

Supporting Information

Photocatalytic Function of B₁₂ Complex with Cyclometalated Iridium(III) Complex as Photosensitizer under Visible Light Irradiation

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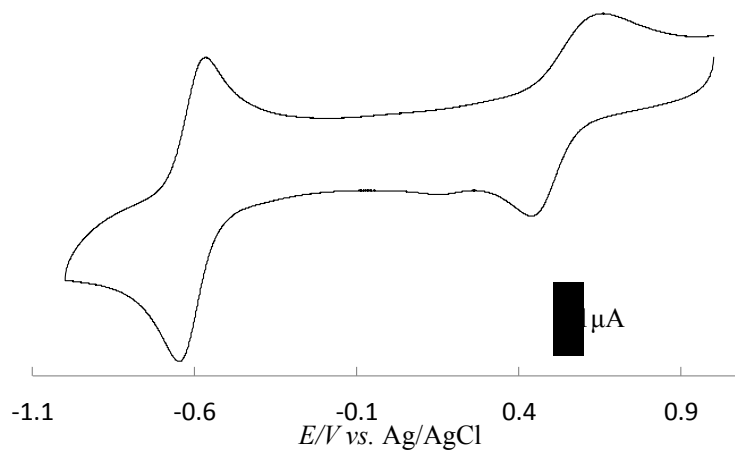
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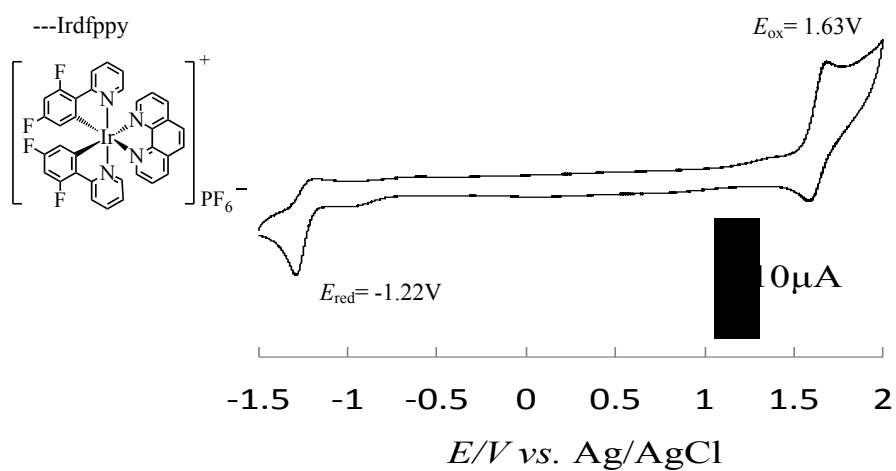
Seoul 03760, Republic of Korea.

