**WILD-TYPE MOSQUITO**

No tTAV gene

- Mosquito cells contain genes that are essential to normal development and survival
- Transcription factors turn on the expression of these essential cellular genes
- Mosquitoes develop normally

**GM MOSQUITO**

How tTAV works in the absence of tetracycline...

- tTAV binds to its own gene promoter to produce more and more tTAV protein
- tTAV protein binds to different transcription factors so that essential cellular genes are not expressed
- Without essential genes being expressed, mosquito larvae die before becoming adults

...and in the presence of tetracycline

- tTAV bound to tetracycline cannot bind the tTAV gene promoter and no tTAV protein is produced
- Without tTAV, genes are expressed to produce essential proteins
- Mosquitoes develop normally and survive into adulthood