Targeting PSMA by radioligands in non-prostate disease-current status and future perspectives.


Department of Nuclear Medicine, University Hospital Münster, Albert-Schweitzer-Campus 1, 48149, Münster, Germany.

European Institute for Molecular imaging (EIMI), University of Münster, Münster, Germany.

BACKGROUND: Prostate-specific membrane antigen (PSMA) is the up-and-coming target for molecular imaging of prostate cancer. Despite its name, non-prostate-related PSMA expression in physiologic tissue as well as in benign and malignant disease has been reported in various publications. Unlike in prostate cancer, PSMA expression is only rarely observed in non-prostate tumor cells. Instead, expression occurs in endothelial cells of tumor-associated neovasculature, although no endothelial expression is observed under physiologic conditions. The resulting potential for tumor staging in non-prostate malignant tumors has been demonstrated in first patient studies. This review summarizes the first clinical studies and deduces future perspectives in staging, molecular characterization, and PSMA-targeted radionuclide therapy based on histopathologic examinations of PSMA expression.

CONCLUSIONS: The non-exclusivity of PSMA in prostate cancer opens a window to utilize the spectrum of available radioactive PSMA ligands for imaging and molecular characterization and maybe even therapy of non-prostate disease.

KEYWORDS: Angiogenesis; Endothelium; PET/CT; PSMA; Prostate cancer; Prostate-specific membrane antigen

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