

PUBLICATIONS 2000-2004 (5/3/2004)

Nuclear Medicine Program Staff
Nuclear Science and Technology Division
Oak Ridge National Laboratory (ORNL)

Peer-Reviewed Journal Articles

Garland, M. A., Mirzadeh, S., Alexander, C. W., Hirtz, G. J., Hobbs, R. W. and Knapp, F. F., Jr. "Flux Characterization of the Peripheral Target Positions in the High Flux Isotope Reactor," *Appl. Radiat. Isot.*, 59, 63-72 (2003).

Knapp, F. F., Jr., Mirzadeh, S., Beets, A. L. and Du, M. "Therapeutic Radioisotope Production in the High Flux Isotope Reactor (HFIR)," *J. Label Cmpds. Radiopharm.*, 46 (Suppl. 1), S320(2003).

Knapp, F. F., Jr., Mirzadeh, S., Beets, A. L. and Garland, M. "Production of Medical Radioisotopes in the ORNL High Flux Isotope Reactor," *Transactions, American Nuclear Society*, 89, 765-766 (2003).

Knapp, F. F., Jr. and Kropp, J. "The 11th Mediterranean Meeting on Nuclear Medicine and Radiopharmaceuticals," *Eur. J. Nucl. Med.*, 30, 1701-1702 (2003).

Haverlock, T. J., Mirzadeh, S. and Moyer, B. A. "Selectivity of Calix[4]arene-bis(benzocrown-6) in the Complexation and Transport of Francium Ion," *J. Amer. Chem. Soc.*, 125, 1126-1127 (2003).

Liepe, K., Kropp, J., Hliscs, R., Runge, R., Knapp, F. F., Jr. and Franke, W.-G. "Radiation Dosimetry of Rhenium-188-HEDP in Human Prostate Cancer Skeletal Metastases," *J. Nucl. Med.*, 44, 953-960 (2003).

Palmedo, H., Manka-Waluch, A., Albers, P., Schmidt, W., Guhlke, S., Reinhardt, M., Ezziddin, S., Joe, A., Roedel, R., Fimmers, H., Knapp, F. F., Jr. and Biersack, H.-J. "Repeated Bone Targeted Therapy for Hormone-Refractory Prostate Carcinoma: Randomized Phase II Trial with the New, High-Energy Radiopharmaceutical Rhenium-188-HEDP," *J. Clin. Oncol.*, 21, 2869-2875 (2003).

Ponsard, B., Hiltunen, J., Vera-Ruiz, H., Beets, A. L., Mirzadeh, S. and Knapp, F. F., Jr. "The Tungsten-188/Rhenium-188 Generator: Effective Coordination of Tungsten-188 Production Between the HFIR and BR2 Reactors," *J. Radioanalyt. Nucl. Chem.*, 257, 169-174 (2003).

Sloof, G. W., Knapp, F. F., Jr., van Lingen, A., Eersels, J., Poldermans, D. and Bax, J. J. "Nuclear Imaging Is More Sensitive For the Detection of Viable Myocardium Than Dobutamine Echocardiography," *Nuclear Medicine Communications*, 24, 357-381 (2003).

Knapp, F. F., jr., Mirzadeh, S., Beets, A. L. And Du, M. "Production of Therapeutic Radioisotopes in the ORNL High Flux Isotope reactor (HFIR) for Applications in nuclear Medicine, Oncology and Interventional cardiology," *J. Radioanalyt. Nucl. Chem., in press*.

Verberne, H. J., Sloof, G. W., Beets, A. L., Murphy, A. M., van Eck-Smit, N. L. F. and Knapp, F. F., Jr. "Free Fatty Acid and Glucose Uptake in a Transgenic Mouse Model of Stunned Myocardium," *Eur. J. Nucl. Med.*, 30, 431-439 (2003).

Granadas, O. H., Stevens, S. L., Donnell, R. L., Costanza, M. J., Spencer R. H., Knapp, F. F., Jr., Shoieb, A. M., Brown, K. J., Reddick, T. T., Freeman, M. B. and Goldman, M. H. "Effect of Intravascular Radiation on the Distribution of Macrophages, Platelet-Derived Growth Factor and Transforming Growth Factor in the Swine Iliac Artery," *Annals Vasc. Surg.*, *in press*.

Knapp, F. F., Jr., Mirzadeh, S., Beets, A. L. and Du, M. "Production of Therapeutic Radioisotopes in the ORNL High Flux Isotope Reactor (HFIR) for Applications in Nuclear Medicine, Oncology and Interventional Cardiology," *J. Radioanalyt. Nucl. Chem.*, *in press*.

Knapp, F. F., Jr., "Radionuclide Generators: Their Continuing Important Role to Provide Radioisotopes for Diagnosis and Therapy," *J. Nucl. Med., Invited Continuing Education Review*, *in preparation*.

Liepe, K., Hliscs, R., Kropp, J., Ningl, T. G., Runge, R., Koch, R., Knapp, F. F., Jr. and Franke, W.-G. "Rhenium-188-HEDP in the Palliative Treatment of Bone Metastases," *Eur. J. Nucl. Med.*, *submitted*.

Zetting, G., Dobrozemsky, G., Kirisits, C., Wexberg, P., Cejna, M., Mitterhauser, Knapp, F. F., Jr. and Dudczak, R. "Endovascular Radiation with Liquid-Filled Balloons - The Impact of Reused Balloon Catheters on the Projected Dose," *Appl. Radiat. Isot.*, *submitted*

Buhman, K. K., Smith, S. J., Stone, S., Repa, J., Wong, J. S., Knapp, F. F., Jr., Burri, B., Hamilton, R. L., Abumrad, N. A. and Farese, R. V., Jr. "DAGAT1 Is Not Essential for Intestinal Triacylglycerol Absorption or Chylomicron Synthesis," *J. Biol. Chem.*, 277, 25474-25479 (2002).

Febbraio, M., Guy, E., Coburn, C., Knapp, F. F., Jr., Beets, A. L., Abumrad, N. A. and Silverstein, R. L. "The Impact of Overexpression and Deficiency of Fatty Acid Translocase (FAT)/CD36," *Mol. Cell. Biochem.*, 239, 193-197 (2002).

