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# RAPID CLEARANCE IN CARDIAC NUCLEAR IMAGING



The image of efficiency.

**MYOVIEW**<sup>™</sup>  
Technetium Tc99m Tetrofosmin For Injection

**Increase patient throughput—with rapid hepatic clearing, highly efficient MYOVIEW**

Give your nuclear department “rapid clearance” capability with MYOVIEW. MYOVIEW clears quickly from the blood, liver, and lungs<sup>1-3</sup> for quality target-to-background ratios and timely imaging (as soon as 15 minutes or up to 4 hours post-injection).<sup>1</sup> The clearance properties of MYOVIEW allow for highly flexible camera scheduling and enhanced patient management. Any way you look at it, you’re cleared for efficiency with MYOVIEW.

MYOVIEW is not indicated for use with pharmacologic stress agents.

In studying patients with known or suspected coronary artery disease, care should be taken to ensure continuous cardiac monitoring and the availability of emergency cardiac treatment.

Please see Brief Summary of Prescribing Information on adjacent page.

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**References:** 1. Sridhara BS, Braat S, Rigo P, et al. Comparison of myocardial perfusion imaging with technetium-99m tetrofosmin versus thallium-201 in coronary artery disease. *Am J Cardiol.* 1993;72(14):1015-1019. 2. Higley B, Smith FV, Smith T, et al. Technetium-99m-1,2-bis[bis(2-ethoxyethyl)phosphino]ethane: human biodistribution, dosimetry and safety of a new myocardial perfusion imaging agent. *J Nucl Med.* 1993;34(1):30-38. 3. Kelly JD, Forster AM, Higley B, et al. Technetium-99m-tetrofosmin as a new radiopharmaceutical for myocardial perfusion imaging. *J Nucl Med.* 1993;34(2):222-227.

**MYOVIEW. The image of efficiency.**

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SOLUTIONS.** **Nycomed  
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**MYOVIEV™**

BS-43-1011

Kit for the Preparation of Technetium Tc99m Tetrofosmin for Injection

Diagnostic Radiopharmaceutical for intravenous use only  
Code N166A**DESCRIPTION**

The Medi-Physics Myoview™ kit is supplied as a pack of five vials for use in the preparation of a technetium Tc99m tetrofosmin intravenous injection to be used for the scintigraphic delineation of regions of reversible myocardial ischemia in the presence or absence of infarcted myocardium. Each vial contains a predispensed, sterile, non-pyrogenic, lyophilized mixture of 0.23 mg tetrofosmin [6,9-bis(2-ethoxyethyl)-3,12-dioxo-6,9-diphosphatetradecane], 30 µg stannous chloride dihydrate (minimum stannous tin 5.0 µg; maximum total stannous and stannic tin 15.8 µg), 0.32 mg disodium sulphosalicylate and 1.0 mg sodium D-glucuronate, and 1.8 mg sodium hydrogen carbonate. The lyophilized powder is sealed under a nitrogen atmosphere with a rubber closure. The product contains no antimicrobial preservative.

**Caution: Federal (USA) law prohibits dispensing without a prescription**

**CLINICAL PHARMACOLOGY****General**

When technetium Tc99m pertechnetate is added to tetrofosmin in the presence of stannous reductant, a lipophilic, cationic technetium Tc99m complex is formed, Tc99m tetrofosmin. This complex is the active ingredient in the reconstituted drug product, on whose biodistribution and pharmacokinetic properties the indications for use depend.

**Clinical Trials**

A total of 252 patients with ischemic heart disease or atypical chest pain who had a reason for exercise stress imaging were studied in two open-label, multi center, clinical trials of Tc99m tetrofosmin (study a and study b). Of these 252 patients there were 212 (83%) males and 40 (17%) females with a mean age of 60.5 years (range 33.7 to 82.4 years). At peak exercise, maximum heart rate achieved and peak systolic blood pressure were comparable after Myoview and thallium-201 exercise studies.

All patients had exercise and rest planar imaging with Myoview and thallium-201; 191 (76%) patients also had SPECT imaging. The Myoview and thallium-201 images were separated by a mean of 5.1 days (1-14 days before or 2-14 days after Myoview). For Myoview imaging, each patient received 185-296 MBq (5-8 mCi) Tc99m tetrofosmin at peak exercise and 555-888 MBq (15-24 mCi) Tc99m tetrofosmin at rest approximately 4 hours later. For thallium-201 imaging, patients received thallium-201 55.5-74 MBq (1.5-2.0 mCi) at peak exercise.

The images were evaluated for the quality of the image (excellent, good or poor) and the diagnosis (with scores of 0 = normal, 1 = ischemia, 2 = infarct, 3 = mixed infarct and ischemia). The primary outcome variable was the percentage of correct diagnoses in comparison to the final clinical diagnosis. All planar images were blindly read; SPECT images were evaluated by the unblinded investigator. A subset of 181/252 (71%) patients had coronary angiography comparisons to the planar images of Myoview or thallium-201.

**INDICATIONS AND USAGE**

Myoview is indicated for scintigraphic imaging of the myocardium following separate administrations under exercise and resting conditions. It is useful in the delineation of regions of reversible myocardial ischemia in the presence or absence of infarcted myocardium.

**CONTRAINDICATIONS**

None known.

**WARNINGS**

In studying patients with known or suspected coronary artery disease, care should be taken to ensure continuous cardiac monitoring and the availability of emergency cardiac treatment.

**PRECAUTIONS****General**

To minimize radiation dose to the bladder, the patient should be encouraged to void when the examination is completed and as often thereafter as possible. Adequate hydration should be encouraged to permit frequent voiding.

The contents of the Myoview vial are intended only for use in the preparation of technetium Tc99m tetrofosmin injection and are NOT to be administered directly to the patient.

As with all injectable drug products, allergic reactions and anaphylaxis may occur.

Sometimes Tc99m labeled myocardial imaging agents may produce planar and SPECT images with different imaging information.

Technetium Tc99m tetrofosmin injection, like other radioactive drugs must be handled with care and appropriate safety measures should be used to minimize radiation exposure to clinical personnel. Care should also be taken to minimize radiation exposure to the patient consistent with proper patient management.

Radiopharmaceuticals should be used by or under the control of physicians who are qualified by specific training and experience in the safe use and handling of radionuclides, and whose experience and training have been approved by the appropriate governmental agency authorized to license the use of radionuclides.

**Drug Interactions:** Drug interactions were not noted and were not studied in clinical studies in which Myoview was administered to patients receiving concomitant medication. Drugs such as beta blockers, calcium blockers and nitrates may influence myocardial function and blood flow. The effects of such drugs on imaging results are not known.

**Carcinogenesis, Mutagenesis, Impairment of Fertility**

Studies have not been conducted to evaluate carcinogenic potential or effects on fertility.

Tetrofosmin sulphosalicylate was not mutagenic *in vitro* in the Ames test, mouse lymphoma, or human lymphocyte tests, nor was it clastogenic *in vivo* in the mouse micronucleus test.

