Polyvinyl chloride– PVC– is one of the most commonly used plastics, with more than 40 million tons produced annually. Despite its negative impact on human health and the environment, there has been a lack of extensive research conducted to detect PVC and find ways to recycle it. Therefore, working towards innovative methods to detect and degrade PVC is essential. This project aims to create a PVC biosensor that can detect PVC by using luciferase as a reporter gene and a suitable promoter, which will be inserted into Escherichia coli (E. coli). A group in Zhejiang Province, China, researched a bacterial strain in the gut of Spodoptera frugiperda (​​Klebsiella sp. EMBL-1), which can depolymerize and degrade PVC. Through conducting proteomics, the group characterized several enzymes as part of the process. Specifically, we focus on catalase-peroxidase, an enzyme within the larvae that is critical in the degradation process. To find the promoter sequence, we will clone various lengths of DNA regions upstream of catalase-peroxidase within the bacterial genome. We will then clone these sequences in front of luciferase in a plasmid, which will then be transformed into a bacterial host. Control experiments and quantitative analysis methods will be used to determine the level of luminescence, ultimately providing insight into a functioning promoter's DNA sequence. This research will be a step forward in understanding how we can detect PVC.