

### Quantum dots induced by ultraviolet rays supply electrons for cytochrome P450 reaction

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We elucidated the influence of electron formation from ultraviolet (UV)-induced quantum dots (Qdots) on the cytochrome P450 (CYP2B4) reaction. Electron formation was effectively triggered by inducing Qdots with (UV) irradiation at 365 nm. The analytical potential of the Qdots-based electron-transfer system was demonstrated by examining two different types of cofactors, i.e., chemical (NADPH) and nanoparticle (Qdots). The Qdots-based method gave promising results in comparison with the NADPH-dependent system. A Qdots-based electron supply to a CYP2B4 and 7-pentoxoresorufin incubation mixture produced a resorufin metabolite. We determined the kinetic rates of the cytochrome P450 reactions induced by photoactivated Qdots. The process comprised UV-induced electron formation by photoactivated Qdots and subsequent enzyme reactions mediated by the resultant electron supply.