Hambye, A.-S., Dobbelaer, A., Vervaet, A. and Knapp, F. F., Jr. "Image Quality of Rhenium-188 and Technetium-99m - Comparative Planar and SPECT Evaluation in a Phantom Study - Implications for Dosimetric Calculation," *World J. Nucl. Med.*, 1, 12-20 (2002).

Kennel, S. J., Lankford, T., Daven, S., Foote, L., Taniguchi, K., Ohizumi, Y., Nakagawa, S., Mayumi, T. and Mirzadeh, S. "Therapy of Rat Tracheal Carcinoma IC-12 in SCID Mice. Vascular Targeting with ²¹³Bi-MAb TES-23," *Eur. J. Can.*, 1278-1287 (2002).

Kennel, S. J., Brechbiel, M. W., Schlom, J. and Mirzadeh, S. "Actinium-225 Conjugates of Mab CC49 and Humanized Delta CH2CC49," *Can. Biother. and Radiopharm.*, 17, 219-231 (2002).

Kennel, S. J., Mirzadeh, S., Eckelman, W. C., Waldmann, T. A., Garmestani, K., Yordanov, A. T., Stabin, M. G. and Brechbiel, M. W. "Vascular-Targeted Radioimmunotherapy with the Alpha-Particle Emitter, Astatine-211," *Radiat. Res.*, 157, 633-641 (2002).

Mirzadeh, S., Lambrecht, F. Y. and Lambrecht, R. M. "Decay of Tungsten-189," *Appl. Radit. Isot.*, 57, 637-646 (2002).

- Sundram, F. X., Yu, S., Somanesan, S., Jeong, J. M., Bernal, P., Osorio, M., Esguerra, R., Chau, T. C. M., Long, H. D., Hoa, N. V., Huy, N. D. S., Onkhuudai, P., Lamjav, T., Zanzonico, P., Divgi, C., Padhy, A. K., Martindale, A., Saw, M. M., Rolland, Y. and Knapp, F. F., Jr. "Phase I Study of Transarterial Rhenium-188 HDD Lipiodol in Treatment of Inoperable Primary Hepatocellular Carcinoma - A Multicentre Evaluation," *World J. Nucl. Med.*, 1, 5-11 (2002).
- Chen, F. D., Wang, H. E., Ou, Y. H., Yang, W. K., Peng, J. W., Liu, R. S., Knapp, F. F., Jr., Hsieh, B. T., Ting, G. and Yen, S. H. "Efficacy of Re-188-Labeled Sulfur Colloid on Prolongation of Survival Time in Melanoma-Bearing Animals," *Nucl. Med. Biol.*, 28, 835-844 (2001).
- Hajri, T., Ibrahim, A., Coburn, C., Knapp, F. F., Jr., Kurtz, T., Pravenec, M. and Abumrad, N. A. "Defective Fatty Acid Uptake in the Spontaneously Hypertensive Rat Is a Primary Determinant of Altered Glucose Metabolism and Hyperinsulinemia," *J. Biol. Chem.*, 276, 23661-23666 (2001).
- Knapp, F. F., Jr., Spencer, R. and Kropp, J. "Intravascular Radiation Therapy with Radioactive Liquid-Filled Balloons for Inhibition of Restenosis After Angioplasty - A New Opportunity for Nuclear Medicine ?," *J. Nucl. Med.*, 42, 1384-1387 (2001).
- Knapp, F. F., Jr. "Future Prospects for Medical Radionuclide Production in the High Flux Isotope Reactor (HFIR) at the Oak Ridge National Laboratory (ORNL)," *Annals of Nucl. Med. Sci. (Taiwan)*, 14, 109-118 (2001).
- Lisic, E. C., Philips, M., Ensor, D., Nash, K. L., Beets, A. L. and Knapp, F. F., Jr. "Synthesis of a New Bisphosphonic Acid Ligand (SEDP) and Preparation of a ¹⁸⁸Re-(Sn)SEDP Bone Seeking Radiotracer," *Nucl. Med. Biol.*, 28, 419-424 (2001).
- McPherson, D. W., Breeden, W., III, Beets, A. L., Luo, H., Sood, V. and Knapp, F. F., Jr. "Synthesis, *In Vitro* and *In Vivo* Evaluation of the Stereoisomers of 1-Methylpiperidin-4-yl α-Hydroxy-α-(1-iodo-1-propen-3-yl)-α-phenylacetate as Potential Ligands for the Imaging of the Muscarinic Receptor," *Nucl. Med. Biol.*, 28, 959-973 (2001).
- Milenic, D. E., Roselli, M., Mirzadeh, S., Pippin, C. G., Gansow, O. A., Colcher, D., Brechbiel, M. W. and Schlom, J. "In Vivo Evaluation of Bismuth-213-Labeled Monoclonal Antibody Comparing DTPA-Derived Bifunctional Chelates," *Can. Biother. Radiopharm.*, 16, 133-146 (2001).
- Nobuhara, K., Farde, L., Halldin, C., Karlsson, P., Swahn, C.-G., Olsson, H., Bergstrom, K. A., Larsson, S. A., Schnell, P.-O., McPherson, D. W., Savonen, A., Hiltunen, J. and Sedvall, G. "SPET Imaging of Central Muscarinic Acetylcholine Receptors with Iodine-123-Labelled E-IQNP and Z-IQNP," *Eur. J. Nucl. Med.*, 28, 13-24 (2001).
- Oh, S. J., Moon, D. H., Ha, H.-J., Park, A. W., Hong, M. K., Park, S. J., Choi, T. H., Lim, S. M., Choi, C. W., Knapp, F. F., Jr. and Lee, H. K. "Synthesis of Highly Concentrated ¹⁸⁸Re-MAG3 and Automation for Intracoronary Radiation Therapy," *Appl. Rad. Isot.*, 54, 419-427 (2001).
- Pirmettis, I., Limouris, G. S., Bouziotis, P., Papadopolous, M., Knapp, F. F., Jr. and Chiotellis, E. "Pentavalent Rhenium-188 Dimercaptosuccinic Acid: A New Kit Formulation and its Initial Evaluation in Mice," *Radiochimica Acta*, 89, 115-118 (2001).

