Electronic Supplementary Information (ESI)

A highly specific Rhodamine-based colorimetric probe for hypochlorite and its application in tap water

Xiaoding Lou, Yi Zhang, Qianqian Li, [*] *Jingui Qin, and Zhen Li* [*]

Department of Chemistry, Hubei Key Lab on Organic and Polymeric Opto-Electronic Materials, Wuhan University, Wuhan, 430072, China. Fax: 86 27 68756757; Tel: 86 27 62254108; E-mail: lizhen@whu.edu.cn

Experimental Section

Materials and Instrumentations

Compound **1** was obtained following literature procedures.[25] All reagents were of analytical reagent grade and used without further purification. Doubly distilled water was used for all experiments. CuI, NaClO, H_2O_2, Na_2SO_4, $NaClO_4$, $NaNO_2$, Na_2CO_3, $NaAc{\cdot}3H_2O$, $Na_4P_2O_7$ and Sodium Ascorbate were purchased from Sinopharm Chemical Reagent Beijing Co., Ltd. UV-visible spectra were obtained using a Shimadzu UV-2550 spectrometer, and the pH values were determined by using a DELTA 320 PH dollar.

Preparation of solutions of metal ions and anions

1 mmol of each reagents (CuI, 190 mg; NaClO, 680 μL; H_2O_2,100 μL; Na_2SO_4, 142 mg; $NaClO_4$, 122 mg; $NaNO_2$, 69 mg; Na_2CO_3, 106 mg; $NaAc{\cdot}3H_2O$, 136 mg; $Na_4P_2O_7$, 266 mg; Sodium Ascorbate, 198 mg) was dissolved in distilled water (10 mL) to afford 1×10^{-1} mol/L aqueous solution. Tris-HCl buffer solutions (pH = 7.0) were prepared using 0.01 M Tris, proper amount of HCl under adjustment by a pH meter. The stock solutions could be diluted to desired concentrations with water before usage. A 5.0×10^{-4} mol/L stock solution of Compound **1** was

prepared in acetonitrile, then 200 μL of this stock solution was added to a 10 mL glass tube and diluted by Tris-HCl (10 mM, pH = 7.0) buffer and acetonitrile to obtain the solutions of **1 (**10 μM) in Tris-HCl buffer containing 50%(v/v) water/CH_3CN.

UV absorption changes of 1 by Cu^+

A solution of **1** (10 μM) was prepared in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN, then 3.0 mL of the solution of **1** was placed in a quartz cell (10.0 mm width) and the UV absorption spectrum was recorded before and after the addition of Sodium Ascorbate and Cu^+ to the solution of **1**.

UV absorption changes of 1 + Cu^+ with ClO^-

A solution of **1** (10 μM) was prepared in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN, then 3.0 mL of the solution of **1** was placed in a quartz cell (10.0 mm width) and the UV absorption spectrum was recorded. After the solution of Sodium Ascorbate and Cu^+ was added to **1**, the solution of NaClO was introduced in portions and the UV absorption changes were recorded at room temperature each time.

UV absorption changes of 1 + Cu^+ with other anions

The solutions of anions were prepared in distilled water. UV absorption changes of **1** (1.0×10^{-5} mol/L) + Cu^+ (4.0×10^{-5} mol/L) + Sodium Ascorbate (3.0×10^{-6} mol/L) were recorded before and after the addition of anions to the solution of **1**.

UV absorption changes of 1 + Cu^{2+} with tap water

The UV absorption changes of **1** (1.0×10^{-5} mol/L) + Cu^+ (4.0×10^{-5} mol/L) + Sodium Ascorbate (3.0×10^{-6} mol/L) were recorded before and after the addition of different amount of tap water.

UV absorption changes of 1 + Cu^+ with ClO^- and other anions

Then UV absorption changes of **1** (1.0×10^{-5} mol/L) + Cu^+ (4.0×10^{-5} mol/L) + Sodium

Ascorbate (3.0×10^{-6} mol/L) were recorded before and after the addition of NaClO and the other anions (CO_3^{2-}, Ac^-, $P_2O_7^{4-}$).

UV absorption changes of 1 + $P_2O_7^{4-}$ with Cu^{2+}

The UV absorption changes of **1** (1.0×10^{-5} mol/L) + $P_2O_7^{4-}$ (7.0×10^{-5} mol/L) were recorded before and after the addition of different amount of Cu^{2+}.

UV absorption changes of 1 + $P_2O_7^{4-}$ + Cu^{2+}+ Cu^+ with ClO^-

The UV absorption changes of **1** (1.0×10^{-5} mol/L) + $P_2O_7^{4-}$ (7.0×10^{-5} mol/L) + Cu^{2+}(5.0×10^{-5}, 4.0×10^{-5}, 3.0×10^{-5}, 2.0×10^{-5}mol/L) + Cu^+ (4.0×10^{-5} mol/L) + Sodium Ascorbate (3.0×10^{-6} mol/L) were recorded before and after the addition of different amount of ClO^-.

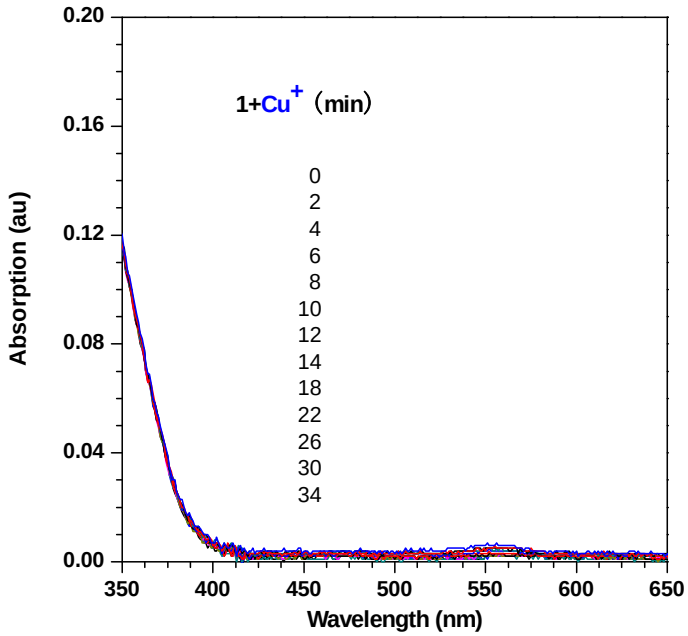

Fig. S1 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (3.0×10^{-5} mol/L) and Sodium Ascorbate (1.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN.

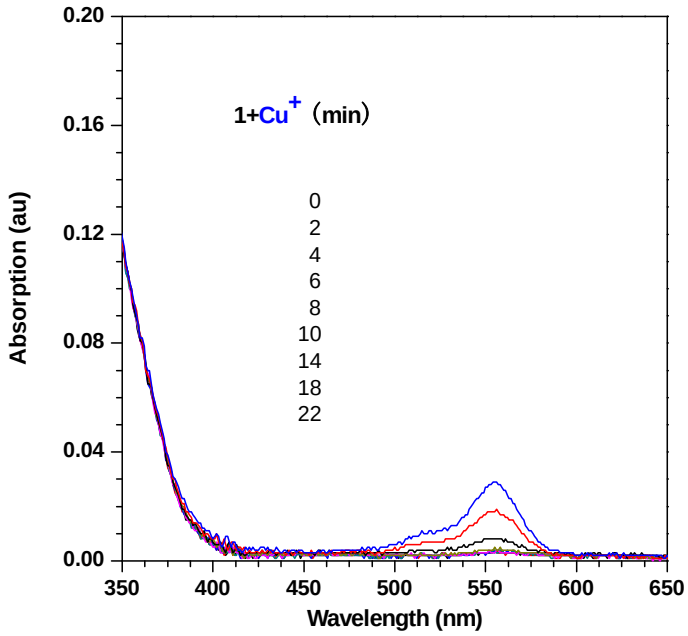

Fig. S2 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (6.0×10^{-5} mol/L) and Sodium Ascorbate (1.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN.

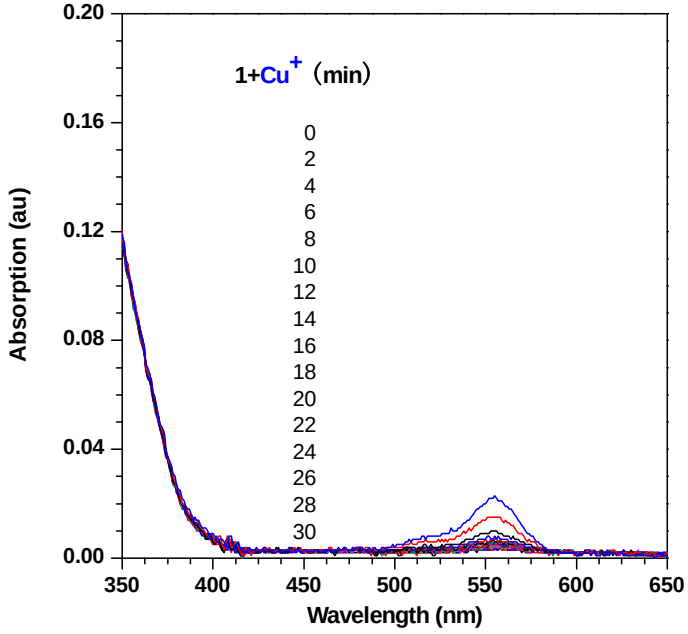

Fig. S3 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (6.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN.

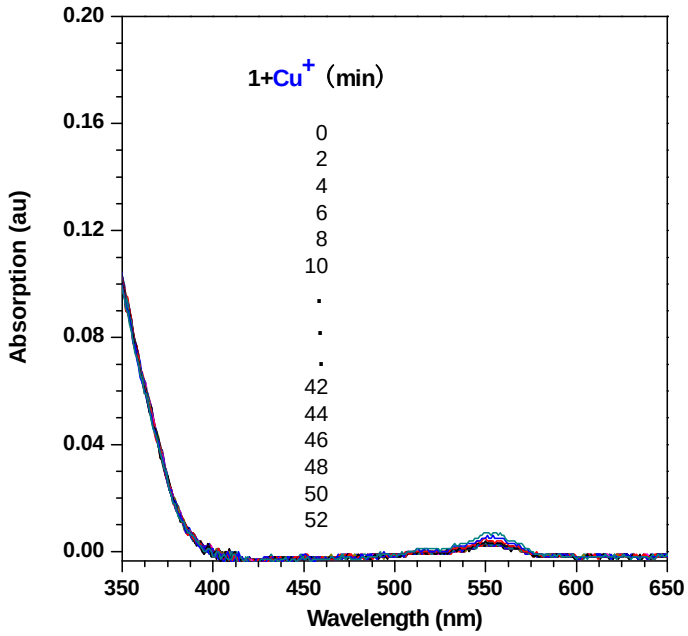

Fig. S4 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN.

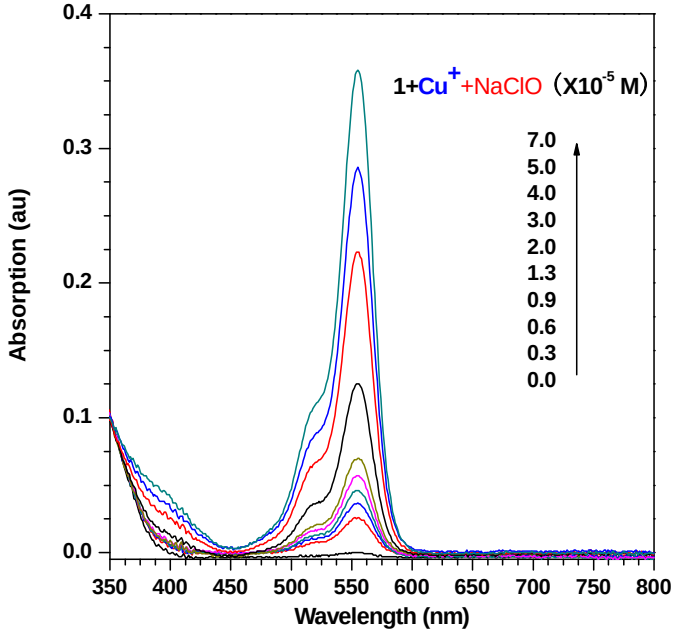

Fig. S5 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of NaClO after 30min.

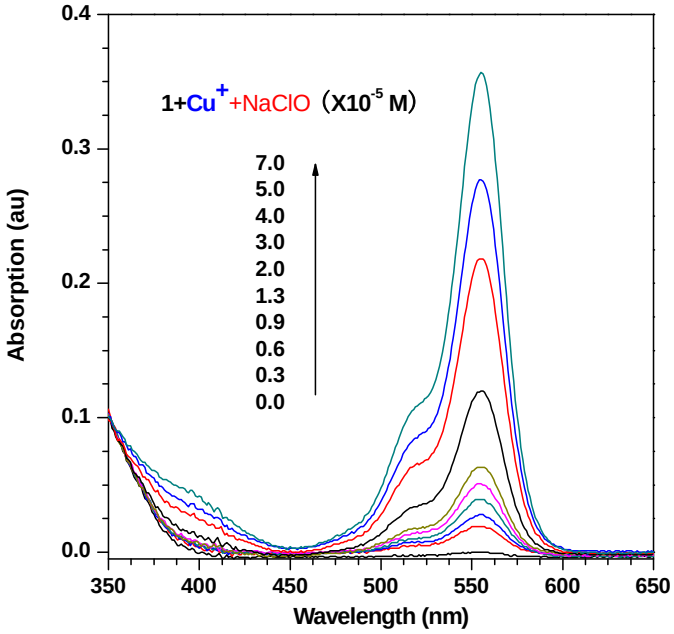

Fig. S6 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of NaClO after 27min.

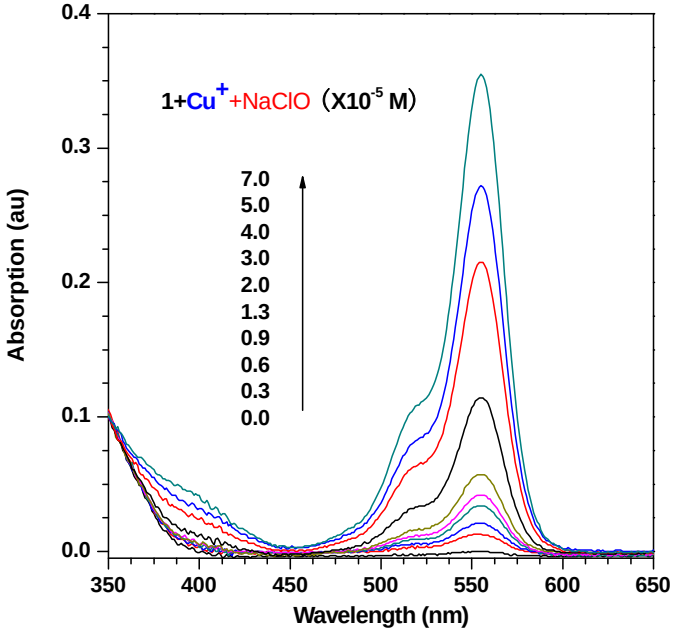

Fig. S7 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of NaClO after 24min.

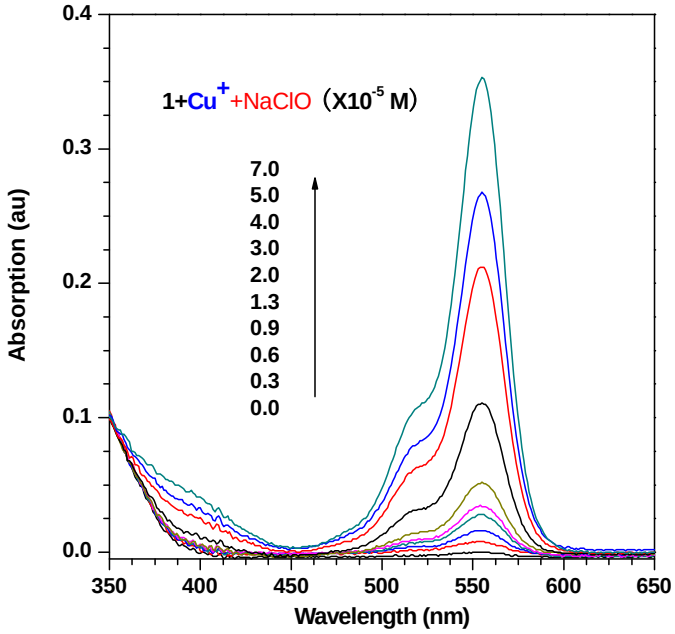

Fig. S8 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of NaClO after 21min.

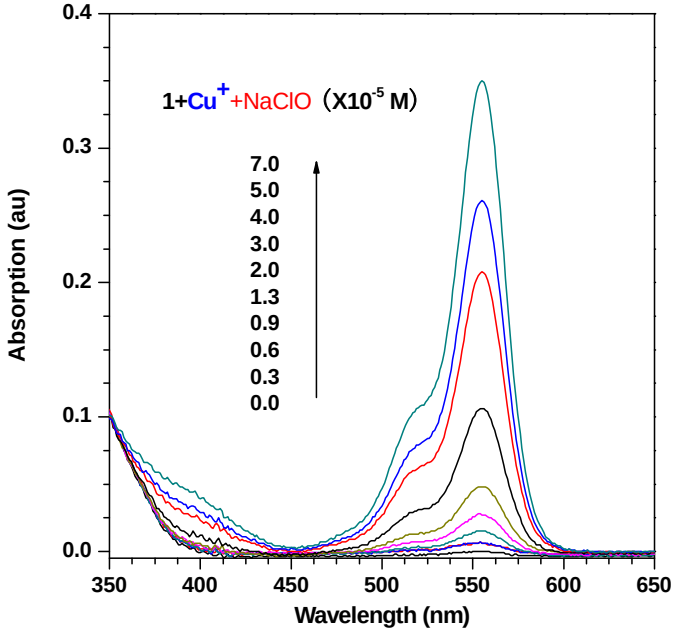

Fig. S9 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of NaClO after 18min.

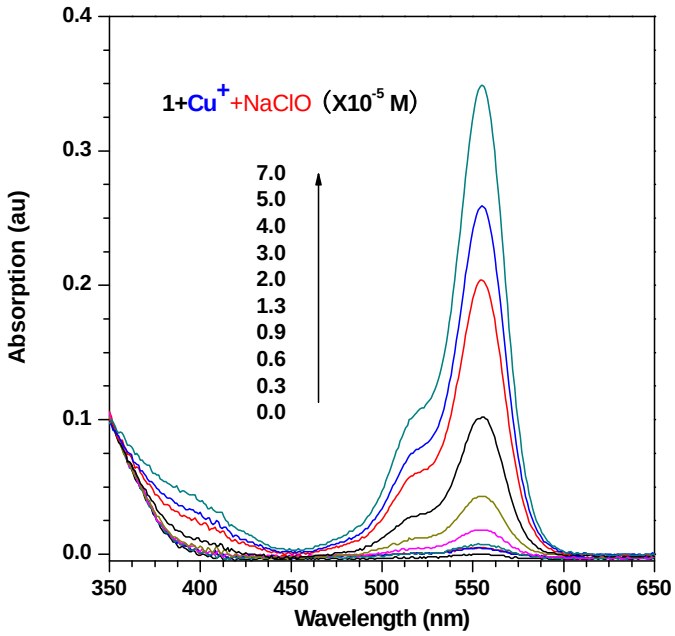

Fig. S10 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of NaClO after 15min.

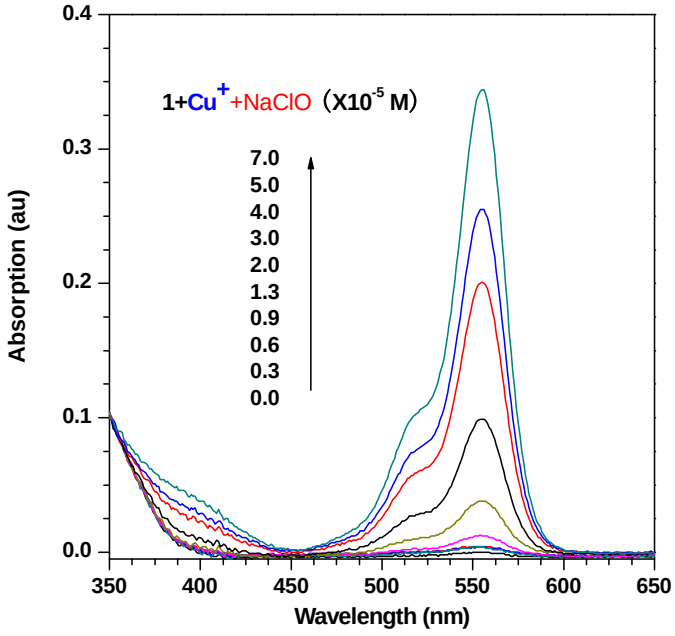

Fig. S11 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of NaClO after 12min.

