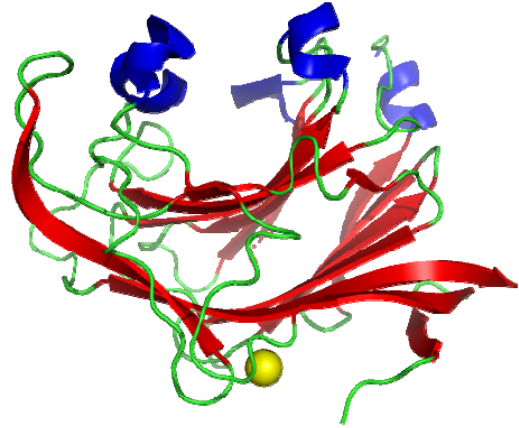


Stable protein-based materials

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This project focuses on an extremely stable glucanase. This enzyme originates from *Pyrococcus furiosus*, a hyperthermophilic archeon found at the beaches of Vulcano Island, Italy. Using recombinant techniques, the glucanase gene has been cloned in an *E. coli* vector, which we use to overexpress the protein. Subsequent isolation of the glucanase provides us with the native enzyme. The major role for this enzyme is the hydrolysis of polysaccharides. The resulting oligosaccharides can be used by the organism as a carbon and energy source.



The enhanced stability, necessary for this glucanase to survive heat, gives the possibility to apply this protein under industrial conditions. We are studying the structural and dynamic properties of the glucanase under a diverse set of conditions. Spectroscopic tools, such as fluorescence, UV, CD, NMR and MS will be of aid during the research. Another goal is to immobilize the (engineered) glucanase on a solid support. The performance and operational stability of the immobilized protein will be evaluated as well.

BSc and MSc students are encouraged to discuss the possibilities for a research project on this topic. Please contact Dr. Willem van Berkel (willem.vanberkel@wur.nl).