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CpG receptors

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Toll-like receptors (TLRs) are important for vertebrate recognition of pathogen-associated molecular forms. The receptor TLR9 is involved in the recognition of bacterial DNA by virtue of its unmethylated CpG dinucleotides. In the July 31 Proceedings of the National Academy of Sciences, Bauer *et al.* show that human TLR9 (hTLR9) confers responsiveness to CpG-DNA and differs from its mouse homologue (mTLR9) in CpG motif recognition (*Proc Natl Acad Sci* USA 2001, **98:**9237-9242). Immunostimulatory CpG oligodeoxynucleotides (ODN) stimulated the proliferation of TLR9-positive human B cells and the production of interleukin-8. In genetic complementation experiments, Bauer *et al.* demonstrated that transfection of hTLR9 into 293 cells conferred responsiveness to CpG-ODN, whereas hTLR4 expression resulted in lipopolysaccharide (LPS) recognition. Furthermore, CpG-motif responsiveness was species-specific: hTLR9 conferred responsiveness to GpG-ODN with a GTCGTT sequence, whereas mTLR9 had a clear preference for GACGTT sequences. This study provides further evidence for the important role of TLRs in the innate immune response.

References

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