Peptides in the design of theranostic nanocarriers

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Abstract

Peptides are small biopolymers of amino acids that are extensively used in the design of materials for biological and biomedical applications. Their intrinsic biological activity can be exploited to develop target-specific drugs, substrates or ligands. Their functional building blocks can also serve as anchoring sites in the design of templates and scaffolds. Their bi-and tridimensional organizations can also be used in the design of bioactive self-assembled nanomaterials. The present communication will illustrate the use of peptides in these three different fields. Multivalent tumor-targeting peptide vectors were designed from a cyclic decapeptide template to carry molecular imaging agents and deliver cytotoxic drugs.[1,2] Multifunctional Single-Attachment-Point (MSAP) reagents were developed from di- and tetrapeptide scaffolds to modify biomolecules at a single position with multiple functionalities.[3] Chimeric and recombinant polymer-peptide materials, featuring a hydrophobic or thermo-responsive polymer block and a peptide segment, are currently investigated to develop bioactive self-assembled nanomaterials.[4]

References

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