E-mail: odds2@ewha.ac.kr

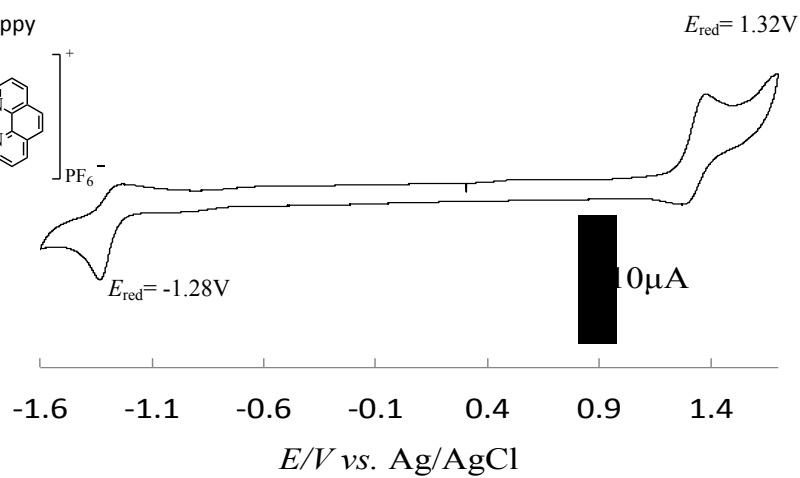
(a) ---B₁₂ complex



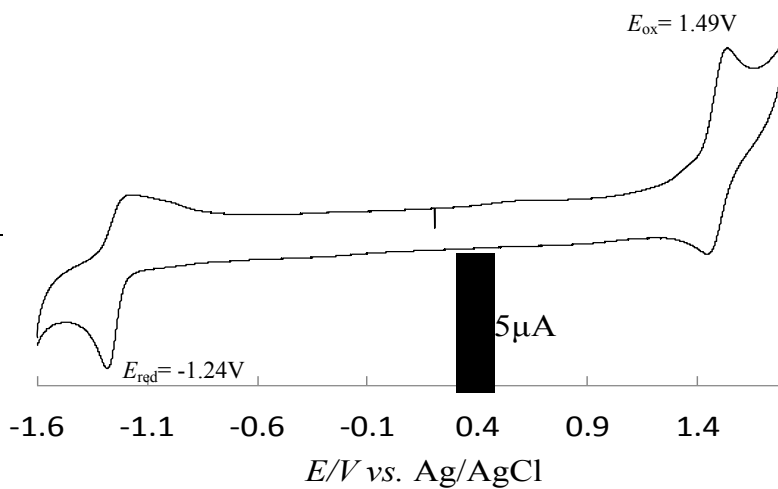
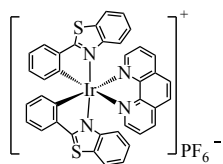
(b) ---Irdfp_{py}



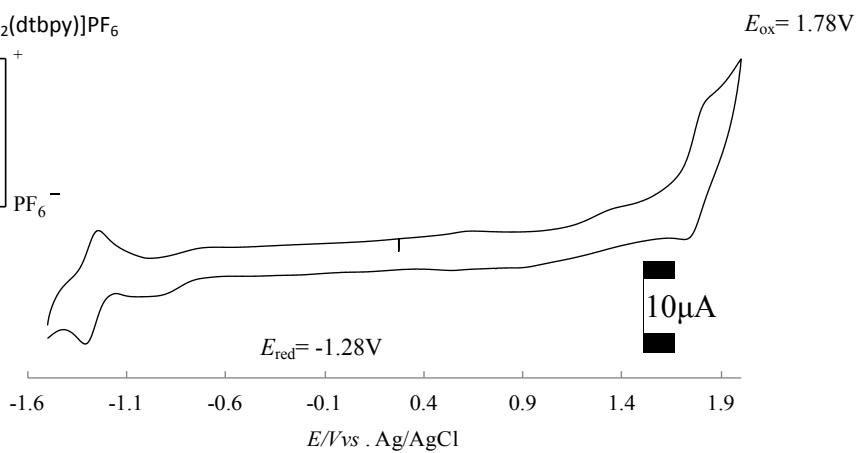
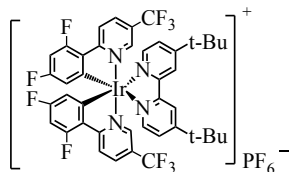
(c) ---Irr_{ppy}



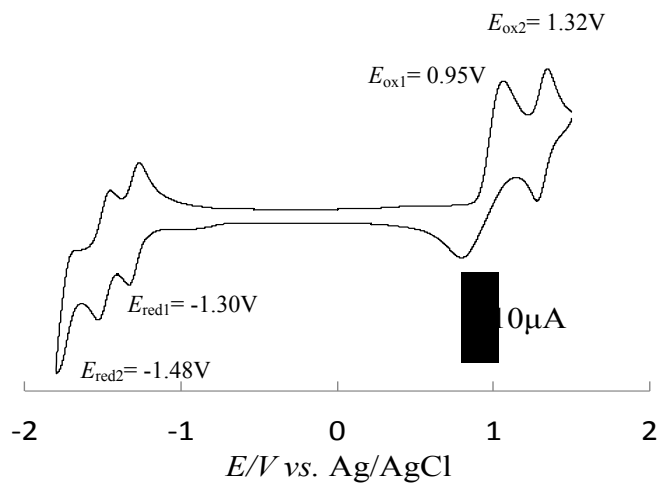
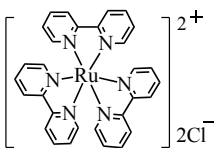
(d) ---Irpbt