**Pregnancy Category C**

Animal reproduction studies have not been conducted with Myoview. It is not known whether Myoview can cause fetal harm when administered to a pregnant woman or can affect reproductive capacity. Therefore, Myoview should not be administered to a pregnant woman unless the potential benefit justifies the potential risk to the fetus.

**Nursing Mothers**

Technetium Tc99m Pertechnetate can be excreted in human milk. Therefore, formula should be substituted for breast milk until the technetium has cleared from the body of the nursing woman.

**Pediatric Use**

Safety and effectiveness in pediatric patients have not been established.

**ADVERSE REACTIONS**

Adverse events were evaluated in clinical trials of 764 adults (511 men and 253 women) with a mean age of 58.7 years (range 29-94 years). The subjects received a mean dose of 7.67 mCi on the first injection and 22.4 mCi on the second injection of Myoview.

Deaths did not occur during the clinical study period of 2 days. Six cardiac deaths occurred 3 days to 6 months after injection and were thought to be related to the underlying disease or cardiac surgery. After Myoview injection, serious episodes of angina occurred in 3 patients. Overall cardiac adverse events occurred in 5/764 (less than 1%) of patients after Myoview injection.

The following events were noted in less than 1% of patients:

Cardiovascular: angina, hypertension, Torsades de Pointes

Gastrointestinal: vomiting, abdominal discomfort

Hypersensitivity: cutaneous allergy, hypotension, dyspnea

Special Senses: metallic taste, burning of the mouth, smelling something

There was a low incidence (less than 4%) of a transient and clinically insignificant rise in white blood cell counts following administration of the agent.

**DOSAGE AND ADMINISTRATION**

For exercise and rest imaging, Myoview is administered in two doses:

- The first dose of 5-8 mCi (185-296 MBq) is given at peak exercise.
- The second dose of 15-24 mCi (555-888 MBq) is given approximately 4 hours later, at rest.

Imaging may begin 15 minutes following administration of the agent. Dose adjustment has not been established in renally or liver impaired, pediatric or geriatric patients.

**RADIATION DOSIMETRY**

Based on human data, the absorbed radiation doses to an average human adult (70 kg) from intravenous injections of the agent under exercise and resting conditions are listed in Table 1. The values are listed in descending order as rad/mCi and µGy/MBq and assume urinary bladder emptying at 3.5 hours.

**Table 1**  
**Estimated Absorbed Radiation Dose**  
**(Technetium Tc99m Tetrofosmin Injection)**

Target organ	Absorbed radiation dose			
	Exercise		Rest	
	rad/mCi	µGy/MBq	rad/mCi	µGy/MBq
Gall bladder wall	0.123	33.2	0.180	48.6
Upper large intestine	0.075	20.1	0.113	30.4
Bladder wall	0.058	15.6	0.071	19.3
Lower large intestine	0.057	15.3	0.082	22.2
Small intestine	0.045	12.1	0.063	17.0
Kidney	0.039	10.4	0.046	12.5
Salivary glands	0.030	8.04	0.043	11.6
Ovaries	0.029	7.88	0.035	9.55
Uterus	0.027	7.34	0.031	8.36
Bone surface	0.023	6.23	0.021	5.58
Pancreas	0.019	5.00	0.018	4.98
Stomach	0.017	4.60	0.017	4.63
Thyroid	0.016	4.34	0.022	5.83
Adrenals	0.016	4.32	0.015	4.11
Heart wall	0.015	4.14	0.015	3.93
Red marrow	0.015	4.14	0.015	3.97
Spleen	0.015	4.12	0.014	3.82
Muscle	0.013	3.52	0.012	3.32
Testes	0.013	3.41	0.011	3.05
Liver	0.012	3.22	0.015	4.15
Thymus	0.012	3.11	0.009	2.54
Brain	0.010	2.72	0.008	2.15
Lungs	0.008	2.27	0.008	2.08
Skin	0.008	2.22	0.007	1.91
Breasts	0.008	2.22	0.007	1.83

Dose calculations were performed using the standard MIRD method (MIRD Pamphlet No.1 (rev). Society of Nuclear Medicine, 1978). Effective dose equivalents (EDE) were calculated in accordance with ICRP 53 (Ann. ICRP 18 (1-4), 1988) and gave values of  $8.61 \times 10^{-4}$  mSv/MBq and  $1.12 \times 10^{-4}$  mSv/MBq after exercise and rest, respectively.

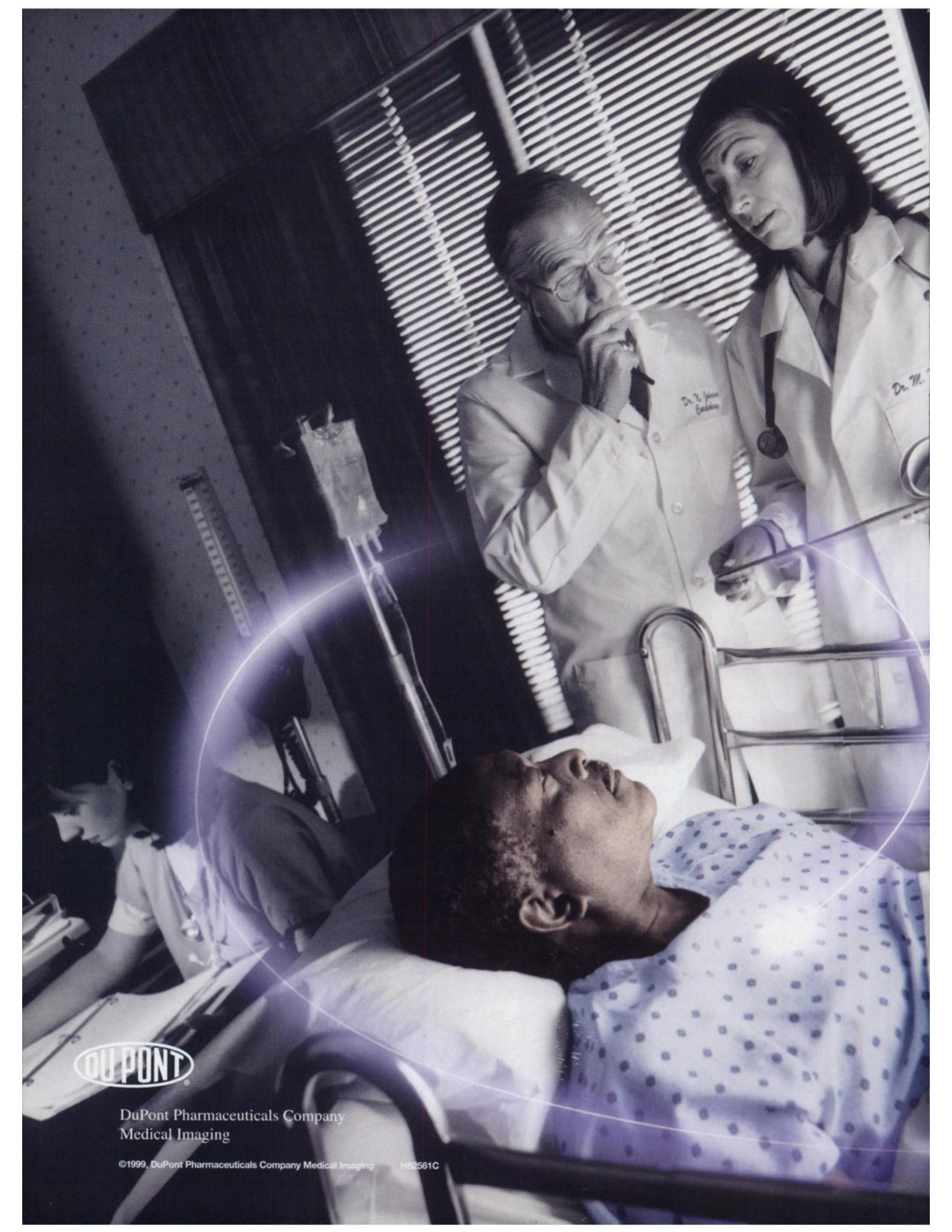
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Amersham, United Kingdom

