The roles of NF-κB and p38 MAPK for ECP release and the expressions of CD49d and ICAM-1 on human blood eosinophils and eosinophilic leukemia cells. In allergic inflammation, accumulation of eosinophils at inflammatory sites is mediated by selective adhesion, migration and release of granular toxic proteins such as eosinophilic cationic protein (ECP). To address the intracellular mechanisms, we examined the expressions of adhesion molecules including intercellular adhesion molecule-1 (ICAM-1) and α4 integrin (CD49d), and ECP release of eosinophils as well as EoL-1 cells in vitro. In this study, purified eosinophils from human buffy coat and EoL-1 cells were cultured with or without specific nuclear factor–kappa B (NF-κB) inhibitor MG-132 and p38 mitogen-activated protein kinase (MAPK) inhibitor SB 203580, followed by TNF-α, GM-CSF or platelet activating factor (PAF). Apoptosis and expression of adhesion molecules were assessed by Annexin V–FITC and immunocytochemical stainings respectively, and ECP release by fluorescence enzyme immunoassay. ICAM-1 expression was up-regulated by TNF-α but inhibited by MG-132 on eosinophils and EoL-1 cells. CD49d expression on eosinophils was up-regulated by SB 203580. ECP release was elevated in GM-CSF–primed eosinophils after incubating with PAF. However, such release was partially suppressed by pre-incubating with MG-132 or SB 203580. Conclusively, NF-κB and p38 MAPK are important in regulating the adhesion and ECP release of eosinophils.

Mice deficient in LFA-1 are resistant to Listeria monocytogenes infection but susceptible to endotoxic shock: Miyamoto Marmi, EMOTO Masa, EMOTO Yoshio, YOSHIZAWA Izumi, KAUFMANN Stefanie H.E. (Department of Immunology, Max-Planck-Institute). The role of LFA-1 in systemic infection with Listeria monocytogenes and in endotoxic shock was investigated using LFA-1 gene disruption mutant (LFA-1−/−) mice. LFA-1−/− mice were far more resistant to L. monocytogenes infection compared with LFA-1+/+ mice. The CFU in the liver and spleen of LFA-1−/− mice were significantly lower than those of LFA-1+/+ mice already on day 1 post infection (p.i.). The numbers of type 1 cytokines such as IL-12 and IFN-γ in the liver and spleen were significantly higher in LFA-1−/− mice than in LFA-1+/+ mice. In accordance with this, the numbers of inflammatory cells (granulocytes, macrophages and NK cells) in the liver were markedly higher in LFA-1−/− mice than in LFA-1+/+ mice on day 1 p.i. In contrast, LFA-1−/− mice were more susceptible to high-dose LPS-induced shock compared with LFA-1+/+ mice. Our results not only reveal that LFA-1 plays a detrimental role in antimicrobial protection and plays a protective role in septic shock, but also suggest that LFA-1 is not essential for migration of inflammatory cells into infected sites.