



Reaction scheme of the catalytic cycle of HRP. P and Q are the oxidized ($[\text{Os}^{\text{III}}(\text{bpy})_2\text{pyCl}]^{2+}$) and the reduced ($[\text{Os}^{\text{II}}(\text{bpy})_2\text{pyCl}]^+$) forms of the mediator, respectively, S, the H₂O₂ substrate, E, the native ferriperoxidase (Fe^{III}), E₁, the oxyferryl π -radical compound I ($[\text{Fe}^{\text{IV}}=\text{O}]^{\bullet+}$), E₂, the oxyferryl compound II ($\text{Fe}^{\text{IV}}=\text{O}$), E₃, the oxyperoxydase ($\text{Fe}^{\text{II}}-\text{O}_2$), and ES, E₁Q, and E₂Q, the precursor complexes that may be formed with the reactive form of substrate and cosubstrate.