Savio, E., Gaudiano, J., Robles, A., Martinez, G., Leon, A., Veredra, S., Muniz, S., Hermida, J. C. and Knapp, F. F., Jr. "Rhenium-188-HEDP: Pharmacokinetic Characterization in Osseous Metastatic Patients with Two Levels of Radiopharmaceutical Dose," *BMC Nucl. Med.*, 1(23), 1471-1485 (2001).

Wang, S.-J., Lin, W.-Y., Chen, M. N., Chen, J. T., Ho, W. L., Hsieh, B. T., Huang, H., Shen, L. H., Ting G. and Knapp, F. F., Jr. "Histologic Study of Effects of Radiation Synovectomy with Rhenium-188 Microspheres," *Nucl. Med. Biol.*, 28, 727-732 (2001).

Blower, P. J., Kettle, A. G., O'Doherty, M. J. O., Coakley, A. J. and Knapp, F. F., Jr. "^{99m}Tc(V)-DMSA Quantitatively Predicts ¹⁸⁸Re(V)DMSA Distribution in Patients with Prostate Cancer Metastatic to Bone," *Eur. J. Nucl. Med.*, 27, 1407-1409 (2000).

Breeden, W. F., Hamby, D. M., Carey, J. E., Eckerman, K. F., McPherson, D. W. and Knapp, F. F., Jr. "In Vivo Biodistribution of ¹²⁵I-IPIP and Internal Dosimetry of ¹²³I-IPIP Radioiodinated Agents Selective to the Muscarinic Acetylcholinergic Receptor Complex," *Med. Physics*, 27, 778-786 (2000).

Breeden, W. F. and McPherson, D. W. "Response to Comment on In Vivo Biodistribution of ¹²⁵IPIP and Internal Dosimetry of ¹²³IPIP Radioiodinated Agents Selective to the Muscarinic Acetylcholinergic Receptor Complex," *Med. Phys.*, 27, 2191 (2000) (*Letter to the Editor*).

Coburn, C. T., Knapp, F. F., Jr., Febbraio, M., Beets, A. L., Silverstein, R. L. and Abumrad, N. "Defective Uptake and Utilization of Long-Chain Fatty Acids in CD36 Knockout Mice," *J. Biol. Chem.*, 275, 32523-32529 (2000).

Guhlke, S., Beets, A. L., Mirzadeh, S., Biersack, H.-J. and Knapp, F. F., Jr. "Tandem Cation/Anion Column Treatment of Ammonium Acetate Eluants of the Alumina-Based Tungsten-188/Rhenium-188 Generator: A New Simple Method for Effective Concentration of Rhenium-188 Perrenate Solutions," *J. Nucl. Med.*, 41, 1271-1278 (2000).

Hosono, M. N., Hosono, M., Mishra, A. K., Faivre-Chauvet, A., Gautherot, E., Barber, J., Knapp, F. F., Jr. and Chatal, J.-F. "Rhenium-188-Labeled Anti-Neural Adhesion Molecule Antibodies With 2-Iminothiolane Modification for Targeting Small-Cell Lung Cancer," *Annals Nucl. Med.*, 14, 173-179 (2000).

Kennel, S. J., Mirzadeh, S., Hurst, G. B., Foote, L. J., Lankford, T. K., Glowienka, T. K., Chappell, L., Kelso, J. R., Davern, S. M., Safavy, A. and Brechbiel, M. W. "Labeling and Distribution of Linear Peptides Identified Using In Vivo Phage Display Selection for Tumors," *J. Nucl. Med. Biol.*, 27, 815-825 (2000).

Kennel, S. J., Chappell, L. L., Dadchova, K., Brechbiel, M. W., Lankford, T. K., Davis, I. A., Stabin, M. and Mirzadeh, S. "Evaluation of ²²⁵Ac for Vascular-Targeted Radioimmunotherapy of Lung Tumors," *Can. Biother. and Radiopharm.*, 15, 235-244 (2000).

Liepe, K., Hliscs, R., Kropp, J., Gruning, T., Runge, R., Koch, R., Knapp, F. F. and Franke, W. G. "Rhenium-188-HEDP in the Palliative Treatment of Bone Metastases," *Can. Biother. Radiopharm.*, 15, 261-265 (2000).

- Lin, W.-Y., Hsieh, J.-F., Tsai, S.-C., Yen, T.-C., Wang, S.-J. and Knapp, F. F., Jr. "A Comprehensive Study of Thyroid and Gastric Uptake of ^{188}Re -Perrhenate in Endovascular Irradiation Using Liquid-Filled Balloons to Prevent Restenosis," *Nucl. Med. Biol.*, 27, 83-87 (2000).
- Makkar, R., Whiting, J., Li, A., Hidehiko, H., Fishbein, M. C., Knapp, F. F., Jr., Litvack, F. and Eigler, N. L. "Effects of β^- Emitting Liquid Isotope (Rhenium-188) Filled Balloon in Stented Porcine Coronaries: An Angiographic, Intravascular Ultrasound and Histomorphometric Follow-up Study," *Circulation*, 102, 3117-3127 (2000).
- McPherson, D. W., Greenbaum, M., Luo, H., Beets, A. L. and Knapp, F. F., Jr. "*In Vivo* Biodistribution and *Ex Vivo* Metabolic Evaluation of Z-IQNP for the Potential Imaging of the m2 Muscarinic Receptor Subtype by SPECT," *Life Sciences*, 66, 885-896 (2000).
- Mirzadeh, S., Du, M., Beets, A.L. and Knapp, F. F., Jr. "Thermoseparation of Neutron-Irradiated Tungsten from Re and Os," *Indust. Engineer. Chem. Res.*, 39, 3169-3172 (2000).
- Nobuhara, K., Halldin, C., Hall, H., Karlsson, P., Hiltunen, J., McPherson, D., Savonen, A., Bergstrom, K.-A., Swahn, C.-G., Larsson, S., Schnell, P.-O. , Farde, L. and Sedvall, G. "Z-IQNP: A Potential Radioligand for SPECT Imaging of Muscarinic Acetylcholine Receptors in Alzheimer's Disease," *Psychopharmacology*, 149, 45-55 (2000).
- Palmedo, H., Guhlke, S., Bender, H., Schoemich, G., Gruenwald, F., Knapp, F. F., Jr. and Biersack, H.-J. "Dose Escalation Study with Rhenium-188-HEDP in Prostate Cancer Patients with Osseous Metastases," *Eur. J. Nucl. Med.*, 27, 123-130 (2000).
- Stabin, M. G., Konijenberg, M., Knapp, F. F., Jr. and Spencer, R. H. "Monte Carlo Modeling of Radiation Dose Distributions in Intravascular Radiation Therapy," *Medical Physics*, 27, 1086-1092 (2000).
- Wilson, L. J., Cagle, D. W., Thrash, T. P., Kennel, S. J., Mirzadeh, S., Alford, J. M. and Ehrhardt, G. J. "Mellalofullerene Drug Design," *Coord Chem. Rev.*, 190, 199 (2000).
- Wunderlich, G., Pinkert, J., Franke, W.-G., Knapp, F. F., Jr. and Kropp, J. "Preparation and Biodistribution of Rhenium-188-Labeled Albumin Microspheres: A Promising New Agent for Endoradiotherapy of Tumors," *Appl. Radiat. Isot.*, 52, 63-68 (2000).
- Yu, J., Zhang, R., Dai, X., Min., X., Xu, J., Yin, D., Hong, X., Wang, Y. and Knapp, F. F., Jr. "Intratumoral Injection with [^{188}Re]-Rhenium Sulfide Suspension for Treatment of Transplanted Human Liver Carcinoma in Nude Mice," *Nucl. Med. Biol.*,27, 347-352 (2000).

