

COMMUNICATIONS

钌(II)配合物与酵母tRNA相互作用的等温滴定量热研究

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摘要 本文首次用等温滴定量热(ITC)法研究了金属配合物与RNA的相互作用。ITC实验表明, 钌(II)多吡啶配合物 $[\text{Ru}(\text{phen})_2\text{MPIP}]^{2+}$ {phen = 1,10-邻菲咯啉, MPIP = 2-(4-甲基苯基)咪唑并[5,6-f]邻菲咯啉} 以单位点结合模式插入到酵母tRNA的双链区域, 与先前光谱法得到的实验结果一致。ITC实验进一步表明, 每个配合物结合3~4个RNA碱基,

键合过程由焓焓联合驱动。这些说明ITC方法是深入研究金属配合物与RNA相互作用机理的一种有效手段。

关键词 [钌\(II\)配合物](#), [酵母tRNA](#), [等温滴定量热法](#), [相互作用](#)

分类号

Interaction of Ru(II) Complex with Yeast tRNA Studied by Isothermal Titration Calorimetry

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Abstract The interaction of metal complex with RNA has been studied by isothermal titration calorimetry (ITC) for the first time. ITC experiments show that complex $[\text{Ru}(\text{phen})_2\text{MPIP}]^{2+}$ {phen = 1,10-phenanthroline, MPIP = 2-(4-methylphenyl)imidazo [4,5-f]-1,10-phenanthroline} interacts with yeast tRNA in terms of a model for a single set of identical sites through intercalation, which is consistent with our previous observation obtained from spectroscopic methods, and this binding process was driven by a moderately favorable enthalpy decrease in combination with a moderately favorable entropy increase, suggesting that ITC is an effective method for deep studying the interactions of metal complexes with RNA.

Key words [ruthenium\(II\) complex](#) [yeast tRNA](#) [ITC](#) [interaction](#)

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