

# Strategy Of GM Tobacco Screening Based On Genetic Elements

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## Abstract

We searching for articles on Google Scholar and PubMed by using key word "transgenic tobacco" or "GM tobacco". And 229 related articles in recent 10 years were collected.By reading these articles, we investigated all types of transgenic elements and their use frequency in various tobacco transgenic events. We found that only 86% of these events can be detected by using the combination of "P-35S,NPTII,and NOS-T". In order to completely eliminate the possibility of miss detection, a new screening strategy which can cover the GM tobacco events as more as possible.

## Introduction

Tobacco is a model plant widely used in transgenic researches for years, but GM tobacco was extremely limited in commercial applications. How to protect commercial tobacco products from transgenic pollution becomes an important problem in tobacco industry. At present, P-35S promoter, NPT II selective marker gene and T-NOS terminator are three common targets for GM tobacco screening, but they can not cover all transgenic tobacco events, and some GM tobacco events with special transgenic elements will be missed.

Figure 1

Genetic transformation of tobacco common source of genetic elements and functions

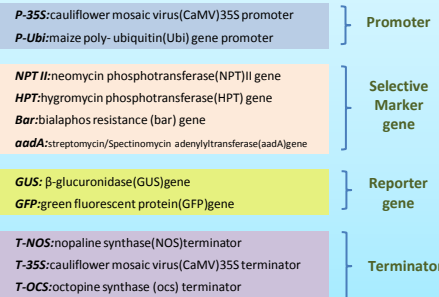


Figure 3

Screening of common combined genetic elements in the study of transgenic tobacco

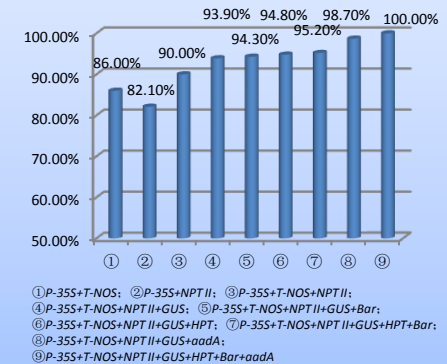
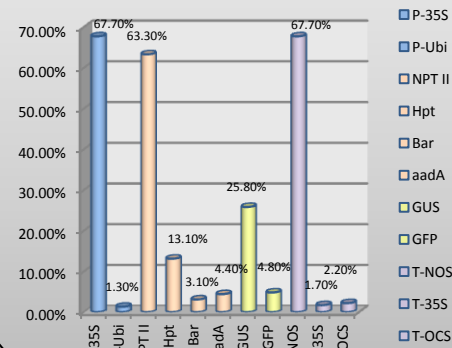


Figure 2

The frequency use of genetic elements in the study of transgenic tobacco



## Conclusions

we proposed a more comprehensive set of transgenic elements as PCR amplified targets, it includes P-35S promoter, NPTII/HPT/Bar/aadA selective marker genes, GUS reporter gene and T-NOS terminator, these target sequences represent the most common elements in transgenic tobacco, 100% of the transgenic events in tobacco can be detected by using these elements as screening targets sequence. And a genetic elements on transgenic tobacco database was established at the same time.