

# Brandon Neloms, Biology

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## The localization of BclB to the exosporium

*Brandon Neloms, George Stewart, and Brian Thompson*

Anthrax is a highly fatal disease primarily of cattle, sheep, and goats caused by the Gram-positive, endospore-producing, rod-shaped bacterium *Bacillus anthracis*. *B. anthracis*, like the other members of the genus *Bacillus*, can shift to a developmental pathway, sporulation, when growth conditions become unfavorable. The result of the sporulation process is the production of an endospore, a metabolically inert form of the cell which is refractive to numerous environmental insults including drying and heat. The exosporium is the outermost layer of the endospore, it could potentially play a primary role in the survival of the spore in harsh environments or be involved in interactions with the innate immune system during pathogenesis. Two recently discovered proteins, BclA and BclB, have been found to localize to the exosporium layer during the last stages of sporulation. Analysis of the two proteins has revealed the presence of a putative signal which may be involved in the binding and localization of these proteins to the exosporium. Fusion of the BclB protein to the fluorescent GFP protein allows for visualization of the active transport of the BclB-GFP fusion protein to the exosporium. The exact location of the localization signal is yet to be determined.