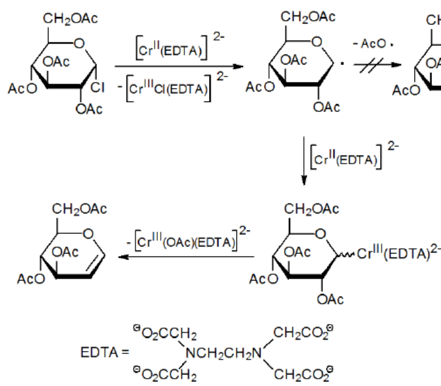
VII. Comparison of Reactions of Chromium(II) Reagents With Those of Samarium(II) Iodide

Chromium(II) reagents participate in radical reactions[98-104] that are similar both mechanistically and in terms of product formation to those occurring when samarium(II) iodide reacts with carbohydrate derivatives. Radical formation from reaction of chromium compounds with carbohydrate derivatives is far less common than radical formation from reaction with samarium(II) iodide. An example of a reaction involving a chromium(II) complex is given in Scheme 12 where $[Cr^{II}(EDTA)]^{2-}$ reacts with a glycosyl halide to produce a pyranos-1-yl radical that then combines with additional $[Cr^{II}(EDTA)]^{2-}$ to generate a glycosylchromium complex.[98,99] This complex undergoes β elimination to give a glycal.

Scheme 12



Radicals generated by chromium(II) reagents also undergo cyclization reactions such as that occurring when the bromide **26** reacts with chromium(II) acetate (eq 9).[103] The presence of a carbon–carbon double bond in the final product (**27**) indicates that a transient organochromium complex forms during this reaction but then reacts to give the unsaturated, bicyclic carbohydrate **27**.