Book Chapters and Meeting Proceedings and Special Publications Describing ORNL Technology

Iyer, S. R. and Knapp, F. F., Jr. *Editors, for*, "Manual of Reactor Production of Radioisotopes," International Atomic Energy Agency (IAEA), TECDOC-1340; Vienna, Austria, January 2003. (ISBN-92-0-101103-2).

Knapp, F. F., Jr. "Applications of Rhenium-188-Labeled Agents in Oncology," *In, Proceedings*, the 11th Mediterranean Symposium on Nuclear Medicine and Radiopharmaceuticals, May 28-30, Athens, Greece; Medittera Pub., Athens (ISBN 960-86437-2-4), pp. 147-156 (2003).

Knapp, F. F., Jr., Tamaki, N., Bax, J. J. and Visser, F. C. "Single Photon Imaging of Myocardial Metabolism: The Role of Iodine-123 Fatty Acids and Fluorine-18-Deoxyglucose," *In, Nuclear Medicine in Clinical Diagnosis and Treatment*, I. P. C. Murray and P. J. Ell, Editors; Churchill and Livingston, Edinbugh, *in press*.

Knapp, F. F., Jr., Mirzadeh, S., Beets, A. L. and Du, M. "Production of Therapeutic Radioisotopes in the ORNL High Flux Isotope Reactor," *In, Proceedings*, International Isotope Society Meeting, Boston, MA, June 2-6, 2003.

Kropp, J., Pinkert, J., Wunderlich, G., and Knapp, F. F., Jr., "Radiohchemistry, Evaluation and First Clinical Results in the Treatment of Oncologic Diseases with Rhenium-188-Labeled Microspheres," *In, Proceedings*, the 11th Mediterranean Symposium on Nuclear Medicine and Radiopharmaceuticals, May 28-30, Athens, Greece; Medittera Pub., Athens (ISBN 960-86437-2-4), pp. 157-166 (2003).

Mausner, L. F. and Mirzadeh, S. "Reactor Production of Radionuclides," *In, Handbook of Radiopharmaceuticals: Radiochemistry and Applications*, M. J. Welch and C. Redvanly, *Editors*; John Wiley and Sons, Ltd., *in press*.

Mirzadeh, S., Mausner, L. F. and Garland, M. "Reactor-Produced Medical Radioisotopes," *In, Handbook of Nuclear Chemistry*, Volume 4, Chapter 3, pp. 1-46; A. Vertes, N. S. Klencsar, Editors; Kluwer Academic Publishers, Amsterdam, 2003.

Liepe, K., Kropp, J., Hliscs, R., Runge, R., Knapp, F. F., Jr. and Kotzerke, J. "Rhenium-188 HEDP Dosimetry in Bone Pain Induced by Prostate Cancer," *In, Proceedings*, the 11th Mediterranean Symposium on Nuclear Medicine and Radiopharmaceuticals, May 28-30, Athens, Greece; Medittera Pub., Athens (ISBN 960-86437-2-4), pp. 69-82 (2003).

Ponsard, B., Mirzadeh, S. and Knapp, F. F., Jr. "Production of Tungsten-188 in the BR2 Reactor in Collaboration with ORNL," *In, Proceedings*, International Isotope Society Meeting, Boston, MA, June 2-6, 2003.

Roesch, F. and Knapp, F. F., Jr. "Radionuclide Generators," *In, Handbook of Nuclear Chemistry*, Volume 4, Chapter 3, pp. 81-118; A. Vertes, N. S. Klencsar, Editors; Kluwer Academic Publishers, Amsterdam, 2003.

Binney, S. E., Krane, K. S., Garland, M. A., Pertmer, G. A. and Mirzadeh, S. "Measurement of Neutron Cross Sections for Medical Isotopes," *Trans. Amer. Nucl. Soc.*, 86, 167-168 (2002).

Weinberger, J. and Knapp, F. F., Jr. "Use of Liquid-Filled Balloons for Coronary Irradiation," *In, Vascular Brachytherapy*, R. Waksman, *Editor, Third Edition*, Futura Publishing Co., Inc., Armonk, NY, pp. 753-790 (2002).

Gaudiano, J., Savio, E., Robles, A., Muniz, S., Leon, A., Verdera, S., Martinez, G., Hermida, J. C. and Knapp, F. F., Jr. "Rhenium-188-HEDP in the Treatment of Pain in Bone Metastases," *In, Proceedings (IAEA/TECDOC-1228)*, International Seminar on Therapeutic Applications of Radiopharmaceuticals (IAEA-SR-209), Hyderabad, India, January 18-22, 1999; pp 215-220 (2001).

