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Cloning and characterization of SAS0754, a hypothetical protein from community associated Staphylococcus aureus

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ABSTRACT: Community associated *Staphylococcus aureus* (strain MSSA476) is a gram positive cocci capable of infecting many different parts of the body and known to cause serious infections that can be fatal, such as bacterial arthritis and acute endocarditis. To find effective ways of fighting against CA-MRSA strains we must learn more about their ability to infect. The focus of this study was cloning and characterization of a protein referred to as SAS0754. The size of SAS0754 is 340 amino acids and the gene sequence is 1023 nucleotides. The hypothetical function of this protein is that it is an extracellular matrix binding protein. Virulence in *S. aureus* is related to the formation of biofilms and adherence to fibronectin in host cells, both of which are mediated by extracellular matrix binding proteins. Previous work on CA-MRSA in this laboratory has isolated several genes, unique to CA-MRSA, to determine the extent of their role in host infection. This protein SAS0754 was chosen because it is one of these hypothetical proteins and does not yet have a confirmed functionality. Gateway cloning techniques were used for cloning of the gene of interest. Using his-tag purification techniques we isolated the protein of interest for characterization. The protein was visualized using SDS-PAGE and the bands were seen at 36,000 kDa. Future work on this project will include further characterization of the SAS0754 protein.