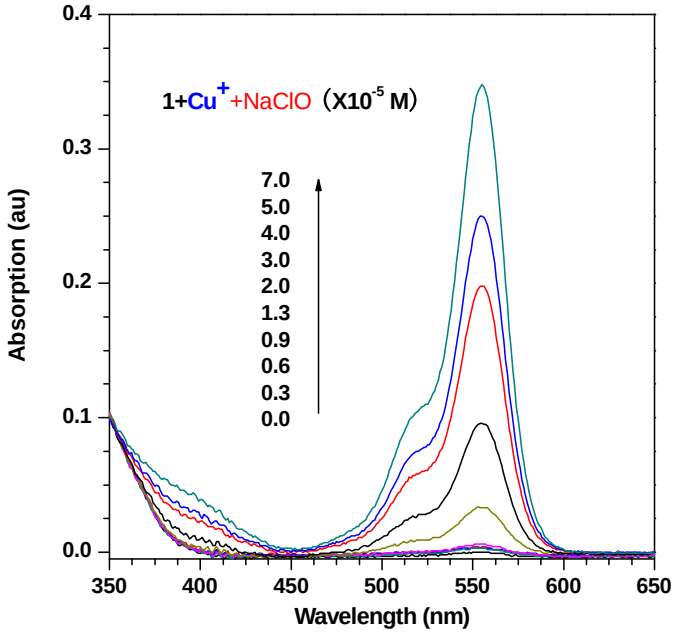

Fig. S12 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of NaClO after 9min.

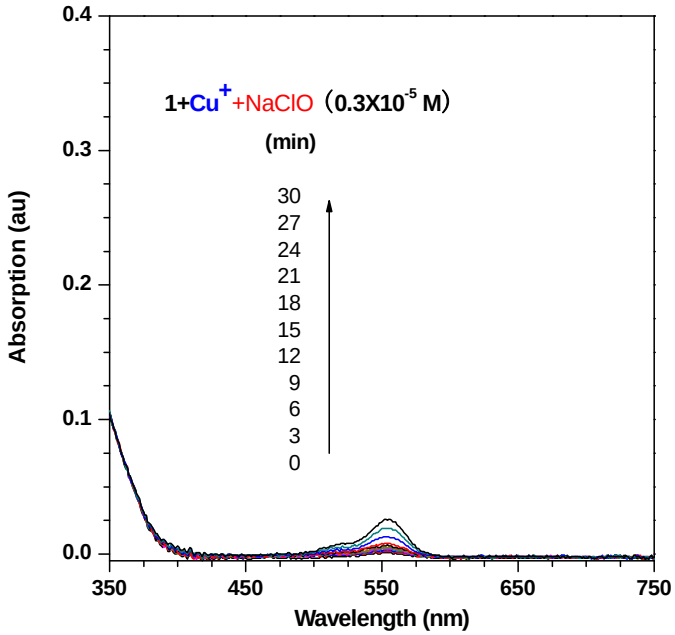

Fig. S13 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NaClO (3.0×10^{-6} mol/L) at different time.

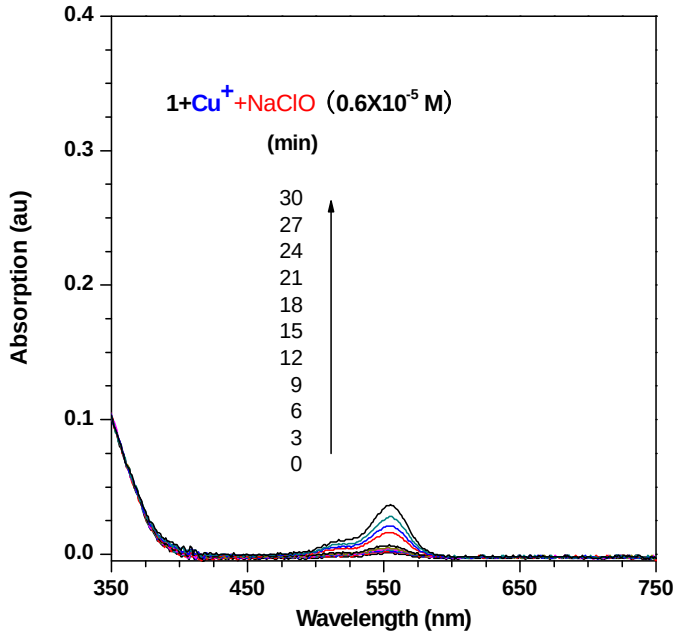

Fig. S14 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NaClO (6.0×10^{-6} mol/L) at different time.

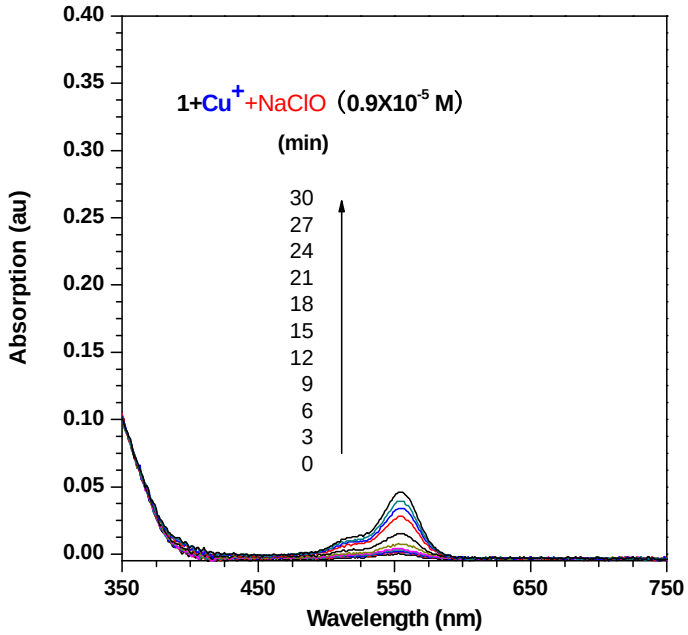

Fig. S15 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NaClO (9.0×10^{-6} mol/L) at different time.

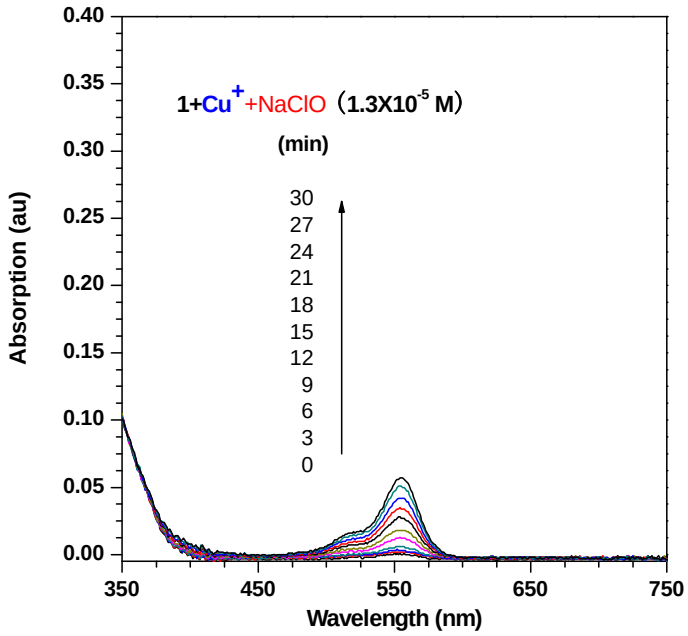

Fig. S16 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NaClO (1.3×10^{-5} mol/L) at different time.

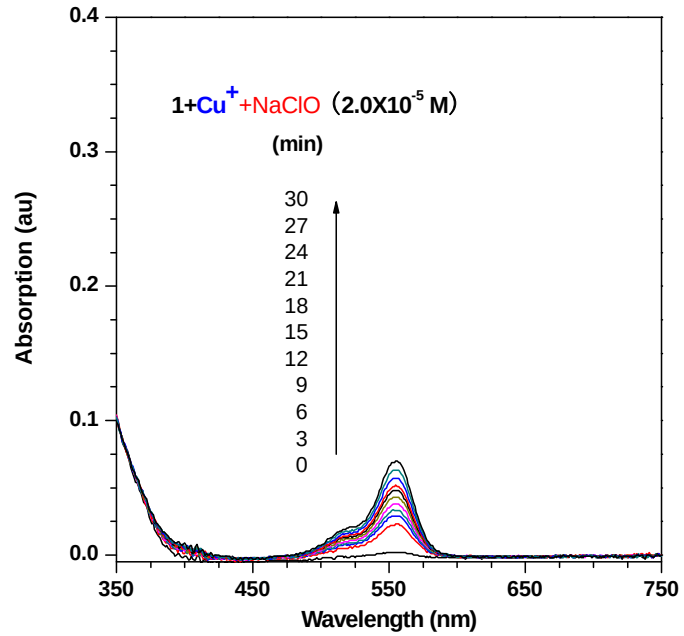

Fig. S17 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NaClO (2.0×10^{-5} mol/L) at different time.

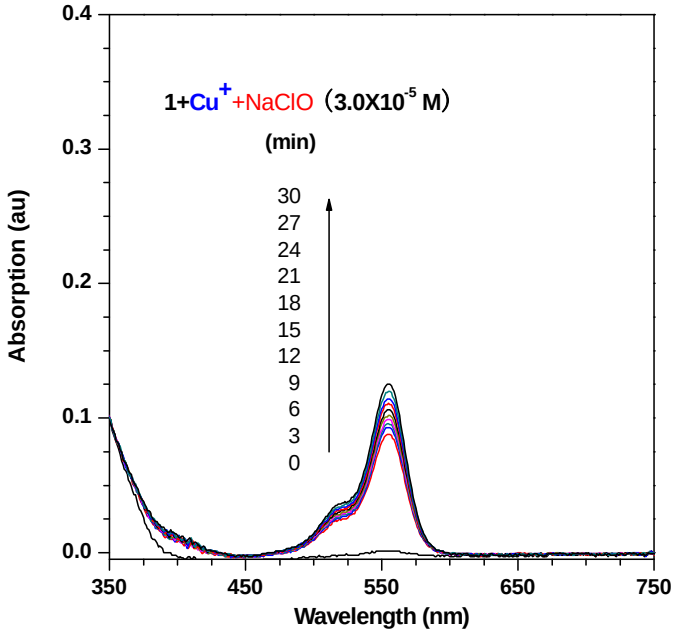

Fig. S18 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NaClO (3.0×10^{-5} mol/L) at different time.

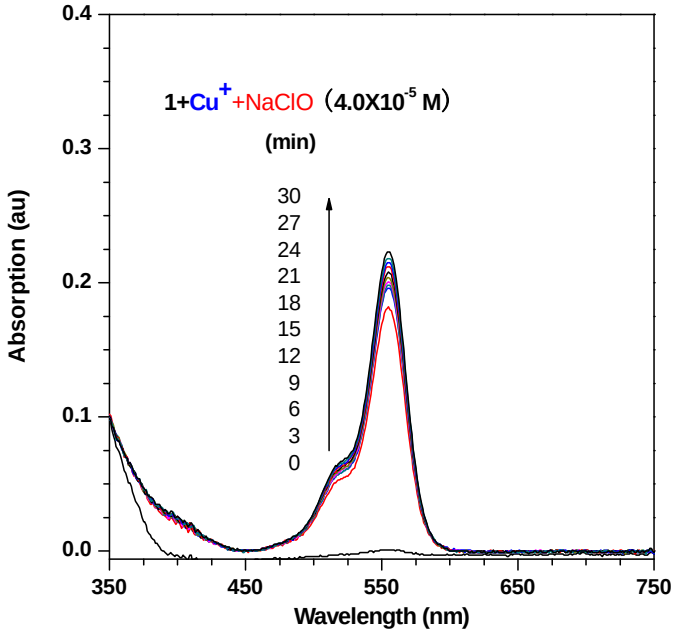

Fig. S19 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NaClO (4.0×10^{-5} mol/L) at different time.

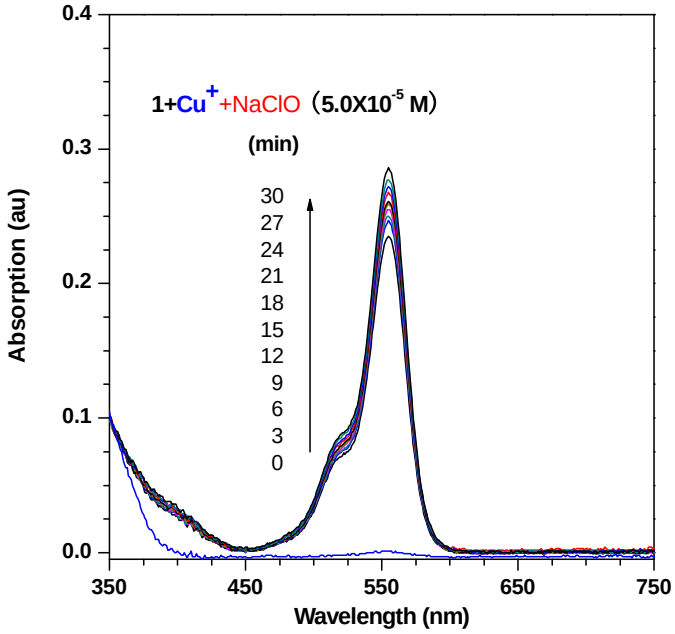

Fig. S20 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NaClO (5.0×10^{-5} mol/L) at different time.

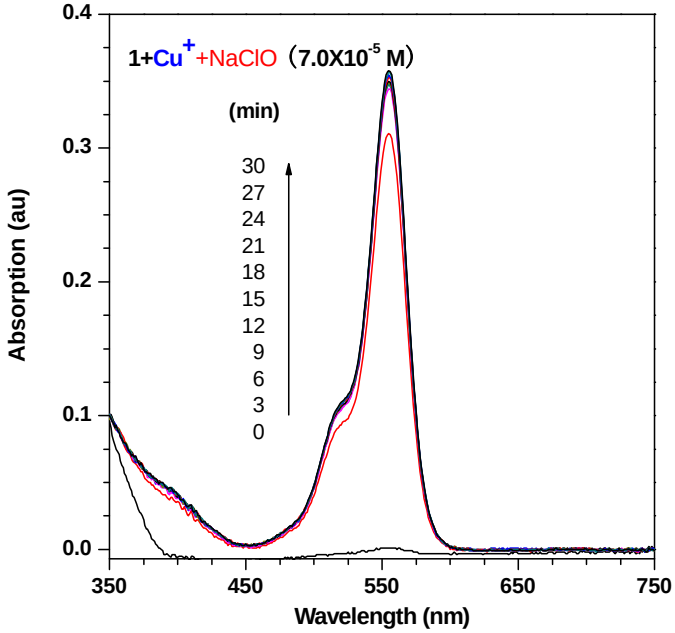

Fig. S21 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NaClO (7.0×10^{-5} mol/L) at different time.

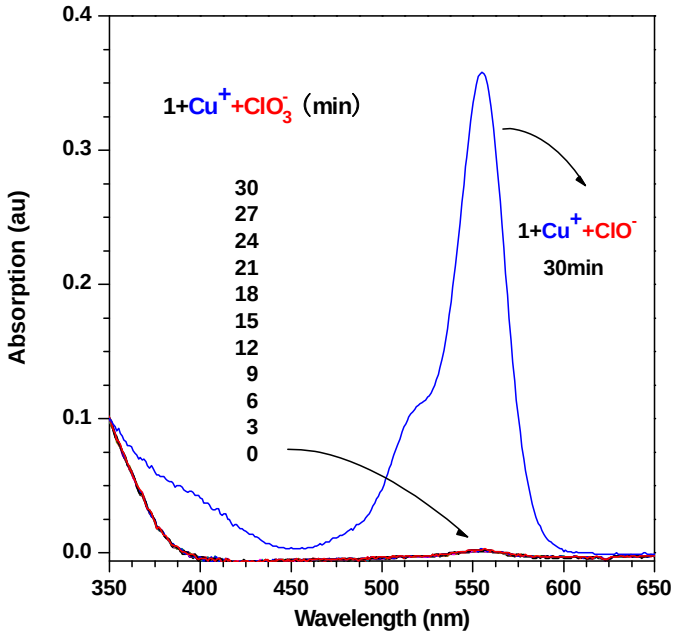

Fig. S22 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of ClO_3^- (1.3×10^{-4} mol/L). The concentration of ClO^- was 7.0×10^{-5} mol/L.

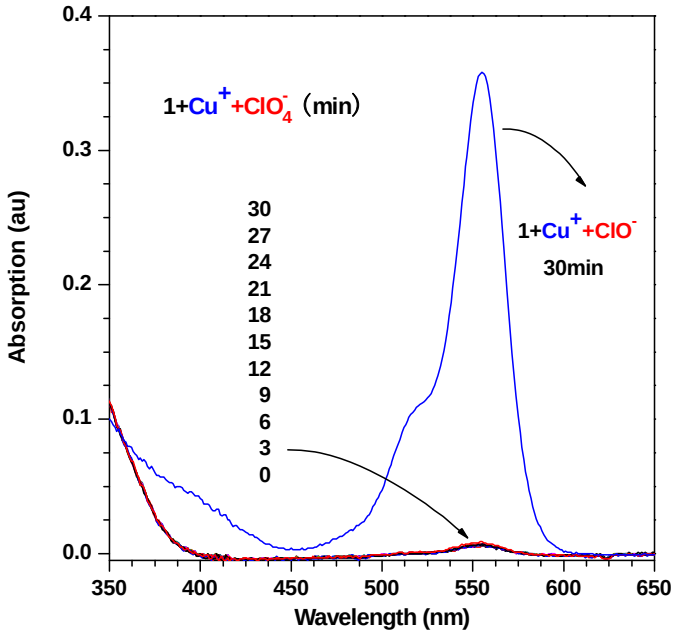

Fig. S23 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of ClO_4^- (1.3×10^{-4} mol/L). The concentration of ClO^- was 7.0×10^{-5} mol/L.

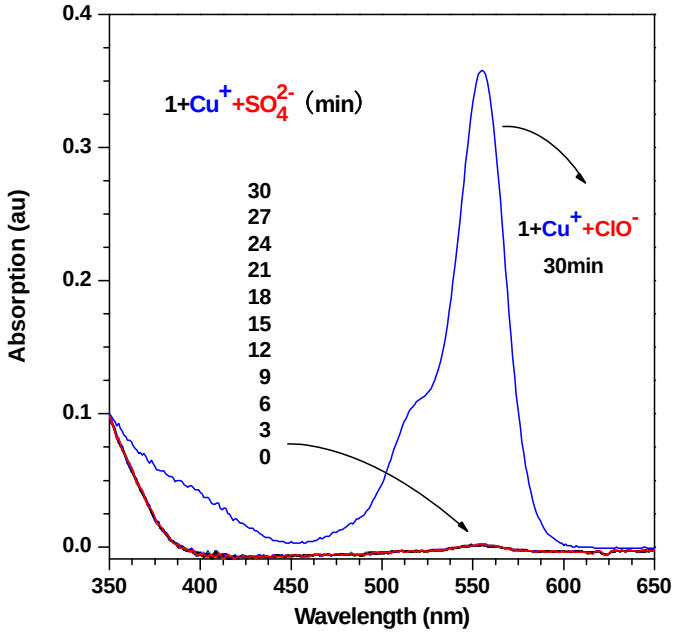

Fig. S24 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of SO_4^{2-} (1.3×10^{-4} mol/L). The concentration of ClO^- was 7.0×10^{-5} mol/L.