Knapp, F. F., Jr., Beets, A. L., Pinkert, J., Kropp, J., Lin, W.-Y. and Wang, S.-Y. "Rhenium Radioisotopes for Radiopharmaceutical Development," *In, Proceedings (IAEA/TECDOC-1228)*, International Seminar on Therapeutic Applications of Radiopharmaceuticals (IAEA-SR-209), Hyderabad, India, January 18-22, 1999; pp 59-66 (2001).

Knapp, F. F., Jr. "Radiopharmaceuticals for Inflammation/infection Imaging - From Gallium-67 to 2-[F-18]-2-Fluoro-2-Deoxyglucose," *In, Proceedings, 10th Mediterranean Symposium on Nuclear Medicine and Radiopharmaceuticals*, Athens, Greece, May 29-31, 2001; Mediterrea, Athens, pp 19-26 (2001) (ISBN 960-86437-1-6).

Knapp, F. F., Jr. "Fatty Acids for Myocardial Imaging," *In, Syllabus/Proceedings, 6th Annual American Society of Nuclear Cardiology (ASNC) Symposium and Scientific Session, , Boston, MA, September 13-16, 2001*; ASNC pp 74-78 (2001).

Knapp, F. F., Jr. and Kropp, J. "The 10th Mediterranean Symposium on Nuclear Medicine and Radiopharmaceuticals," *News and Views, Eur. J. Nucl. Med.*, 28, 1878 (2001).

Eigler, N., Whiting, J., Makkar, R., Honda, H., Knapp, F. F., Jr. Livack, F. and Li, A. "RadianTM Liquid Isotope Intravascular Radiation Therapy System," *In, Proceedings, Cardiovascular Radiation Therapy IV Syllabus*, Washington, D.C. February 18-20, 2000, p. 514-517.

Knapp, F. F., Jr. "Production and Availability of Beta-Emitting Radioisotopes for Restenosis Therapy," *In, Proceedings, Cardiovascular Radiation Therapy IV Syllabus*, Washington, D.C. February 18-20, 2000, p. 450-452.

Knapp, F. F., Jr. "Future Prospects for Medical Radionuclide Production in the High Flux Isotope Reactor (HFIR) at the Oak Ridge National Laboratory," *In, Proceedings, 2000 Symposium on Isotope and Radiation Applications*, Taipei, Taiwan, May 18-20, 2000, pp. 82-97.

McPherson, D. W. "Targeting Cerebral Muscarinic Acetylcholine Receptors with Radioligands for Diagnostic Nuclear Medicine Studies," *Invited - In, Ion Channel Localization Methods and Protocol*; A. Lopatin and C. Nichols, ed., Humana Press, Totowa, New Jersey, *in press*.

Oh, J. S., Moon, D. H., Park, S.-W., Hong, M.-K., Park, S.-J., Knapp, F. F., Jr., and Lee, K. "Automated Synthesis of Highly Concentrated Re-188-MAG3 for Intracoronary Radiation Therapy," *In, Proceedings, Cardiovascular Radiation Therapy IV Syllabus*, Washington, D.C. February 18-20, 2000, p. 54.

Patents

Beets, A. L., Du, M., Mirzadeh, S. and Knapp, F. F., Jr. "Method for Preparation of High Specific Activity Reactor-Produced Lutetium-177," *Patent pending*.

Mirzadeh, S., Du, M., Beets, A. L. and Knapp, F. F., Jr. "New Method for Preparation of High Specific Activity Platinum-195m for Medical Therapy," *Patent pending*.

Knapp, Jr., F. F., Beets, A. L., Mirzadeh, S. and Guhlke, S. "Concentration of Perrhenate and Pertechnetate Solutions," U.S. Patent No. 5,729,821, Issued March 17, 1998.

Mirzadeh, S., Knapp, Jr., F. F. and Collins, E. D. "A Tandem Radioisotope Generator System for Preparation of Highly Concentrated Solutions of Tc-99m from Low Specific Activity Mo-99," U.S. Patent No. 5,774,782, Issued June 30, 1998.

Mirzadeh, S. and Kennel, S. J. "Bismuth-213 Generator," *Disclosed*.

Knapp, Jr., F. F., Lisic, E. C., Mirzadeh, S. and Callahan, A. P. "Tungsten-188/Carrier-Free Rhenium-188 Perrhenic Acid Generator System," U.S. Patent No. 5,275,802, Issued January 4, 1994.

Knapp, Jr., F. F. "Radioiodinated Agent to Evaluate Gastrointestinal Disease by Urine Analysis" The "Wuerfel Test", *Disclosed*.

Knapp, Jr., F. F., Lisic, E. C., Mirzadeh, S., and Callahan, A. P. "Tungsten-188/Carrier-Free Rhenium-188 Perrhenic Acid Generator System," U.S. Patent No. 5,186,913, Issued February 17, 1993.

Srivastava, P. C. and Hasan, A. "Enzyme-Targeted Diagnosis with Radiohalogenated Nucleosides The Enzymometer," *Disclosed*.

Srivastava, P. C. and Hasan, A. "Acyclonucleosides of 2-Nitroimidazole and Uses as Diagnostic and Therapeutic Agents", *Disclosed*.

Goodman, M. M., and Knapp, Jr., F. F. "Aminopropyl Thiophene Compounds," U.S. Patent 4,914,215, Patent Gazette, April 3, 1990.

Goodman, M. M. and Knapp, Jr., F. F. "Radiohalogenated Thienylamphetamine Derivatives for Evaluating Local Cerebral Blood Flow," U.S. Patent 4,900,539, Patent Gazette, p. 925, February 13, 1990.

McPherson, D. W., Fowler, J. S., and Wolf, A. "No Carrier Added (¹¹C)-Putrescine," U.S. Patent 4,874,600 (1990).

Goodman, M. M., and Knapp, Jr., F. F. "Radioiodinated Branched Carbohydrates," U.S. Patent 4,826,966, Patent Gazette, May 2, 1989.

Srivastava, P. C. "Mercuric Acetate Phenyl Maleimide Useful for Preparing Radiohalogenated Maleimides," U.S. Patent 4,812,577 (1989).

