Supporting Information

Monolayer Molecular Probes for Efficient Detection of Trace Amount Cyanide Anions

Fei Wu, a Shangbi Zhao, a Linna Zhu a

aChongqing Key Laboratory for Advanced Materials and Technologies of Clean Energy, Faculty of Materials and Energy, Southwest University, Chongqing 400715, P.R. China.

Corresponding Author: Linna Zhu, Faculty of Materials and Energy, Chongqing, China, E-mail address: lnzhu@swu.edu.cn. Tel.: +86 23 68254957.

Figure S1. Absorption spectra change of P1 (5 μM) in the presence of increasing concentrations of CN− (0-40 μM) in THF solution.
Figure S2. Fluorescence titration of P1 (5 μM) to cyanide ions in THF solution. Inset shows the NIR emission color changes before and after addition of CN⁻.

Figure S3. Plots of fluorescence intensity at 590 nm of P1 (5 μM) with the addition of CN⁻ in THF. \(\lambda_{ex}=500\) nm. Slits: 3 nm/5 nm. Inset: fluorescence intensity at 590 nm as a linear function of CN⁻ concentration from 0 to 16 μM.
Figure S4. Partial $^1$H NMR spectral changes upon the addition of cyanide anion to P1 in CD$_3$CN.

Figure S5. Fading time of M-P1 after treatment of CN$^-$ versus the soaking time of NiO film in P1 solution. Inset shows the film colors of M-P1 under different soaking time of NiO film.
Figure S6. Photographs of M-P1 (on TiO\textsubscript{2} films) immersed into different anions solution. Upside: photos taken with M-P1 immersed in anion solution; downside: the glasses are taken out from the anions solution.

Figure S7. Photographs of M-P1 on TiO\textsubscript{2} films and its color change when soaked in the mixed anions solution in the presence and absence of CN\textsuperscript{-}. 
Figure S8. The monolayer and multilayer P1 before and after immersing into the CN⁻ solution. a) represents the multilayer P1, and b) shows the monolayer of P1.