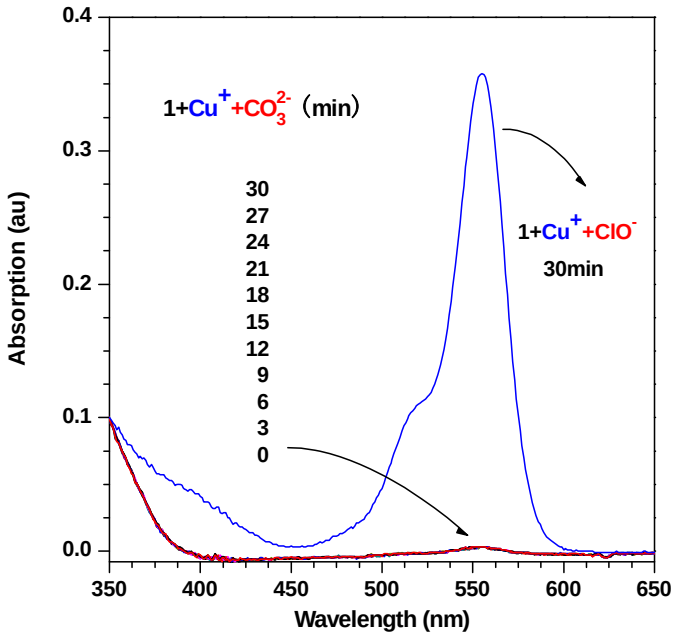

Fig. S25 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of CO_3^{2-} (1.3×10^{-4} mol/L). The concentration of ClO^- was 7.0×10^{-5} mol/L.

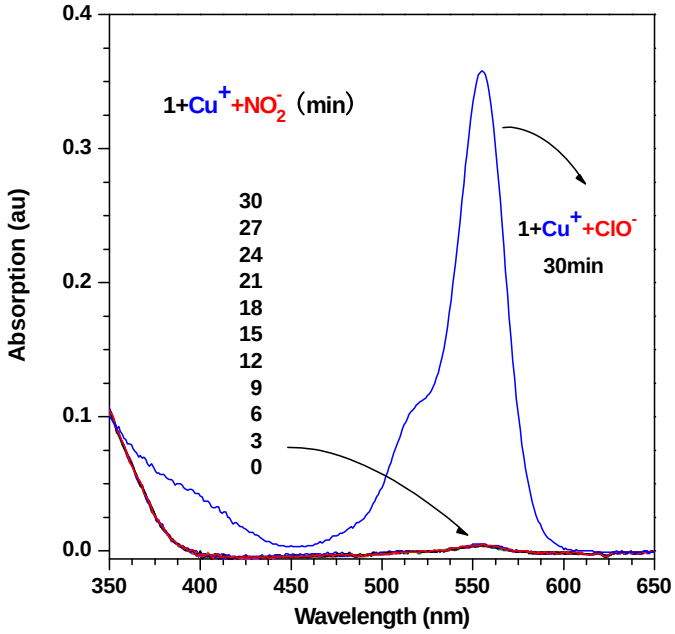

Fig. S26 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NO_2^- (1.3×10^{-4} mol/L). The concentration of ClO^- was 7.0×10^{-5} mol/L.

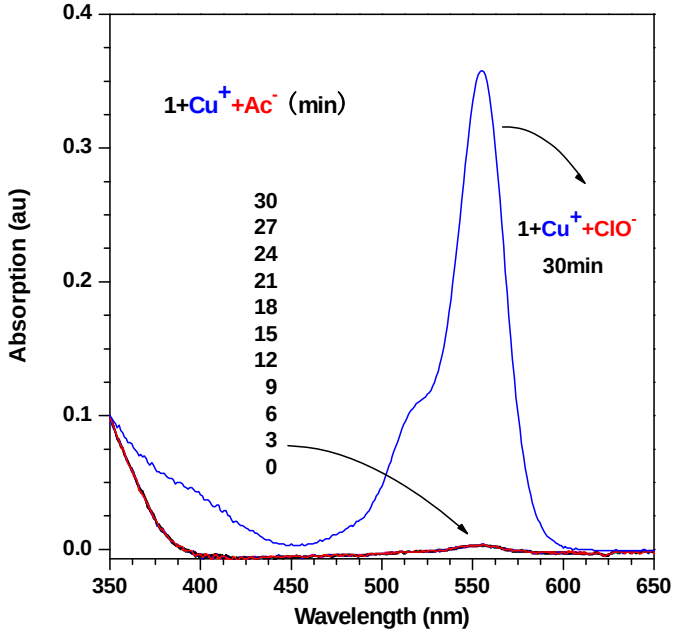

Fig. S27 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of Ac^- (1.3×10^{-4} mol/L). The concentration of ClO^- was 7.0×10^{-5} mol/L.

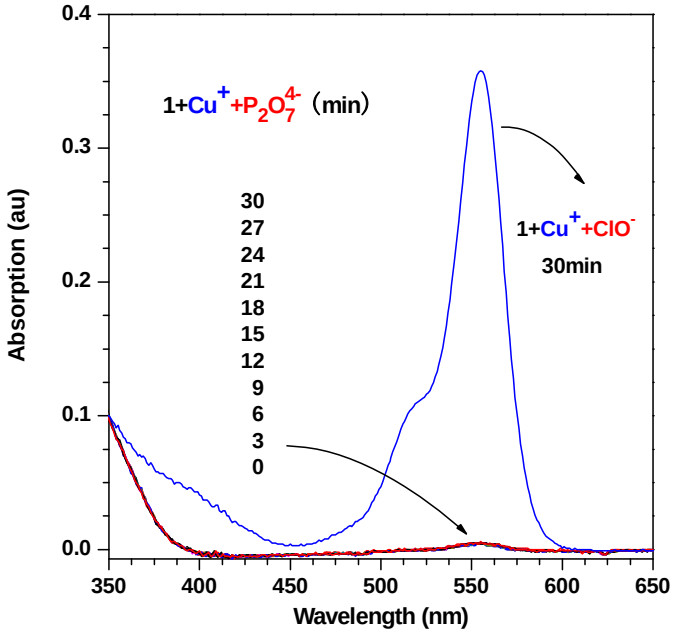

Fig. S28 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of $P_2O_7^{4-}$ (1.3×10^{-4} mol/L). The concentration of ClO^- was 7.0×10^{-5} mol/L.

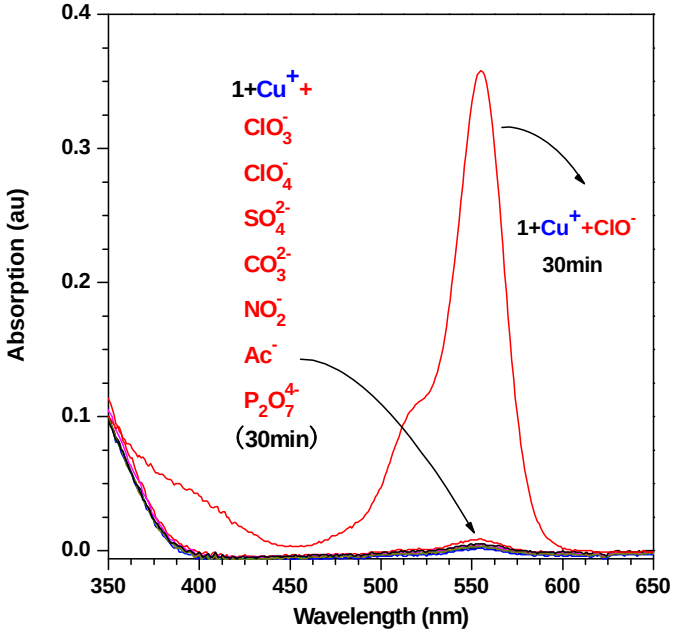

Fig. S29 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different anions (1.3×10^{-4} mol/L) after 30min. The concentration of ClO^- was 7.0×10^{-5} mol/L.

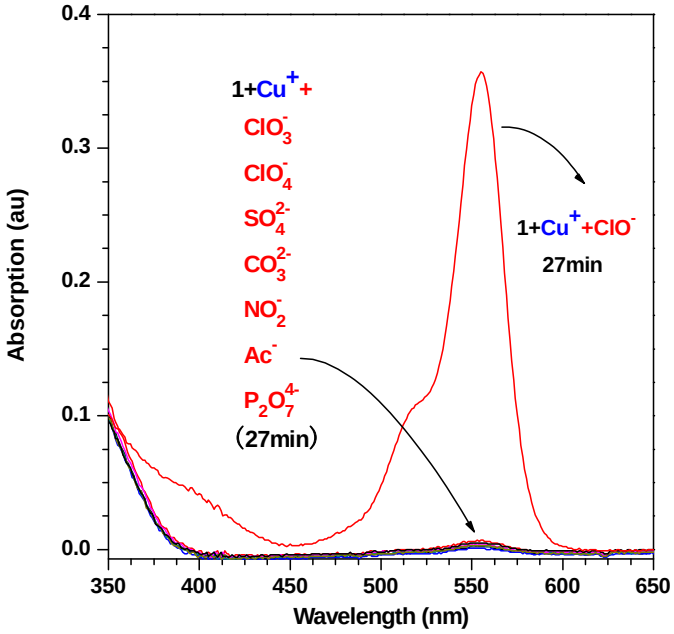

Fig. S30 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different anions (1.3×10^{-4} mol/L) after 27min. The concentration of ClO^- was 7.0×10^{-5} mol/L.

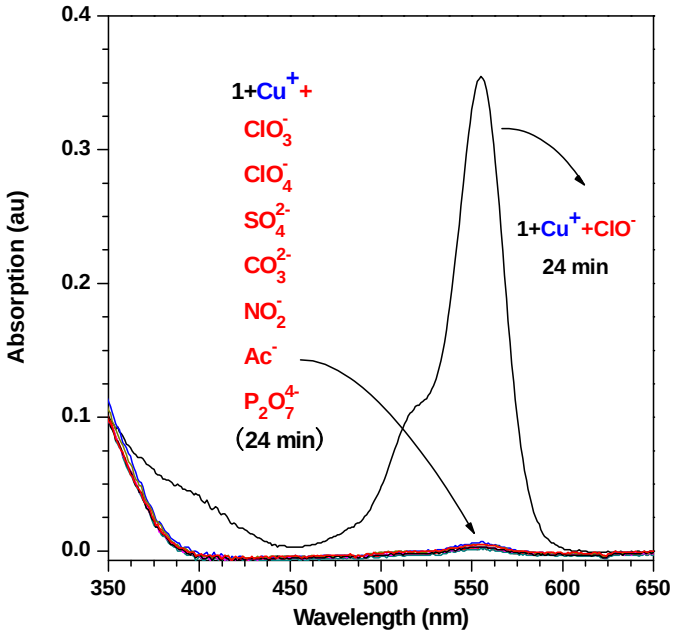

Fig. S31 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different anions (1.3×10^{-4} mol/L) after 24min. The concentration of ClO^- was 7.0×10^{-5} mol/L.

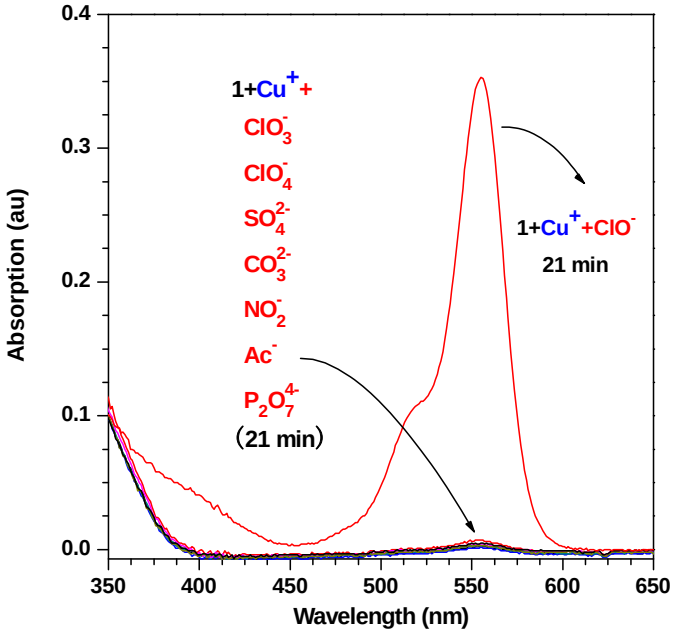

Fig. S32 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different anions (1.3×10^{-4} mol/L) after 21min. The concentration of ClO^- was 7.0×10^{-5} mol/L.

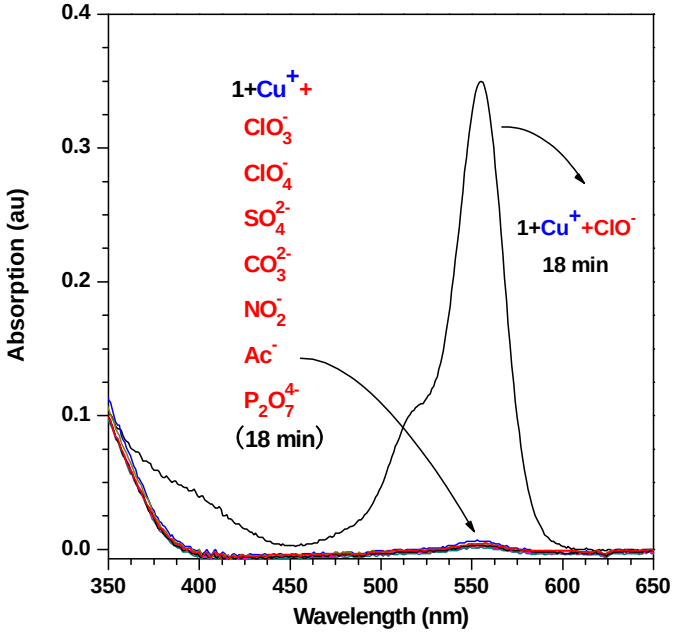

Fig. S33 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different anions (1.3×10^{-4} mol/L) after 18min. The concentration of ClO^- was 7.0×10^{-5} mol/L.

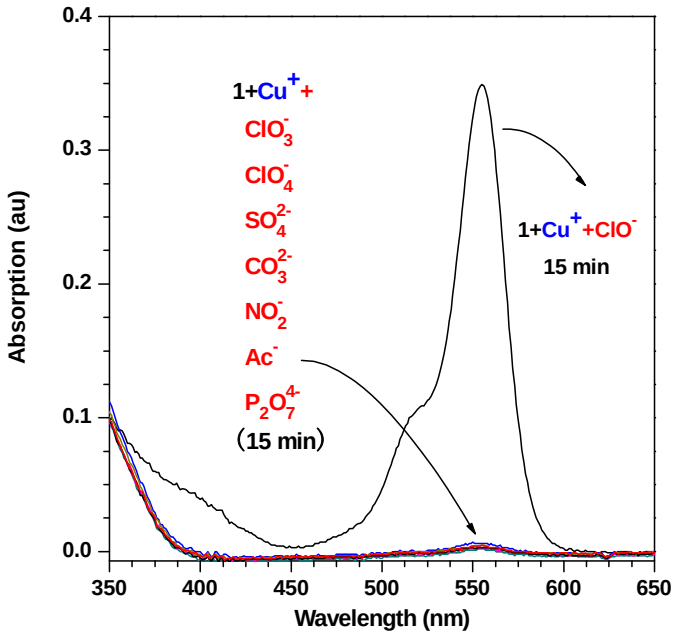

Fig. S34 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different anions (1.3×10^{-4} mol/L) after 15min. The concentration of ClO^- was 7.0×10^{-5} mol/L.

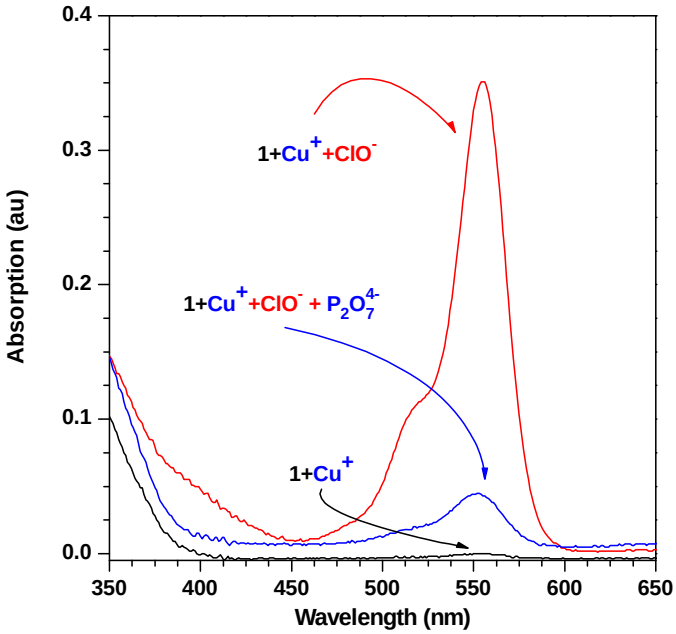

Fig. S35 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of $P_2O_7^{4-}$ (7.0×10^{-5} mol/L) after 30min. The concentration of ClO^- was 7.0×10^{-5} mol/L.

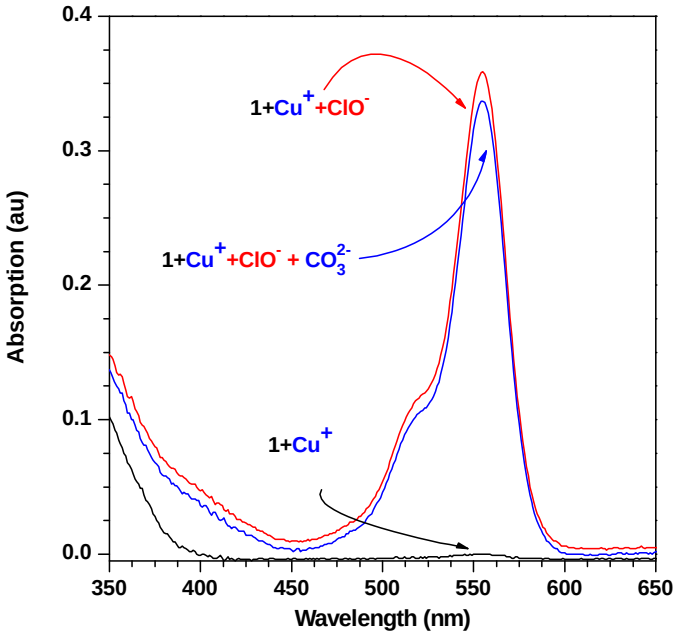

Fig. S36 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of CO_3^{2-} (7.0×10^{-5} mol/L) after 30min. The concentration of ClO^- was 7.0×10^{-5} mol/L.

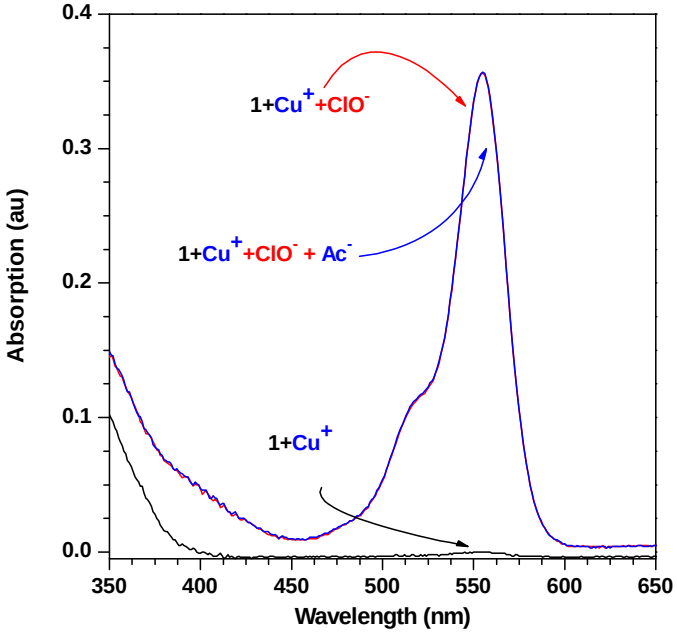

Fig. S37 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of Ac^- (7.0×10^{-5} mol/L) after 30min. The concentration of ClO^- was 7.0×10^{-5} mol/L.

