

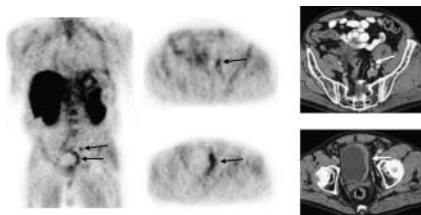
THIS MONTH IN JNM

Mothersill and Seymour look at the promise of targeted radiotherapy and the evolving meaning and understanding of “bystander effects” as reported in an original article in this issue. . . *Page 899*

Larson and Schwartz preview an article in this issue on the use of ^{18}F -FDG PET in clinical trials and address the growing potential for PET as a biomarker to assess treatment response. *Page 901*

Chen and colleagues compare the abilities of ^{18}F -FDOPA and ^{18}F -FDG as PET tracers in the assessment of amino acid and glucose metabolism in primary, recurrent, and metastatic brain tumors. *Page 904*

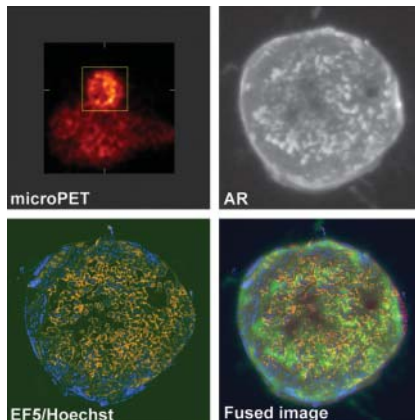
Reardon and colleagues report on the dosimetry, pharmacokinetics, toxicity, and antitumor activity of a human IgG2/ mouse chimeric monoclonal antibody administered directly into the surgical resection cavity in patients with malignant glioma. *Page 912*



Catafau and colleagues describe quantification methods for a novel ^{123}I -labeled SPECT ligand for the 5HT_{2A} receptor and discuss the utility of the resulting simple protocol, which avoids arterial blood sampling and serial scanning over time. *Page 919*

Catafau and colleagues expand on the study reported in the previous article, assessing the specificity of tracer-to-receptor binding, the relationship between ketanserin plasma concentrations and tracer displacement, and the suitability of

the cerebellum as a reference region for quantification. *Page 929*



Picchio and colleagues compare the diagnostic accuracies of contrast-enhanced CT and ^{11}C -choline PET for staging of urothelial bladder cancer, with special attention to ability to pinpoint lymph node metastases. *Page 938*

de Geus-Oei and colleagues report on the use of noninvasive image-derived input functions as an accurate, simple, and clinically viable alternative to arterial blood sampling in ^{18}F -FDG PET evaluation of chemotherapeutic response. . . . *Page 945*

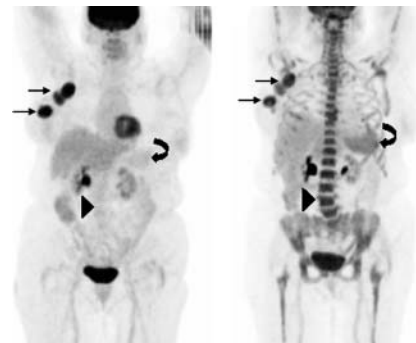
Jacene and colleagues evaluate the effects of pegfilgrastim, a long-acting granulocyte colony-stimulating factor, on biodistribution of ^{18}F -FDG in a rat model and in patients with breast cancer and discuss the significance for ^{18}F -FDG PET evaluation of tumor response. *Page 950*

Belhocine and colleagues provide a comprehensive educational review and literature survey on the role of nuclear medicine techniques in the detection, staging, and restaging of malignant melanoma. *Page 957*

Reinartz and colleagues describe the development of a procedure designed

to automatically analyze ventilation/perfusion lung scans for match and mismatch defects, an approach that would improve SPECT accuracy and efficiency in identifying pulmonary embolisms. *Page 968*

Kreissl and colleagues noninvasively determine parameters of cardiovascular function in mice by high-temporal-resolution imaging with a dedicated small-animal PET system, a technique with promise for monitoring change in response to pharmacologic intervention. *Page 974*



