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Structure of 3-nitrotoluene dioxygenase from diaphorobacter sp. strain DS2

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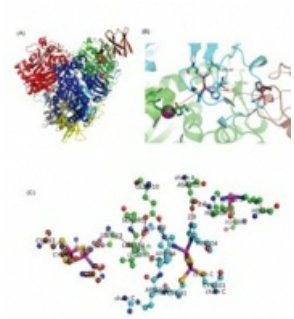
3-nitrotoluene dioxygenase, a Rieske non-heme iron oxygenases (ROs) from diaphorobacter sp. strain DS2 is a multicomponent enzyme that catalyses removal of an aromatic nitro group as nitrite with great efficiency to yield a mixture of 3 and 4 methyl catechol [1]. This multicomponent enzyme has been shown to catalyze cis-dihydroxylation, mono-oxygenation and desaturation of organic compounds as well[2]. The crystal structure of this enzyme was recently solved by us [manuscript]. In this talk, I will reveal how the active site of this enzyme has evolved and do a structure based inference of the substrate specificities based on the structure.

[1] Singh, D. S. & Ramanathan, G. (2013) Biodegradation, 24(5), 645-655.
[2] Singh, DS et al. (2014) Biophys. Biochem. Res. Commun. 445 (1), 36-45.



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