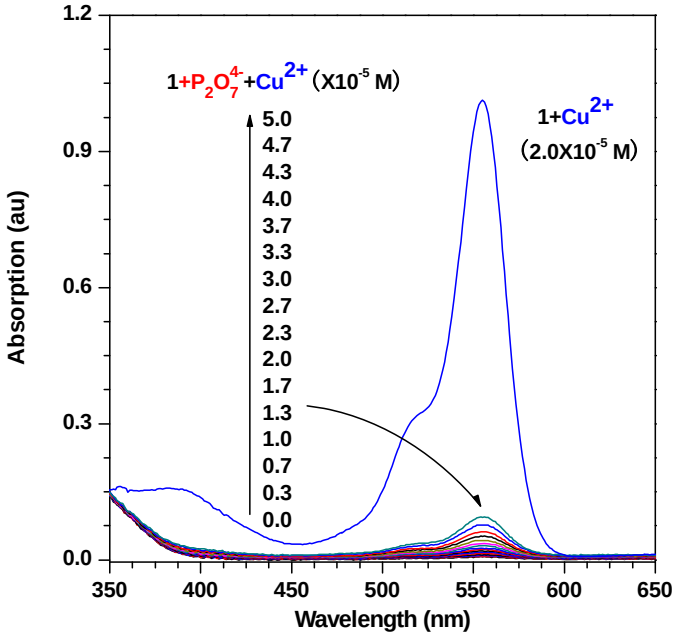

Fig. S38 Absorption spectra of **1** (1.0×10^{-5} mol/L), $P_2O_7^{4-}$ (7.0×10^{-5} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of Cu^{2+}.

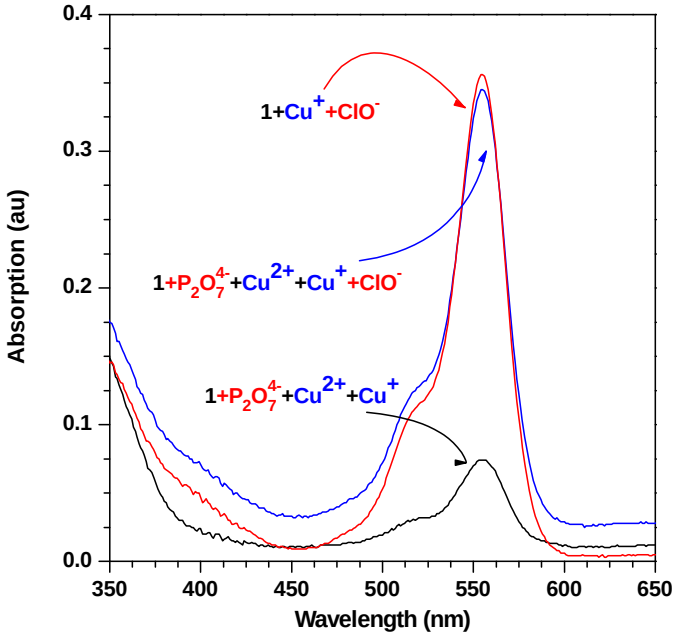

Fig. S39 Absorption spectra of **1** (1.0×10^{-5} mol/L), $P_2O_7^{4-}$ (7.0×10^{-5} mol/L), Cu^{2+} (5.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of ClO^- (7.0×10^{-5} mol/L) after 30min.

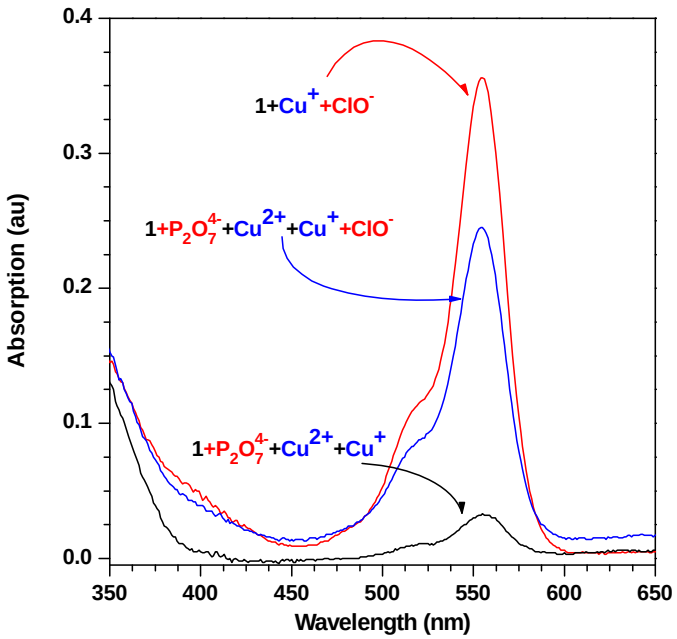

Fig. S40 Absorption spectra of **1** (1.0×10^{-5} mol/L), $P_2O_7^{4-}$ (7.0×10^{-5} mol/L), Cu^{2+} (4.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of ClO^- (7.0×10^{-5} mol/L) after 30min.

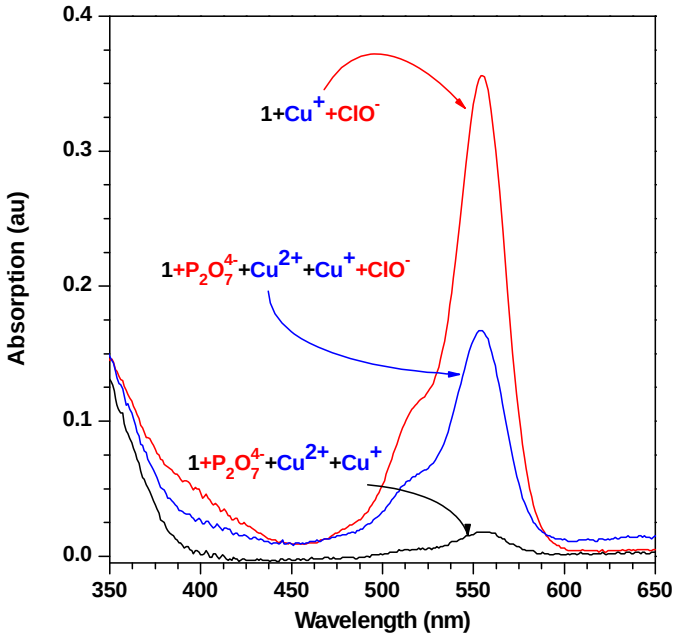

Fig. S41 Absorption spectra of **1** (1.0×10^{-5} mol/L), $P_2O_7^{4-}$ (7.0×10^{-5} mol/L), Cu^{2+} (3.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of ClO^- (7.0×10^{-5} mol/L) after 30min.

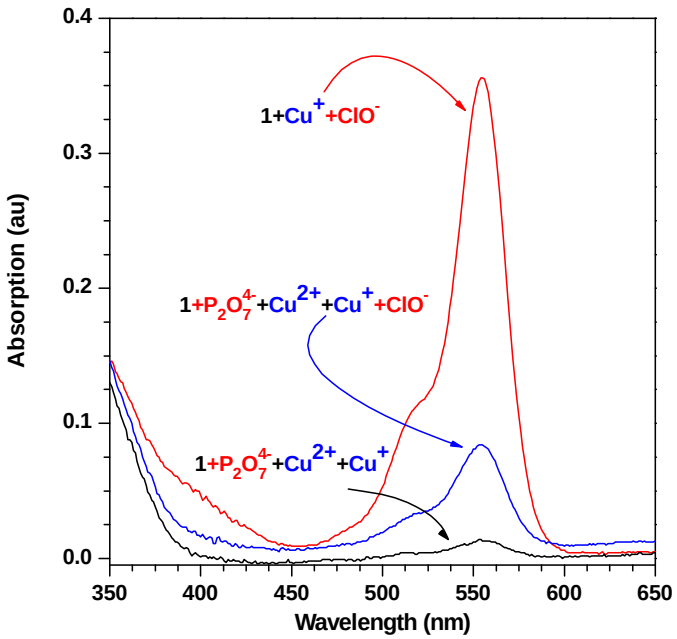

Fig. S42 Absorption spectra of **1** (1.0×10^{-5} mol/L), $P_2O_7^{4-}$ (7.0×10^{-5} mol/L), Cu^{2+} (2.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of ClO^- (7.0×10^{-5} mol/L) after 30min.

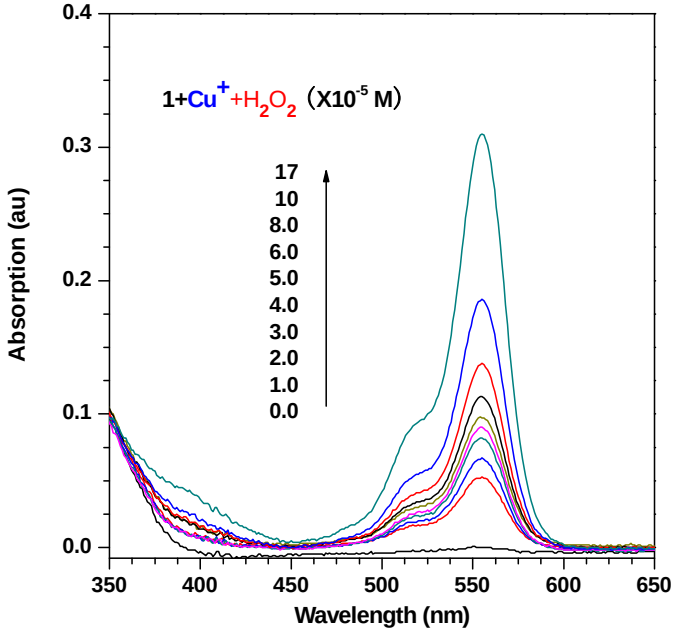

Fig. S43 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of H_2O_2 after 30min.

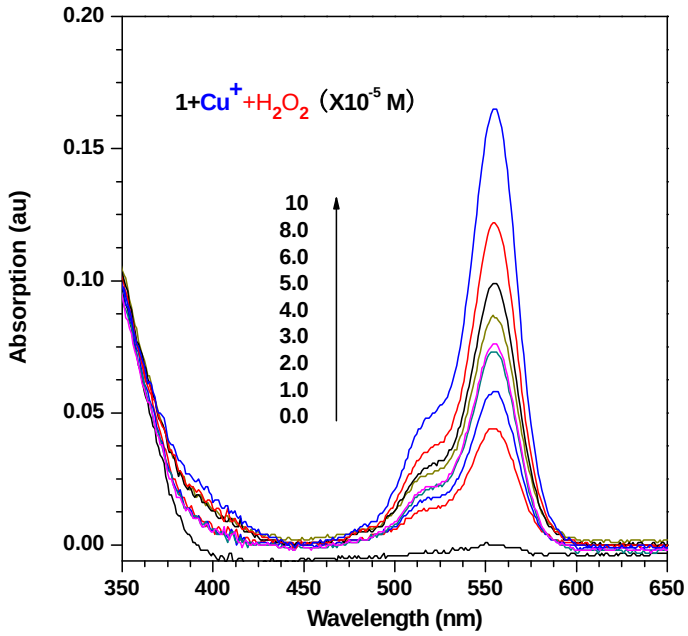

Fig. S44 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of H_2O_2 after 27min.

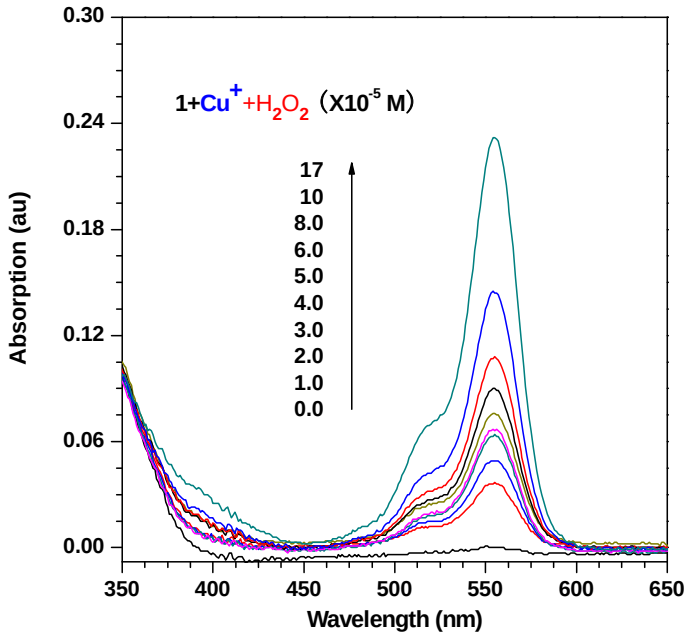

Fig. S45 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of H_2O_2 after 24min.

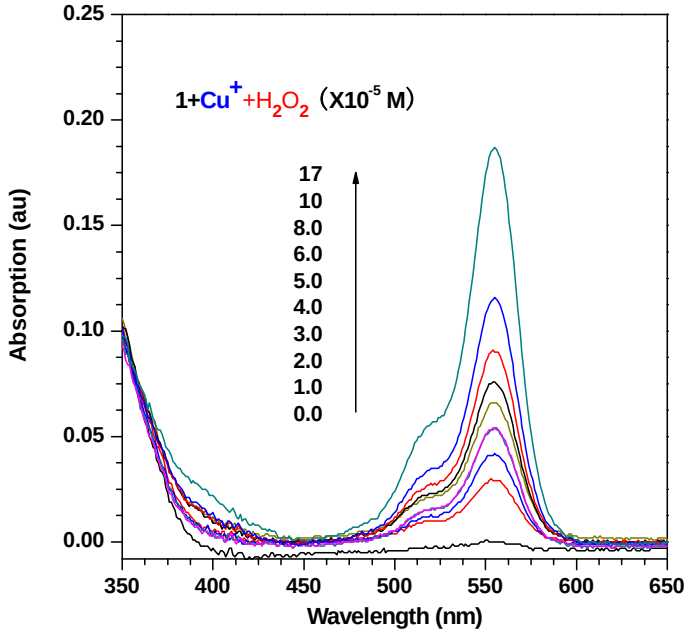

Fig. S46 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of H_2O_2 after 21 min.

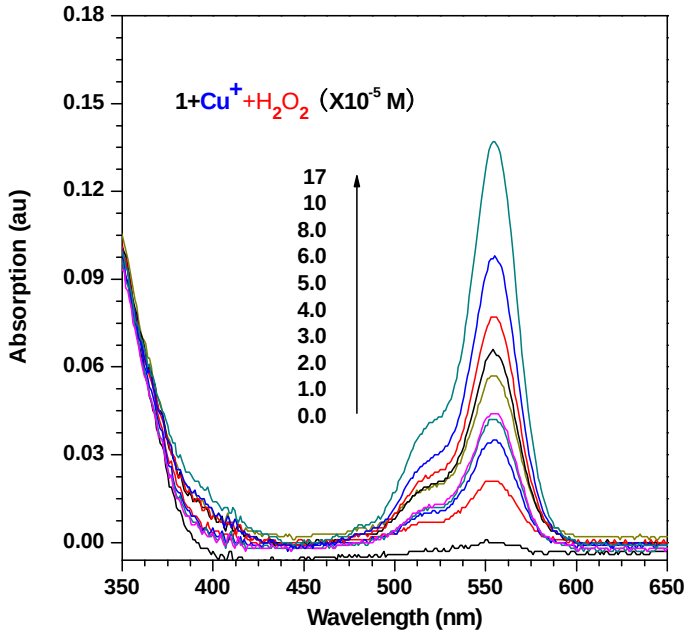

Fig. S47 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of H_2O_2 after 18 min.

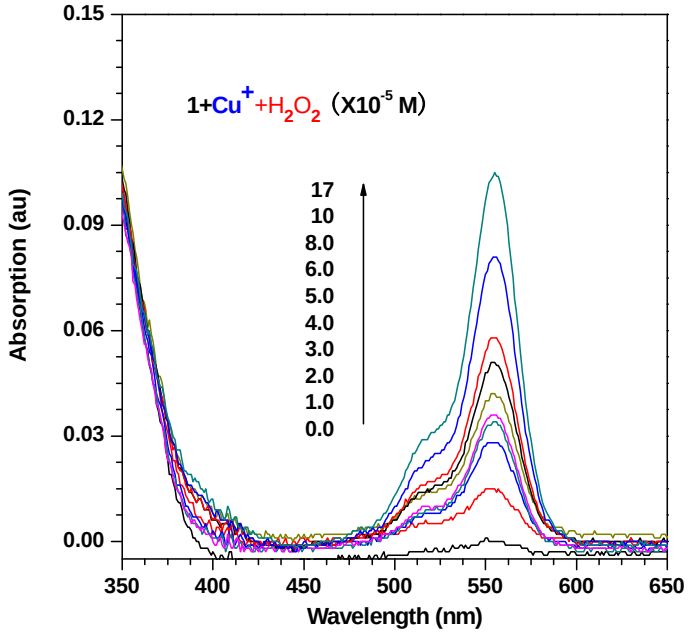

Fig. S48 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of H_2O_2 after 15 min.

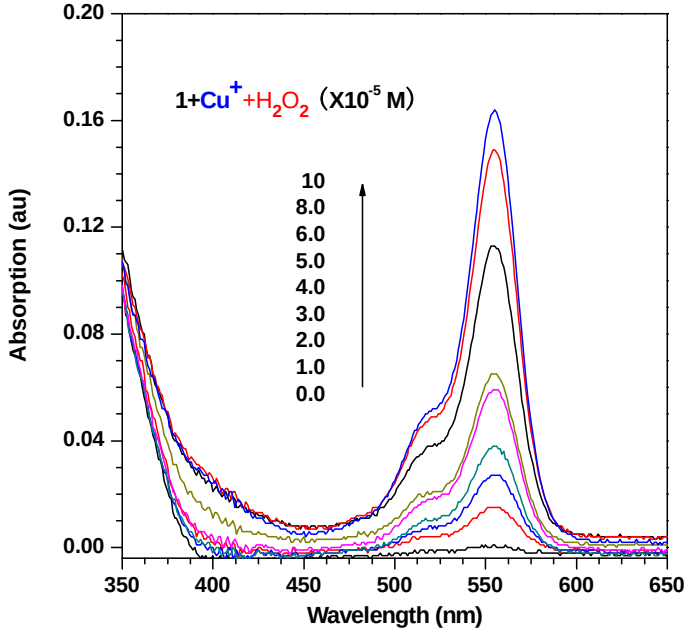

Fig. S49 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (6.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of H_2O_2 after 21 min.

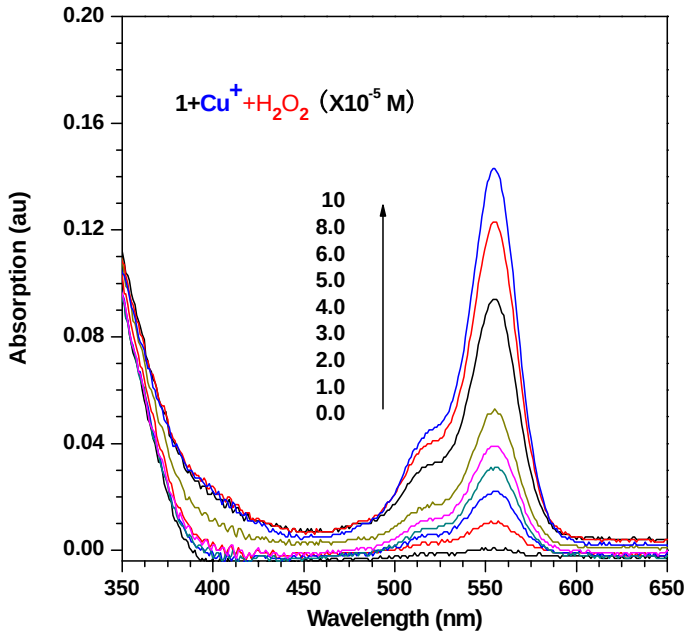

Fig. S50 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (6.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of H_2O_2 after 18 min.

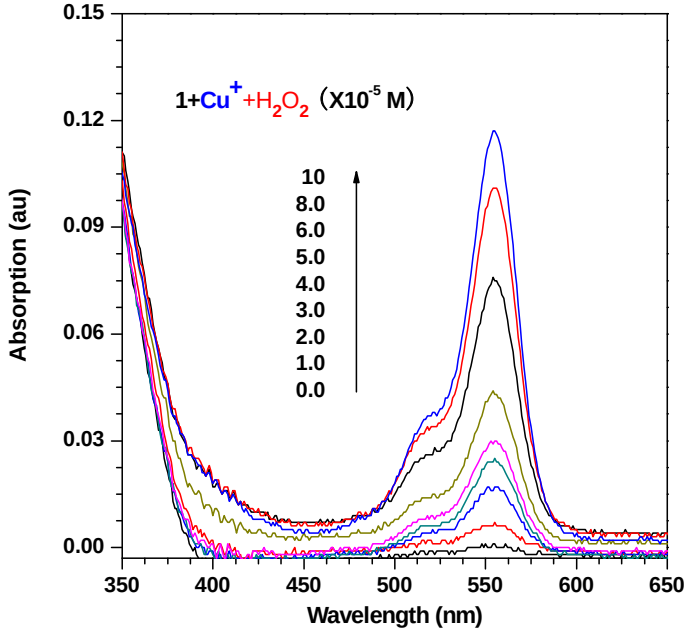

Fig. S51 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (6.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of H_2O_2 after 15 min.

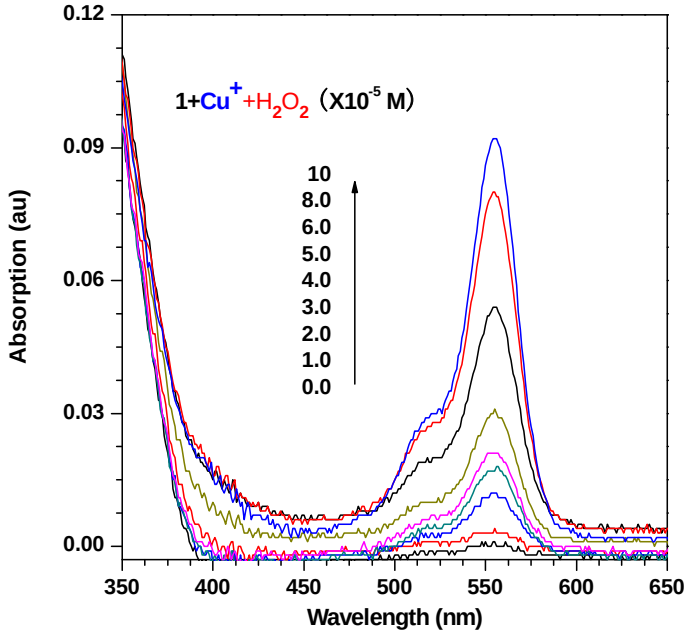

Fig. S52 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (6.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of H_2O_2 after 12 min.

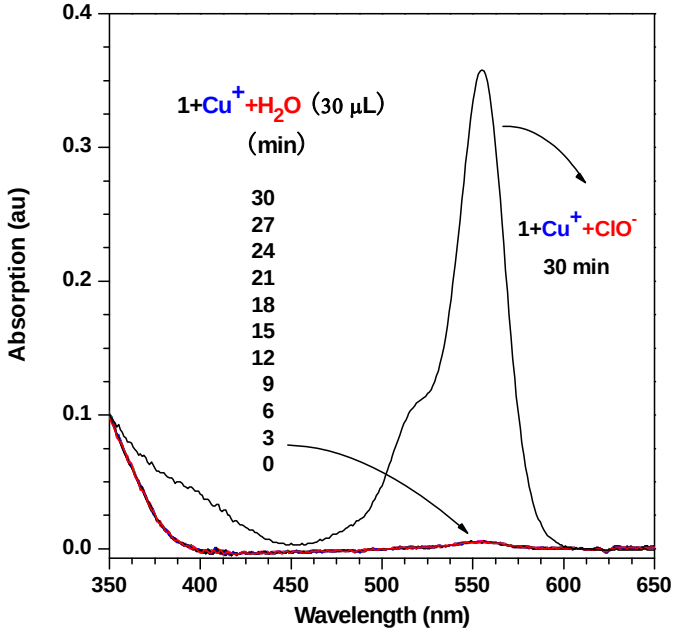

Fig. S53 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of 30 μL water. The concentration of ClO^- was 7.0×10^{-5} mol/L.

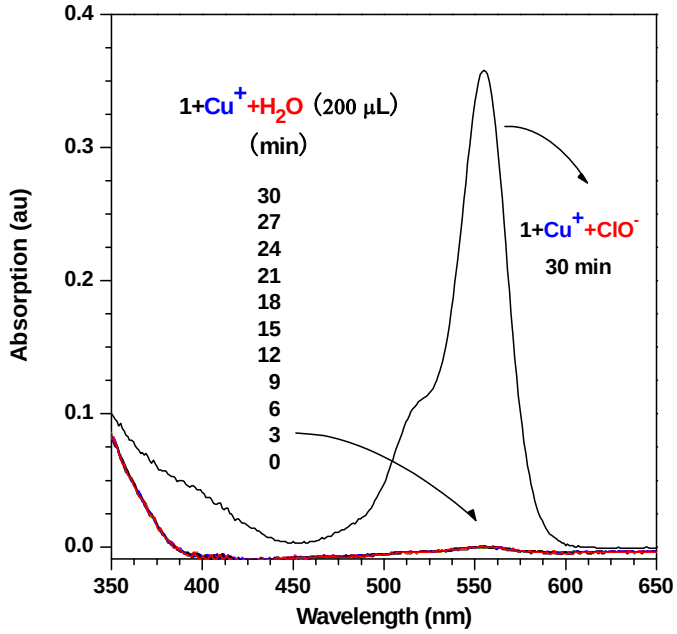

Fig. S54 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of 200 μL water. The concentration of ClO^- was 7.0×10^{-5} mol/L.

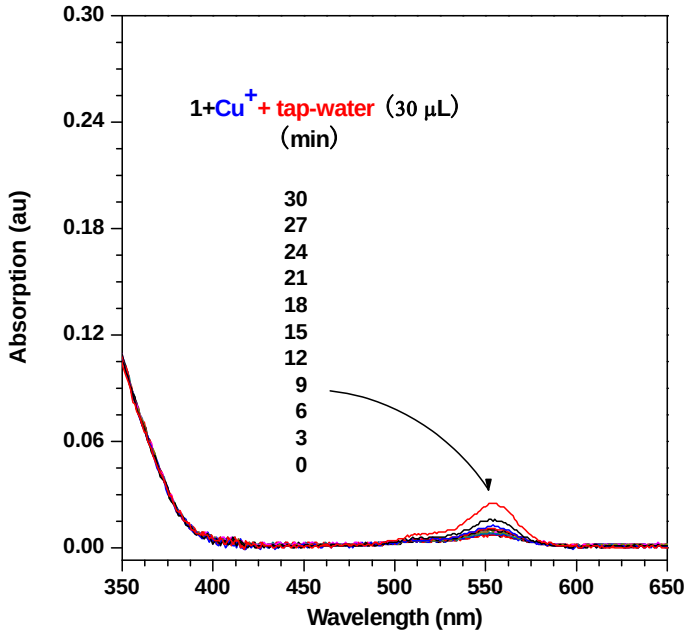

Fig. S55 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of 30 μL tap-water.

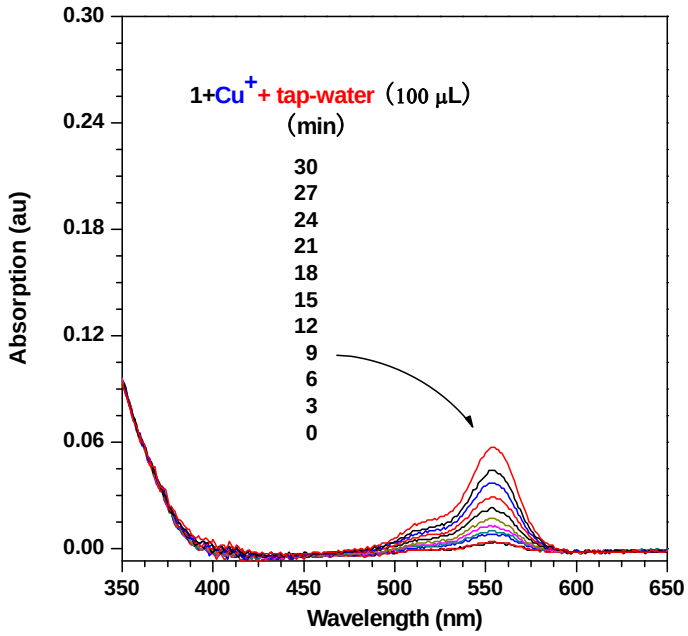

Fig. S56 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of 100 μL tap-water.

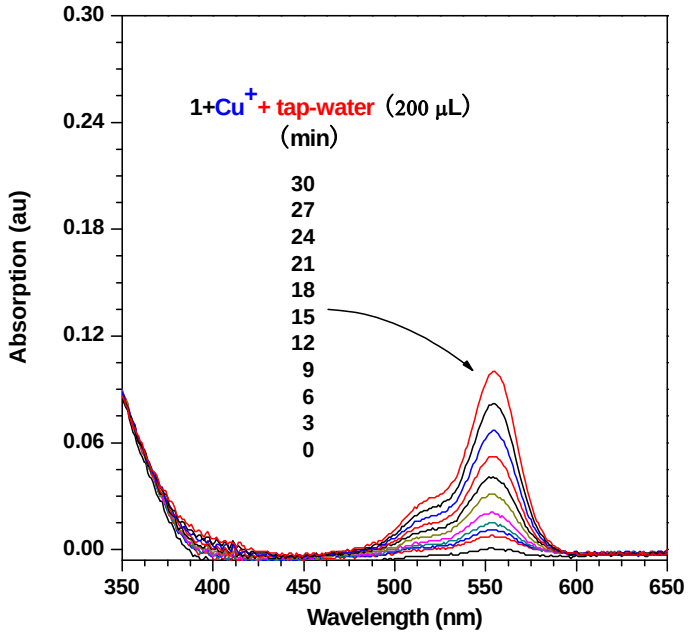

Fig. S57 Absorption spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of 200 μL tap-water.

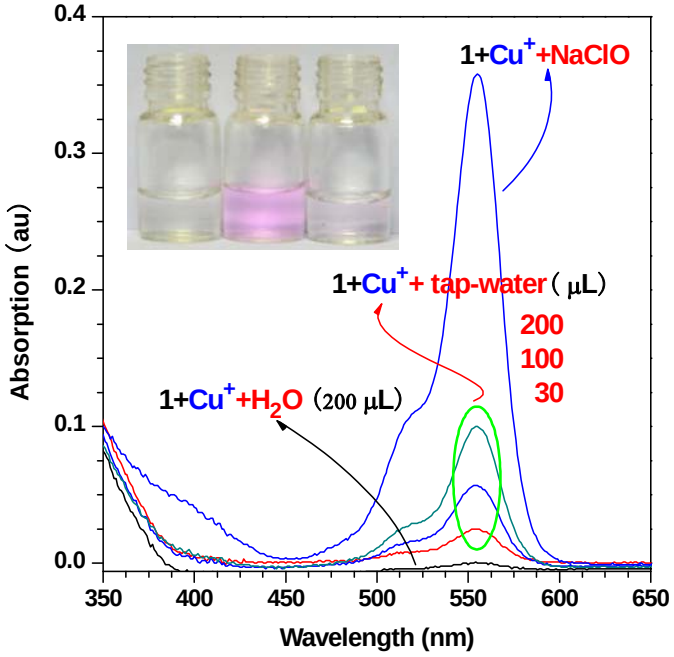

Fig. S58 Absorption spectra of **1** (1.0×10^{-5} M), CuI (4.0×10^{-5} M) and Sodium Ascorbate (3.0×10^{-6} M) in Tris-HCl (10 mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amount tap-water. Inset: Photograph of **1**+Cu^+, **1**+Cu^++tap water, **1**+Cu^++H_2O.

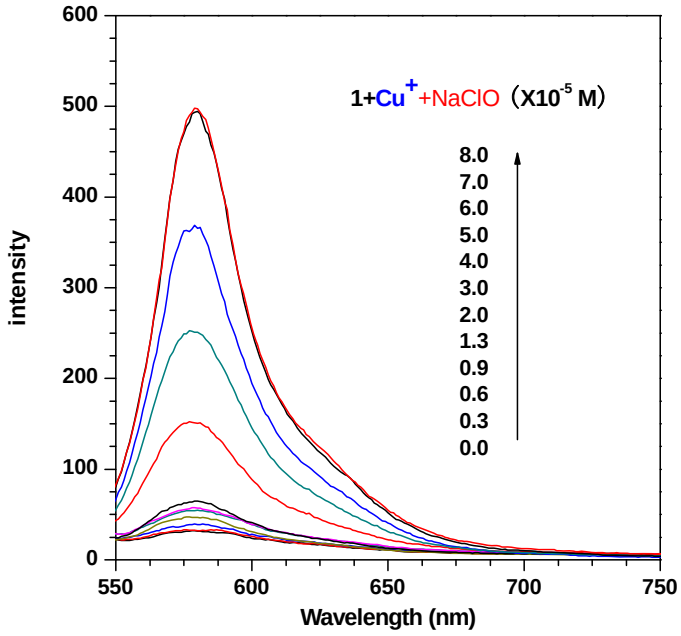

Fig. S59 Fluorescence Emission spectra of **1**(1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of NaClO after 30min. Excitation wavelength (nm):520.

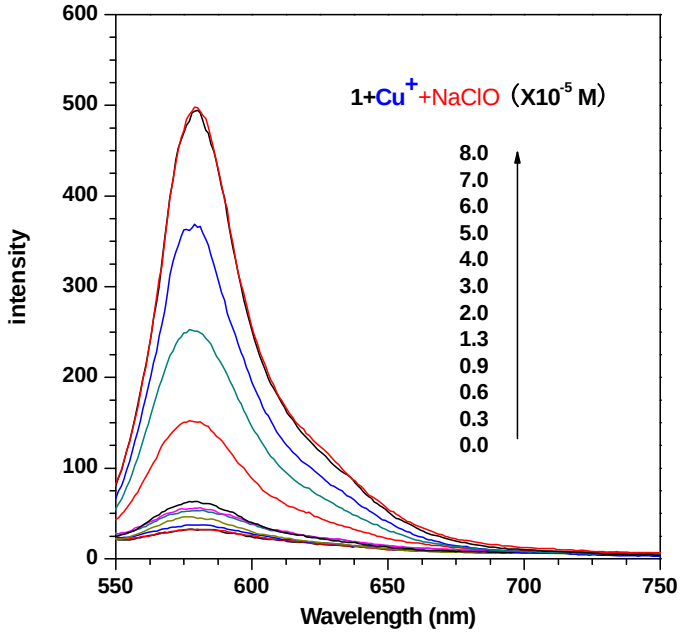

Fig. S60 Fluorescence Emission spectra of **1**(1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of NaClO after 27min. Excitation wavelength (nm):520.

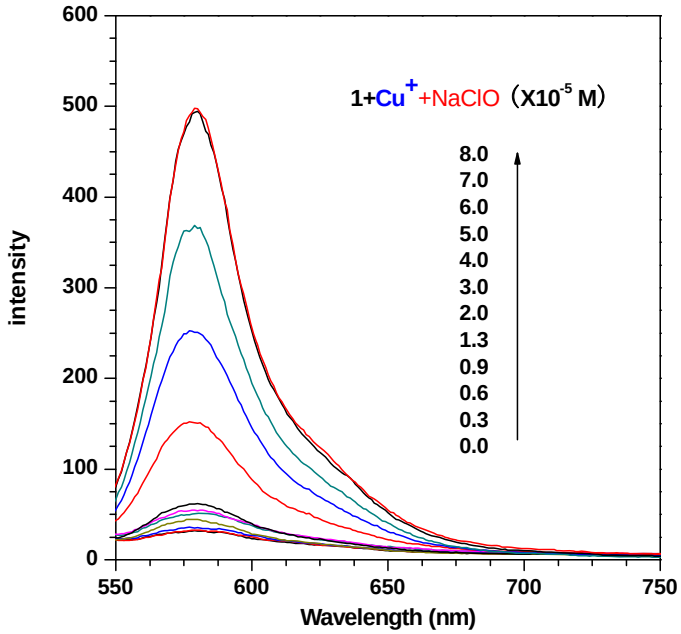

Fig. S61 Fluorescence Emission spectra of **1**(1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of NaClO after 24min. Excitation wavelength (nm):520.

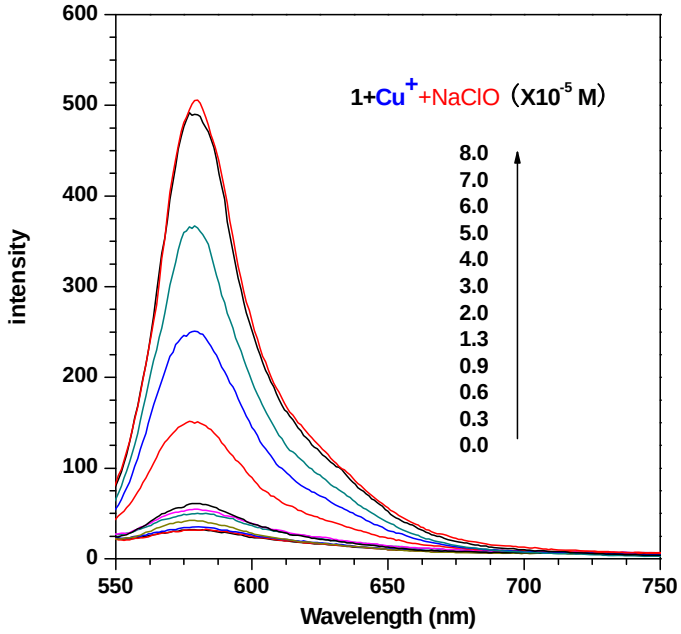

Fig. S62 Fluorescence Emission spectra of **1**(1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of NaClO after 21min. Excitation wavelength (nm):520.

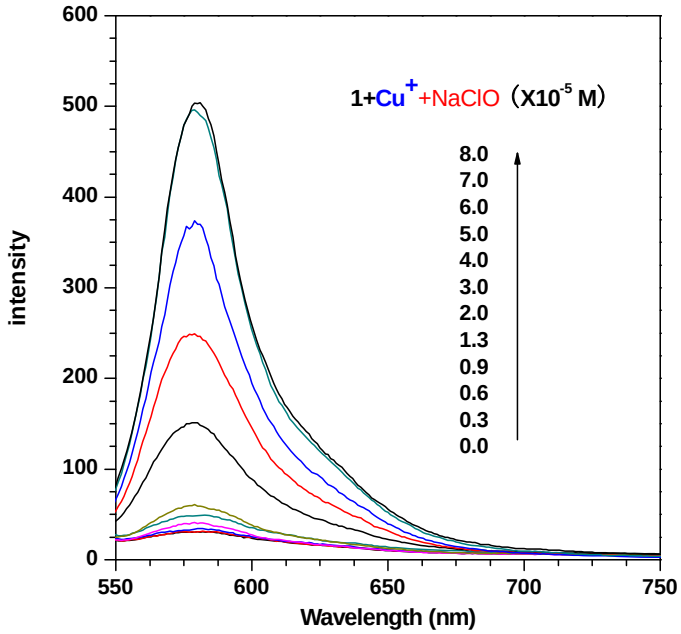

Fig. S63 Fluorescence Emission spectra of **1**(1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of NaClO after 18min. Excitation wavelength (nm):520.

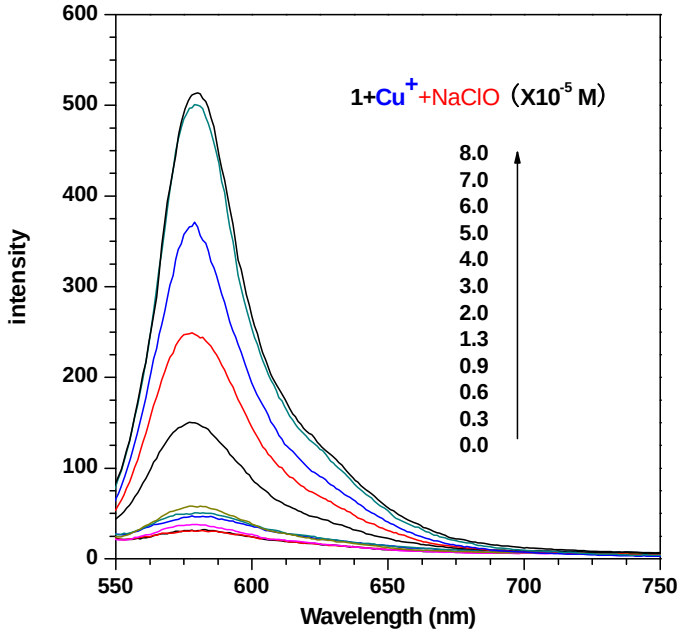

Fig. S64 Fluorescence Emission spectra of **1**(1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of NaClO after 15min. Excitation wavelength (nm):520.

