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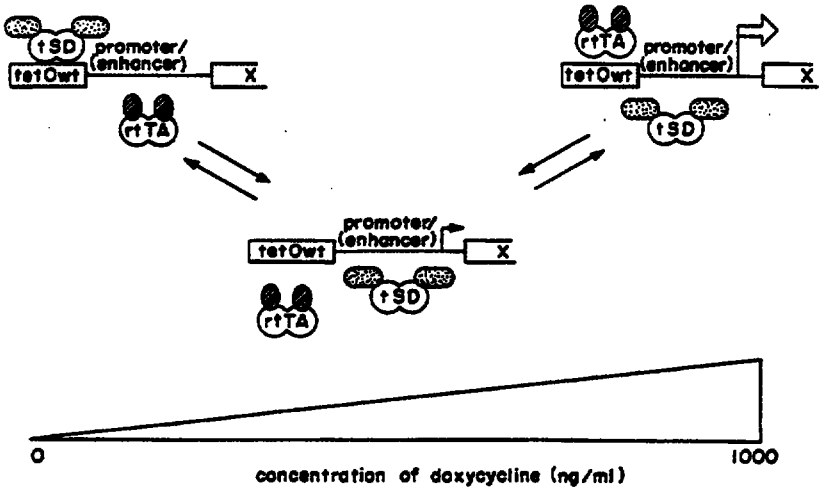
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(54) Title: TETRACYCLINE-REGULATED TRANSCRIPTIONAL MODULATORS



(57) Abstract

Nucleic acid molecules and proteins useful for regulating the expression of genes in eukaryotic cells and organisms are disclosed. Theinvention provides a transcriptional activator fusion protein which binds to tet operator sequences and stimulates transcription of a tet operator-linked gene in the presence, but not the absence, of tetracycline (or analogue thereof). The invention further provides transcriptional inhibitor fusion proteins which inhibit transcription of a tet operator-linked gene in a regulated manner. In one embodiment, the inhibitor fusion protein binds to tet operator sequences in the absence, but not the presence, of tetracycline (or analogue). In another embodiment, the inhibitor fusion protein binds to tet operator sequences in the presence, but not the absence, of tetracycline (or analogue). The transcriptional activator and inhibitor fusion proteins of the invention can be used in combination to regulate expression of one or multiple tet operator-linked genes. Novel tet operator-containing transcription units which allow for coordinate or independent tetracycline-regulated expression of two or more genes by the transcriptional modulators of the invention are also disclosed. Kits including the components of the regulatory system are also encompassed by the invention.