Meeting Presentations and Published Abstracts

Knapp, F. F., Jr. "New Developments with Unsealed Sources for Targeted Radiotherapy," *Invited Lecture, For, 51st Bad Gastein Lecture, Bad Gastein, Austria, January 14-17, 2004.*

Boll, R. A., Malkemus, D. W. and Mirzadeh, S. "Production of Actinium-225 for Alpha Particle Mediated Radiotherapy," *For*, 225th Annual Meeting, Amer. Chem. Soc., New Orleans, LA, March 23-27, 2003.

Boll, R. A., Malkemus, D. W. and Mirzadeh, S. "Production of Actinium-225 for Alpha Particle Mediated Radiotherapy," *For*, Annual ANS Meeting, San Diego CA, June 1-5, 2003.

Brown, K. K., Winegar, D. A., Franklin, M. C., Michaud, E. and Knapp, F. F., Jr. "PPAR-Gamma Activation Restores Insulin Sensitivity and Improves the Ability of the Diabetic Mouse Heart to Transport and Utilize Glucose and Reduces Myocardial Triacylglycerol Accumulation," American heart Association Meeting, Orlando, FL, November 9-12, 2003; *submitted*.

Craig, A. M., Marsh, D. J., Boll, R. A., Schweitzer, G. K. and Mirzadeh, S. "Recoil-Separation of ²²¹Fr from ²¹³Bi from ²²⁵Ac," *For*, 225th Annual Meeting, Amer. Chem. Soc., New Orleans, LA, March 23-27, 2003.

Garland, M. A. and Mirzadeh, S. "Alternative Routes for Production of ²²⁹Th, ²²⁵Ra and ²²⁵Ac," *For*, 225th Annual Meeting, Amer. Chem. Soc., New Orleans, LA, March 23-27, 2003.

Garland, M. A. and Mirzadeh, S. "Reactor Production of Thorium-229," *For*, Annual ANS Meeting, San Diego CA, June 1-5, 2003.

Knapp, F. F., Jr. "Production of Medical Radioisotopes in the ORNL HFIR - When is High Flux Needed ?" *Invited Lecture*, *For*, ANS Winter Meeting, New Orleans, LA, November 16-20, 2003.

Knapp, F. F., Jr. "Targeted Radiotherapy with Rhenium-188 - An Attractive Radioisotope for Broad Clinical Applications ,," *Invited Plenary Lecture*, European Nuclear Medicine Congress, Amsterdam, The Netherlands, August 23-27, 2003.

Knapp, F. F., Jr., Mirzadeh, S., Beets, A. L. and Du, M. "Therapeutic Radioisotope Production in the High Flux Isotope Reactor (HFIR)," 15th International Radiopharmaceutical Symposium on Radiopharmaceutical Chemistry," Sydney, Australia, August 10-14, 2003.

Knapp, F. F., Jr., Mirzadeh, S., Beets, A. L. and Du, M. "Production of Therapeutic Radioisotopes in the ORNL High Flux Research Reactor (HFIR)," *Invited Lecture*, Eighth International Symposium, The Synthesis and Applications of Isotopes and Isotopically Labelled Compounds, Isotope Society, Boston, MA, June 1-5, 2003.

Knapp, F. F., Jr. "Current Clinical Applications of Rhenium-188 from the Tungsten-188/Rhenium-188 Generator," *Invited Lecture*, Mediterranean Society for Nuclear Medicine and Radiopharmaceuticals, Athens, Greece, May 28 - June 1, 2003.

Knapp, F. F., Jr., Mirzadeh, S., Beets, A. L. and Du, M. "Production of Therapeutic Radioisotopes in the ORNL High Flux Research Reactor (HFIR) for Applications in Nuclear Medicine, Oncology and Interventional Cardiology," *Invited*, MARC VI Conference on Radioanalytical Chemistry, Kona-Kailua, Hawaii, April 7-11, 2003.

Knapp, F. F., Jr. "New Developments with Unsealed Sources for Targeted Radiotherapy," *Invited Lecture*, Annual Meeting, German Society of Nuclear Medicine, Essen, Germany, April 3-6, 2003 (Prof. Dr. Dr. A. Bockisch, Organizer).

Mirzadeh, S. "Actinium-225 Production at the Oak Ridge National Laboratory," *Invited Lecture, For, Alpha-Emitting Isotopes Workshop*, Dubna, Russia, April 26, 2003.

Mirzadeh, S., Du., M., Beets, A. L. and Knapp, F. F., Jr. "Reactor Production of High Specific Activity Platinium-195m for Therapeutic Applications," *Invited Lecture, For, Annual Meeting, American Chemical Society*, New York, NY, September 7-11, 2003.

Knapp, F. F., Jr. and Biersack, H.-J., Co-Chairs, *Round Table Discussion* on "Current Status and Future Clinical Applications of the Tungsten-188/Rhenium-188 Generator," World Federation of Nuclear Medicine and Biology (WFNMB) Meeting, Santiago, Chile, September 29, 2002.

Knapp, F. F., Jr. "Production of Therapeutic Radioisotopes in the High Flux Isotope Reactor (HFIR)," *Invited, COST D18 Meeting*, Heidelberg, Germany, July 22-25, 2002.

Knapp, F. F., Jr. "Rhenium-188 - Advantages and Clinical Potential for Use of a Readily Available, Cost Effective Therapeutic Radioisotope for Applications in Nuclear Medicine, Oncology and Interventional Cardiology," *Invited, 25 International Symposium on Radioactive Isotopes in Clinical Medicine and Research*, Bad Gastein, Austria, January 8-11, 2002; *Eur. J. Nucl. Med.*, 29, S5 (2002).

Kropp, J., Reynen, K., Koeckeritz, U., Wunderlich, G., Schmeisser. A., Strasser, R. H. and Knapp, F. F., Jr. "Prevention of In-Stent Restenosis with Liquid-Filled ¹⁸⁸Re Balloon: The Dresden In-Stent Restenosis Trial (DIRRT)," *World Federation of Nuclear Medicine and Biology Congress*, Santiago, Chile, Sept. 30-Oct. 4, 2002; *World J. Nucl. Med.*, 1, Suppl. 2, S13 (Abstract # 22) (2002).