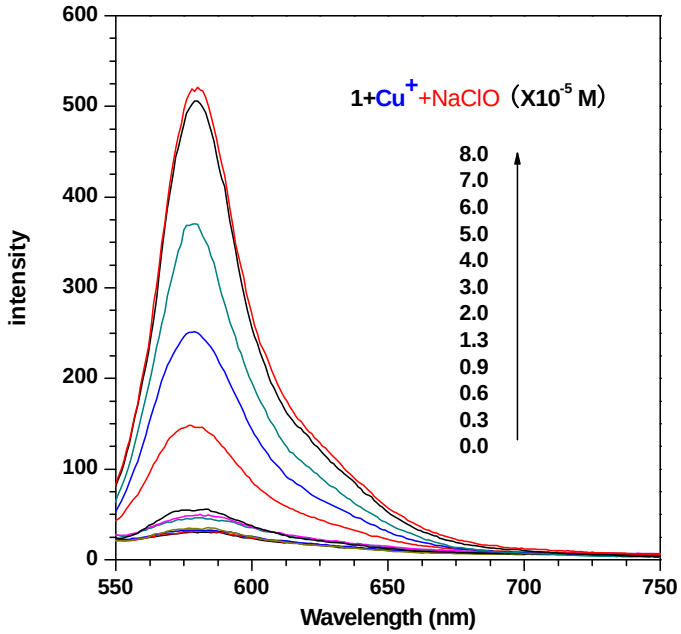

Fig. S65 Fluorescence Emission spectra of **1**(1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of NaClO after 12min. Excitation wavelength (nm):520.

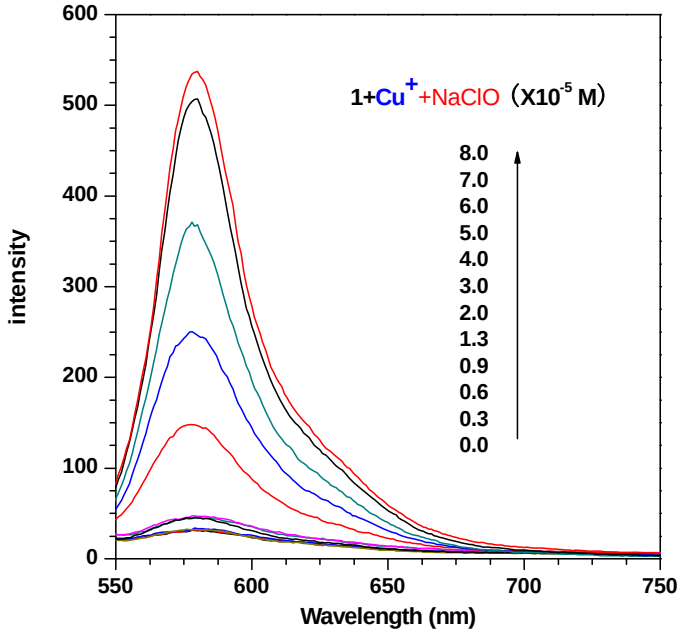

Fig. S66 Fluorescence Emission spectra of **1**(1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of NaClO after 9min. Excitation wavelength (nm):520.

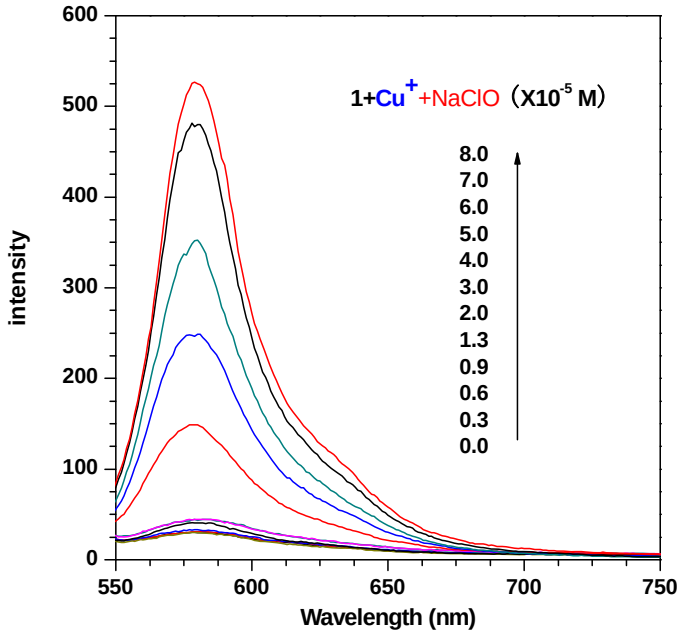

Fig. S67 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of NaClO after 6min. Excitation wavelength (nm):520.

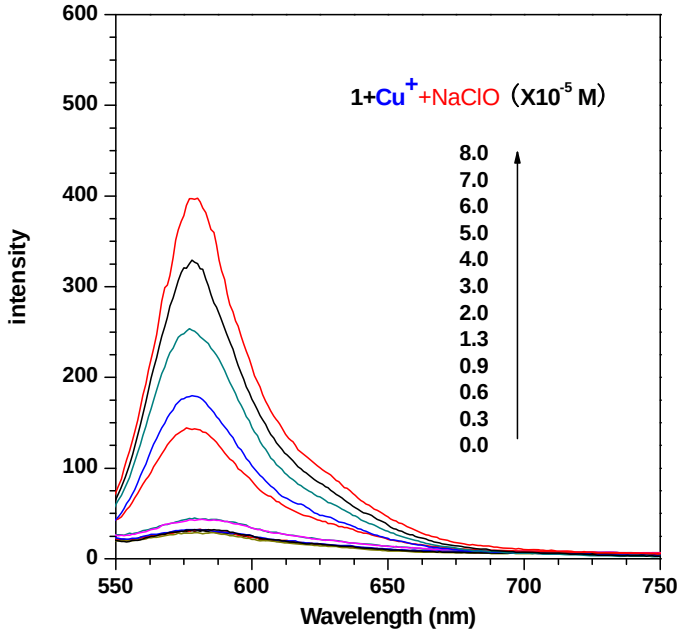

Fig. S68 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of NaClO after 3min. Excitation wavelength (nm):520.

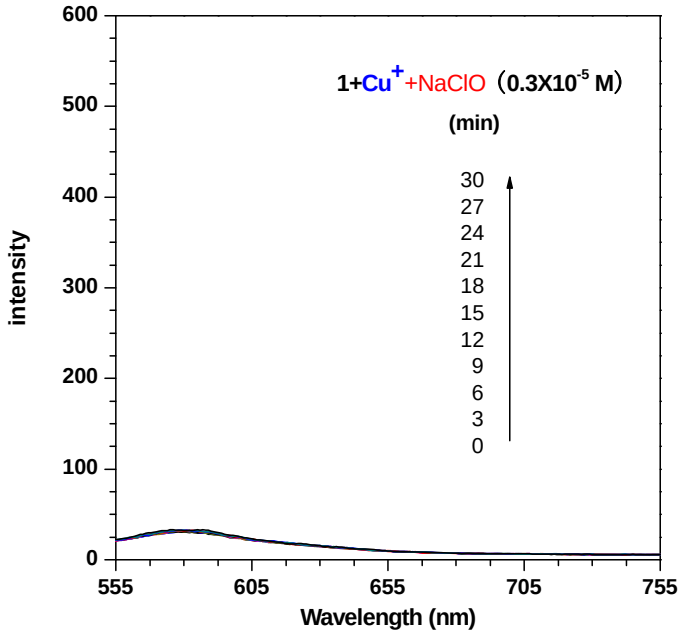

Fig. S69 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NaClO (3.0×10^{-6} mol/L) at different time. Excitation wavelength (nm):520.

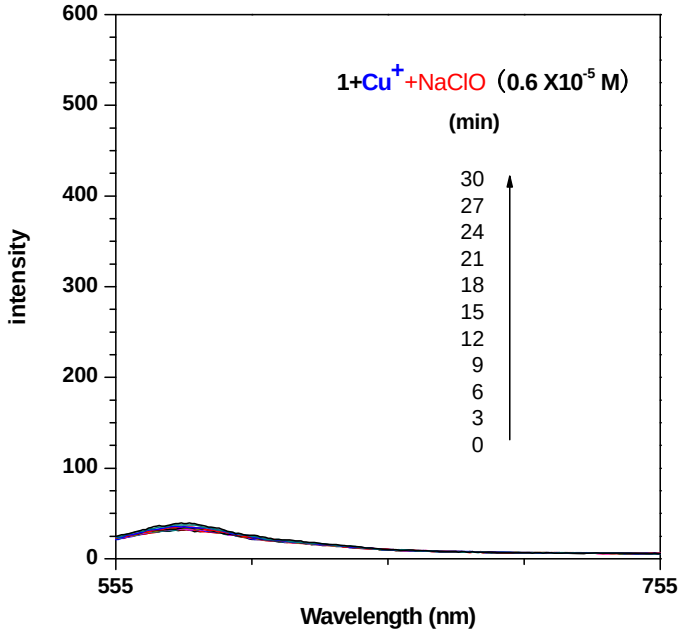

Fig. S70 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NaClO (6.0×10^{-6} mol/L) at different time. Excitation wavelength (nm):520.

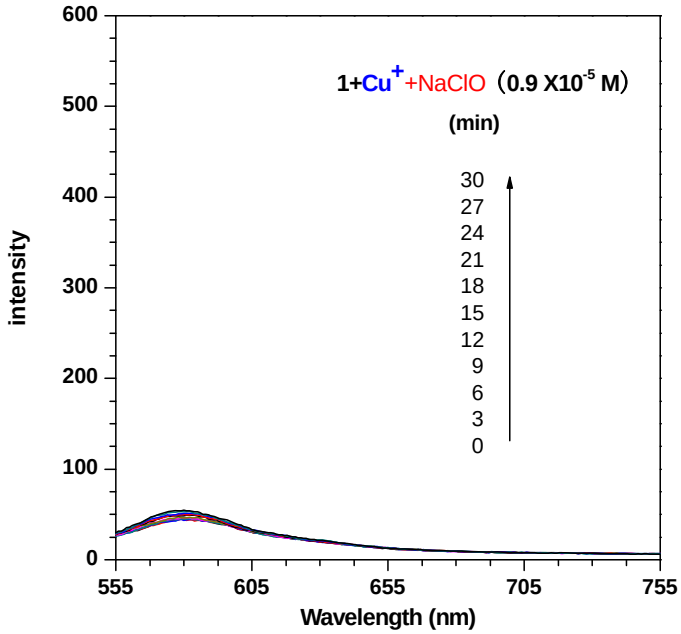

Fig. S71 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NaClO (9.0×10^{-6} mol/L) at different time. Excitation wavelength (nm):520.

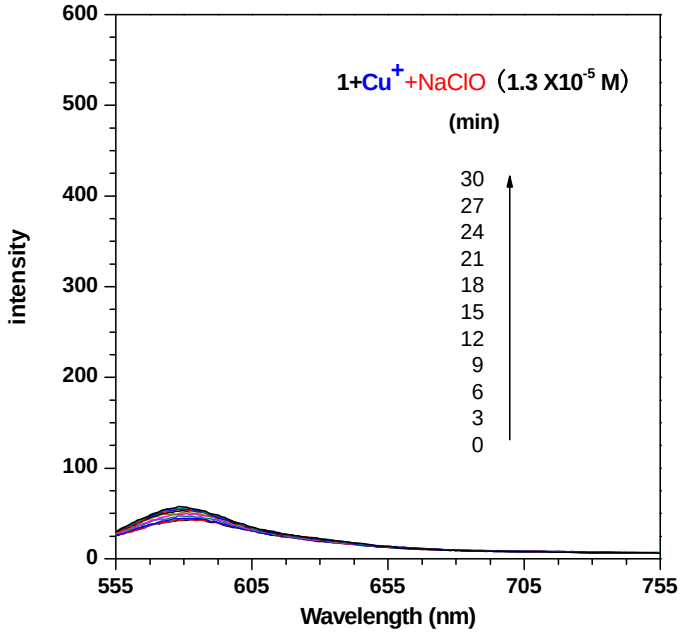

Fig. S72 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NaClO (1.3×10^{-5} mol/L) at different time. Excitation wavelength (nm):520.

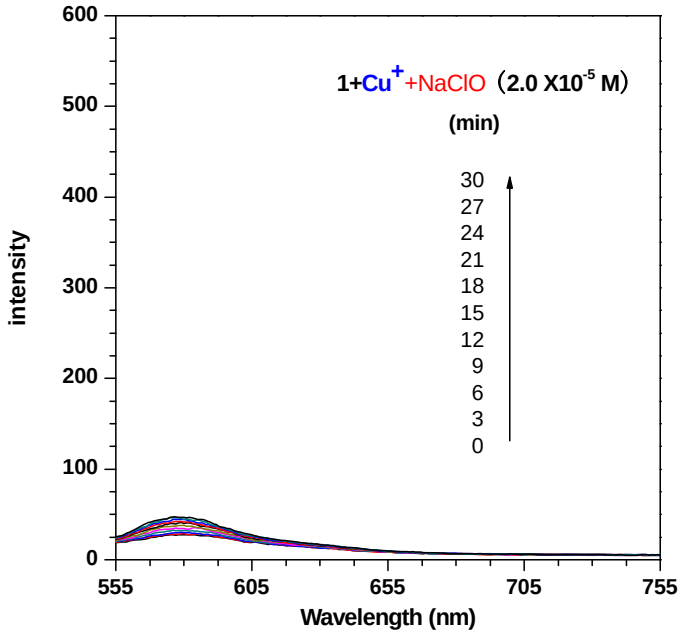

Fig. S73 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NaClO (2.0×10^{-5} mol/L) at different time. Excitation wavelength (nm):520.

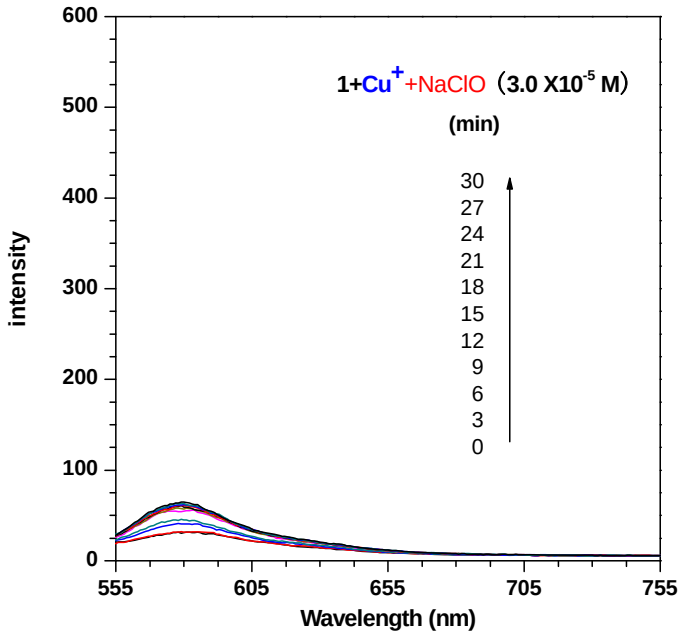

Fig. S74 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NaClO (3.0×10^{-5} mol/L) at different time. Excitation wavelength (nm):520.

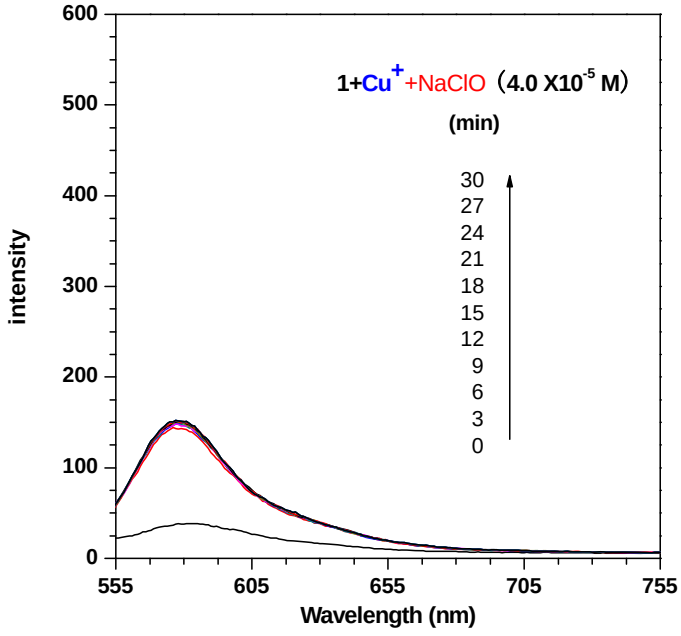

Fig. S75 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NaClO (4.0×10^{-5} mol/L) at different time. Excitation wavelength (nm):520.

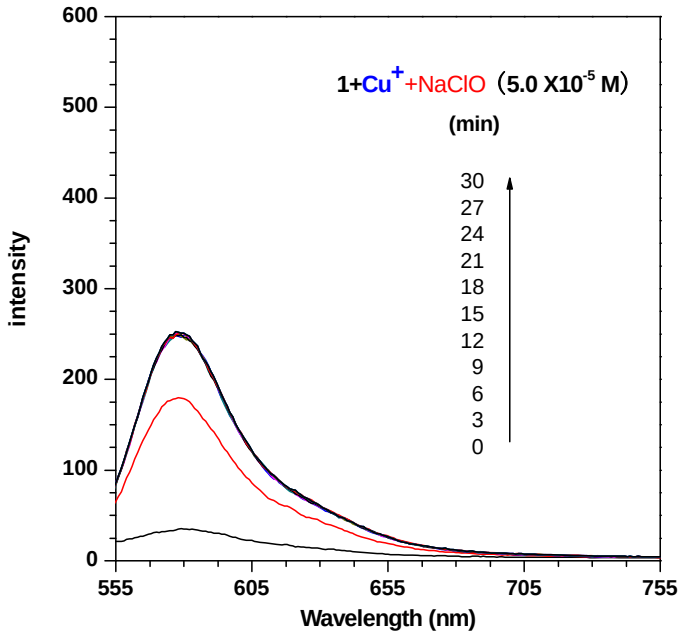

Fig. S76 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NaClO (5.0×10^{-5} mol/L) at different time. Excitation wavelength (nm):520.

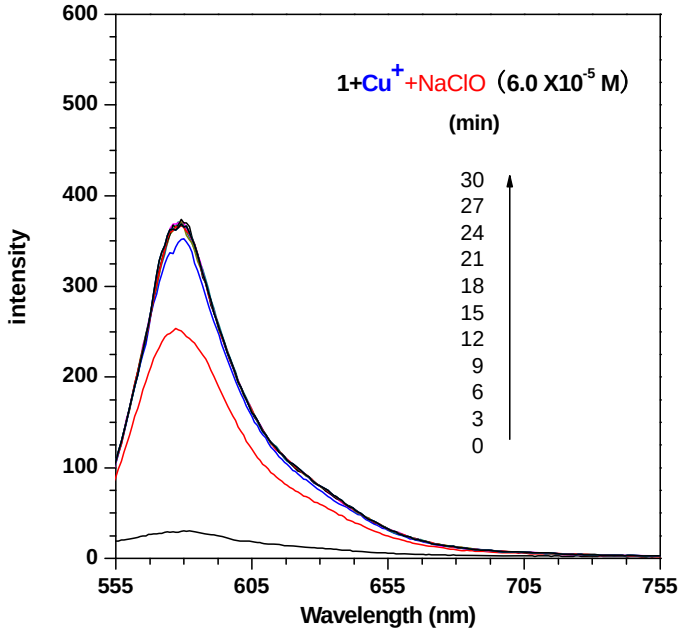

Fig. S77 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NaClO (6.0×10^{-5} mol/L) at different time. Excitation wavelength (nm):520.

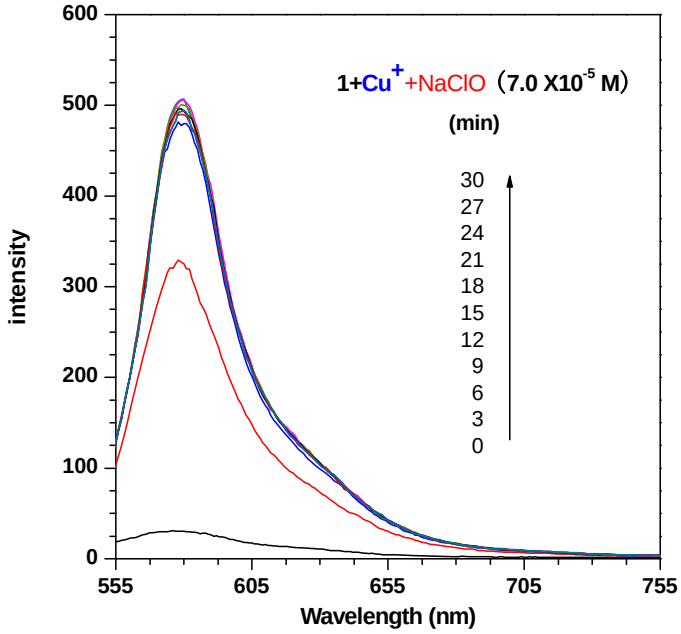

Fig. S78 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NaClO (7.0×10^{-5} mol/L) at different time. Excitation wavelength (nm):520.

