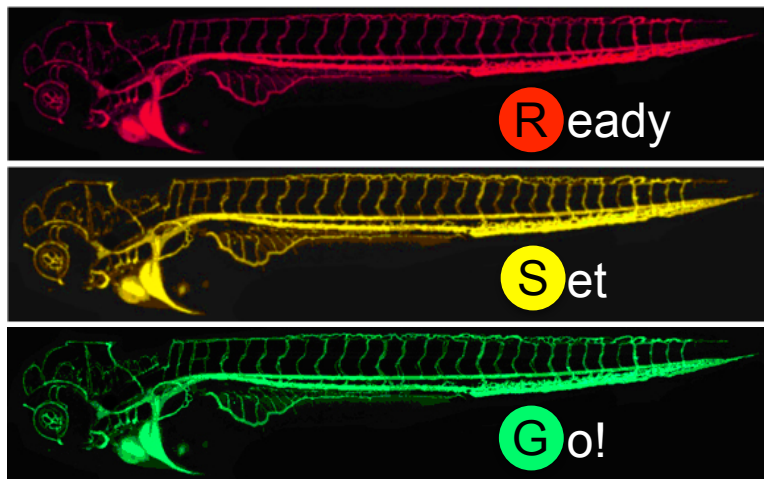




### Overview:

- Introduce students to the power of genome editing and gene manipulation in Zebrafish
- Gain hands-on experience designing and implementing experiments to knock out, knock down, and overexpress a gene, and make a transgenic



### Lectures:

1. Introduction to live animal experiments: ethical considerations, development and genetic manipulation
2. Knock-out technologies
3. Knock-down technologies
4. Overexpression techniques
5. Transgenic techniques
6. Phenotype analysis
7. Molecular and biochemical analysis

### Labs:

1. Introduction to Zebrafish molecular techniques
2. Gene knock out using CRISPR/Cas
3. Gene knock down using morpholinos
4. Gene overexpression by mRNA injection
5. Making a GFP transgenic