Electronic Supplementary Material (ESI) for Analyst.

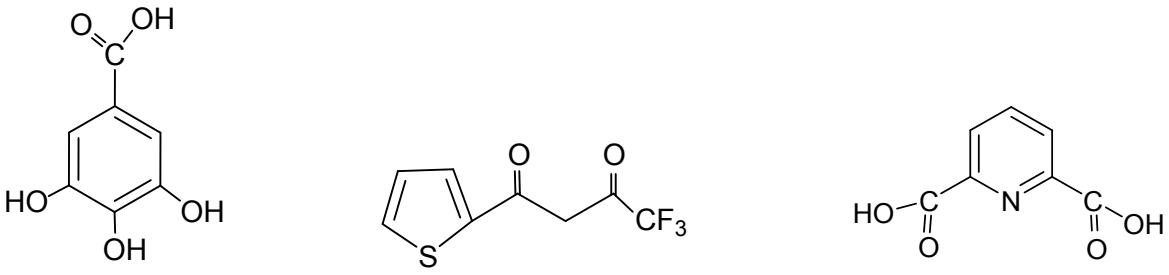
Supplementary Information

Luminescent europium complex for wide-range pH sensor and sensor microtiterplate

Wafaa Waleed Al-Qaysi, Axel Dürkop*

Institute of Analytical Chemistry, Chemo and Biosensors, University of Regensburg, 93040 Regensburg, Germany

[a] Institute of Analytical Chemistry, Chemo and Biosensors, University of Regensburg, 93040 Regensburg, Germany; E-mail: axel.duerkop@ur.de; wafaa.al-qaysi@chemie.uni-regensburg.de; Tel.: (+49) 941-943-4063



Gallic acid TTA PDA

Scheme 1 Chemical structures of Gall, TTA and PDA

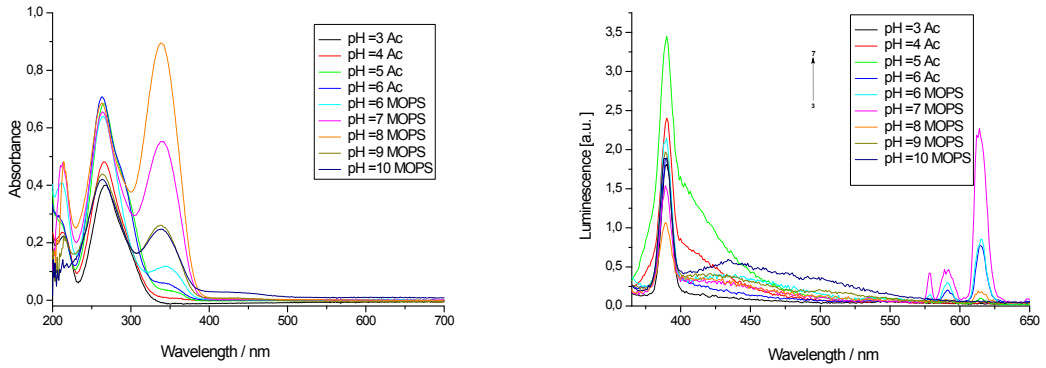


Figure S1 Absorption and emission spectra of Eu-TTA-Gall in 1:3:1 molar ratio (c = 10 µmol/L related to c(Eu^{3+}), Ac or MOPS buffer 10 mmol/L).

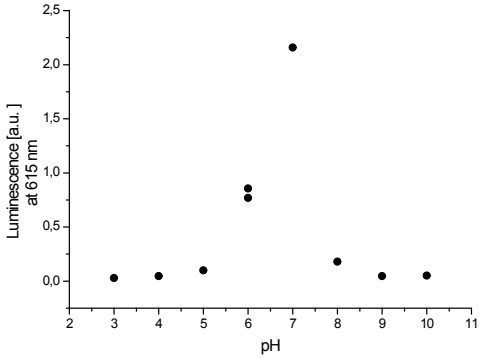


Figure S2 Titration plot derived from the emission spectra of Eu-TTA-Gall in 1:3:1 molar ratio at 615 nm.

