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# Organic conjugated small molecule materials based optical probe for rapid, colorimetric and UV-vis spectral detection of phosphorylated protein in placental tissue

Yanfang Wang<sup>1</sup>, Na Yang<sup>1</sup>, Yi Liu<sup>2,3\*</sup>

1. Department of Obstetrics, Aviation General Hospital, Beijing 100012, China;
2. School of Information and Communication Engineering, North University of China, Taiyuan 030051, China;
3. Shanxi Provincial Key Laboratory for Biomedical Imaging and Big Data, Taiyuan 030051, China.

## Abstract

A novel organic small molecule with D-Pi-A structure was prepared, which was found to be a promising colorimetric and ratiometric UV-vis spectral probe for detection of phosphorylated proteins with the help of tetravalent zirconium ion. Such optical probe based on chromophore **WYF-1** shows a rapid response (within 10 s) and high selectivity and sensitivity for phosphorylated proteins, giving distinct colorimetric and ratiometric UV-vis changes at 720 and 560 nm. The detection limit for phosphorylated proteins was estimated to be 100 nM. In addition, detection of phosphorylated proteins in placental tissue samples with this probe was successfully applied, which indicates that this probe holds great potential for phosphorylated proteins detection.

**Key words:** Phosphorylated protein; Biomaterials; Optical materials and properties; Preeclampsia.

\* Corresponding author: 740013412@qq.com

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