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 H₂O₂. Although the presence of dityrosine was reported in the spore coat of *Bacillus subtilis*, the peroxidase responsible for this post-translational modification 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/H₂O₂ 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.