

Department of Chemistry

Proteins involved on psychrotrophic cold adaptation

BioProt -Bacterial Mechanisms of Environmental Adaptation Group

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- 2012 - PhD degree in Genetics and Molecular Biology (UFPA)
- 2006 - Master in Pathology of Tropical Diseases (UFPA)
- 2004 - Bachelor degree in Biomedicine (UFPA)

Objectives

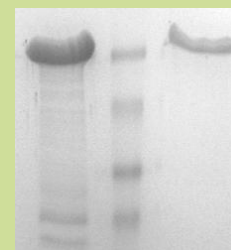
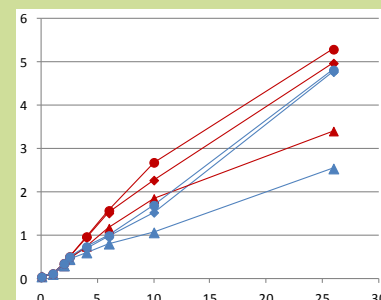
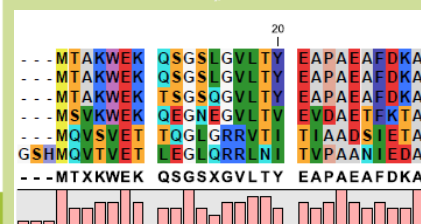
- Study proteins, from the psychrotrophic bacterium *Exiguobacterium antarcticum* B7, important in cold adaptation and/or with biotechnological potential.
- Perform the molecular cloning, heterologous expression in *E. coli* and protein purification.
- Functional and structural protein characterization.
- Promote scientific cooperation and knowledge exchange between Brazil (UFPA-CAPES) and Portugal (UNL-FCT).

Methodology

- Cloning the *E. antarcticum* target gene in expression vectors, perform protein expression followed by purification using affinity chromatography (His-tag).
- Analysis by MALDI-TOF-MS and Peptide Mass Fingerprint.
- Gel Filtration and Cross-linking assay to determine oligomeric state.
- Refolding kinetics.
- Enzymatic assays.

Expected Results

- Genomic and transcriptomic survey for genes encoding proteins relevant in cold adaptation.
- Obtain the recombinant proteins pure and stable.
- Biochemical characterization of selected protein targets from *E. antarcticum*.
- Evaluate the protein properties for cold adaptation.
- Better understanding of psychrotrophic microorganisms and its life style.



Funding: