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How far are we with Auger emitting Isotopes as the next frontier in Nuclear Medicine ?

Auger electron (AE) radiopharmaceutical therapy or Targeted Auger Therapy (TAET) may have the same therapeutic efficacy as alpha-particles for oncologic small disease, with lower risks of normal-tissue toxicity. The seeds of using AE emitters for RPT were planted several decades ago yet it is no anywhere near clinical use. The furthest is probably Tb-161 [1] which a combination of beta emission supplemented with AE (often referred to as Lu-177+) and not pure TAET.

This paper will attempt to give an overview of isotopes considered aspects in terms of half-life, AE energy deposition, co-emission of gamma, theranostic pairs and availability. This is based on recent literature on this topic [2,3].

Lastly the mechanism of action for AE has always been believed to be through double strand breaks in the DNA. It has been recently demonstrated that this may not be universally true in every situation [1,4].

References

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Notes

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