Peptide-based targeting strategies for diagnosis and therapy of medullary thyroid cancer

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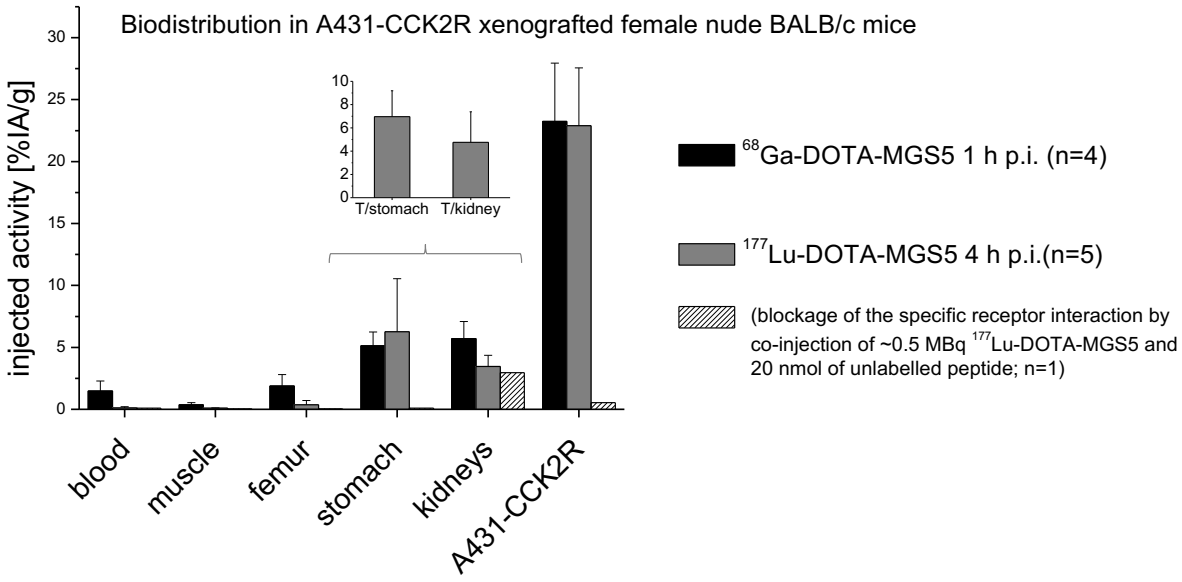
The clinical management of advanced and progressive metastatic medullary thyroid cancer is challenging. Current chemotherapy regimens are not effective and new targeted therapies with tyrosine kinase inhibitors are associated with significant side effects. Targeting of peptide receptors therefore offers an alternative theranostic perspective in this patient group. Somatostatin-receptor PET/CT with ^{68}Ga-labelled somatostatin analogues displays a high diagnostic performance in patients with neuroendocrine tumours, but is of limited use in the management of recurrent or metastatic medullary thyroid cancer. Still this imaging method can be useful in selecting patients eligible for treatment with ^{177}Lu-labelled somatostatin analogues. The cholecystokinin-2 receptor is overexpressed in more than 90% of MTCs and therefore shows a higher potential for targeted imaging and therapy. The recent development of radiolabelled minigastrin analogues targeting this receptor with improved pharmacokinetics and in vivo stability, such as ^{68}Ga/^{177}Lu-labelled DOTA-MGS5, give hope to improve the clinical management of patients with advanced MTC in the near future.



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