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## Fluorescent protein membrane based biosensor for ultrasensitive heme/hemin detection

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Malaria plagues seriously in some tropical parts of the world, partly due to the lack of low-cost, sensitive diagnostic tools accessible. A simple way for fast monitoring malaria infection is to detect the elevated level of heme/hemin in the blood serum. Herein, we have developed a novel optical biosensor for heme/hemin detection, where a fluorescent protein membrane was prepared through simple cross linking. The as-prepared protein film was characterized by various advanced technologies. Its application for ultrasensitive heme/hemin detection was also demonstrated as the fluorescence intensity of the protein membrane was quenched significantly upon the titration of heme/hemin. The ultrasensitive sensing performance is ascribed to Förster resonance energy transfer (FRET) as well as specific binding between heme/hemin and the protein matrix within the hydrophobic region. The present study provides insights into the design of a cheap, simple and high-sensitive heme/hemin fluorescence biosensor which is user-friendly.

### Biography

Xiaoyu Ma is a PhD student in the Department of Biomedical Engineering, University of Connecticut, USA. She earned her Bachelor degree in 2012 from Northwest A&F University, China. Her research concentrates on biodegradable hydrogel for biomedical applications.

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