

Structural analysis and sheep pituitary receptor binding of GnRH and its complexes with metal ions.

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Binding of GnRH and its metal complexes to a sheep pituitary receptor have been investigated showing that Cu(II)-GnRH complex is more effectively bound to the receptor than the metal-free ligand, while Ni(II) and Co(II) complexes are less effective than the metal-free GnRH. Earlier studies have explained reasonably well the complex formation with cupric ion, while in this work extensive ^1H NMR measurements have been performed for free gonadotropin-releasing hormone (GnRH) and its complexes with Ni(II) in DMSO (dimethyl sulfoxide) solution. This study shows the high order of organization of the metal-free peptide in DMSO solution with two structured 'domains' whose relative orientation is modulated by the mobility of the central glycine. Furthermore, theoretical calculations were performed for the Ni(II)-GnRH complex. The data obtained in this work supports previous studies on the co-ordination of Ni(II) ions with GnRH in aqueous solutions at high pH [J. Inorg. Biochem. 33 (1988) 11] and suggest an experimental procedure to reproduce high pH in DMSO solution. In the Ni(II) complex, the metal ion was found to co-ordinate with four nitrogen atoms inducing a well definite arrangement of aromatic side-chains and a rigid backbone structure.

Słowa kluczowe

^1H NMR, GnRH, Metal complexes, Sheep pituitary receptor binding

Adres publiczny

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