Patent No. 5,045,302 (r)

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BS-43-1011  
52-802300

 **Amersham HEALTHCARE**



DuPont Pharmaceuticals Company  
Medical Imaging

In managing the moderate-to-low risk acute chest pain patient...

# “Is it ok to send him home?”

Measure LVEF and perfusion<sup>1-5</sup> with **Cardiolite®**, and your decision becomes clear.



Normal Scan Short Axis



Abnormal Scan Short Axis Inferolateral Wall Defect

**He's waiting. You need to decide.** With Cardiolite®, you get crucial, post-chest pain risk assessment information to help you make appropriate patient management decisions.<sup>1-5</sup>

An *abnormal* rest perfusion study with Cardiolite® suggests he's had an MI, while a *normal* rest perfusion study *rules out* the possibility of MI. When gated, that same rest Cardiolite® study also lets you assess LVEF and wall motion<sup>6-9</sup>—providing greater insight into the patient's condition. And, a follow-up *stress* study with Cardiolite® adds even more information—including assessment of myocardial ischemia.<sup>1,2,5</sup>

That's the kind of clear, reliable, and reproducible information you need to make patient management decisions with confidence. So, when the question is whether you should send him home or not, order Cardiolite®. It clears your line of vision.

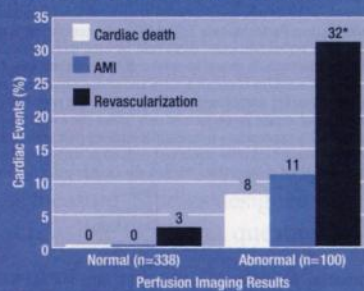
For more information contact us at 1-800-343-7851 or [www.cardiolite.com](http://www.cardiolite.com)

There have been infrequent reports of signs and symptoms consistent with seizure and severe hypersensitivity after administration of Tc99m Sestamibi.

Please see brief summary of prescribing information on the following page.

**References:** 1. Tatum JL et al. *Ann Emerg Med.* 1997;29:116-125. 2. Kontos MC et al. *J Am Coll Cardiol.* 1997;30:976-982. 3. Miller TD et al. *Circulation.* 1995;92:334-341. 4. Varetto T et al. *J Am Coll Cardiol.* 1993;22:1804-1808. 5. Hilton TC et al. *J Am Coll Cardiol.* 1994;23:1016-1022. 6. Chua T et al. *J Am Coll Cardiol.* 1994;23:1107-1114. 7. Stratmann HG et al. *Circulation.* 1994;89:615-622. 8. Germano G et al. *J Nucl Med.* 1995;36:2138-2147. 9. DePuey EG et al. *J Nucl Med.* 1993;34:1871-1876.

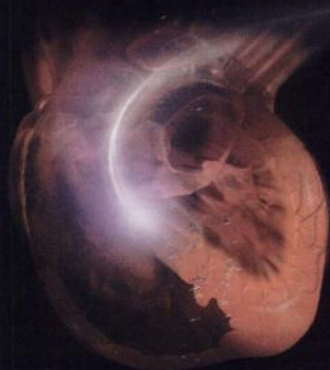
Correlation of Cardiac Outcomes With Cardiolite® SPECT Findings After 1 Year<sup>1</sup>



\*P<.001 compared with revascularization with normal imaging.

Adapted with permission from Tatum et al.<sup>1</sup>

Patients with chest pain were evaluated within 60 minutes of presentation to the ER, and were assigned to one of five levels on the basis of his or her risk of MI or UA. Patients represented in this graph were assigned to level 3 (probable UA) and level 4 (possible UA).



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It clears your line of vision

In managing the moderate-to-low risk acute chest pain patient...

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Measure LVEF and perfusion<sup>1-5</sup> with **Cardiolite®**, and your decision becomes clear.



Normal Scan Short Axis



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That's the kind of clear, reliable, and reproducible information you need to make patient management decisions with confidence. So, when the question is whether you should send him home or not, order Cardiolite®. It clears your line of vision.

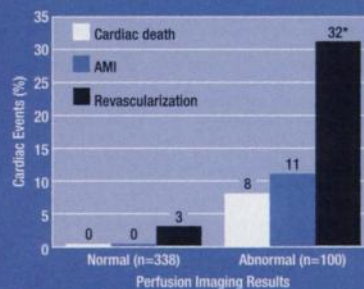
For more information contact us at 1-800-343-7851 or [www.cardiolite.com](http://www.cardiolite.com)

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Correlation of Cardiac Outcomes With Cardiolite® SPECT Findings After 1 Year<sup>1</sup>



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Adapted with permission from Tatum et al.<sup>1</sup>

Patients with chest pain were evaluated within 60 minutes of presentation to the ER, and were assigned to one of five levels on the basis of his or her risk of MI or UA. Patients represented in this graph were assigned to level 3 (probable UA) and level 4 (possible UA).



# Cardiolite®

Kit for the Preparation of  
Technetium Tc99m Sestamibi for Injection

It clears your line of vision



# Cardiolite

Kit for the Preparation of  
Technetium Tc99m Sestamibi for Injection

**INDICATIONS AND USAGE:** Myocardial Imaging: CARDIOLITE™, Kit for the Preparation of Technetium Tc99m Sestamibi for Injection, is a myocardial perfusion agent that is indicated for detecting coronary artery disease by localizing myocardial ischemia (reversible defects) and infarction (non-reversible defects), in evaluating myocardial function and developing information for use in patient management decisions. CARDIOLITE™ evaluation of myocardial ischemia can be accomplished with rest and cardiovascular stress techniques (e.g., exercise or pharmacologic stress in accordance with the pharmacologic stress agent's labeling).

It is usually not possible to determine the age of a myocardial infarction or to differentiate a recent myocardial infarction from ischemia.