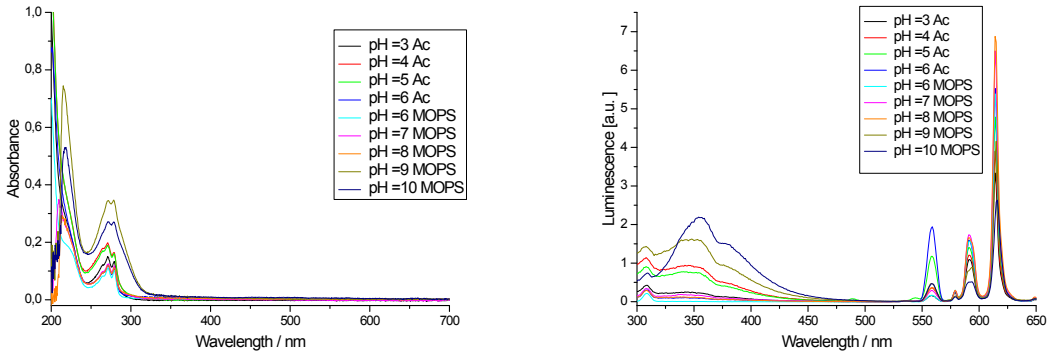


Figure S3 Absorption and emission spectra of Eu-PDA in 1:1 molar ratio (c = 10 µmol/L related to c(Eu^{3+}), Ac or MOPS buffer 10 mmol/L).

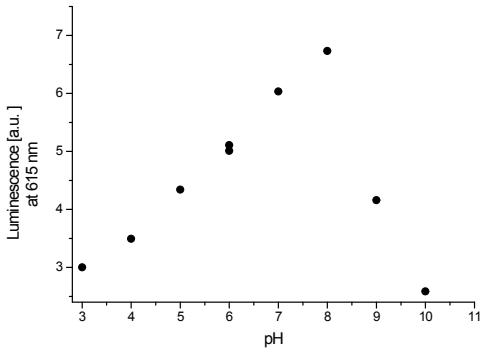


Figure S4 Titration plot derived from the emission intensity of Eu-PDA in 1:1 molar ratio at 615 nm.

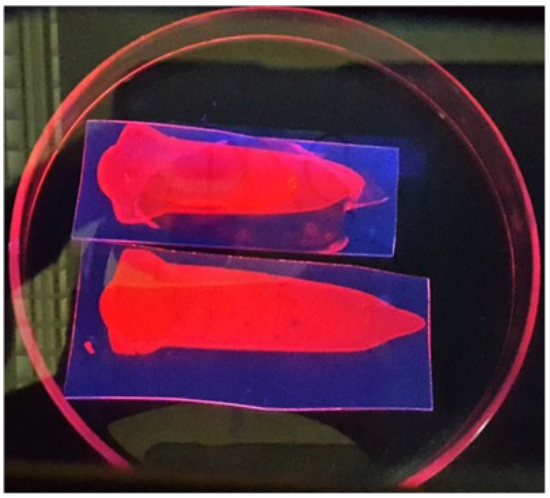


Figure S5 pH sensor foil containing Eu^{3+}-TTA- PDA-Gall (1:3:1:1) upon illumination with a UV lamp (366 nm).