(e) ---[Ir{dF(CF₃)ppy}₂(dtbpy)]PF₆



(f) ---[Ru(II)(bpy)₃]Cl₂



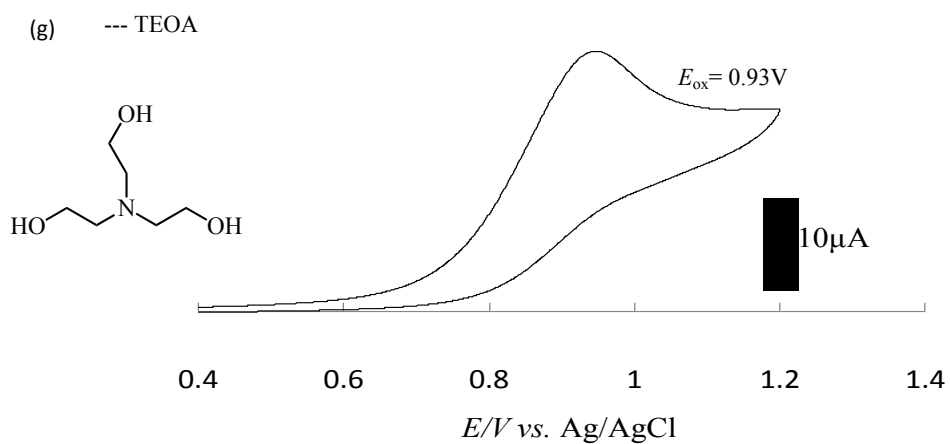


Fig. S1 CVs of B₁₂ complex (1mM) (a), Irdppp (1mM) (b), Irppy (1mM) (c), Irpbt (1mM) (d), [Ir{dF(CF₃)ppy}₂(dtbpy)]PF₆ (1mM) (e), [Ru(II)(bpy)₃]Cl₂ (1mM) (f) TEOA (1mM) (g), in CH₃CN containing of 0.1 M *n*-Bu₄NClO₄ under N₂.

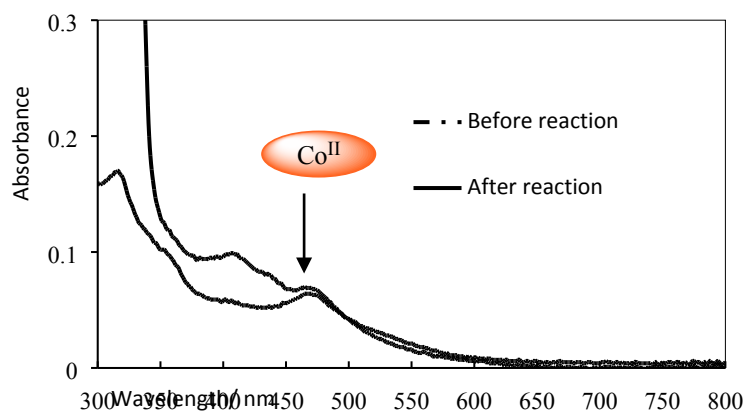


Fig. S2 UV-vis spectral change of reaction solution (B_{12} complex as catalyst): before reaction (dotted line), after reaction (solid line).

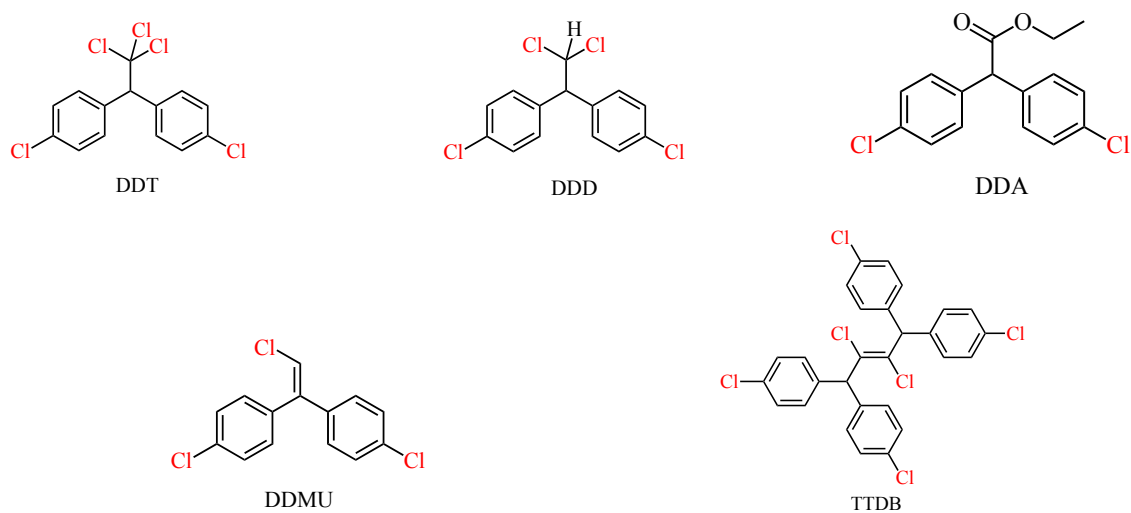


Fig. S3 Structure of 1,1-bis(4-chlorophenyl)-2,2,2-trichloroethane (DDT), 1,1-bis(4-chlorophenyl)-2,2-dichloroethane (DDD), ethyl 2,2-bis(4-chlorophenyl)acetate (DDA), 1-chloro-2,2-bis(4-chlorophenyl)ethylene (DDMU) and 1,1,4,4-tetrakis(4-chlorophenyl)-2,3-dichloro-2-butene (TTDB).

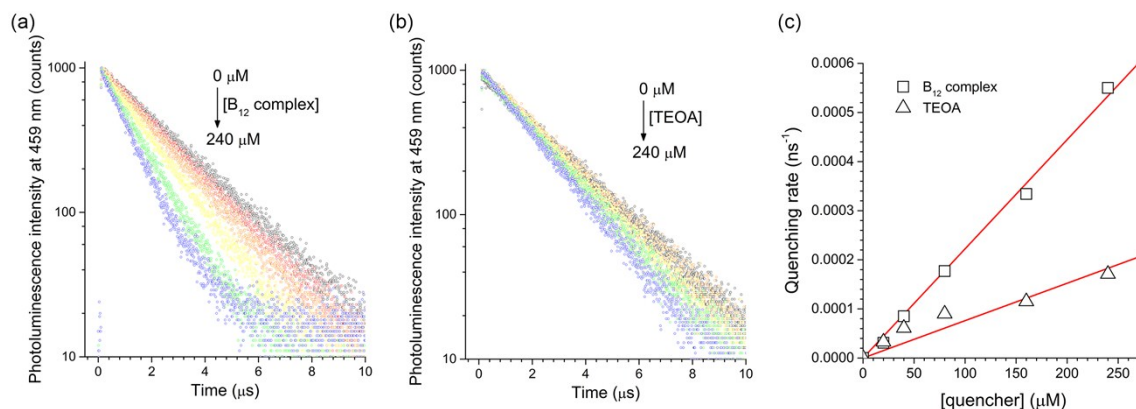


Fig. S4 (a,b) Phosphorescence decay traces of 100 μM [Ir{dF(CF₃)ppy}₂(dtbpy)]PF₆ (Ar-saturated CH₃CN) with increasing the concentration of B₁₂ complex (a) or TEOA (b). (c) Pseudo first order fit of the quenching rate as a function of the added concentrations of B₁₂ complex (squares) and TEOA (triangles).

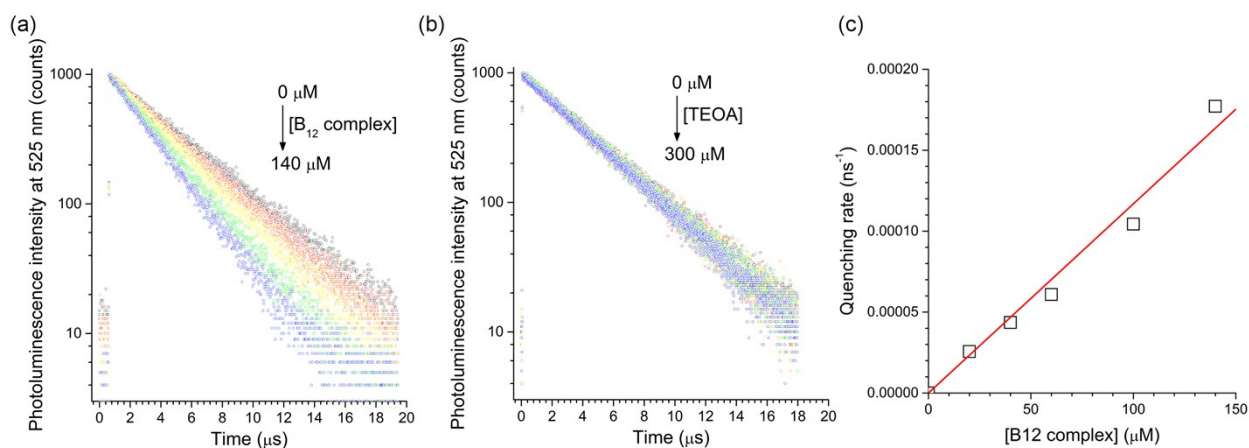


Fig. S5 (a,b) Phosphorescence decay traces of 100 μM Irpbt (Ar-saturated CH₃CN) with increasing the concentration of B₁₂ complex (a) or TEOA (b). (c) Pseudo first order fit of the quenching rate as a function of the added concentrations of B₁₂ complex.

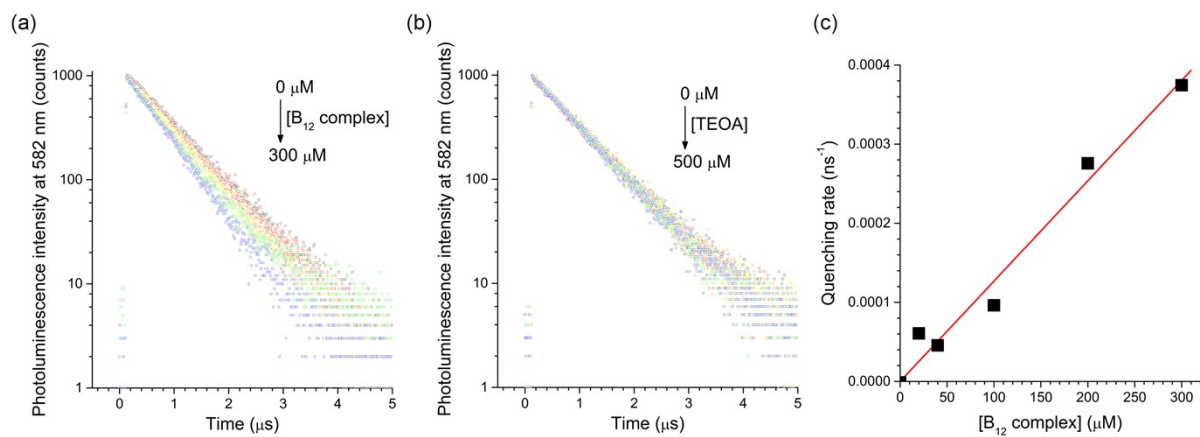


Fig. S6 (a,b) Phosphorescence decay traces of 100 μM Irppy (Ar-saturated CH₃CN) with increasing the concentration of B₁₂ complex (a) or TEOA (b). (c) Pseudo first order fit of the quenching rate as a function of the added concentrations of B₁₂ complex.