**Breast Imaging:** MIRALUMA™, Kit for the Preparation of Technetium Tc99m Sestamibi for Injection, is indicated for planar imaging as a second-line diagnostic drug after mammography to assist in the evaluation of breast lesions in patients with an abnormal mammogram or a palpable breast mass.

MIRALUMA™ is not indicated for breast cancer screening, to confirm the presence or absence of malignancy, and it is not an alternative to biopsy.

**CONTRAINDICATIONS:** None known.

**WARNINGS:** In studying patients in whom cardiac disease is known or suspected, care should be taken to assure continuous monitoring and treatment in accordance with safe, accepted clinical procedure. Infrequently, death has occurred 4 to 24 hours after Tc99m Sestamibi use and is usually associated with exercise stress testing (See PRECAUTIONS).

Pharmacologic induction of cardiovascular stress may be associated with serious adverse events such as myocardial infarction, arrhythmia, hypotension, bronchoconstriction and cerebrovascular events. Caution should be used when pharmacologic stress is selected as an alternative to exercise; it should be used when indicated and in accordance with the pharmacologic stress agent's labeling.

Technetium Tc99m Sestamibi has been rarely associated with acute severe allergic and anaphylactic events of angioedema and generalized urticaria. In some patients the allergic symptoms developed on the second injection during CARDIOLITE™ imaging. Patients who receive CARDIOLITE™ or MIRALUMA™ imaging are receiving the same drug. Caution should be exercised and emergency equipment should be available when administering Technetium Tc99m Sestamibi. Also, before administering either CARDIOLITE™ or MIRALUMA™, patients should be asked about the possibility of allergic reactions to either drug.

**PRECAUTIONS:**

**General:** The contents of the vial are intended only for use in the preparation of Technetium Tc99m Sestamibi and are not to be administered directly to the patient without first undergoing the preparative procedure.

Radioactive drugs must be handled with care and appropriate safety measures should be used to minimize radiation exposure to clinical personnel. Also, care should be taken to minimize radiation exposure to the patients consistent with proper patient management.

Contents of the kit before preparation are not radioactive. However, after the Sodium Pertechnetate Tc99m Injection is added, adequate shielding of the final preparation must be maintained.

The components of the kit are sterile and non-pyrogenic. It is essential to follow directions carefully and to adhere to strict aseptic procedures during preparation.

Technetium Tc99m labeling reactions involved depend on maintaining the stannous ion in the reduced state. Hence, Sodium Pertechnetate Tc99m Injection containing oxidants should not be used.

Technetium Tc99m Sestamibi should not be used more than six hours after preparation.

Radiopharmaceuticals should be used only by physicians who are qualified by training and experience in the safe use and handling of radionuclides and whose experience and training have been approved by the appropriate government agency authorized to license the use of radionuclides.

Stress testing should be performed only under the supervision of a qualified physician and in a laboratory equipped with appropriate resuscitation and support apparatus.

The most frequent exercise stress test endpoints, which resulted in termination of the test during controlled Tc99m Sestamibi studies (two-thirds were cardiac patients) were:

Fatigue	35%
Dyspnea	17%
Chest Pain	16%
ST-Depression	7%
Arrhythmia	1%

**Information for Patients:** CARDIOLITE™ and MIRALUMA™ are different names for the same drug. Patients should be advised to inform their health care provider if they had any allergic reaction to either drug or if they had an imaging study with either drug.

**Carcinogenesis, Mutagenesis, Impairment of Fertility:** In comparison with most other diagnostic technetium-labeled radiopharmaceuticals, the radiation dose to the ovaries (1.5 rads/30 mCi at rest, 1.2 rads/30 mCi at exercise) is high. Minimal exposure (ALARA) is necessary in women of childbearing capability. (See Dosimetry subsection in DOSAGE AND ADMINISTRATION section.)

The active intermediate, [Cu(MIBI)]<sub>2</sub>BF<sub>4</sub>, was evaluated for genotoxic potential in a battery of five tests. No genotoxic activity was observed in the Ames, CHO/HPRT and sister chromatid exchange tests (all in vitro). At cytotoxic concentrations (> 20 µg/mL), an increase in cells with chromosome aberrations was observed in the in vitro human lymphocyte assay. [Cu(MIBI)]<sub>2</sub>BF<sub>4</sub> did not show genotoxic effects in the in vivo mouse micronucleus test at a dose which caused systemic and bone marrow toxicity (9 mg/kg, > 600 X maximal human dose).

**Pregnancy Category C:** Animal reproduction and teratogenicity studies have not been conducted with Technetium Tc99m Sestamibi. It is also not known whether Technetium Tc99m Sestamibi can cause fetal harm when administered to a pregnant woman or can affect reproductive capacity. There have been no studies in pregnant women. Technetium Tc99m Sestamibi should be given to a pregnant woman only if clearly needed.

**Nursing Mothers:** Technetium Tc99m Pertechnetate is excreted in human milk during lactation. It is not known whether Technetium Tc99m Sestamibi is excreted in human milk. Therefore, formula feedings should be substituted for breast feedings.

**Pediatric Use:** Safety and effectiveness in the pediatric population have not been established.

**ADVERSE REACTIONS:** Adverse events were evaluated in 3741 adults who were evaluated in clinical studies. Of these patients, 3068 (77% men, 22% women, and 0.7% of the patient's genders were not recorded) were in cardiac clinical trials and 673 (100% women) in breast imaging trials. Cases of angina, chest pain, and death have occurred (see WARNINGS and PRECAUTIONS). Adverse events reported at a rate of 0.5% or greater after receiving Technetium Tc99m Sestamibi administration are shown in the following table:

Table 9. Selected Adverse Events Reported in > 0.5% of Patients Who Received Technetium Tc99m Sestamibi in Either Breast or Cardiac Clinical Studies\*

Body System	Breast Studies		Cardiac Studies	
	Women N = 673	Women N = 685	Men N = 2361	Total N = 3046
Body as a Whole	21 (3.1%)	6 (0.9%)	17 (0.7%)	23 (0.8%)
Headache	11 (1.6%)	2 (0.3%)	4 (0.2%)	6 (0.2%)
Cardiovascular	9 (1.3%)	24 (3.5%)	75 (3.2%)	99 (3.3%)
Chest Pain/Angina	0 (0%)	18 (2.6%)	46 (1.9%)	64 (2.1%)
ST Segment Changes	0 (0%)	11 (1.6%)	29 (1.2%)	40 (1.3%)
Digestive System	8 (1.2%)	4 (0.6%)	9 (0.4%)	13 (0.4%)
Nausea	4 (0.6%)	1 (0.1%)	2 (0.1%)	3 (0.1%)
Special Senses	132 (19.6%)	62 (9.1%)	160 (6.8%)	222 (7.3%)
Taste Perversion	129 (19.2%)	60 (8.8%)	157 (6.6%)	217 (7.1%)
Parosmia	8 (1.2%)	6 (0.9%)	10 (0.4%)	16 (0.5%)

\*Excludes the 22 patients whose genders were not recorded.

