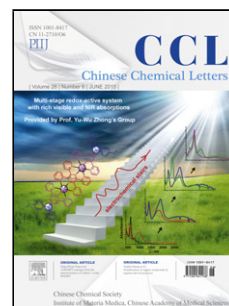


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Review

Recent development on peptide-based probes for multifunctional biomedical imaging

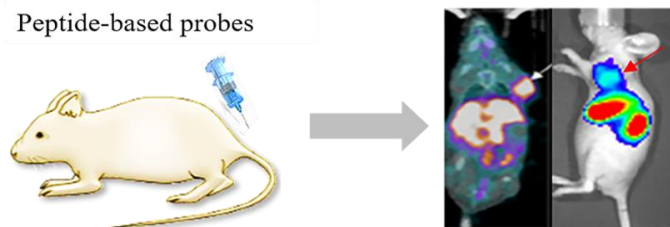
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Graphical Abstract

Peptide-based probes



Peptide-based probes play prominent roles in biomedical research due to their promising properties such as high biocompatibility, fast excretion, favorable pharmacokinetics as well as easy and robust preparation. Considering the translation of imaging probes into clinical applications, peptide-based probes remain to be the most desirable and optimal candidates.

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Peptide-based probes play prominent roles in biomedical research due to their promising properties such as high biocompatibility, fast excretion, favorable pharmacokinetics as well as easy and robust preparation. Considering the translation of imaging probes into clinical applications, peptide-based probes remain to be the most desirable and optimal candidates. This review summarized the development of peptide-based probes with promising imaging modalities and highlighted the successful applications for *in vivo* biomedical imaging.

1. Introduction

Molecular imaging techniques are indispensable tools in modern diagnostics, because they will allow highly sensitive and specific measurement of biological processes at the molecular, cellular, tissue and body levels, as well as monitoring of therapeutic responses [1,2]. To date, a variety of imaging modalities, including positron emission tomography (PET), magnetic resonance imaging (MRI), ultrasound (US) and near infrared fluorescence (NIR) have been actively explored to employ in bioimaging [3-8]. For example, ¹⁸F-FDG has been successfully applied as golden standard PET tracer for tumor staging and therapy assessment worldwide, however, the sensitivity and specificity are often less than desired [9]. In order to meet the increasing needs for *in vivo* basic research and clinical

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