EXPLORATION OF FRUCTOSE 1, 6-BISPHOSPHATE ADOLASE AS A POTENTIAL DRUG TARGET FOR METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS INFECTION

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ABSTRACT

Methicillin resistant *Staphylococcus aureus* (MRSA) are antibiotic resistant strains of bacteria which cause life-threatening infections in immunocompromised patients. Through our previously reported in silico approach, a class of potential drug targets essential to the survival of MRSA and absent in the human genome were identified, among which putative fructose 1, 6 bisphosphate aldolase (FBPA) was investigated. The gene encoding FBPA was cloned into plasmid pRSET A. The recombinant plasmid was transformed into competent *E. coli* DH5α then expressed in *E. coli* BL21(DE3)pLysS. Western blot confirmed the presence of his-tagged FPBA in IPTG induced whole cells and cell lysate, which is contradictory to the incompetence of 6×His/Ni-NTA system to purify the protein. Conventional ionic exchange chromatography and size exclusion chromatography were employed consecutively. MS analysis revealed that the purified protein was glyceraldehydes 3-phosphate dehydrogenase (G3PD) from *E. coli*, as opposed to MRSA FBPA, which may be imputed to the preferential interaction between FBPA and glyceraldehyde-3-phosphate dehydrogenase in a mixture of cytosolic proteins. Future work includes MS detection of MRSA FBPA in cell lysates and development of an alternative purification system to separate FBPA from the FBPA-G3PD mixture.