In the clinical studies for breast imaging, breast pain was reported in 12 (1.7%) of the patients. In 11 of these patients the pain appears to be associated with biopsy/surgical procedures.

The following adverse reactions have been reported in ≤ 0.5% of patients: signs and symptoms consistent with seizure occurring shortly after administration of the agent; transient arthritis; angioedema, arrhythmia, dizziness, syncope, abdominal pain, vomiting, and severe hypersensitivity characterized by dyspnea, hypotension, bradycardia, asthenia, and vomiting within two hours after a second injection of Technetium Tc99m Sestamibi. A few cases of flushing, edema, injection site inflammation, dry mouth, fever, pruritus, rash, urticaria and fatigue have also been attributed to administration of the agent.

**DOSAGE AND ADMINISTRATION:** For Myocardial Imaging: The suggested dose range for I.V. administration of CARDIOLITE™ in a single dose to be employed in the average patient (70 kg) is 370 to 1110 MBq (10 to 30 mCi).

For Breast Imaging: The recommended dose range for I.V. administration of MIRALUMA™ is a single dose of 740 to 1110 MBq (20 to 30 mCi).

**Image Acquisition: Breast Imaging:** It is recommended that images are obtained with a table overlay to separate breast tissue from the myocardium and liver, and to exclude potential activity that may be present in the opposite breast. For lateral images, position the patient prone with the ipsilateral arm comfortably above the head, shoulders flat against the table, head turned to the side and relaxed, with the breast imaged pendent through an overlay cutout. The breast should not be compressed on the overlay. For anterior images, position the patient supine with both arms behind the head. For either lateral or anterior images, shield the chest and abdominal organs, or remove them from the field of view.

For complete study, sets of images should be obtained five minutes after the injection, and in the following sequence: Beginning five minutes after the injection of Technetium Tc99m Sestamibi:

- ten-minute lateral image of breast with abnormality
- ten-minute lateral image of contralateral breast
- ten-minute anterior image of both breasts

**RADIATION DOSIMETRY:** The radiation doses to organs and tissues of an average patient (70 kg) per 1110 MBq (30 mCi) of Technetium Tc99m Sestamibi injected intravenously are shown in Table 10.

Table 10. Radiation Absorbed Doses From Tc99m Sestamibi Estimated Radiation Absorbed Dose

Organ	REST			
	2.0 hour void		4.8 hour void	
	rads/ 30 mCi	mGy/ 1110 MBq	rads/ 30 mCi	mGy/ 1110 MBq
Breasts	0.2	2.0	0.2	1.9
Gallbladder Wall	2.0	20.0	2.0	20.0
Small Intestine	3.0	30.0	3.0	30.0
Upper Large Intestine Wall	5.4	55.5	5.4	55.5
Lower Large Intestine Wall	3.9	40.0	4.2	41.1
Stomach Wall	0.6	6.1	0.6	5.8
Heart Wall	0.5	5.1	0.5	4.9
Kidneys	2.0	20.0	2.0	20.0
Liver	0.6	5.8	0.6	5.7
Lungs	0.3	2.8	0.3	2.7
Bone Surfaces	0.7	6.8	0.7	6.4
Thyroid	0.7	7.0	0.7	6.8
Ovaries	1.5	15.5	1.6	15.5
Testes	0.3	3.4	0.4	3.9
Red Marrow	0.5	5.1	0.5	5.0
Urinary Bladder Wall	2.0	20.0	4.2	41.1
Total Body	0.5	4.8	0.5	4.8

Organ	STRESS			
	2.0 hour void		4.8 hour void	
	rads/ 30 mCi	mGy/ 1110 MBq	rads/ 30 mCi	mGy/ 1110 MBq
Breasts	0.2	2.0	0.2	1.8
Gallbladder Wall	2.8	28.9	2.8	27.8
Small Intestine	2.4	24.9	2.4	24.4
Upper Large Intestine Wall	4.5	44.4	4.5	44.4
Lower Large Intestine Wall	3.3	32.2	3.3	32.2
Stomach Wall	0.2	5.3	0.5	5.2
Heart Wall	0.5	5.6	0.5	5.3
Kidneys	1.7	16.7	1.7	16.7
Liver	0.4	4.2	0.4	4.1
Lungs	0.3	2.6	0.2	2.4
Bone Surfaces	0.6	6.2	0.6	6.0
Thyroid	0.3	2.7	0.2	2.4
Ovaries	1.2	12.2	1.3	13.3
Testes	0.3	3.1	0.3	3.4
Red Marrow	0.5	4.6	0.5	4.4
Urinary Bladder Wall	1.5	15.5	3.0	30.0
Total Body	0.4	4.2	0.4	4.2

Radiopharmaceutical Internal Dose Information Center, July, 1990, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge, TN 37831, (423) 576-3449.

**DRUG HANDLING:** The patient dose should be measured by a suitable radioactivity calibration system immediately prior to patient administration. Radiochemical purity should be checked prior to patient administration.

Parenteral drug products should be inspected visually for particulate matter and discoloration prior to administration whenever solution and container permit.

Store at 15 to 25°C before and after reconstitution.

**HOW SUPPLIED:** DuPont Pharmaceuticals' CARDIOLITE™, Kit for the Preparation of Technetium Tc99m Sestamibi for Injection, is supplied as a 5-mL vial in kits of two (2) (NDC # 11994-001-52); five (5) (NDC # 11994-001-55); and thirty (30) vials (NDC # 11994-001-58), sterile and non-pyrogenic.

Prior to lyophilization the pH is between 5.3 to 5.9. The contents of the vial are lyophilized and stored under nitrogen. Store at 15 to 25°C before and after reconstitution. Technetium Tc99m Sestamibi contains no preservatives. Included in each two (2) vial kit is one (1) package insert, five (5) vial shield labels and five (5) radiation warning labels. Included in each five (5) vial kit is one (1) package insert, five (5) vial shield labels and five (5) radiation warning labels. Included in each thirty (30) vial kit is one (1) package insert, thirty (30) vial shield labels and thirty (30) radiation warning labels.

This reagent kit is approved for distribution to persons licensed pursuant to the Code of Massachusetts Regulations 105 CMR 120.500 for the uses listed in 105 CMR 120.533 or under equivalent licenses of the U.S. Nuclear Regulatory Commission, Agreement States or Licensing States.

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Please see adjacent page for Brief Summary of Prescribing Information and references.

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**Brief Summary**  
**CardioGen-82<sup>®</sup>**  
**Rubidium Rb 82 Generator**

**For Elution of Rubidium Chloride**  
**Rb 82 Injection**

**Diagnostic: Intravenous**

**INDICATIONS AND USAGE**

Rubidium chloride Rb 82 injection is a myocardial perfusion agent that is useful in distinguishing normal from abnormal myocardium in patients with suspected myocardial infarction.

