CRYSTALLISATION OF *STREPTOCOCCUS THERMOPHILUS* CSM6 HEPN DOMAIN

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CRISPR-Cas systems protect prokaryotes against viruses and other foreign nucleic acids. This protection is specific due to crRNA molecules that recognize the targets and guide the effector complex to them. On binding invading RNA, type III CRISPR-Cas system use Cas10 subunit to degrade DNA and to produce cyclic oligoadenylates (cOA). cOA acts as a secondary messenger which activates non-specific RNA cleavage by type III associated ribonuclease Csm6. Csm6 family proteins consist of a CARF domain that binds cOA and HEPN ribonucleolytic domain, which cleaves RNA in a sequence independent manner. In this study we aimed to obtain crystals of HEPN domain of Csm6 from *Streptococcus thermophilus* (St) for structural studies. We cloned and purified StCsm6 HEPN domain, performed screening of crystallisation conditions and obtained crystals which diffract X-rays up to 1.5 Å resolution. These crystals will be used to determine the structure of HEPN domain. Understanding the structure of StCsm6 HEPN domain could contribute to the understanding of regulation mechanism of ribonuclease and to design of new cOA-controllable proteins.