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Disulfide bond formation involves a quinhydrone-type charge-transfer complex.

Regeimbal J et al.

Proceedings of the National Academy of Sciences of the United States of America. 2003 Nov 25; 100(24):13779-13784

<https://doi.org/10.1073/pnas.1935988100>

PMID: [14612576](#)

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16 Dec 2003

[Art Horwich](#)

This paper offers a striking new insight into the redox pathway mediating disulfide bond formation attending the folding of exported bacterial proteins, where the membrane protein DsbB delivers oxidizing equivalents through periplasmic DsbA to secreted proteins. DsbB is known to be reoxidized by quinones, and here this is shown to occur via a quinhydrone complex, a stacked hydroquinone-benzoquinone pair, found to be associated with purified DsbB. Kinetic experiments suggest a model in which the hydroquinone functions as a prosthetic group, transferring electrons to a transiently-associating quinone that can subsequently be replaced with an oxidized quinone from a cellular pool.

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Cite this Recommendation:

Horwich A: Faculty Opinions Recommendation of [Regeimbal J et al., Proc Natl Acad Sci USA 2003 100(24:13779-13784)]. In Faculty Opinions, 16 Dec 2003;

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