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Copper Radiopharmaceuticals for Theranostic Applications

Guest Editor:

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closed (31 December 2023)

Message from the Guest Editor

Dear Colleagues,

Cu ions are essential for multiple biological processes and are indispensable in the maintenance of life. Cu is found in several effective compounds with anti-inflammatory and anti-proliferative properties and is involved in cancer development, angiogenesis, and metastasis. ^{60}Cu , ^{61}Cu , ^{62}Cu , ^{64}Cu , and ^{67}Cu are promising for molecular imaging applications. ^{64}Cu is the most widely studied radioisotope for PET imaging and cancer therapy. Copper chloride ($^{64}\text{CuCl}_2$) is a radiopharmaceutical with theranostic capacity and simultaneous diagnostic and therapeutic abilities. ^{64}Cu , with a half-life of 12.7 hours, decays by emission of β^- particles, electron capture, and emission of β^+ particles. The β^+ can be used for PET imaging, and β^- particles and Auger electrons emitted have therapeutic properties. ^{64}Cu enters cells via the CTR1 enzyme, and it is distributed in different organelles. The direct link between ^{64}Cu and the DNA chain allows for noninvasive and effective theranostic applications.

This Special Issue is dedicated to all efforts towards copper radiopharmaceuticals for theranostic applications.



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Special Issue



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