CardioGen-82<sup>®</sup> (Rubidium Rb 82 Generator) must be used with an infusion system specifically labeled for use with the generator and capable of accurate measurement and delivery of doses of rubidium chloride Rb 82 injection not to exceed a single dose of 2220 MBq (60 mCi) and a cumulative dose of 4440 MBq (120 mCi) at a rate of 50 mL/min with a maximum volume per infusion of 100 mL and a cumulative volume not to exceed 200 mL. These performance characteristics reflect the conditions of use under which the drug development clinical trials were conducted.

Adequate data from clinical trials to determine precise localization of myocardial infarction or identification of stress-induced ischemia have not been collected.

Positron emission tomographic (PET) instrumentation is recommended for use with rubidium chloride Rb 82 injection.

**CONTRAINDICATIONS**

None known.

**WARNINGS**

Caution should be used during infusion as patients with congestive heart failure may experience a transitory increase in circulatory volume load. These patients should be observed for several hours following the Rb-82 procedure to detect delayed hemodynamic disturbances.

**PRECAUTIONS**

**General**

Data are not available concerning the effect of marked alterations in blood glucose, insulin, or pH (such as is found in diabetes mellitus) on the quality of rubidium chloride Rb 82 scans. Attention is directed to the fact that rubidium is physiologically similar to potassium, and since the transport of potassium is affected by these factors, the possibility exists that rubidium may likewise be affected.

Rubidium chloride Rb 82 injection must be administered only with an appropriate infusion system capable of meeting the performance characteristics previously described. (See **INDICATIONS AND USAGE**). The drug should be used only by those practitioners with a thorough understanding of the use and performance of the infusion system.

Repeat doses of rubidium chloride Rb 82 injection may lead to an accumulation of the longer lived radioactive contaminants strontium Sr 82 and strontium Sr 85.

Since eluate obtained from the generator is intended for intravenous administration, aseptic techniques must be strictly observed in all handling. Only additive free Sodium Chloride Injection USP should be used to elute the generator. Do not administer eluate from the generator if there is any evidence of foreign matter.

As in the use of any radioactive material, care should be taken to minimize radiation exposure to the patient consistent with proper patient management and to insure minimum radiation exposure to occupational workers.

Radiopharmaceuticals should be used only by physicians who are qualified by training and experience in the safe use and handling of radionuclides and whose experience and training have been approved by the appropriate government agency authorized to license the use of radionuclides.

**Carcinogenesis, Mutagenesis, Impairment of Fertility**

No long-term studies have been performed to evaluate carcinogenic potential, mutagenicity potential, or to determine whether rubidium Rb 82 may affect fertility in males or females.

**Pregnancy Category C**

Animal reproductive studies have not been conducted with rubidium Rb 82. It is also not known whether rubidium Rb 82 can cause fetal harm when administered to a pregnant woman or can affect reproductive capacity. Rubidium Rb 82 should be given to pregnant women only if the expected benefits to be gained clearly outweigh the potential hazards.

Ideally, examinations using radiopharmaceuticals, especially those examinations which are elective in nature, in women of childbearing capability should be performed during the first few (approximately 10) days following the onset of menses.

**Nursing Mothers**

It is not known whether rubidium Rb 82 is excreted in human milk. Due to the short half-life of rubidium Rb 82 (75 sec) it is unlikely that the drug would be excreted in human milk during lactation. However, because many drugs are excreted in human milk, caution should be exercised when rubidium Rb 82 is administered to nursing women.

**Pediatric Use**

Safety and effectiveness in children have not been established.

**ADVERSE REACTIONS**

No adverse reactions specifically attributable to rubidium Rb 82 have been reported during controlled clinical trials.

Issued: March, 1996

(J4-263E)

**References:** 1. Stewart RE, Schwaiger M, Molina E, et al: Comparison of rubidium-82 positron emission tomography and thallium-201 SPECT imaging for detection of coronary artery disease. *Am J Cardiol* 1991;67:1303-1310. 2. Go RT, Marwick TH, MacIntyre WJ, et al: A prospective comparison of rubidium-82 PET and thallium-201 SPECT myocardial perfusion imaging utilizing a single dipyridamole stress in the diagnosis of coronary artery disease. *J Nucl Med* 1990;31:1899-1905.



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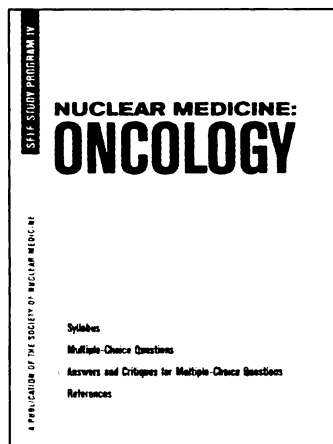
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ISBN 0-932004-51-2

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ISBN: 0-932004-64-4

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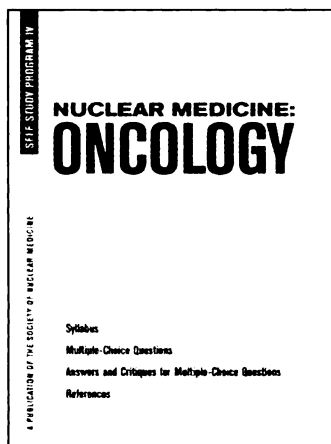
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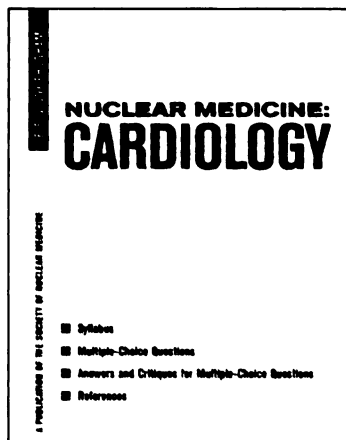
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### **Cardiology Topics**

**Series Editor: Elias H. Botvinick, MD**

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Contributors: Ernest Garcia, MD, Elias Botvinick, MD, Bruce Hasagawa, PhD and Neil Ratzlaff, MS, CNMT  
ISBN 0-932004-52-0  
Price: \$25 (SNM members); \$35 (nonmembers)

**Published** **Topic 2:** Pharmacologic Stress (June 1998)  
Contributors: Mario S. Verani, MD, Jeffrey Leppo, MD, Elias H. Botvinick, MD, Michael W. Dae, MD and Susan Alexander, MD  
ISBN 0-932004-60-1  
Price: \$45 (SNM members); \$60 (nonmembers)

**Published** **Topic 3:** Cardiac PET Imaging (September 1998)  
Contributors: Richard A. Goldstein, MD, Randall A. Hawkins, MD, PhD, Edward M. Geltman, MD, Carl Hoh, MD, Richard Brunken, MD, Yong Choi, PhD, Maria Sciammarella and Elias H. Botvinick, MD  
ISBN 0-932004-54-7  
Price: \$35 (SNM members); \$50 (nonmembers)

**Published** **Topic 4:** Radionuclide Assessment of Congenital Heart Disease (September 1998)  
Contributor: Michael W. Dae, MD

**Note: Topics 3 and 4 appear in one volume.**

**Contributors in remaining Self-Study Cardiology topics include:** Drs. Daniel S. Berman, MD, Cedars-Sinai Medical Center, Los Angeles; Elias Botvinick, MD, University of California, San Francisco; Jamshid Maddahi, MD, UCLA, Los

Angeles; H. William Strauss, Stanford University Medical Center, Stanford; and Mario S. Verani, Methodist Hospital, Houston.