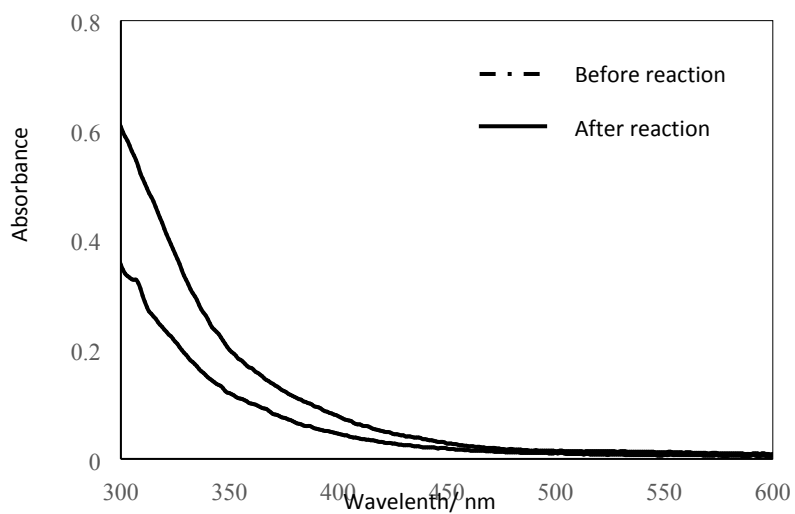


Fig. S7 UV-vis spectral change of reaction solution (Co(III)(DO)(DOH)Br₂ as catalyst): before reaction (dotted line), after reaction (solid line).

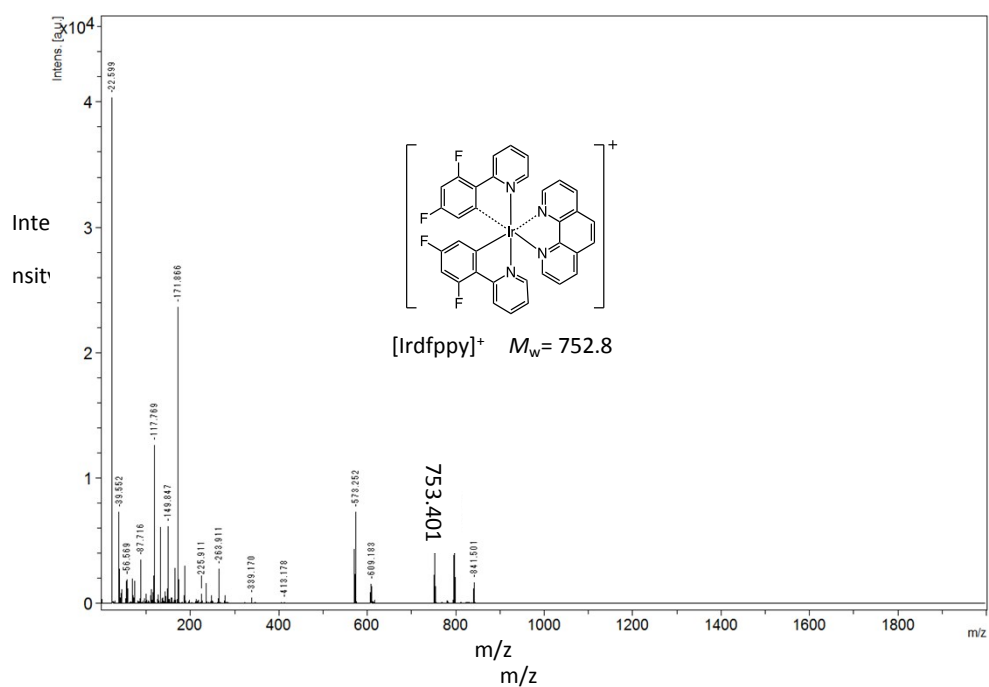


Fig. S8 MALDI-TOF mass spectrum of Co(III)(DO)(DOH)Br₂ (not detected) and Irdfppy after catalytic reaction.