

## STRUCTURAL AND FUNCTIONAL CHARACTERIZATION OF THE ALTERNATIVE LOW SPIN STATE OF CYTOCHROME C

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The alternative low spin state of cytochrome *c* (ALSScytc) induced by SDS micelles or AOT/hexane reverse micelles exhibits the heme group in a more symmetrical conformation and was characterized by UV-visible, Circular Dichroism, Magnetic Circular Dichroism, EPR and Raman Spectroscopy. In all the used techniques, the spectroscopic changes were compatible with the replacement of Met80 by Lys79 both for the ferric and ferrous form of the hemeprotein. The reactivity of the ferric ALSScytc was investigated for *t*-butylhydroperoxide (*t*-BuOOH), diphenylacetaldehyde (DPAA) and photochemically activated methylene blue (MB<sup>+</sup>). The reactivity with *t*-BuOOH was not significantly affected by the change of the heme group symmetry. Similarly to the native form, the ALSScytc was also able to oxidize DPAA, however, in this condition, the reduced heme iron was converted to the high spin form. However, when previously reduced by ascorbate, ferrous cytochrome *c* remained in the low spin form after the association to AOT/hexane reverse micelles. Under irradiation, photochemically generated neutral radical of MB<sup>+</sup> did not induced any change in the native cytochrome *c* but led to a significant Soret band bleaching of ALSScytc that was not observed in the dark. Supported by FAPESP, CNPq, FAEP-UMC.