A plasmid which overproduces the Tet(M) resistance protein (pSH52)

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Value Proposition

Bacterial resistance to current therapies remains a clinical challenge. For example, numerous enterococcal, staphylococcal, and streptococcal bacterial species are known to exhibit resistance to potent antibacterial tetracycline through upregulation of a ribosomal protection protein called Tet(M). Model systems which allow for the *in vitro* investigation of this protein, including mechanisms of gene expression, are needed to develop new therapies which can combat antibacterial resistance.

Technology

This invention is a plasmid which contains the tetracycline resistance gene Tet(M) under direct control of a potent promoter. Specifically, it includes the streptococcal transposon Tn916, which contains the Tet(M) gene, under control of the T7 phage 10 promoter. Thus, expression of the gene *in vitro* requires the addition of the T7 RNA polymerase. In one version of the plasmid, an inducible T7 RNA polymerase is also included under control of a lac promoter, which can be induced in the *in vitro* system using IPTG.

Advantages

- This plasmid contains the Tet(M) gene under direct control of a potent promoter
- This plasmid can also contain inducible RNA polymerase
- This plasmid allows for the direct introduction and inducible expression of Tet(M) *in vitro*

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