DAKOTA PARNELL, JESSE ORELL, SYED ALI, JAMES WALTERS, Dept. of Applied Science and Mathematics, Bluefield State College, Bluefield, WV 24701. Optimizing a micro-fluidic slide for *in vivo* imaging of larval Zebrafish.

Larval zebrafish (Danio *rerio*) are optically transparent at six- and seven-days post fertilization (dpf) which makes them useful research models for the study of metabolic and physiological processes. Previous methods to image zebrafish were limited to embryogenesis and early larval stages. Our goal was to design a novel micro-fluidic slide for mounting zebrafish that greatly extends the duration of time for *in vivo* imaging of zebrafish larvae that are six to seven days post fertilization (dpf). The ideal mounting slide will have channels to provide media exchange, nourishment, and/or drug treatments and channels to remove waste and flush the system of previous test conditions. We had a microfluidic slide manufactured to our specifications. Initial testing revealed that the larval bed was too large. To optimize our previous prototype, we used the Zeiss Discovery V8 microscope to recalculate our measurements for the larvae bed. We have now re-imaged five each of six dpf larvae and five each of seven dpf larvae in order to adjust the measurements to the new average larval size. *This work was supported by NIH Grant P20GM103434 to the West Virginia IDeA Network for Biomedical Research Excellence and NIH Grant P20GM103434 awarded to Bluefield State College.*