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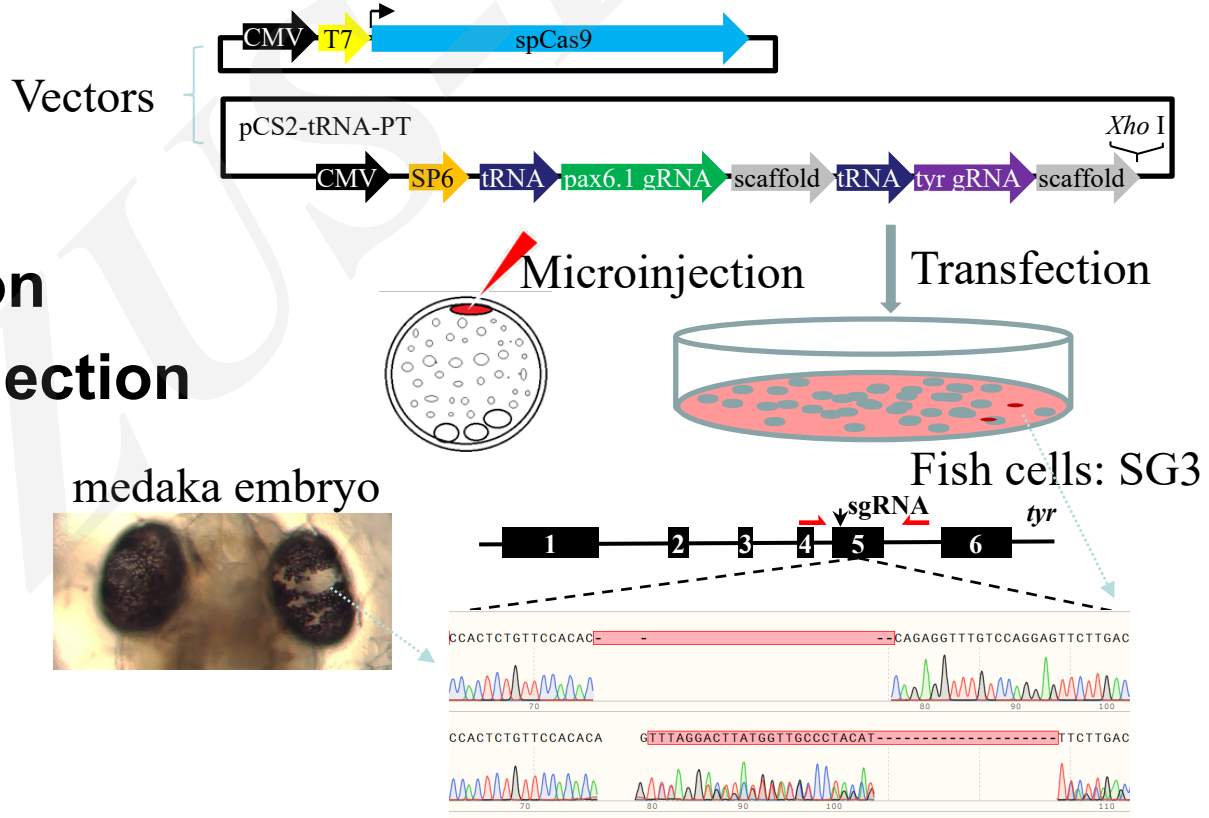
Efficient gene editing in a medaka (*Oryzias latipes*) cell line and embryos by SpCas9/tRNA-gRNA

Key words: Medaka (*Oryzias latipes*); Gene editing; Poly-tRNA-gRNA; Embryos; Fish cells

Research Summary

This study mainly focused on The PTG system was combined with the CRISPR/Cas9 system under high levels of promoter to successfully induce gene editing in medaka, and the following aspects were studied in detail:

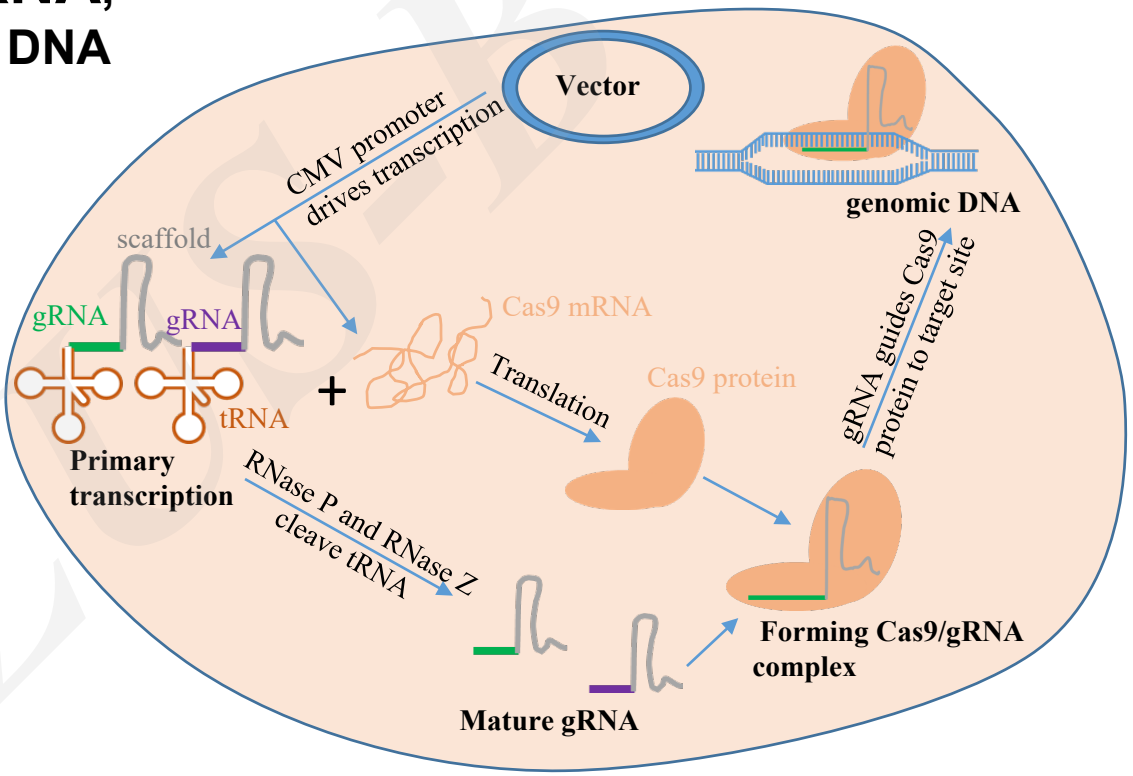
- **Vectors construction**
- **Embryonic microinjection and observation**
- **Cell culture and transfection**
- **Mutation screening**



Innovation points

- **Transcribed tRNA-gRNA,**
similarly to the gRNA, induced DNA editing in medaka embryos

- **The tRNA-gRNA system could also produce functional gRNA under the control of CMV promoter in medaka embryos**



- **CMV promoter** can also drive transcription of the tRNA-gRNA system in medaka SG3 cells, and produce functional gRNA to edit the target gene