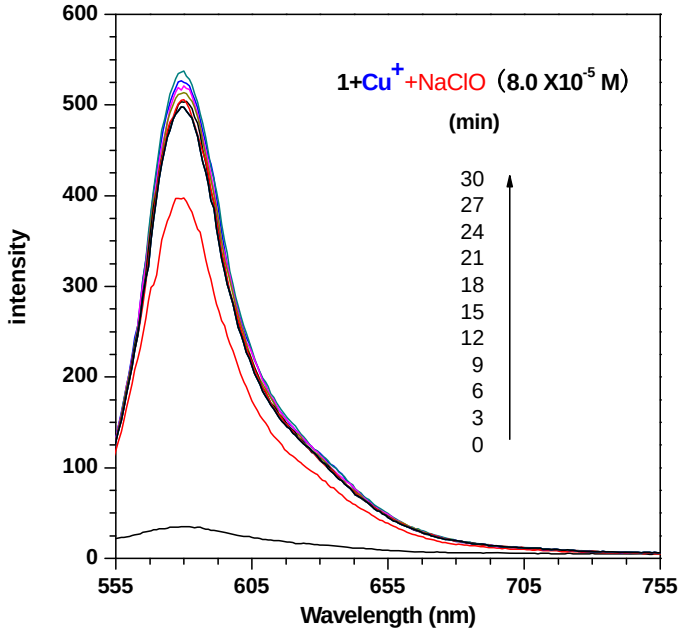

Fig. S79 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NaClO (8.0×10^{-5} mol/L) at different time. Excitation wavelength (nm):520.

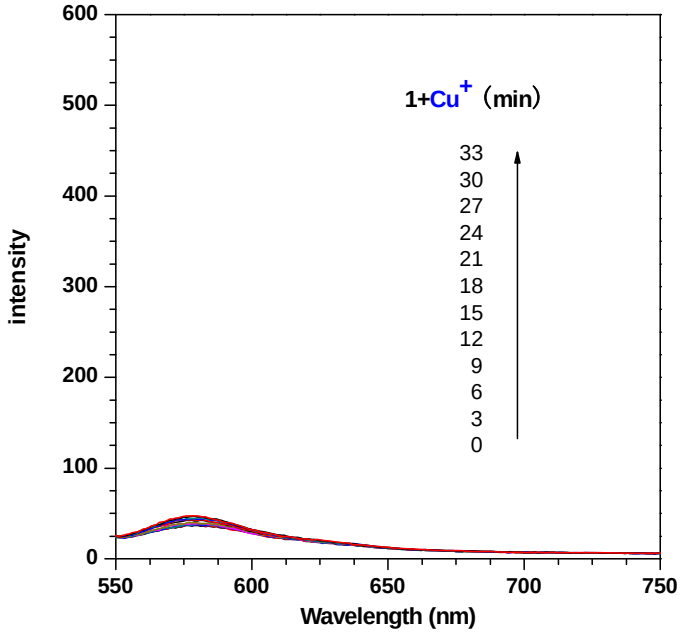

Fig. S80 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (3.0×10^{-5} mol/L) and Sodium Ascorbate (1.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN. Excitation wavelength (nm):520.

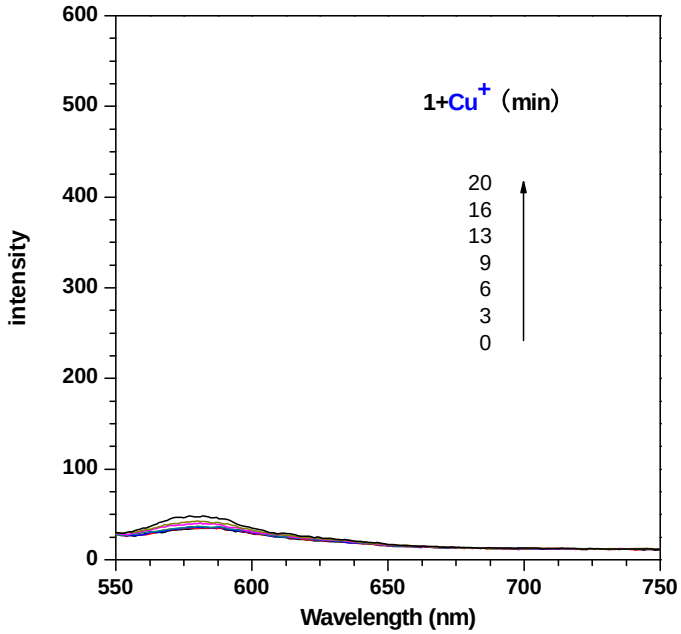

Fig. S81 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (6.0×10^{-5} mol/L) and Sodium Ascorbate (1.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN. Excitation wavelength (nm):520.

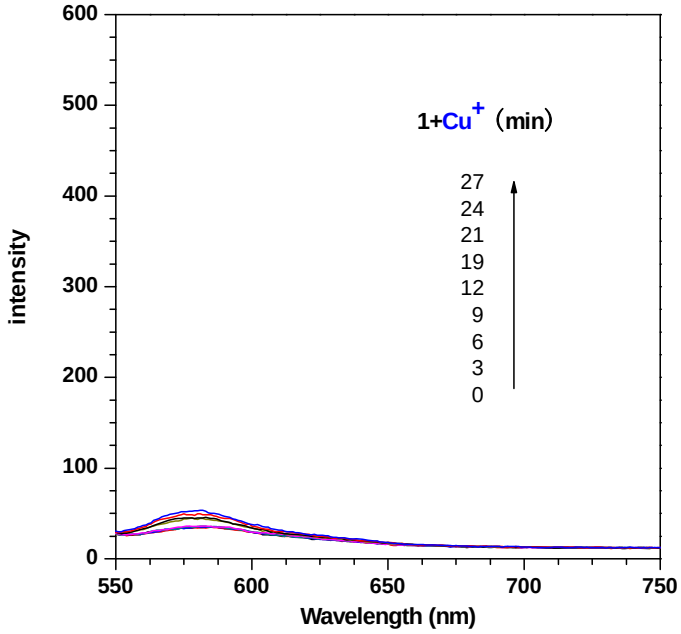

Fig. S82 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (6.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN. Excitation wavelength (nm):520.

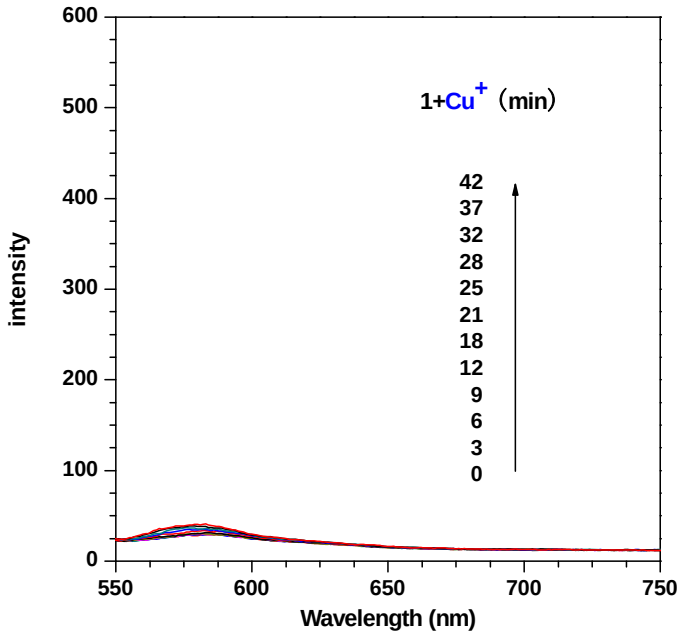

Fig. S83 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN. Excitation wavelength (nm):520.

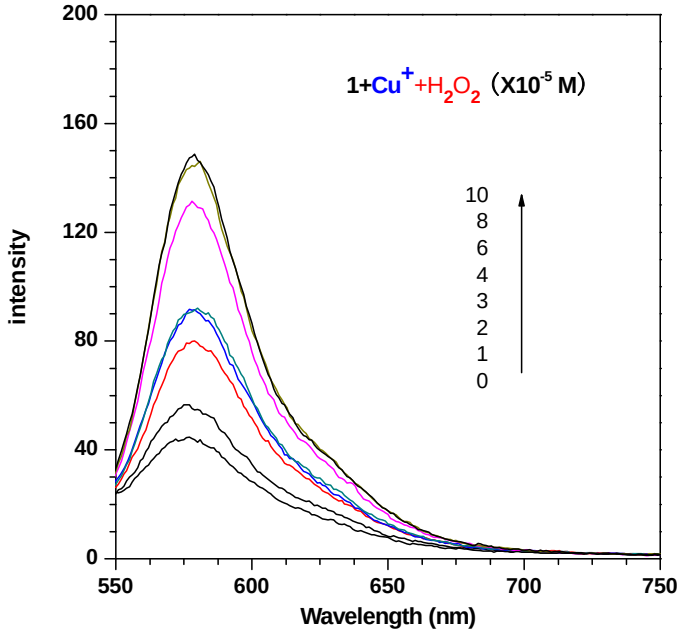

Fig. S84 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of H_2O_2 after 30min. Excitation wavelength (nm):520.

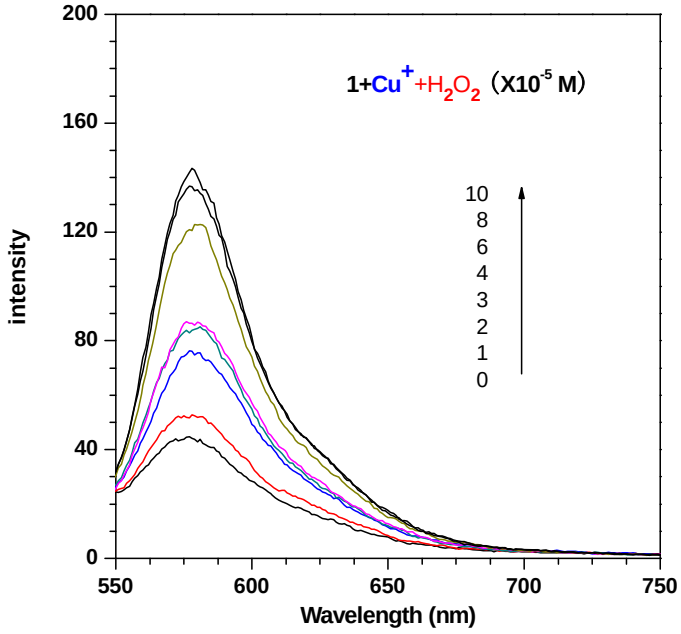

Fig. S85 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of H_2O_2 after 27min. Excitation wavelength (nm):520.

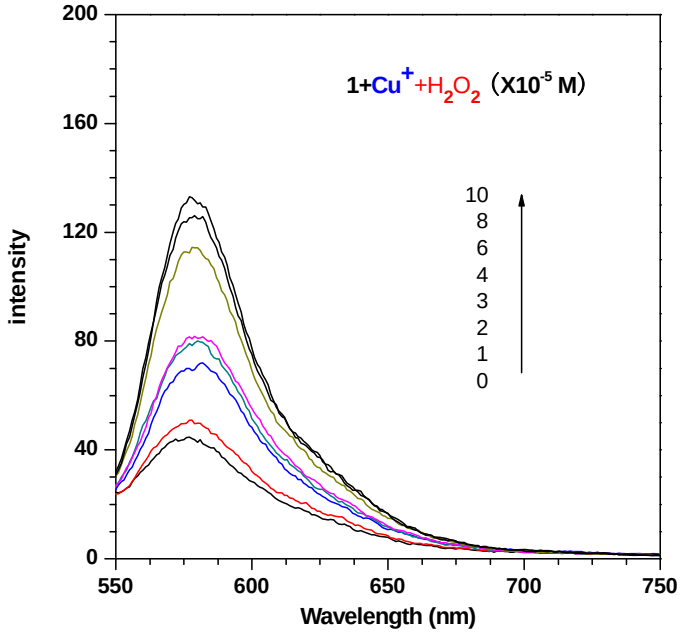

Fig. S86 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of H_2O_2 after 24min. Excitation wavelength (nm):520.

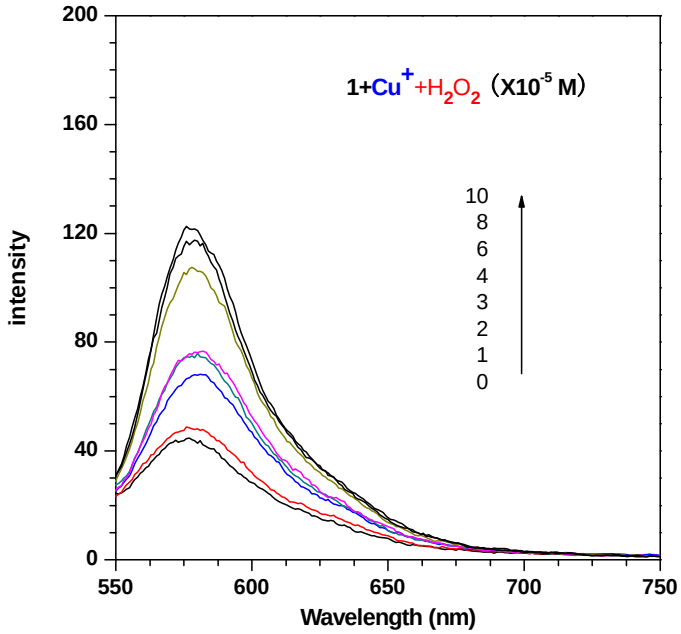

Fig. S87 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of H_2O_2 after 21min. Excitation wavelength (nm):520.

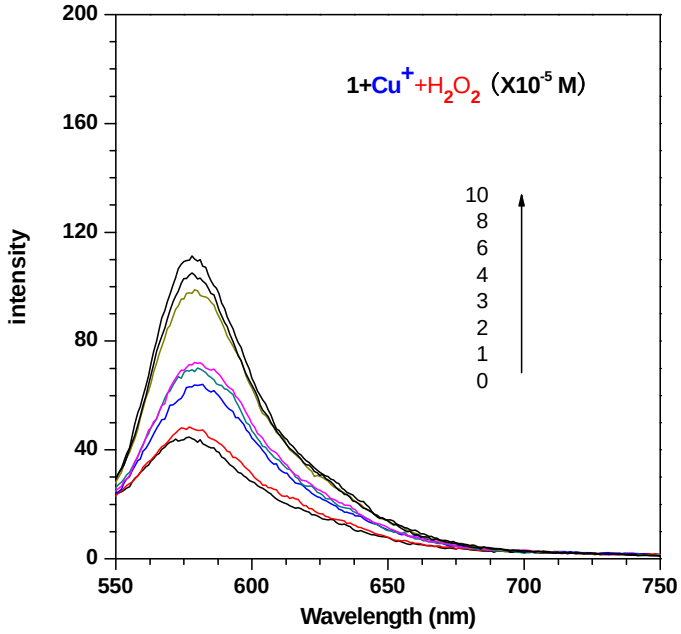

Fig. S88 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of H_2O_2 after 18min. Excitation wavelength (nm):520.

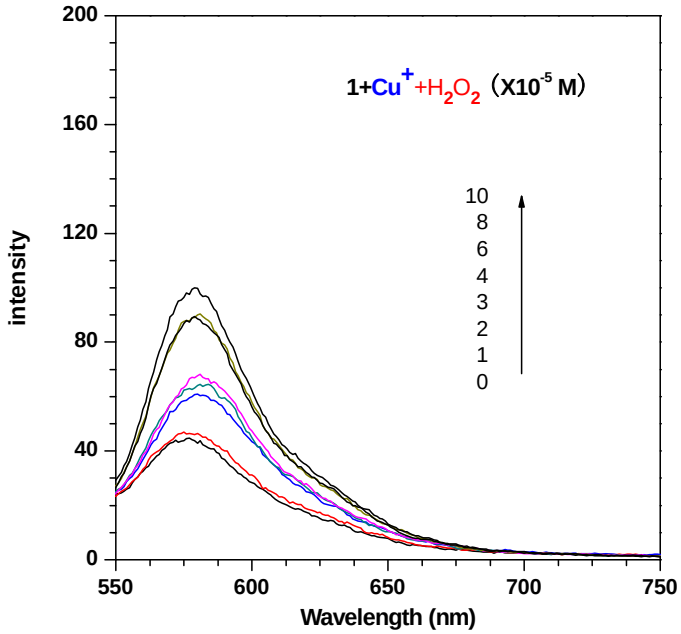

Fig. S89 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of H_2O_2 after 15min. Excitation wavelength (nm):520.

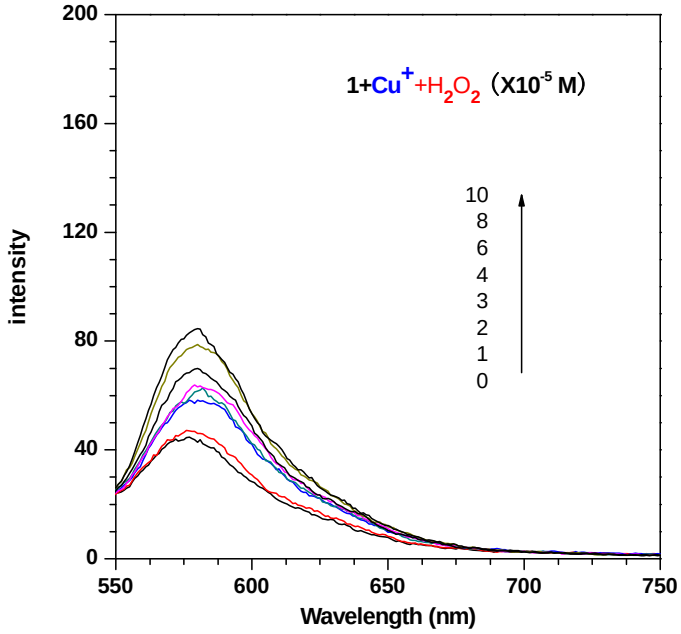

Fig. S90 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of H_2O_2 after 12min. Excitation wavelength (nm):520.

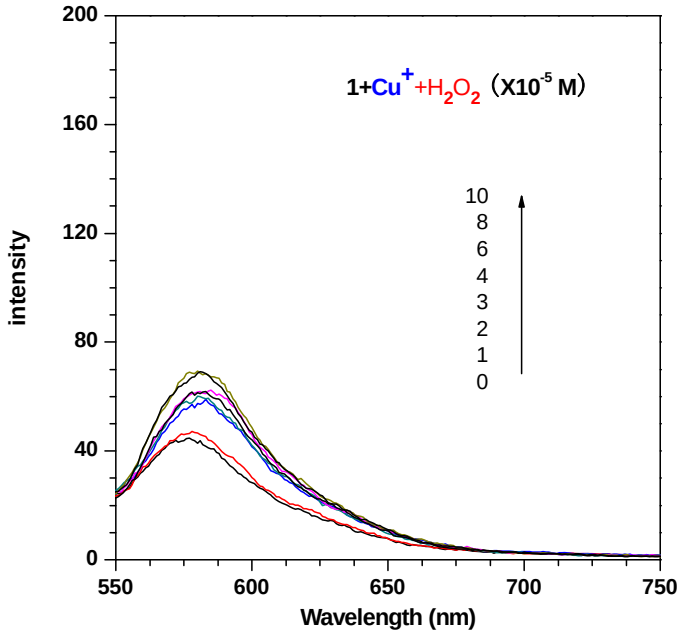

Fig. S91 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of different amounts of H_2O_2 after 9min. Excitation wavelength (nm):520.

