

**The Role of PI3K Signaling in Enteropathogenic  
*Escherichia coli* Induced Apoptosis**

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**Abstract**

Enteropathogenic *Escherichia coli* (EPEC) is a diarrheagic pathogen that has been the cause of severe and persistent infant diarrhea worldwide. EPEC invades the gastrointestinal tract where it hijacks host cell signaling and evades immune responses long enough to cause disease. This study was done to establish the role of PI3K signaling in EPEC induced apoptosis in epithelial cells. This report demonstrates that EPEC infected cells activate the anti-apoptotic signaling protein, Akt via phosphorylation along with another anti-apoptotic signaling protein, Bcl-2. At the same time during EPEC infection the pro-apoptotic protein Bax is inhibited. The activation of Akt was also observed with the addition of lipopolysaccharide (LPS) in the presence of serum. This thesis suggests that there are likely separate sensing mechanisms for EPEC, LPS and serum that are independent but synergistic and that Akt is the integration site of these signaling cascades.