Three-dimensional Structures of Enzymes Involved in Cellulose Degradation

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A thorough structural understanding of the enzymes involved in cellulose degradation is essential to reduce the enzyme loading needed to generate fermentable sugars. Structural characterization of model cellulases and glycoside hydrolases, along with their substrates, not only contributes to the basic understanding of how these enzymes assist in cellulose degradation, and also serve as a guide in the design of modified or novel enzymes for use in industrial biomass conversion. Currently work is underway to determine and analyze the structures of various cellulose degrading enzymes relevant in bioenergy research.