

Department of Chemistry

## Oxidative Stress and Iron Metabolism

REQUIMTE • Biochemistry and Biophysics

**Biofísica Molecular**  
**Molecular Biophysics**



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PhD in Biochemistry  
(UNL, 2004)

PI of 1 financed project  
Participation in 1 international  
and 5 national projects

10 publications listed in the ISI  
Web of Science

## Objectives

Characterize enzymes involved in oxidative stress sensing and iron metabolism in all redox states. Identify and characterize their active state.

Study the changes that occur during activation and reactivity.

Identify and characterize reaction intermediates and propose a reaction mechanism.

## Methodology

**Protein production:** Gene cloning and overexpression. Protein purification by chromatographic methods.

**Protein purity assessment and biochemical characterization:** SDS-PAGE, spectroscopy (UV-visible, EPR, Mössbauer). EMSA (Electrophoretic molecular shift assay).

**Identification and characterization of reaction intermediates.**

**Characterization of the reaction mechanism:** rapid kinetic techniques (stopped-flow and rapid freeze quench) associated with UV-visible, EPR and Mössbauer spectroscopies.

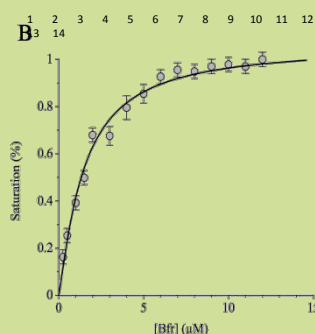
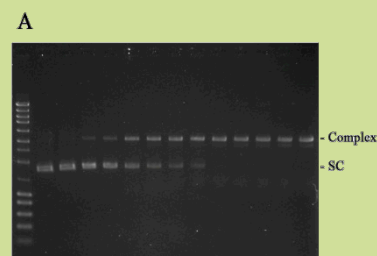
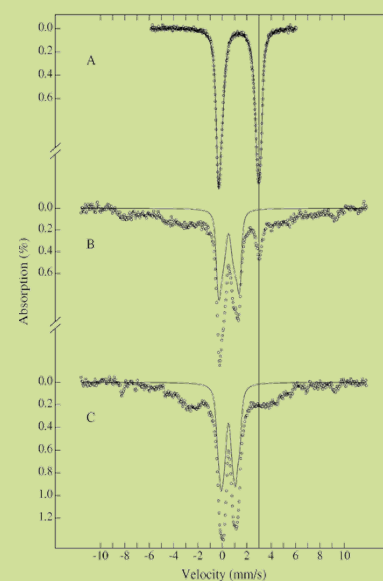
## Expected Results

Identification and characterization of novel reaction intermediates.

Understand and propose reaction mechanisms.

Contribute to understanding oxidative stress mechanisms in anaerobic bacteria.

Contribute to knowledge of iron metabolism.



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