

Special Issue

Molecular Biology in Targeted Radionuclide Therapy Radiopharmaceutical Design

Message from the Guest Editors

Targeted radionuclide therapy (TRT) can be defined by the delivery of radionuclides to a tumor-associated target, which may be present in the tumor cell itself or in the microenvironment. The design of a radiopharmaceutical for TRT requires a multidisciplinary team involving biologist, radio chemist, radio pharmacologist, medical, and physical staff. After conjugation, usually by means of a bifunctional chelator, the compound may lose some affinity for the target. Great efforts have been made to select the more specific ligand and optimal labelling method in order to increase the specificity for the tumor tissue and the residence time to decrease the dose to normal tissues and critical organ subregions. Molecular biology plays a fundamental role also in the field of nanosized particles loaded with radionuclides; specific coating may drive these particles towards the tumor, reducing the RES uptake. Contributing papers to this Special Issue will present recent progress in the molecular approach to TRT of cancer, with emphasis on how to better design a radiopharmaceutical.

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