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疏水亲脂作用驱动的有机分子的簇集和自卷

蒋锡夔,计国桢,黎占亭

中国科学院上海有机化学研究所.上海(200032)

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摘要 疏水亲脂相互作用(HLI)是一种重要的分子间弱作用力，
本文主要介绍了HLI驱动下的有机分子分子的簇集和自卷的研究进展，作者实验室发展的一些新的概念、影响有机分子簇集和自卷的各种因素和运用这些概念对一些疾病产生原因的解释。

关键词 疏水性 亲脂性 相互作用 分子簇集 分子自卷

分类号 0621

Aggregation and self-coiling of organic molecules brought about by hydrophobic-lipophilic interactions

Jiang Xikui,Ji Guozhen,Li Zhanting

Shanghai Inst Organ Chem., CAS.Shanghai(200032)

Abstract Hydrophobic-lipophilic interaction (HLI) is one of the most important non-covalent interactions. Aggregation and self-coiling of organic molecules in polar solvent media are mainly promoted by HLI. In the past twenty years, we have studied HLI-driven aggregation and self-coiling of a variety of organic molecules, which include linear aliphatic and aromatic carboxylates, sulfonates, phosphates, aromatic and heterocyclic systems, etc. Factors which affect the aggregating and self-coiling tendencies of organic molecules have been systematically investigated. These include solvent effects, salt effects, structural effects such as molecular shape, linked - up effect, chain-length effect, the alternating - CF~2CH~2- chain effect, the hydroxyl - group effect, a special salt effect for ESAg formation, etc. Our efforts have led to the establishment of a number of new concepts, e. g. , coaggregation, deaggregation, electrostatically stabilized aggregation, neighboring-moiety-assisted chain-foldability effect, etc. The results have also been successfully applied to various reactions such as HLI-driven electron transfer, energy transfer and large-ring synthesis and to a partial interpretation of why some molecules are the culprits of atherosclerosis. This paper briefly describes our main research results.

Key words HYDROPHOBILITY LIPOPHILICITY INTERACTIONS

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- 蒋锡夔
- 计国桢
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通讯作者