THIS MONTH IN

JNM

Future of radiopeptides: Chatalic and colleagues provide an overview of current strategies to improve the application of radiolabels and peptides targeted at a growing range of receptors for imaging and therapy. ***Page 1809***

Enhancing SPECT cardiac accuracy: Gewirtz offers perspective on efforts to improve diagnostic accuracy in SPECT myocardial imaging, including the alternative promise of PET myocardial perfusion, and previews a related article in this issue of *JNM*. ***Page 1813***

Photoacoustic tomography: Mason looks at the potential and challenges of this commercially available multimodality technique using optical excitation and ultrasound detection and reviews an article on this topic in this issue of *JNM*. ***Page 1815***

Respiration-gated PET and -triggered CT: van der Vos and colleagues investigate the effect of respiration-triggered CT on the spatial match between CT and amplitude-based respiration-gated PET images and describe the implications of their results for radiation therapy planning. ***Page 1817***

^{68}Ga-NOTA-PRGD2 PET/CT in lung cancer: Zheng and colleagues assess the diagnostic value of this dimeric arginine-glycine-aspartic acid peptide, designed for integrin imaging, in patients with suggestive lung lesions and compare results with those from ^{18}F-FDG PET/CT. ***Page 1823***

GSK2141795 in ovarian cancer: Gungor and colleagues examine the relationship between this serine/threonine–specific protein kinase inhibitor and ^{18}F-FDG PET glucose metabolism markers in tumor tissue to determine the utility of ^{18}F-FDG PET in guiding personalized dosing in gynecologic malignancies. ***Page 1828***

^{11}C-choline PET/CT in prostate cancer: Incerti and colleagues explore the predictive capabilities of ^{11}C-choline PET/CT on a range of survival outcomes in patients treated with helical tomotherapy after biochemical failure following primary treatment for prostate cancer. ***Page 1836***

^{68}Ga-DOTANOC PET/CT in pancreatic NETs: Ambrosini and colleagues detail the role of ^{68}Ga-DOTANOC SUV_{max} as a potential prognostic factor in patients with pancreatic neuroendocrine tumors. ***Page 1843***

Pheochromocytoma/paraganglioma and ^{18}F-FLT PET/CT: Blanchet and colleagues evaluate this PET proliferation tracer in a series of patients with neuroendocrine tumors and different genetic backgrounds, compare tracer uptake with that of ^{18}F-FDG, and evaluate disease aggressiveness factors. ***Page 1849***

Test–retest ^{18}F-fluciclatide PET in solid tumors: Sharma and colleagues report on the multicenter reproducibility of PET imaging in multiple solid tumor types with this radiolabeled peptide with high affinity for $\alpha_v\beta_3$/$\alpha_v\beta_5$ integrin. ***Page 1855***

Comparative modalities in breast and prostate cancer: Minamimoto and colleagues evaluate the use of combined ^{18}F-NaF/^{18}F-FDG PET/CT in patients with breast and prostate cancer and compare results with those from ^{99m}Tc-MDP bone scintigraphy and whole-body MRI. ***Page 1862***

IPF, ^{18}F-FDG PET, and prognosis: Umeda and collagues determine whether dual-time-point ^{18}F-FDG PET imaging results are useful in predicting early pulmonary function deterioration and long-term survival in patients with idiopathic pulmonary fibrosis. ***Page 1869***

Dual-gated motion-frozen cardiac PET: Slomka and colleagues assess the feasibility and benefit of simultaneous correction of respiratory and cardiac motion in PET perfusion imaging with ^{18}F-flurpiridaz. ***Page 1876***

Systolic myocardial perfusion SPECT: Kitkungvan and colleagues look at the incremental benefit of evaluation of relative activity distribution in systolic images on sensitivity and specificity in electrocardiograph-gated SPECT myocardial perfusion imaging. ***Page 1882***

Assessing postsystolic shortening in CAD: Kanzaki and colleagues investigate the utility of resting postsystolic shortening as assessed by quantitative gated SPECT in identifying patients with coronary artery disease. ***Page 1889***

^{64}Cu-DOTATATE and atherosclerosis: Malmberg and colleagues compare the uptake of ^{68}Ga-DOTATOC and ^{64}Cu-DOTATATE in large arteries on PET/CT imaging as a measure of atherosclerosis and correlate uptake and cardiovascular risk factors. ***Page 1895***

Human kinetic modeling of ^{11}C-GSK215083: Parker and colleagues describe the quantification and pharmacologic selectivity of this 5HT6 PET ligand in healthy volunteers and its use to measure occupancies achieved at various doses of a novel 5HT6. ***Page 1901***

Binding-potential ^{11}C-PiB PET: Hosokawa and colleagues ask whether binding-potential images using ^{11}C-Pittsburgh compound B and dynamic PET can reliably detect cortical amyloid deposits in patients with ambiguous ^{11}C-PiB static images and whether visual ratings are affected by white matter retention. ***Page 1910***

Metabolic topology of neurodegeneration: Granert and colleagues detail the development of a topological map based on regional patterns of cerebral glucose metabolic rate measured with ^{18}F-FDG PET in patients with a range of neurodegenerative impairments. ***Page 1916***

Imaging applications in cancer therapy: Troost and colleagues provide an educational overview of current functional, metabolic, anatomic, and hybrid approaches for tumor localization, characterization, and monitoring of effectiveness in evolving cancer treatment methods. ***Page 1922***

Abcg2/ABCB1 transport of ^{11}C-erlotinib: Traxl and colleagues use ^{11}C-erlotinib PET to explore the effect of these efflux transporter breast cancer resistance proteins and P-glycoproteins on the tissue distribution of erlotinib in a mouse model. ***Page 1930***

CB1 as a BAT imaging biomarker: Eriksson and colleagues describe a technique for quantifying cannabinoid receptor 1 in brown adipose tissue with the radiolabeled antagonist ^{18}F-FMPEP-d_2 in a rat model. ***Page 1937***

Photoacoustic imaging of tumor vasculature: Bohndiek and colleagues assess the potential of in vivo photoacoustic tomography for direct functional measurement of ovarian tumor response to antiangiogenic therapy with trebananib in mice. ***Page 1942***

SiPM- and PMT-based preclinical PET: Krizsan and colleagues compare a small-animal PET system using state-of-the-art silicon photomultiplier photosensors for dual-modality imaging with MRI and a system with the same crystal geometry but conventional photomultiplier tubes. ***Page 1948***

^{18}F-FPEB PET for mGluR5: de Laat and colleagues report on the pharmacokinetics of this radioligand that is selective for metabotropic glutamate receptor 5 and use it to quantify mGluR5 in the rat brain. ***Page 1954***

Reference levels in nuclear medicine: Alessio and members of the SNMMI Dose Optimization Task Force provide an overview of the roles of diagnostic reference levels and achievable doses in nuclear medicine practice, guidelines, and education. ***Page 1960***