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## Anthrax-induced apoptosis

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The *Bacillus anthracis* bacterium evades the host immune system by inducing macrophage apoptosis via the activity of anthrax lethal factor (LF). In the August 29 *Scienceexpress*, Park *et al.* describe the involvement of mitogen-activated protein (MAP) kinase pathways in anthrax-induced apoptosis (*Scienceexpress*, 29 August 2002, DOI:10.1126/science.1073163). They found that low concentrations of LF caused rapid apoptosis of macrophages activated by lipopolysaccharide. Park *et al.* used inhibitors of specific MAP kinase pathways and mutant kinase isoforms to demonstrate that LF-induced cleavage of the MAP kinases MKK3 and MKK6 and inhibition of the p38 MAP kinase pathway leads to apoptosis. Experiments with mutant mouse cells also demonstrated the role of the NFκB transcription factor in protecting against LF-induced apoptosis. The authors propose that p38 synergizes with NFκB to drive the expression of a set of target genes that protect against cell death. Thus, the anthrax bacterium has developed an approach to avoid detection by inducing the death of activated macrophages.

## References

1. Anthrax toxins.
2. *Scienceexpress*, [<http://www.sciencexpress.org>]