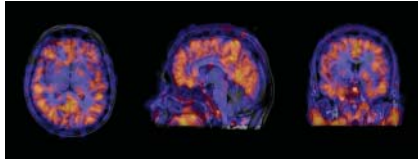
Askoxyllakis and colleagues conduct binding and biodistribution studies in mice to assess the potential of a ^{125}I -labeled peptide as a candidate for the development of a neuroblastoma-specific vector to be used for drug targeting or radioligand-based diagnosis and therapy. *Page 981*

Yuan and colleagues evaluate the recently developed tracer ^{64}Cu -ATSM as a hypoxia PET marker in a rat model and compare the results with those from a well-established hypoxia marker. *Page 989*

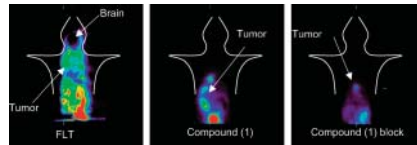
Fueger and colleagues report on the effects of variations in dietary conditions, mode of anesthesia, and ambient temperature on the biodistribution of ^{18}F -FDG in

mice undergoing small-animal PET imaging. **Page 999**

Boyd and colleagues investigate the significance of indirect effects in targeted radionuclide treatment by performing a comparative assessment of biologic bystander effects resulting from external beam γ -radiation and those resulting from exposure to 3 radiohaloanalogs of MIBG. **Page 1007**

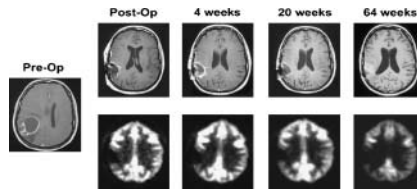


Iozzo and colleagues determine in a swine model whether ^{18}F -FDG can be used in simultaneous estimation of whole-body glucose turnover and production during the fasting and hyperinsulinemic states, facilitating correlation of systemic glucose metabolism with regional ^{18}F -FDG PET. **Page 1016**

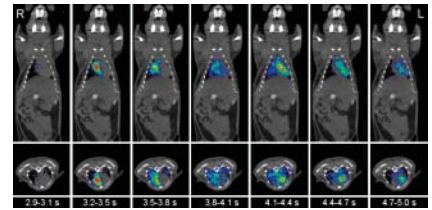


Reilly and colleagues evaluate the pharmacokinetics, tissue distribution, radiation dosimetry, and toxicology of human epidermal growth factor and ^{111}In -DTPA in mice and rabbits and discuss the implications for radiotherapeutic applications in growth factor receptor-positive breast cancer. **Page 1023**

Lipowska and colleagues report on mouse and human biodistribution studies of a novel $^{99\text{m}}\text{Tc}$ -labeled tricarbonyl complex and outline its potential advantages as a clinical renal radiopharmaceutical. **Page 1032**



Rowland and colleagues use small-animal PET imaging to assess the characteristics and PET radiotracer potential of 2 new ^{76}Br -radiolabeled compounds with high affinity and selectivity for the σ_2 -receptor. **Page 1041**



Neti and Howell determine the distribution of radiopharmaceutical activity per cell in a cell population and discuss the implications of log normal distribution of cellular radioactivity for predicting biologic response. **Page 1049**

Shankar and colleagues present consensus guidelines for the acquisition and analysis of ^{18}F -FDG PET scans of patients participating in NCI-sponsored diagnostic and therapeutic clinical trials. . . . **Page 1059**

ON THE COVER

From left to right and top to bottom, these images show cells with 0, 1, 3, 5, 7, and more than 9 α -particle tracks. The number of tracks in a given cell is directly proportional to the cumulated activity, which, in turn, is directly proportional to cellular activity. Therefore, the distribution of tracks per cell can also be used to describe the distribution of activity per cell. Theoretic calculations have indicated that a log normal distribution of radioactivity, as was found within this cell population, can profoundly affect modeling of the biologic response of the population.

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