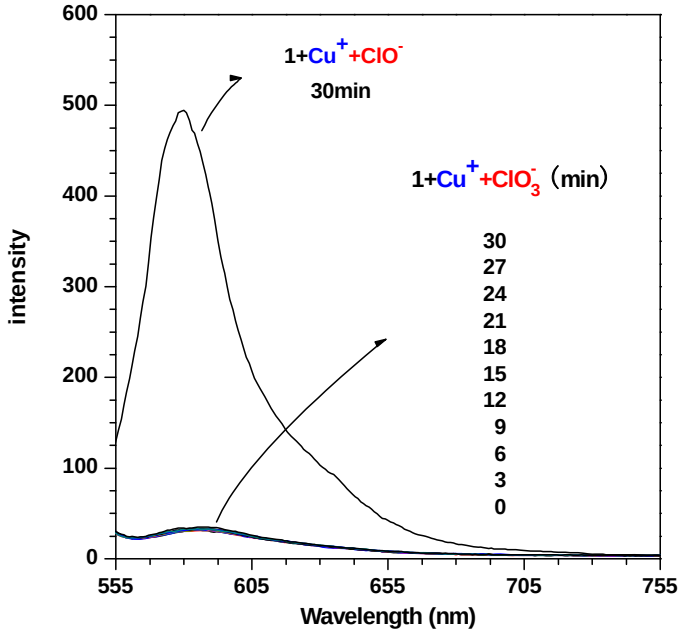

Fig. S92 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of ClO_3^- (1.3×10^{-4} mol/L). The concentration of ClO^- was 7.0×10^{-5} mol/L. Excitation wavelength (nm):520.

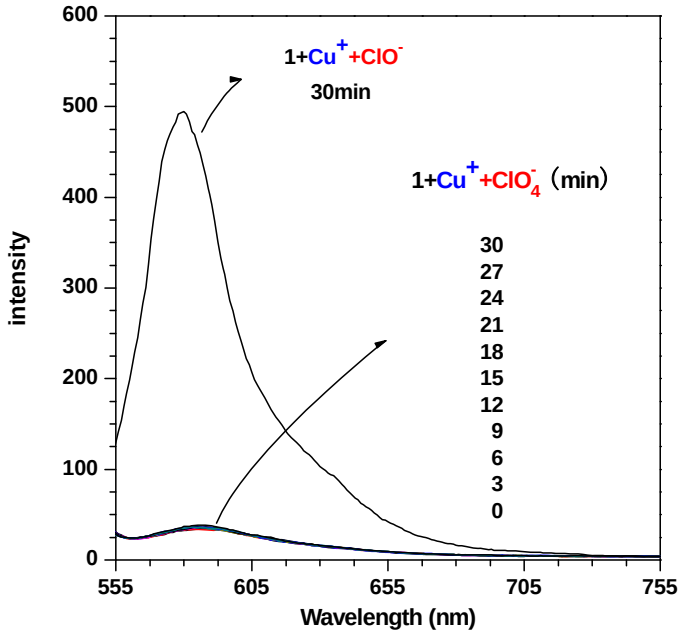

Fig. S93 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of ClO_4^- (1.3×10^{-4} mol/L). The concentration of ClO^- was 7.0×10^{-5} mol/L. Excitation wavelength (nm):520.

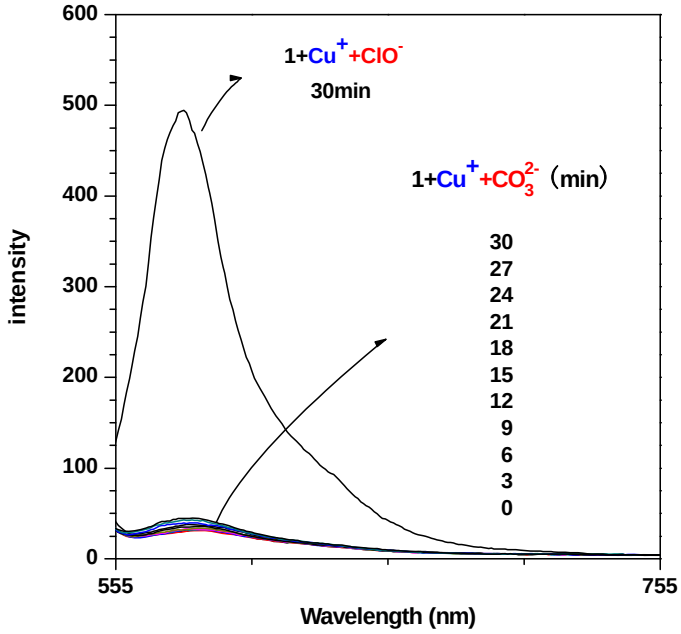

Fig. S94 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of CO_3^{2-} (1.3×10^{-4} mol/L). The concentration of ClO^- was 7.0×10^{-5} mol/L. Excitation wavelength (nm):520.

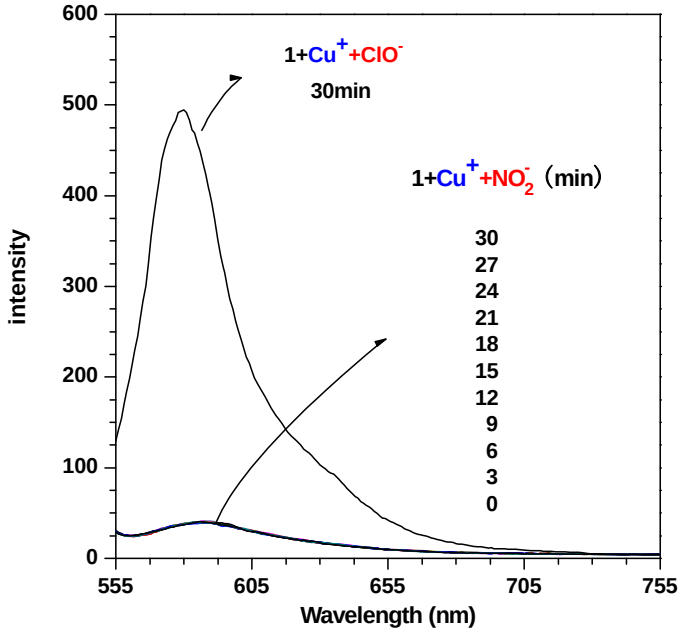

Fig. S95 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of NO_2^- (1.3×10^{-4} mol/L). The concentration of ClO^- was 7.0×10^{-5} mol/L. Excitation wavelength (nm):520.

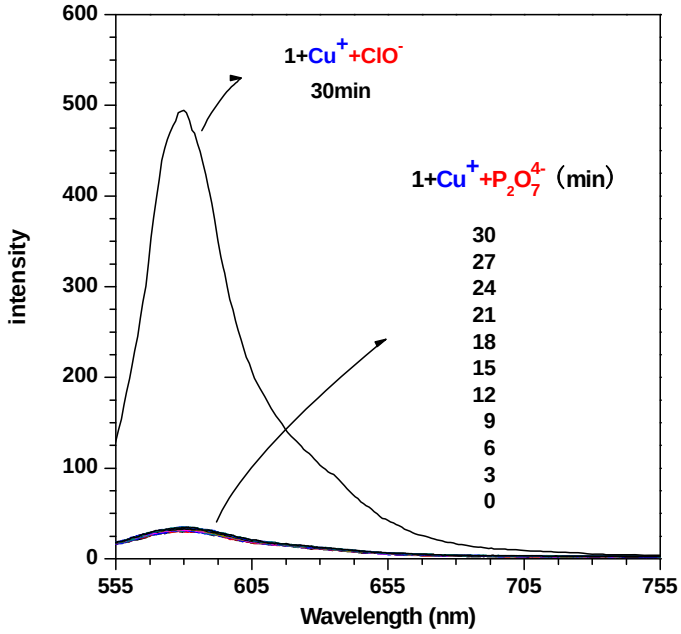

Fig. S96 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of $P_2O_7^{4-}$ (1.3×10^{-4} mol/L). The concentration of ClO^- was 7.0×10^{-5} mol/L. Excitation wavelength (nm):520.

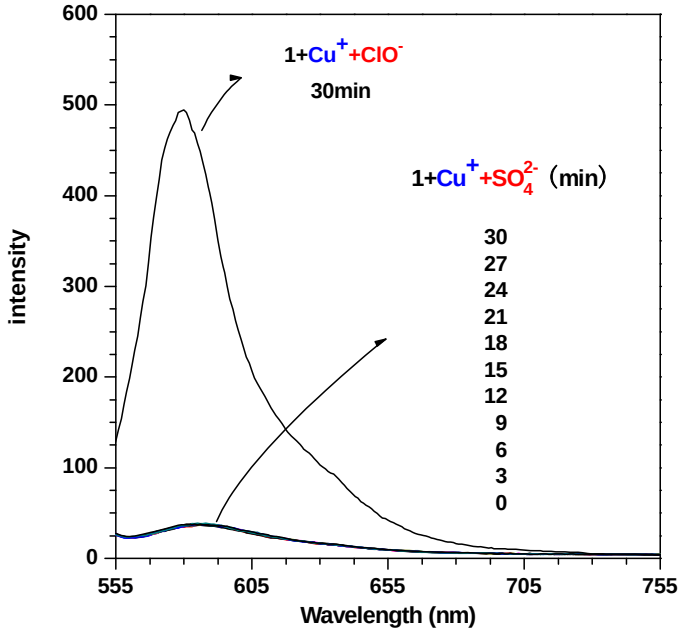

Fig. S97 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of SO_4^{2-} (1.3×10^{-4} mol/L). The concentration of ClO^- was 7.0×10^{-5} mol/L. Excitation wavelength (nm):520.

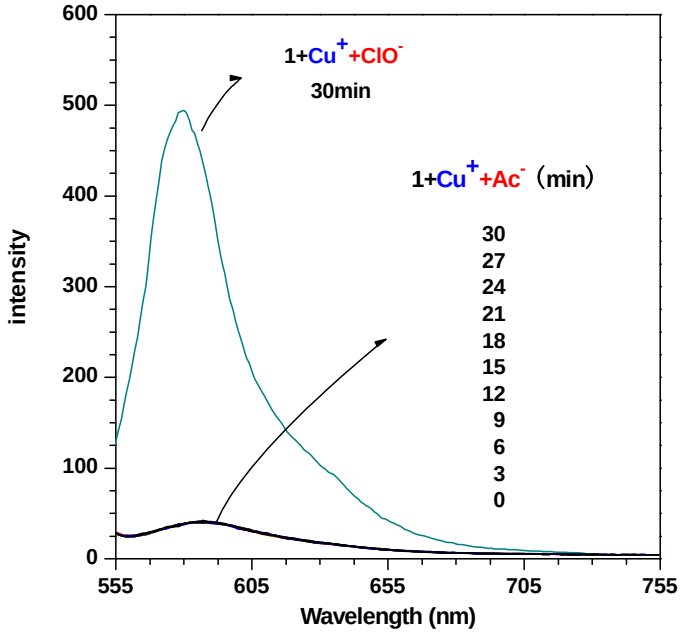

Fig. S98 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of Ac^- (1.3×10^{-4} mol/L). The concentration of ClO^- was 7.0×10^{-5} mol/L. Excitation wavelength (nm):520.

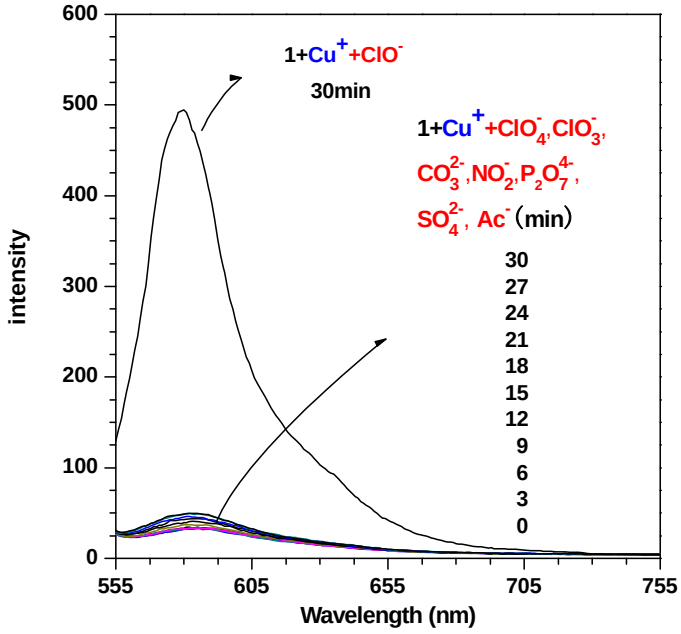

Fig. S99 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of the mix anions (1.3×10^{-4} mol/L). The concentration of ClO^- was 7.0×10^{-5} mol/L. Excitation wavelength (nm):520.

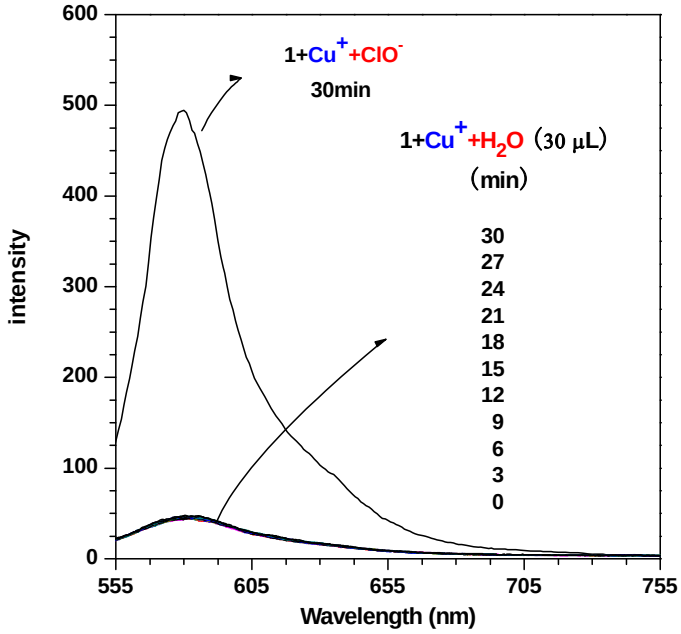

Fig. S100 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of 30μL water. The concentration of ClO^- was 7.0×10^{-5} mol/L. Excitation wavelength (nm):520.

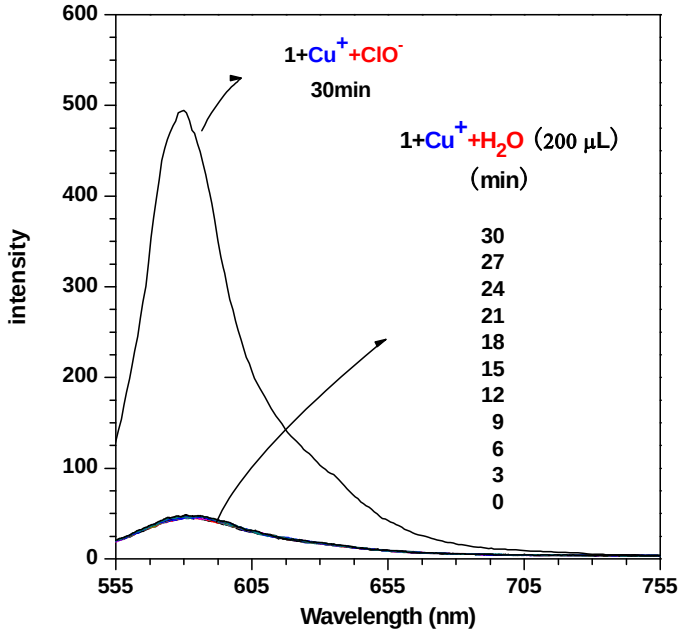

Fig. S101 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of 200μL water. The concentration of ClO^- was 7.0×10^{-5} mol/L. Excitation wavelength (nm):520.

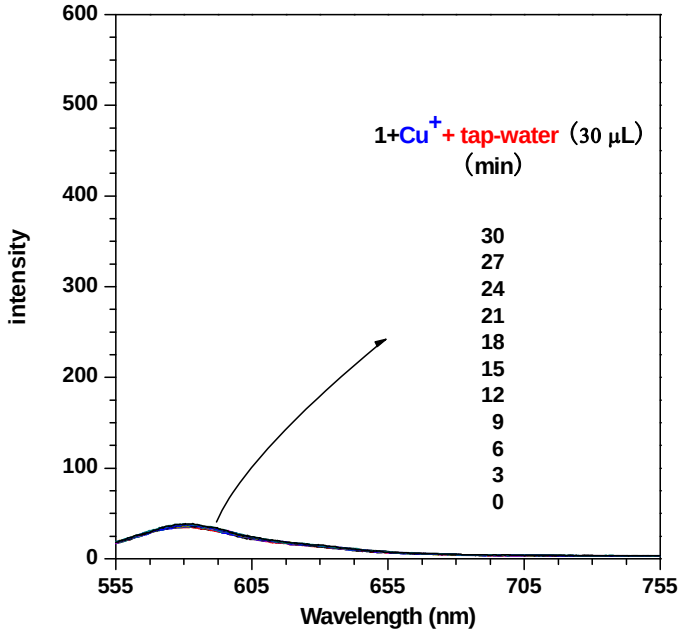

Fig. S102 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of 30μL tap-water. Excitation wavelength (nm):520.

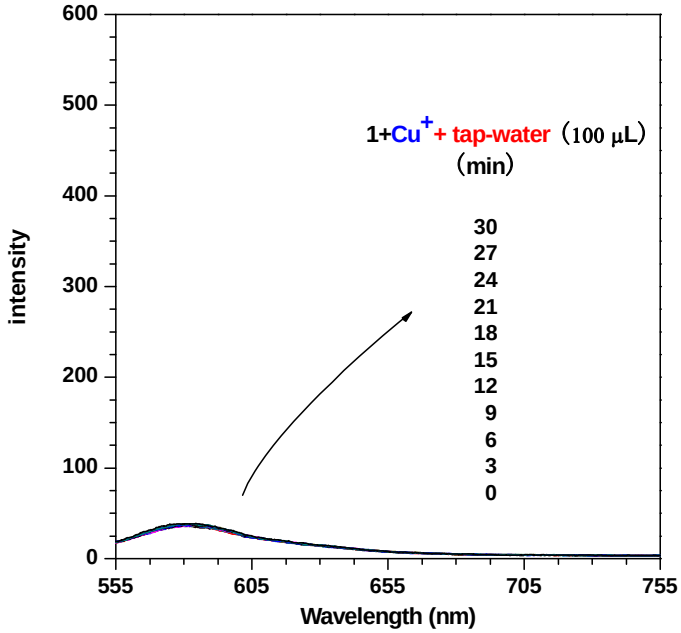

Fig. S103 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of 100μL tap-water. Excitation wavelength (nm):520.

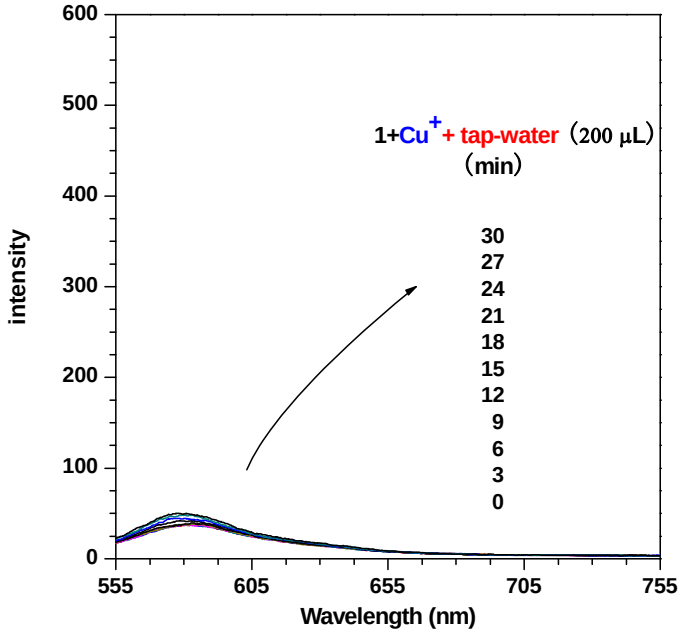

Fig. S104 Fluorescence Emission spectra of **1** (1.0×10^{-5} mol/L), CuI (4.0×10^{-5} mol/L) and Sodium Ascorbate (3.0×10^{-6} mol/L) in Tris-HCl (10mM, pH = 7.0) buffer containing 50% (v/v) water/CH_3CN in the presence of 200μL tap-water. Excitation wavelength (nm):520.