLR5 | bs-1197R | Human,Mouse,Rat | WB | PubMed |
| TLR7 | bs-6601R | Human,Mouse,Rat | WB,IF | PubMed |
| TLR8 | bs-8684R | Human,Mouse,Rat | WB,IHC-P | |
| TLR9 | bs-2717R | Human,Mouse,Rat | WB,IHC-P,FCM | PubMed |
| IRAK1 | bs-28003R | Human,Mouse,Rat | WB,IHC-P | |
| Phospho-IRAK1 (Ser376) | bs-3192R | Human,Mouse | WB,IHC-P,FCM | |
| Phospho-IRAK1 (Thr209) | bs-20492R | Human | WB,IHC-P | |
| Phospho-IRAK1 (Thr387) | bs-3194R | Human,Mouse,Rat | WB,IHC-P,FCM | PubMed |
| IRAK4 | bs-2440R | Human,Mouse,Rat | FCM | PubMed |
| Phospho-IRAK4 (Thr345) | bs-10208R | Human,Mouse,Rat | WB,IHC-P | |
| Phospho-TAK1 (Thr184) | bs-3436R | Human | WB | |
| Phospho-TAK1 (Thr187) | bs-3438R | Human,Mouse,Rat | WB,IHC-P,FCM | PubMed |
| Phospho-TAK1(Thr184 + Thr187) | bs-3439R | Human,Mouse | WB | |
| IKK alpha + IKK beta | bs-10123R | Human,Mouse,Rat | WB,IHC-P | |
| Phospho-IKK alpha/beta (Ser176 + Ser180) | bs-3237R | Human,Mouse,Rat | WB,IHC-P | PubMed |
| JNK1+JNK2+JNK3 | bs-2592R | Human,Mouse,Rat | WB,IHC-P,FCM | PubMed |
| Phospho-JNK1 + 2 + 3 (Thr183+Tyr185) | bs-1640R | Human,Mouse,Rat | WB,IHC-P,FCM | PubMed |
| p38 MAPK | bs-0637R | Human,Mouse,Rat | WB | PubMed |
| Phospho-p38 MAPK (Thr180 + Tyr182) | bs-0636R | Human,Mouse,Rat | WB | PubMed |
| AKT1+2+3 | bs-6951R | Human,Mouse,Rat | WB,FCM | PubMed |
| AKT | bsm-33278M | Human | WB | |
| AKT | bsm-33282M | Human | WB | |
| Phospho-AKT (Ser473) | bs-0876R | Human,Mouse,Rat | WB,IHC-P | PubMed |
| ERK1 + ERK2 | bs-2637R | Human,Mouse | WB,IHC-P | PubMed |
| Phospho-ERK1/2 (Thr202 + Tyr204) | bs-3016R | Human,Mouse,Rat | WB,IHC-P,IF | PubMed |
| NFkB p65 | bs-20355R | Human,Mouse,Rat | WB,IHC-P,FCM | |
| Phospho-NFkB p65 (Ser536) | bs-0982R | Human,Mouse,Rat | WB,IHC-P,FCM | PubMed |
| c-Jun | bs-0670R | Human,Mouse,Rat | WB,IHC-P,FCM | PubMed |
| Phospho-c-Jun (Thr249) | bs-5462R | Human | FCM | |
| Phospho-c-Jun (Thr91) | bs-5458R | Human | WB,FCM | |
| IRF3 | bs-2993R | Human,Mouse | WB | PubMed |
| IRF3 | bsm-52116R | Human,Mouse | WB | |
| Phospho-IRF3 (Ser386) | bs-9278R | Human,Mouse | WB,IHC-P,FCM | |
| Phospho-IRF3 (Ser396) | bs-3195R | Human,Mouse,Rat | IHC-P,FCM | PubMed |
| IRF7 | bs-2994R | Human,Mouse,Rat | WB,IHC-P | PubMed |
| Phospho-IRF7 (Ser471 + Ser472) | bs-3196R | Human,Mouse,Rat | WB,IHC-P,FCM | PubMed |

WB=Western Blot; IHC-P=Immunohistochemistry with Paraffin-Embedded Tissue Slides; IF=Immunofluorescence; FCM=Flow cytometry