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# 生物单分子研究的进展

林克椿  
北京大学医学部生物物理系

大多数分子生物学实验都代表一种集体平均的测量, 所记录的都是复杂系统中大量分子的行为。随着技术的发展, 目前已能够对单分子观察、探测、操纵并研究其动态与构象变化。从单分子研究可得到新的信息, 这些信息隐藏在集体测量之中, 或已被平均掉。这一领域代表着本世纪结构生物学的一个新方向。

## ADVANCES IN SINGLE BIOMOLECULE RESEARCH

Most molecular biological experiments represent measurements of ensemble average by which a vast multitude of duplicate systems are probed and average responses are recorded. With advances in techniques we are able to observe, detect, manipulate individual molecules and study their conformational change and dynamic behaviors. New information could be seen from these single molecules research which were otherwise be hidden or averaged out. Advances in this field is a new direction of structural biology for this century.

### 关键词

单分子探测(Single molecule detection(SMD)); 单分子谱学(Single-molecule spectroscopy(SMS)); 扫描探针显微术(Scanning probe microscopy(SPM)); 力谱(Force spectrum)