E309

Some Properties of Symbiotic Actinomycete Isolated from Marine Invertebrates

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For screening of anticancer compounds, symbiotic microorganisms living in or on marine invertebrates were isolated from Keomun Island. Extracted samples of isolated strains were evaluated for cytotoxicity aganist p388 cell line, and three strains of Actinomycete were selected. ED50 of acetone extracts from mycelia of strain KM86-9B, KM46-A1 and KMY were 4.85, 4.85 and 10.59 ug/ml. The strain KM86-9B and KM46-A1 produced grey aerial mycelia and red-brown substrate mycelia. The spore of both strains had smooth surface and formed spiral chains. The strain KMY produced ivory aerial mycelia and yellow -brown substrate mycelium. Its oval spores with smooth surfaces formed long straight chains. All of three strains were identified as *Streptomyces sp.* with type I cell wall. In comparison with previously isolated non-symbiotic marine Actinomycete strains exhibiting cytotoxic activity, these selected symbiotic strains could grow well on ISP 1 and ISP 7 agar medium. Soluble pigment and hydrogen sulfide were not produced. Malate could not be utilized as sole carbon sources. Starch and esculin were not hydrolyzed.

E310

Differential Expression of Ni- and Fe-containing Superoxide Dismutases in *Streptomyces coelicolor*

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Streptomyces coelicolor contains two superoxide dismutases (SODs) which were previously purified and found to be Ni-containing SOD and Fe-containing SOD. The level of each SOD changed differently depending on growth media. Metal anlysis of 3 growth media revealed that the major difference among the growth media was the concentration of Ni. The effect of metals and chelating agents on the expression of these two SODs were examined. The higher the concentraion of Ni added, the more NiSOD was produced and the less FeSOD was expressed. Addition of Fe up to 1 mM had no effect on the expression of SODs. The effect of EDTA was biphasic. EDTA at 50 - 200 uM repressed NiSOD expression and induced FeSOD expression. At 1 mM, EDTA repressed FeSOD as well. Hydroxyquinoline and *o*-phenanthroline exhibited the same effect as EDTA but at different concentrations. Desferrioxamine, an iron chelator, caused the repression of FeSOD without the repression of NiSOD. These results suggest that one crucial factor in determining the type of SOD preferentially expressed is the concentraion of Ni in growth medium. The presence of Ni at micromolar concentraion results in NiSOD expression and causes FeSOD repression, maintaining the total SOD activity at relatively constant level. The changes in SOD activities were positively correlated with the amount of each enzyme as determined by immunoblotting, suggesting that metals modulate not the activity per se but the level of each protein.