

## (Strept)avidin as host for biotinylated coordination complexes: stability, chiral discrimination, and cooperativity.

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### Streszczenie

Incorporation of a biotinylated ruthenium tris(bipyridine)  $[\text{Ru}(\text{bpy})_2(\text{Biot-bpy})]^{2+}$  (**1**) in either avidin or streptavidin(strept)avidin can be conveniently followed by circular dichroism spectroscopy. To determine the stepwise association constants, cooperativity, and chiral discrimination properties, diastereopure ( $\Lambda$  and  $\Delta$ )-**1** species were synthesized and incorporated in tetrameric (strept)avidin to afford  $(\Delta\text{-}[\text{Ru}(\text{bpy})_2(\text{Biot-bpy})]^{2+})_x\subset\text{avidin}$ ,  $(\Lambda\text{-}[\text{Ru}(\text{bpy})_2(\text{Biot-bpy})]^{2+})_x\subset\text{avidin}$ ,  $(\Delta\text{-}[\text{Ru}(\text{bpy})_2(\text{Biot-bpy})]^{2+})_x\subset\text{streptavidin}$ , and  $(\Lambda\text{-}[\text{Ru}(\text{bpy})_2(\text{Biot-bpy})]^{2+})_x\subset\text{streptavidin}$  ( $x = 1\text{-}4$ ) For these four systems, the overall stability constants are  $\log \beta_4 = 28.6, 30.3, 36.2,$  and  $36.4,$  respectively. Critical analysis of the CD titrations data suggests a strong cooperativity between the first and the second binding event ( $x = 1, 2$ ) and a pronounced difference in affinity between avidin and streptavidin for the dicationic guest **1** as well as modest enantiodiscrimination properties with avidin as host.

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