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Expression of Recombinant Proteins in Bacteria for Antibody Production

College of Sciences and Health Professions

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Abstract

The protozoan parasite *Trypanosoma brucei* causes fatal African trypanosomiasis in humans and nagana in cattle. Transmitted by the tsetse fly, *T. brucei* proliferates in the bloodstream of its mammalian host and evades the host's immune response by regularly switching its major surface antigen, VSG, which forms a thick coat on its cell membrane. VSGs are exclusively expressed from sub-telomeric regions of the *T. brucei* genome in a strictly monoallelic fashion. Telomeres, DNA-protein complexes located at chromosome ends, help maintain chromosome stability and integrity. We have also found that telomere proteins are important for regulating VSG expression and switching.

We are currently studying functions of telomere proteins in antigenic variation. Antibodies against several proteins including a novel telomere protein, *Tb1710*, the catalytic subunit of telomerase, *TbTERT*, and a DNA recombination protein involved in DNA damage repair, *TbRAD51*, are important reagents enabling us to detect these molecules using molecular approaches. We therefore aim to express recombinant proteins in bacteria and raise customized antibodies that specifically recognize these proteins. We have made all expression constructs for these recombinant proteins and are currently purifying these proteins.