E319 Oxidative Cross-linking of Tyrosine in the Spore Coat of *Bacillus subtilis*

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In relevance to the cross-linking mechanism of the protein, dityrosine is formed from tyrosine by heme peroxidase and H_2O_2. Although the presence of dityrosine was reported in the spore coat of *Bacillus subtilis*, the peroxidase responsible for this post-translational modifcation of coat proteins has not been detected yet. We purified two heme proteins showing weak peroxidase activities in the cytosolic fraction of *B. subtilis* and identified them as proteolytic fragments of cytochrome c-550 and menaquinone: cytochrome c reductase, respectively. The production of dityrosine in the system of tyrosine/H_2O_2 by cytochrome c-550 was observed by absorption, fluorescence spectroscopy and reverse phase high performance liquid chromatography. We suggest that cytochrome c-550 plays a major role in the formation of dityrosine in the spore coat of *B. subtilis*.

E320 A Mutant Lacking Mitochondrial Manganese-Containing Superoxide Dismutase is Sensitive to Oxidative Stress

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We reported the characterization of manganese-containing superoxide dismutase and its gene (*SOD2*) from *Candida albicans* [*Biochim. Biophys. Acta* 1426 (1999) 409-419]. In order to investigate the role of manganese-containing superoxide dismutase in the molecular mechanism of oxygen metabolism of *C. albicans*, its gene has been deleted by the targeted gene disruption method. The *SOD2* disruption was verified by southern hybridization analysis and superoxide dismutase activity staining after native gel electrophoresis. The null mutant of *SOD2* was more sensitive to menadione and lethal heating than isogenic wild-type cell, though it still showed adaptive oxidative stress response.