

# N-溴代琥珀酰亚胺修饰菌紫质中色氨酸的光谱学研究

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本文采用紫外-可见吸收光谱和荧光光谱方法研究了菌紫质（以下简称bR）

中的8个色氨酸(Trp)残基在与N-溴代琥珀酰亚胺（以下简称NBS）反应（氧化还原作用）过程中被修饰的Trp残基数目及其对应的光谱变化。研究结果显示：随着NBS/bR摩尔比例增加逐渐被修饰的Trp残基有4个左右，如果NBS过量，则Trp残基的修饰个数最终可达6-7个；伴随化学修饰出现Trp残基特征荧光峰值下降及峰位蓝移。研究所得结果对于弄清bR中Trp-视黄醛(Retinal)偶联能量传递、单独Trp残基的荧光寿命和Trp残基在膜蛋白结构和功能中的作用都具有积极而重要的意义。

## The research of the Tryptophan residues' spectrum in bR when Oxidized by N-bromosuccinimide

This research paper concerns about the number of oxidized Tryptophan(Trp) of all the eight Trp residues of bR and the corresponding spectrum change when

modified by N-bromosuccinimide (NBS) gradually (redox) via UV-Vis absorption spectrum and fluorescence spectrum. The research results reveal that the number of oxidized Trp residues is about 4 when we increase the NBS/bR molar ratio normally, but if more NBS is used, this number will rise to 6-7. The Trp residues' characteristic fluorescence apex will be decreased and blue-shifted during the chemical modification. The research results are important and meaningful for making clear the Trp-retinal coupling energy transfer, the fluorescence lifetime of individual Trp residue and the role of Trp residues in membrane protein's structure and function.

关键词