Kropp, J., Schmidt, S., Wunderlich, G., Schendtke, K. U., Breidert, M., McPherson, D. W. and Knapp, F. F., Jr. "A New and Simple test for Exocrine Function of the Pancreas: Analysis of the Urine After Oral Application of an I-131-Labeled Triglyceride," *World Federation of Nuclear Medicine and Biology Congress*, Santiago, Chile, Sept. 30-Oct. 4, 2002; *World J. Nucl. Med.*, 1, Suppl. 2, S50 (Abstract # 103) (2002).

Liepe, K., Hliscs, R., Knapp, F. F., Jr. and Kropp, J. "Dosimetry and Therapeutic Effect of ¹⁸⁸Re-HEDP in Human Prostate Cancer Skeletal Metastases," *Third North American Symposium on Skeletal Complications of Malignancy*, National Institutes of Health, Bethesda, MD, April 24-27, 2002.

Ponsard, B., Hiltunen, J., Vera Ruiz, H., Beets, A. L., Mirzadeh, S. and Knapp, F. F., Jr. "The Tungsten-188/Rhenium-188 Generator: Effective Coordination of Tungsten-188 Production Between the HFIR and BR2 Reactors," *In, Proceedings, Fourth International Conference on Isotopes (4ICI)*, Cape Town, South Africa, March 10-14, 2001.

Brown , K. K., Franklin, M., Binz, J. G., Henke, B. R., Winegar, D., Taj, S., Bharhawani, R., Michaud, E. J., Jones, B. H., Beets, A. L. and Knapp, F. F., Jr. "Treatment of db/db Mice with a Novel Insulin-Sensitizing Drug GW929 Alters Glucose and Lipid Uptake and Metabolism as Determined by Gene Expression and Tracer Studies [I-125]-BMIPP and [F-18]-2-FDG," *Regulation of Energy Metabolism in the Heart and Vasculature, Satellite Meeting of the 21st Annual Meeting of the International Society for Heart Research (ISHR)*, Banff, Canada, July 2-5, 2001; *J. Mol. Cell. Card.*, 33, A163, 2001 (Abstract).

Knapp, F. F., Jr., Beets, A. L., Michaud, E. J., Jones, B. H., Verberne, H. J., Sloof, G., Brown, K. K. and Henke, B. R. "Treatment of Diabetic db/db mice with the New Insulin-Sensitizing Drug GW929 Results in Alterations in Glucose and Lipid Metabolism - Studies with [I-125]-BMIPP and [F-18]-2-FDG," *European Nuclear Medicine Congress*, Naples, Italy, August 24-28, 2001; *Eur. J. Nucl. Med.*, 42, 1016 (Abstract # OS-210).

Liepe, K., Hliscs, R., Kropp, J., Runge, R., Knapp, F. F. and Franke, G. W. "Radiation Absorbed Dose of Rhenium-188-HEDP in Bone Marrow and Bone Surface," *European Nuclear Medicine Congress*, Naples, Italy, August 24-29, 2001; *Eur. J. Nucl. Med.*, 42, 1055 (Abstract # OS-365).

Knapp, F. F., Jr. "Radiopharmaceuticals for Inflammation/Infection Imaging - From Gallium-67 to 2-FDG," *For, 11th International Mediterranean Symposium on Nuclear Medicine and Radiopharmaceuticals*, Athens, Greece, May 29-June 3, 2001 (Invited).

Knapp, F. F. "Availability and Use of the Tungsten-188/Rhenium-188 Generator System," *IAEA Research Coordination Meeting on, Use of Rhenium-188 for Intravasculature Radiation Therapy for Restenosis Therapy After PTCA*, Dresden, Germany, May 8-11, 2001, *Invited Lecture*.

Knapp, F. F., Jr. "Myocardial Imaging with Iodine-123-BMIPP - Issues, Practice and Future," *Invited Lecture, Teaching Faculty, For, 6th Annual American Association of Nuclear Cardiology, Symposium and Scientific Session*, Boston, MA, September 13-16, 2001 (Meeting Cancelled Resulting from Sept. 11 Tragedy).

Knapp, F. F., Jr. "Therapeutic Applications of Rhenium-188 - New Opportunities for Nuclear Medicine, Oncology and Interventional Cardiology," *IAEA Symposium, European Nuclear Medicine Congress*, Naples, Italy, August 24-29, 2001 (Invited).

Knapp, F. F., Jr. "Reactor-Produced Medical Radioisotopes," Institute of Energy Research (INER), Taipei, Taiwan, January 18, 2001 (Invited).

Kropp, J., Reynen, K., Koeckeritz, U., Wunderlich, G., Schmeisser, A., Knapp, F. F., Jr. and Franke, W.-G. "Prevention of In-Stent Restenosis with Liquid-Filled ¹⁸⁸Re Balloon: The Dresden In-Stent Restenosis Radiation Trial (DIRRT)," *European Nuclear Medicine Congress*, Naples, Italy, August 24-28, 2001, *Eur. J. Nucl. Med.*, 42, 994 (Abstract # OS-127).

Liepe, K., Hliscs, R., Kropp, J., Knapp, F. F. and Franke, G. W. "Bone Marrow Radiation Dose of Rhenium-188-HEDP in Palliative Treatment of Metastatic Bone Pain," *J. Nucl. Med.*, 42, 23P (2001) (Abstract).

Verberne, H. J., Sloof, G. W., Beets, A. L., Silverstein, R. L., Murphy, A. M. and Knapp, F. F., Jr. "Decreased 2-FDG Uptake in a Troponin I Transgenic Mouse Model of Stunned Myocardium in the Presence of Normal Flow and Normal Fatty Acid Uptake," *5th International Conference of Nuclear Cardiology*, Vienna, Austria, May 2-5, 2001.

Blower, P. J., Kettle, A. G., O'Doherty, M. J., Coakley, A. J. and Knapp, F. F., Jr. "^{99m}Tc(V)DMSA Quantitatively Predicts ¹⁸⁸Re(V)DMSA Distribution," *28th Annual Meeting, British Nuclear Medicine Society*, Brighton, UK, April 10-12, 2000; *Nucl. Med. Commun.*, 21, 370 (2000).

