ABSTRACT

This invention provides methods and diagnostic kits for determining the toxicity of a compound. The methods and diagnostic kits of this invention employ a plurality of bacterial hosts, each of which harbors a DNA sequence encoding a different stress promoter fused to a gene which encodes an assayable product. Each of these stress promoters is induced by exposure to a different type of cellular stress. The stress promoters utilized in this invention, in toto, comprise those promoter which respond to redox stress, DNA stress, protein stress, energy stress and pH stress. The methods and diagnostic kits of this invention may be employed to characterize and quantify the toxicity of a compound, as well as to identify the cellular mechanism of its toxic action. Moreover, the methods of this invention yield information concerning the action of a compound on a subcellular level. This information may be utilized to design antitoxins to compounds found to be toxic and in active drug design.

Figure 12

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