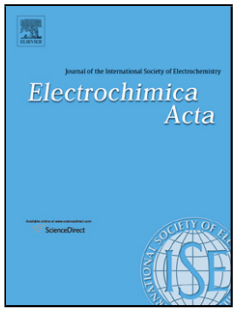

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PII: S0013-4686(17)31602-X
DOI: http://dx.doi.org/doi:10.1016/j.electacta.2017.07.161
Reference: EA 29978

To appear in: *Electrochimica Acta*

Received date: 30-1-2017
Revised date: 25-7-2017
Accepted date: 26-7-2017

Please cite this article as: Isabel Álvarez-Martos, Faezeh Shahdoost-fard, Elena E.Ferapontova, Wiring of heme enzymes by methylene-blue labeled dendrimers, Electrochimica Actahttp://dx.doi.org/10.1016/j.electacta.2017.07.161

Wiring of heme enzymes by methylene-blue labeled dendrimers

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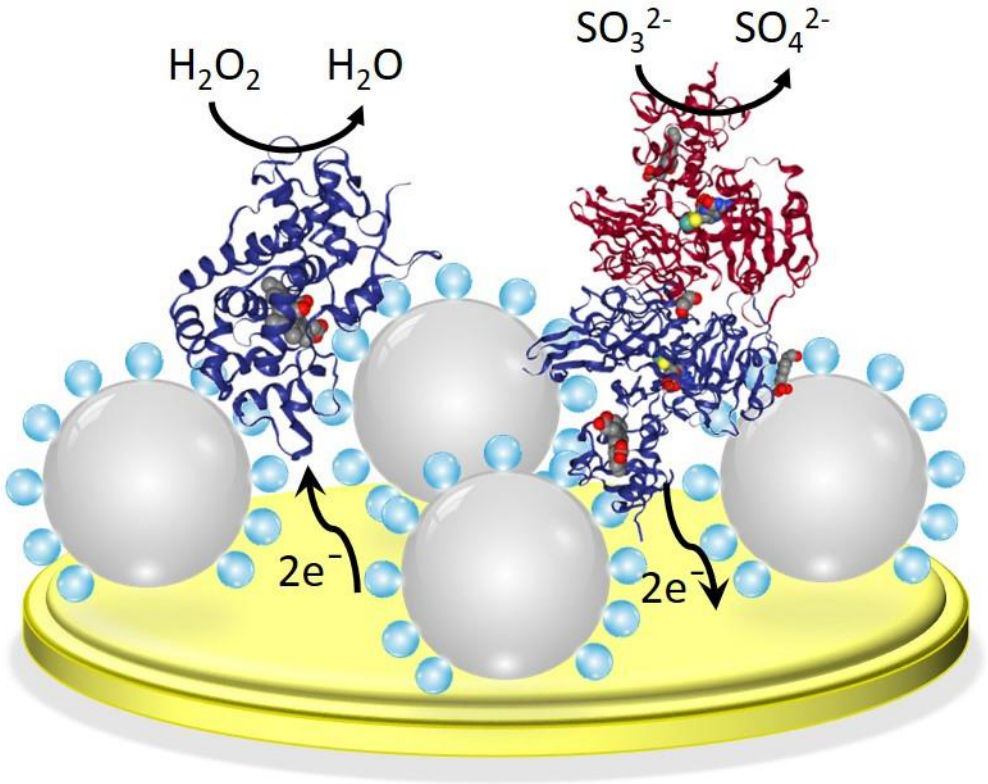
Graphical Abstract



Research Highlights

- Gold nanostructured dendrimer films allow to stabilize and electrically wire heme-enzymes
- Electron transfer and bioelectrocatalysis of heme-enzymes were studied
- H_2O_2-reducing horseradish peroxidase showed better performance on unlabelled dendrimer layers.
- Methylene blue-dendrimer is a more efficient wire for complex cofactor sulfite oxidase.

Abstract.

Redox-modified branched 3D dendrimeric nanostructures may be considered as perspective wires for electrical connection between redox enzymes and electrodes. Here, we studied electron transfer (ET) reactions and bioelectrocatalysis of heme-containing horseradish peroxidase (HRP) and heme- and molibdopterin-containing sulfite oxidase (SOx), wired to gold by the methylene blue (MB)-labeled