**Topic 5:** Myocardial Perfusion Imaging by Single-Photon Radionuclides, part I (February 1998)  
ISBN: 0-932004-57-1

**Topic 6:** Myocardial Perfusion Imaging by Single-Photon Radionuclides, part II (Spring 1999)  
ISBN: 0-932004-58-x

**Topic 7:** Imaging Acute Myocardial Infarction (Summer 1999)  
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**DEADLINES:**

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Saturday, June 5, 1999	Pre-Registration	On-Site
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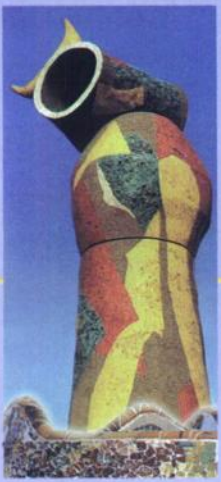
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# European Association Nuclear Medicine Congress



**BARCELONA OCTOBER 9-13, 1999**

## PROGRAMME OUTLINE

	Saturday 9 October	Sunday 10 October	Monday 11 October	Tuesday 12 October	Wednesday 13 October	
08.00-09.30		Continuing Education	Continuing Education	Continuing Education	Continuing Education	
09.30-11.00		Plenary Review Lectures	Plenary Review Lectures	Plenary Review Lectures	Submitted Oral Presentations (Parallel Sessions)	
11.00-11.30		Break	Break	Break	Break	
11.30-13.00		Submitted Oral Presentations (Parallel Sessions)	Submitted Oral Presentations (Parallel Sessions)	Submitted Oral Presentations (Parallel Sessions)	Highlights Lecture	
13.00-15.00	<b>Business &amp; Committee Meetings</b>	Lunch and Industry Symposia	Lunch and Industry Symposia	Lunch and Industry Symposia	Farewell Cocktail	
15.00-16.30		Poster Session	Submitted Oral Presentations (Parallel Sessions)	Submitted Oral Presentations (Parallel Sessions)		
16.30-17.00		14.00-17.30	Break	Break	Break	
17.00-18.30			Submitted Oral Presentations (Parallel Sessions)	Submitted Oral Presentations (Parallel Sessions)	Members' Assembly	
EVENING		19.00-20.30 Opening Ceremony & 21.00 Welcome Reception		20.00 Concert Palau de la Música	21.00 Mediterranean Dinner	

DETAILS OF THE PROGRAMME appear in the EANM 99 Congress Web Page:  
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### 1999 - DATES TO REMEMBER:

March 25  
Before May 31  
June 10  
October 1  
October 9-13

**Deadline for submission of abstracts**  
**Confirmation of accepted abstracts**  
**End of reduced rate registration**  
**Beginning of on site registration rate**  
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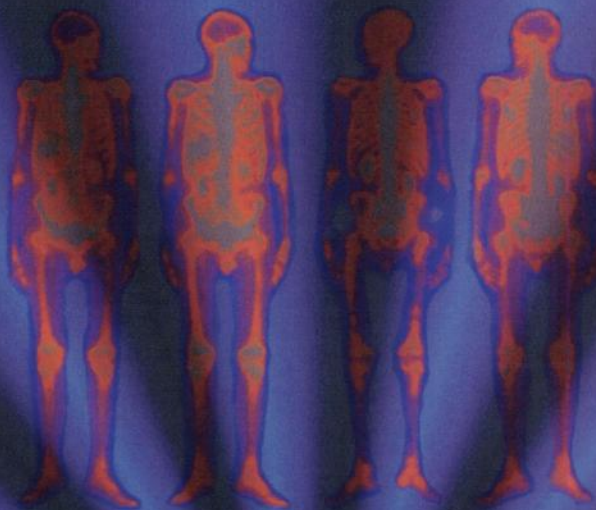
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## **WHAT IS THE UA DATA BASE?**

The Commission on Health Care Policy and Practice in conjunction with the SNM Technologist Task Force on Utilization Data, has developed a quarterly survey on SNM's website. Participants enter data quarterly.

The website's data entry form will collect information from nuclear medicine practitioners to compile a utilization analysis database.

The database contains information on:

- Facility type and location
- Active general medicine and surgical beds
- Outpatient encounters (visits)
- Physician, technologist and clerical FTEs
- Planar, SPECT, PET Hybrid gamma cameras and PET scanners
- Inpatient and outpatient procedures for a selected set of commonly used nuclear medicine CPT-4 codes

## **WHY SHOULD YOU PARTICIPATE?**

Participants receive standard reports on utilization by procedure, place of service, type of patient, etc.

Participants will be able to compare their facility data with others in the region and with the national (global) averages.

Subscribers may query reports on-line or receive printed reports quarterly via mail. This is a free service. As long as you input your data quarterly, you will be able to obtain data and reports.

## **All information is confidential.**

For more information or to participate in this program, contact Katrina Young, UA Project Coordinator, at (703) 708-9000 x255 or e-mail: [kyoung@snm.org](mailto:kyoung@snm.org).





*A Publication of the Society of Nuclear Medicine*

# DIAGNOSTIC PATTERNS IN NUCLEAR MEDICINE

**Authors: Edward B. Silberstein, MD  
John G. McAfee, MD  
Andrew P. Spasoff**

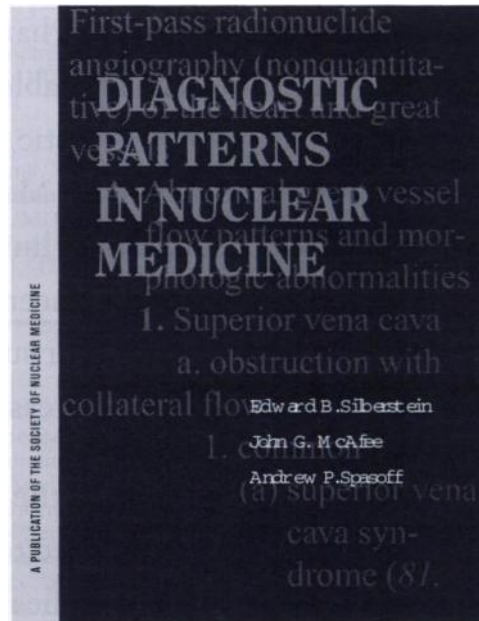
This reference book provides a complete list of differential diagnoses for virtually every pattern described in modern nuclear medicine scintigraphy, including the latest findings in nuclear cardiology, PET, antibody and somatostatin receptor imaging. A full list of all diagnostic patterns reported for every organ system is given. Pharmacologic effects on labeling and distribution are fully described.

