



844-663-8749



support@invivobiosystems.com



invivobiosystems.com



InVivo Biosystems

# Customer story: Creating zebrafish models for studying gene function using CRISPR Injection Mix

Dr. Melissa A. Wright shares her experience in working with InVivo Biosystems to create zebrafish models for studying the *SELENON (SEPN1)* gene function

**SeIN-BFPSTOP line generated using injection mix.** A ventral view of 7-day post-fertilization zebrafish larvae with blue fluorescent protein expression in multiple facial structures and in the ear.

Dr. Wright studies the SELENON gene (also called SEPN1) which encodes a protein called selenoprotein N, and she uses zebrafish as the model organism to better understand its function.

Selenoprotein N is highly active in many tissues before birth and may be involved in the formation of muscle tissue (myogenesis). The protein may also be important for normal muscle function after birth, although it is active at much lower levels in adult tissues.

The exact function of selenoprotein N is unknown, it is likely involved in protecting cells against oxidative stress. Oxidative stress occurs when unstable molecules called free radicals accumulate to levels that damage or kill cells.

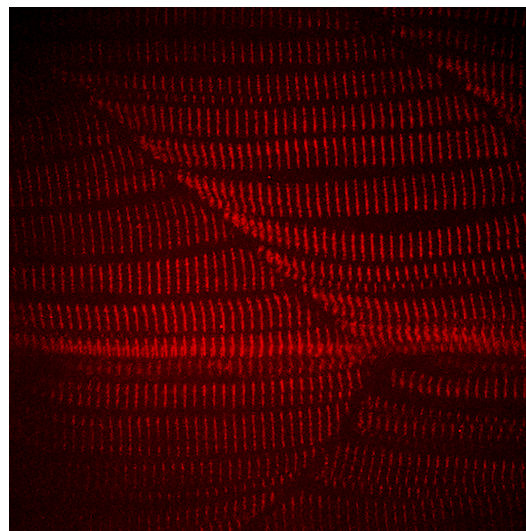
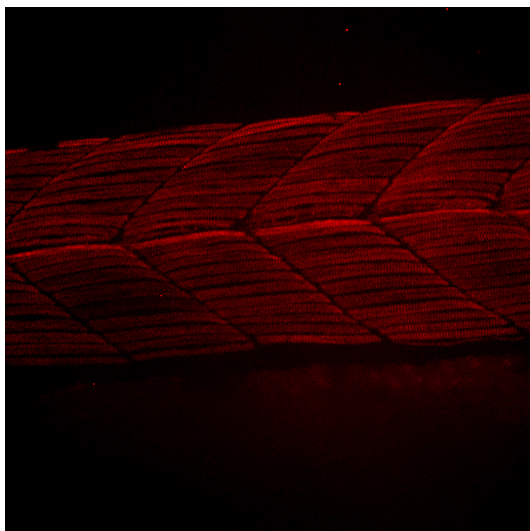
Though CRISPR/Cas9 gene editing in zebrafish has gained popularity, it is not without its technological barriers. Reagent sourcing, sg design and validation of cutting efficiency, and donor homology design are challenging, and can often be a lengthy process without a guarantee of success even for highly skilled researchers.

Many investigators choose to use customized injection mix in order to quickly start their project. It is also a good solution for those with a more limited budget who want to utilize CRISPR technology to create novel zebrafish lines. Dr. Wright used our injection mix to jump start her project by leveraging our design expertise in order to save time and get results more quickly.



### Researcher profile:

Melissa A. Wright, MD, PhD, Assistant Professor of Pediatric Neurology at University of Colorado, conducts her medical practice at Children's Hospital Colorado on the Anschutz Medical Campus.



**LEFT: Visualizing slow muscle fibers in trunk muscle.** The images show mCherry expression in slow muscle fibers in trunk muscle at different magnifications (lateral view).