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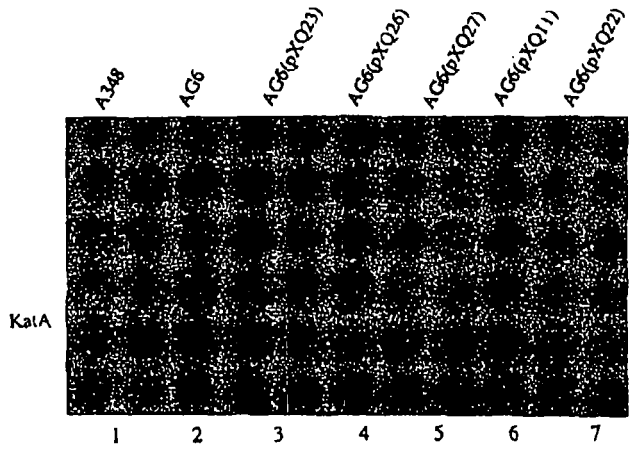
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(54) Title: METHODS AND KITS FOR IDENTIFYING SCAVENGERS OF REACTIVE OXYGEN SPECIES (ROS)



(57) Abstract: This invention relates to methods an kits for determining the level of H_2O_2 inside a cell, an for determining whether a test compound has ability to scavenge a reactive oxygen species (ROS). The methods an diagnostic kits of this invention employ a cell containing a promoter which is inducible by an ROS, such as the H_2O_2-inducible *KatA* promoter of *Agrobacterium tumefacines*; the promoter is used to drive expression of a reporter gene. The expression level of the reporter gene correlates with the level of ROS, specifically H_2O_2, inside the cell. When the cell is exposed to a test compound, either intra-cellularly or extra-cellularly, if the level of ROS-inducible expression of the reporter is reduced, then this indicates that the test compound is a scavenger of the ROS. The methods of this invention may also be used to select for new or improved ROS scavengers by expressing a library of test scavengers in cells which express a reporter from a ROS-inducible promoter and selecting for those cells whose level of ROS-inducible expression of the reporter is reduced. The cells which express a reporter from a ROS-inducible promoter may have a modified genetic background to reduce their naturally occurring ROS-scavenging ability.

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