

## 综述

### 双模态分子影像探针研究进展

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#### 摘要:

分子影像技术可以在分子水平上实现生物有机体生理和病理变化的在体、实时、动态、无创的三维成像, 融合不同影像的双、多模态技术, 可实现不同影像设备的优势互补, 同时亦可减少假阳性和假阴性, 从而使获取的结果更为精确可靠。双、多模态融合已成为生物医学成像的发展趋势, 并逐渐在疾病的治疗、诊断及监测等方面发挥重要作用。本文综述了双模态分子探针的优势和面临的挑战, 总结了当前双模态分子探针独特的设计策略及其相关应用研究, 并对目前的热点和前景进行了总结和展望。

**关键词:** 分子影像 分子探针 双模态 多模态

### Progress of the Dual-Modality Probes for Molecular Imaging

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#### Abstract:

Molecular imaging enables the visualisation of cellular functions, physiological and pathological changes and the follow-up of molecular process in living organisms with intravital, real-time, non-invasive, dynamic three-dimensional imaging. However, no single modality is sufficient and perfect to obtain all the necessary information. The combination of two or more imaging technologies, which called dual- or multi-modality imaging, can not only offer the benefits of relevant imaging devices complementary with each other, but also decrease false positive and negative rates, which will significantly improve the accuracy and credibility of diagnosis. Hence, Dual- or multi-modality probes open up the new horizon for biomedical imaging and play a critical role in the diagnosis and monitoring of disease as well as the treatment. The purpose of this article is to provide an overview of recent development in the design strategies and application of dual-modality probes. The perspective of future trends in this field and the research frontiers nowadays are also briefly outlined.

**Keywords:** Molecular imaging Probe Dual modality Multi-modality

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