CONSIDER FOR TALK

7th Annual SEA-PHAGES Symposium Abstract

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Cluster O promoter investigations at Gonzaga and Ouachita Baptist Universities

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Putative promoters from Cluster O mycobacteriophage were identified through bioinformatic analysis by a multi-university consortium at the Advanced In Silico Workshop (Summer 2014). However, since the promotors were only identified in silico, there is still a need for biological confirmation. Advanced phage research students at Gonzaga University and Ouachita Baptist University started projects characterizing these Cluster O promoter sequences . Each university used a different plasmid vector and promoter analysis system. Gonzaga students measured promoter activity by driving expression of the red fluorescent protein mCherry in a binary vector. A major advantage of this approach is the ability to validate promotor expression directly in M. smeg. Ouachita Baptist students used Golden Gate Assembly and the pClone Red vector. Golden Gate Assembly allows for digestion and ligation to occur as a single step in the same tube. The result is a rapid and cost effective way to validate promoter expression; however analysis is limited to E.coli. Overall, (five) cluster O promoters were confirmed in E.coli and (three) confirmed in M. smeg. This is just one of several multi-school projects that is currently being developed as a result of the phage lab. Other projects include the T-Phage genomics project and the terminators analysis projects (to begin this summer). This project exemplifies the need for scaffolding of research into multiple classes and into independent research projects. Additional it is hope that it will serve as a vehicle to recruit other faculty at smaller institution to participate in similar project with us in the future.