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Chemoreception Gene Knockout in *Manduca Sexta* Using the CRISPR Method

A new method called CRISPR, which stands for *clustered regularly interspaced short palindromic repeats* (Qi et al., 2013), is an efficient method for deleting genes *in vivo*. We are developing a protocol to use CRISPR in the tobacco hornworm, *Manduca sexta*. Toward that end, we have designed a protocol for injecting *Manduca sexta* eggs and have succeeded in injecting a DNA plasmid containing a GFP reporter gene. Next, we plan to inject plasmids encoding CRISPR reagents to delete chemoreceptor genes in *Manduca sexta*. We will create a line of mutant organisms lacking the targeted gene and subsequent chemoreceptor. Once mutant lines are established, we will conduct physiological tests to determine the function of these receptors.