

Is the iron homeostasis under the control of an iron-sulfur cluster in Fur ?

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The Ferric uptake regulator (Fur) controls at the transcription level the expression of almost all genes involved in iron homeostasis and virulence in response to iron concentration. In 2020, Fontenot *et al.*¹ showed that Fur purified from an *Escherichia coli* Δ iscA/ Δ sufA mutant strain binds a [2Fe-2S] cluster to 4 cysteines in a site formerly considered as zinc structural binding site²⁻⁶.

Coupling iron homeostasis and iron-sulfur could make sense and may open new perspectives.

This work tries to decipher if iron-sulfur center in *Escherichia coli* Fur is an artefact or a reality.

Chemical and enzymatic reconstitution in anaerobic conditions were performed on various oligomeric states of Fur and the resulting samples were tested for their properties using complementary techniques (UV-visible, EPR, SEC-MALLS-RI spectra and ICP-AES analyses) and their DNA binding activity.

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