

## 论文

### *i*-Motif在分子拥挤条件下的性质

周俊<sup>1,2</sup>, 贾国卿<sup>1,2</sup>, 冯兆池<sup>1</sup>, 李灿<sup>1</sup>

1. 中国科学院大连化学物理研究所, 催化基础国家重点实验室, 大连 116023;
2. 中国科学院研究生院, 北京 100049

#### 摘要:

本文用人端粒富含C的序列[C<sub>3</sub>TA<sub>2</sub>]<sub>3</sub>C<sub>3</sub>作为模型, 利用惰性分子PEG 200作为模拟体内分子的拥挤试剂, 通过圆二色光谱和紫外吸收光谱研究了*i*-Motif在分子拥挤条件下的性质. 结果表明, PEG的存在对*i*-Motif的结构没有明显影响, 但是可以提高*i*-Motif的热稳定性.

关键词: *i*-Motif; 分子拥挤; 聚乙二醇

### Properties of *i*-Motif Under Molecular Crowding Conditions

ZHOU Jun<sup>1,2</sup>, JIA Guo-Qing<sup>1,2</sup>, FENG Zhao-Chi<sup>1</sup>, LI Can<sup>1\*</sup>

1. State Key Laboratory of Catalysis, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian 116023, China;
2. Graduate School of Chinese Academy of Sciences, Beijing 100049, China

#### Abstract:

*i*-Motif is formed from two parallel duplexes by intercalating with each other in an antiparallel orientation and each duplex is held together *via* hemiprotonated cytosine<sup>+</sup>-cytosine base pairs. However, a cell is crowded with various biomolecules and little is known about the properties of *i*-Motif under molecular crowding conditions until now. In the present study, we used human telomeric DNA sequence, [C<sub>3</sub>TA<sub>2</sub>]<sub>3</sub>C<sub>3</sub>, as a model system to investigate such problem by circular dichroism(CD) and UV absorbance spectroscopy. Based on the CD spectra, we found that there were no changes about the structure of *i*-Motif in the presence of polyethylene glycol(PEG). CD melting results showed that the thermal stability of *i*-Motif was increased under molecular crowding conditions compare to that in dilute buffer, which was further demonstrated by UV-melting results. This work suggests that molecular crowding could not affect the structure of *i*-Motif, which may depend on pH, while could enhance the thermal stability of *i*-Motif.

Keywords: *i*-Motif; Molecular crowding; Polyethylene glycol(PEG)

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通讯作者: 李灿, 男, 博士, 研究员, 博士生导师, 中国科学院院士, 主要从事物理化学、催化和应用光谱研究. E-mail: canli@dicp.ac.cn

作者简介:

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