Molecular cloning of mouse MAIL cDNA and its expression and function during inflammation

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I have cloned the full length cDNA of a novel ankyrin-repeat protein from mice treated with lipopolysaccharide (LPS), and named it as "Molecule possessing Ankyrin-repeats Induced by Lipopolysaccharide" (MAIL). The deduced carboxyl-terminal portion of MAIL, including ankyrin-repeat domain (ARD), shared approximately 40% identity with the ARD of inhibitory kappa B (I κ B) family proteins. Intraperitonenal injection of LPS to mice rapidly induced MAIL mRNA in various tissues, particularly in the spleen, lymph node and lung. *In situ* hybridization study revealed that the induction of MAIL occurred in macrophages and B lymphocytes. In concordance with these *in vivo* results, some cell lines of monocyte-macrophage and B lymphocyte origin abundantly expressed MAIL mRNA by LPS challenge *in vitro*. Ectopically expressed MAIL in Swiss/3 T 3 fibroblasts localized in the nucleus, and remarkably potentiated the LPS-induced mRNA expression and secretion of interleukin-6 (IL-6).

These findings indicate that MAIL is a new member of the nuclear I κ B family, induced by LPS treatment, and an activator of IL-6 production.