fac-{Ru(CO)$_3$}$^{2+}$ selectively targets the histidine residues of the β-amyloid peptide 1-28. Implications for new Alzheimer's disease treatments dased on ruthenium complexes.

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Rok wydania

2010

Czasopismo

Inorganic Chemistry

Numer woluminu

49

Strony

4720-4722

DOI

10.1021/ic902593e.

Kolekcja

Naukowa

Streszczenie

The reaction of the ruthenium(II) complex fac-[Ru(CO)(3)Cl(2)(N(1)-thz)] (I hereafter; thz = 1,3-thiazole) with human beta-amyloid peptide 1-28 (Abeta(28)) and the resulting {Ru(CO)(3)}(2+) peptide adduct was investigated by a variety of biophysical methods. (1)H NMR titrations highlighted a selective interaction of {Ru(CO)(3)}(2+) with Abeta(28) histidine residues; circular dichroism revealed the occurrence of a substantial conformational rearrangement of Abeta(28); electrospray ionization mass spectrometry (ESI-MS) suggested a prevalent 1:1 metal/peptide stoichiometry and disclosed the nature of peptide-bound metallic fragments. Notably, very similar ESI-MS results were obtained when I was reacted with Abeta(42). The implications of the above findings for a possible use of ruthenium compounds in Alzheimer's disease are discussed.

Adres publiczny

http://dx.doi.org/10.1021/ic902593e.

Strona internetowa wydawcy

https://www.acs.org/content/acs/en.html

Język

Angielski

Typ publikacji

Artykuł