Eidherr, H., Mitterhauser, M., Krcal, A., Bartosch, E., Zettiner, G., Knapp, F. F., Jr. and Dudczak, R. "Evaluation of the $^{188}\text{W}/^{188}\text{Re}$ Generator and Online Concentration System," *In, Proceedings, 24th International Symposium on Radioactive Isotopes in Clinical Medicine and Research, Bad Gastein, Austria, January 11-14, 2000; Eur. J. Nucl. Med.*, 27, S95 (2001).

Dobbelier, A., Knapp, F. F., Jr., Dobbelier, N., Veraet, A. and Hambye, A.-S. "Gamma Camera Imaging for Dosimetry Estimation of Rhenium-188 Agents," European Nuclear Medicine Congress, Paris, France, August 2-6, 2000; *Eur. J. Nucl. Med.*, 27, 1056 (2000).

Blower, P. J., Kettle, A. G., O'Doherty, M. J. and Knapp, F. F., Jr. "Quantitative Prediction of $^{188}\text{Re(V)DMSA}$ Distribution from $^{99\text{m}}\text{Tc(V)DMSA}$ Scans for Targeted Radiotherapy Planning," Annual Meeting of the Society of Nuclear Medicine, St. Louis, Missouri, June 4-8, 2000, *J. Nucl. Med.*, 41, 274P (2000).

Knapp, F. F., Jr., Mirzadeh, S. and Beets, A. L. "Tungsten-188/Rhenium-188 Generators Using Tungsten-188 Reactor-Produced from Irradiation of Natural Tungsten Targets," Annual Meeting of the Society of Nuclear Medicine, St. Louis, Missouri, June 4-8, 2000, *J. Nucl. Med.*, 41, 149P (2000).

Knapp, F. F., Jr. "Rhenium-188-Labeled Agents for Liver Cancer Therapy," IAEA Workshop (RCA) on Use of Radioisotopes for Therapy of Liver Cancer, Singapore, February 14-18, 2000, *Invited*.

Knapp, F. F., Jr. "Current Status and Future Prospects of the HFIR and Radionuclide Production at the Oak Ridge National Laboratory," *Invited Lecture, Proceedings, 2000 Symposium on Isotope and Radiation Applications, Institute of Nuclear Energy Research (INER), Taipei, Taiwan, May 18-20, 2000.*

Knapp, F. F., Jr. "The Production and Applications of Reactor-Produced Radioisotopes in the 21st Century," *Invited, Institute of Nuclear Energy Research (INER), Lung Tan, Taiwan, May 18, 2000.*

Knapp, F. F., Jr. "Beta Sources in Cardiovascular Radiation Therapy," *Invited Lecture, Cardiology Department, Kaohsiung Gang Gung Memorial Hospital, Kaohsiung, Taiwan, May 20, 2000.*

Knapp, F. F., Jr. "Intravascular Radiation Therapy with Rhenium-188 Liquid-Filled Balloons," *Invited, IAEA Workshop on Vascular Radiation for Restenosis Therapy, Seoul, Korea, July 1-7, 2000.*

Knapp, F. F., Jr., Mirzadeh, S. and Beets, A. L. "Evolving Applications of Reactor-Produced Radioisotopes for Therapeutic Applications in Nuclear Medicine, Oncology and Interventional Cardiology," *In, Proceedings, 2000 International Chemical Congress of the Pacific Basin Societies ("Pacifichem"), Honolulu, Hawaii, December 14-19, 2000.*

Knapp, F. F., Jr. "From Twinkling Atoms to Glowing Hearts - Development and Clinical Use of Radioiodinated Fatty Acids," *International Symposium on Radiohalogens, Whistler, Alberta, Canada, September 9-14, 2000, Invited.*

Liepe, J. K., Kropp, J., Hliscs, R., Runge, R., Knapp, F. F., Jr. and Franke, W. G. "Radiation Dose of ^{188}Re in Bone Metastases," *Annual Meeting of the Society of Nuclear Medicine, St. Louis, Missouri, June 4-8, 2000, J. Nucl. Med.*, 41, 266P (2000).

Limouris, G. S., Pirmettis, I., Frantzis, A. P., Shukla, S. K., Voliotopolous, V., Lyra, M., Dardoufas, K., Kouvaris, I., Knapp, F. F., Jr., Stavraka, A. and Vlahos, I. "Rhenium-188 (Sn)-Labeled HEDP and -(V)-DMSA in the Treatment of Paniful Osseous and Disseminated Soft Tissue Metastases," *In, Proceedings, 24th International Symposium on Radioactive Isotopes in Clinical Medicine and Research, Bad Gastein, Austria, January 11-14, 2000.; Eur. J. Nucl. Med.*, 27, S81 (2000).

McPherson, D. W. and Knapp, F. F., Jr. "Evaluation of M1 and M2 mACHr Subtypes in Aging and Alzheimer's Rat Models with Dual-Labeled E/Z-RR-IQNP," Annual Meeting of the Society of Nuclear Medicine, St. Louis, Missouri, June 4-8, 2000, *J. Nucl. Med.*, 41, 24P (2000).

McPherson, D. W. and Knapp, F. F., Jr. "Utility of "Dual-Labeled E-/Z-RR-IQNP Cocktail" as a Novel *In Vivo* Tool for the Independent Evaluation of Cerebral Muscarinic Receptor M1 and M2 Subtype Density and Viability in a Rat Model," 220th Annual Meeting of the American Chemical Society, Washington, D. C., August 2000.

Oh, S.-J., Moon, D. H., Park, S.-W., Hong, M.-K., Park, S.-J., Knapp, F. F., Jr. and Lee, H. K. "Automated Synthesis of Highly Concentrated Re-188-MAG3 for Intracoronary Radiation Therapy," *In, Proceedings, Cardiovascular Radiation Therapy IV Syllabus, Washington, D.C. February 18-20, 2000*, p. 54.

Weinberger, J., Trichter, F., Knapp, F. F., Jr. and Schwartz, A. "Results of the Columbia Safety and Feasibility (CURE) Trial of Liquid Radioisotopes for Coronary Vascular Brachytherapy," *In, proceedings of the American Heart Association meeting, New Orleans, LA, Nov. 12.15 (2000)*.