

## PROTON HYPERFINE NMR CHARACTERIZATION OF TRUNCATED HEMOGLOBINS FROM *Herbaspirillum seropedicae*

Baruh, D.<sup>o</sup>, Razzera, G.<sup>o</sup>, Vernal, J.<sup>#</sup>, Pedrosa, F.<sup>\*</sup>, Souza, E.M.<sup>\*</sup>, Terenzi, H.<sup>#</sup>, Almeida, F.<sup>o</sup>, Valente, A.P.<sup>o</sup>

<sup>#</sup>Lab. de Expressão Gênica - Departamento de Bioquímica UFSC Santa Catarina

<sup>o</sup>Centro Nacional de Ressonância Magnética Nuclear Jiri Jonas IBqM- UFRJ -  
<sup>\*</sup>Departamento de Bioquímica – UFPR – Paraná

The truncated hemoglobins (trHbs) correspond to a new family of small globins. They are widely distributed in bacteria, plants and unicellular eukaryotes. Based on conserved residues, trHbs are divided in three subgroups. The group I is involved on oxidative or nitrosative stress, but the function of groups II and III are unknown. Our group cloned and purified two truncated hemoglobins from *Herbaspirillum seropedicae* (*Hs\_trHb1* and 2). In order to characterize the heme pocket of these new members of group II, we performed a NMR study of the recombinant proteins. The Soret band was used to verify their ability to bind cyanide and CO. We were capable to assign the heme proton resonances of trHb-1 bound to cyanide and a preliminary heme <sup>1</sup>H hyperfine profile of trHb-2. The <sup>15</sup>N isotopic labeled *Hs-trHb-1* protein in the cyanide and carbomonoxy forms were analyzed by NMR using 1D <sup>1</sup>H and 2D <sup>1</sup>H/<sup>15</sup>N HSQC experiments. The spectra presented chemical shift dispersion compatible with a globin fold. The reduced state of the *H. seropedicae* truncated hemoglobins bounded to CO was also analyzed by NMR for further 3D structural determination.

Support: Instituto Milênio de Biologia Estrutural em Biomedicina, CNPq, FAPERJ, ICGEB, FAPESC, PRONEX.