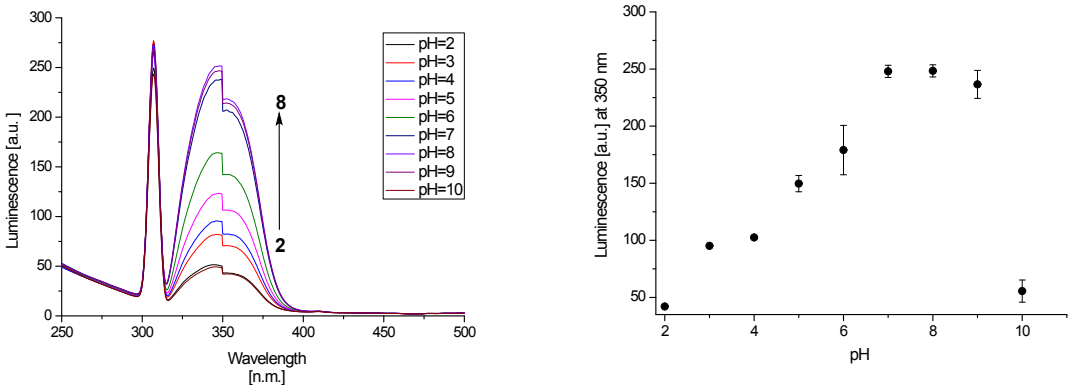


Figure S6 Excitation spectra of sensor membrane containing Eu^{3+}-TTA-PDA-Gall in molar ratio 1:3:1:1 (c=10 mmol/L related to Eu^{3+}, Ac-MOPS-CAPS buffer (10 mmol/L), λ_{em}= 615 nm, n=4). The sudden drops of the emission at 352 nm in the spectra are an instrumental artifact.

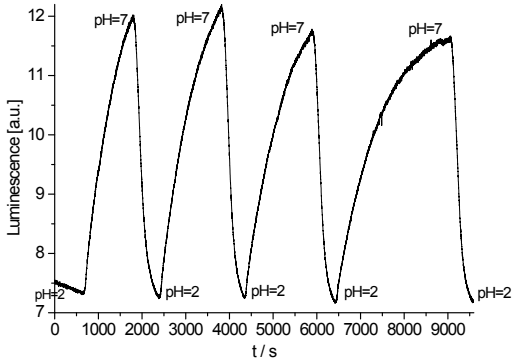


Figure S7 Reversibility of pH sensor membrane (thickness 30 µm) when switching from pH 2-7.

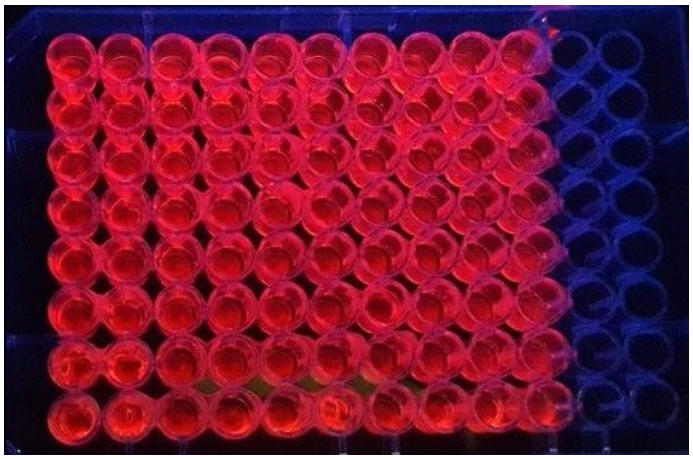


Figure S8 pH sensor microtiterplate with Eu^{3+}-TTA-PDA-Gall (1:3:1:1) upon illumination with UV lamp (366 nm).

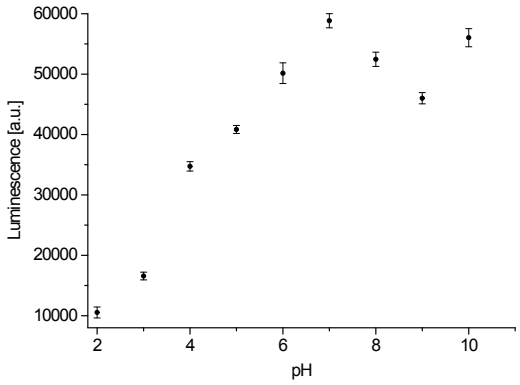


Figure S9 Response of sensor microtiterplate with Eu^{3+}-TTA-PDA-Gall (Ac-MOPS-CAPS buffer (10 mmol/L) to various pH (λ_{em} = 615 nm, λ_{exc} = 355 nm, n=8) after 24 h.