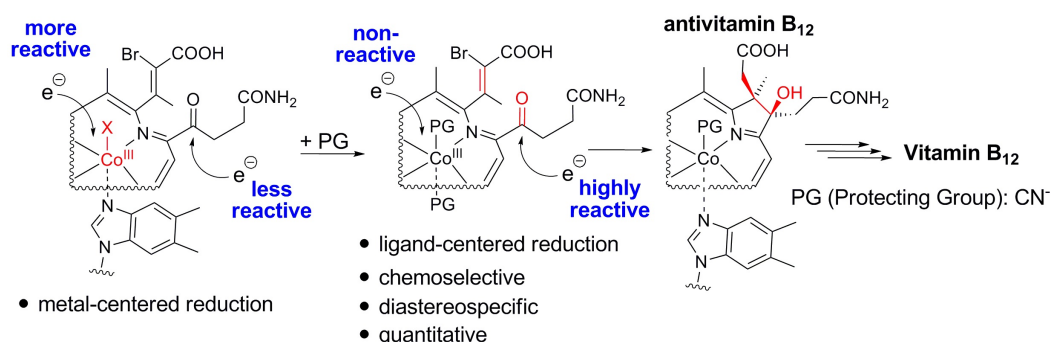


A Reversible Route for the Stereospecific Reconstitution of Vitamin B₁₂ Using Cyanide as Inorganic Protecting Group

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Vitamin B₁₂ is one of the most complex natural products and acts as an essential cofactor in many forms of life, including humans.¹ The enzymatic activity of this nutrient is dominated by cobalt-dependent organometallic reactions and the electronic and kinetic properties of the metal centre are strongly influenced by the equatorial corrin ligand. Therefore, stereospecific and reversible modifications of this sophisticated macrocycle show huge potential for the development of new B₁₂-based therapeutic agents.²



We present the 4-step stereospecific reconstitution of vitamin B₁₂ from a B ring modified secocorrinoid.^{3,4} The key step of the route is a quantitative and rapid ring closure reaction that leads to a new B₁₂ derivative with antivitamin activity. Chemoselectivity in this reaction is achieved by introducing inorganic cyanide as protecting group. Synthetic aspects and biological properties of these compounds will be described.

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