*Diagnostic Patterns in Nuclear Medicine* assists in image interpretation by providing complete diagnoses for every scintigraphic pattern. All entries are documented by published references. Organization by organ system provides an easy-to-find, detailed differential diagnosis.

The clinician simply looks up any scintigraphic finding to determine possible causes of that finding, ranked in order of probability, making *Diagnostic Patterns in Nuclear Medicine* the most complete referenced diagnostic guide available.

ISBN: 0-932004-69-5

**Price: \$45 (members);  
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### Nuclear Medicine Physician—University of Southern California, School of Medicine, Department of Radiology

The Department of Radiology at the University of Southern California has an immediate opening for a Nuclear Medicine Physician to join the Radiology staff, with responsibilities for clinical, teaching and research. Qualified candidate will have successfully completed board certification in Nuclear Medicine in an ACGME accredited program or ABR certified with CAQ in Nuclear Radiology. Must have a California License.

Position will be Assistant or Associate Professor on a clinical or tenure track depending on qualifications. Located on the USC/LA County Health Science Campus, which encompasses a large public hospital, a tertiary care university teaching hospital, an NCI supported cancer center, outpatient imaging facilities and PET center. Performing 13,000 procedures per year, the facilities encompasses 13 state-of-the-art gamma cameras and a dedicated PET scanner.

USC offers competitive salary and excellent fringe benefits. EOE. Qualified applicants should send CV, 3 letters of recommendations, a personal statement of interest and current certificates to Peter S. Conti, MD, PhD, PET ISC, 1510 San Pablo St., Suite 350, Los Angeles, CA 90033 or fax to (323) 442-5778.

### Tenure Track Faculty Position Tumor Biologist



The University of Missouri-Columbia invites applications and nominations for a tenure track tumor biologist at the level of Assistant Professor. Candidates should have a PhD or D.V.M. with extensive research experience in the area of animal tumor models. The successful candidate will facilitate the development and utilization of novel radiopharmaceuticals, using rodent and spontaneous domestic animal cancer models. As such, candidates are expected to have experience in the use of rodent tumor models and/or veterinary oncology. The candidate is expected to establish an independent laboratory program in cancer research with an emphasis on therapeutic and/or diagnostic nuclear oncology. He/she will be expected to collaborate with a nationally recognized research program coordinated within the Radiopharmaceutical Sciences Institute comprised of faculty from the School of Medicine, College of Arts and Sciences, College of Veterinary Medicine and the MU Research Reactor. Previous experience with radiopharmaceutical research is desirable, but not required. The successful candidate will be expected to develop an independent, extramurally funded research program in collaboration with other faculty in the radiopharmaceutical group. The research program of the candidate should complement, contribute to and enhance the research directions of the faculty.

Review of applications will begin May 15, 1999, and continue until the position is filled. Please send curriculum vitae, a statement of career plans, and three letters of reference to: Dr. Carolyn J. Henry, Department of Veterinary Medicine and Surgery, College of Veterinary Medicine, 379 E. Campus Dr., University of Missouri-Columbia, Columbia, MO 65211. Phone: (573) 882-7821.

*The University of Missouri-Columbia is an Equal opportunity/ADA institution. For ADA accommodations, please contact Dr. Everett Aronson, W. 203 Vet. Med. Bldg. at the address above. Phone: (573) 882-1902.*

## Physician—Nuclear Medicine/Radiology Mayo Clinic, Rochester, Minnesota

The Nuclear Medicine Section of the Department of Radiology, Mayo Clinic, has an immediate opening for a specialist physician. The qualified candidate should have a MD degree and should have board certification in either diagnostic radiology or nuclear medicine with experience in clinical PET, particularly oncology. A track record in research in the field of PET and nuclear medicine would also be desirable. The responsibilities of this clinically funded position include clinical duties with occasional on-call, research, teaching and professional advancement.

The Nuclear Medicine section currently performs approximately 23,000 studies per year and operates a total of 23 gamma camera systems. There are 11 dual-head systems and 10 systems with SPECT capability. We have approximately 40 image processing workstations and are developing our own NT-based system. In the next 6 months we will be installing a cyclotron and PET

scanner. The successful candidate will join a group of 5 MD's, 2 PhD physicists, 1 PhD radiopharmacist and 1 MS PET chemist, together with a large support staff of fellows and technologists. This position is an excellent opportunity for a physician who is highly motivated to help develop a clinical PET program and desires to work in a setting with a strong clinical research component.

Interested candidates should send or fax a copy of their resume, together with the names of three references to:

Brian P. Mullan, MD  
Mayo Clinic  
Section of Nuclear Medicine  
Charlton 1N-215  
Rochester, MN 55905  
Fax (507) 266-4461  
E-mail: bmullan@mayo.edu

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*A Publication of the Society of Nuclear Medicine*

# DIAGNOSTIC PATTERNS IN NUCLEAR MEDICINE

**Authors: Edward B. Silberstein, MD  
John G. McAfee, MD  
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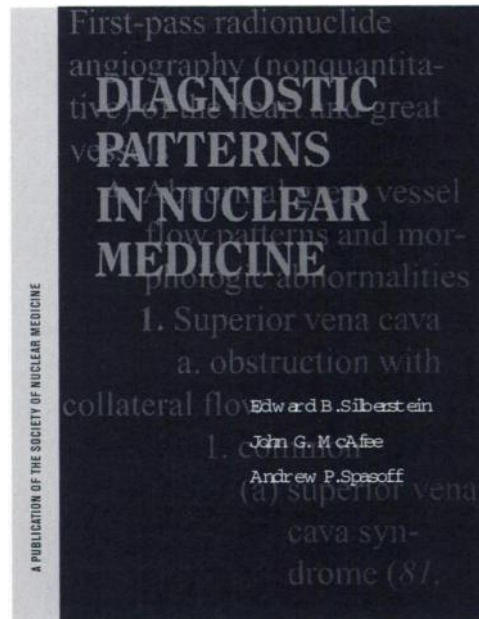
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**T**he Society of Nuclear Medicine, in partnership with the Medical Imaging Division of DuPont Pharmaceuticals Company, is offering a new one year fellowship available July 1, 1999 in the amount of \$30,000.00 to support diagnostic, prognostic or outcomes research focused on the use of Nuclear Medicine or Nuclear Cardiology techniques which will assist clinicians and post-menopausal patients with respect to hormone replacement therapy. Primary research areas of the fellowship are known or suspected coronary artery disease, elevated serum cholesterol, breast cancer and/or osteoporosis.

Funds can be used to support the research and/or salary of the investigator. Grants are limited to research performed in the United States or Canada. Eligible applicants are those who are: (a) currently serving as Residents or Fellows in accredited Nuclear Medicine, Cardiology, Gynecology, Oncology or Radiology training programs, or have just recently completed training; or (b) have completed at least one year of an accredited residency or fellowship training program.



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and to obtain application forms, contact the Society of Nuclear Medicine, Attention: Committee on Awards, 1850 Samuel Morse Drive, Reston, VA 22090, Tel: 703/708-9000, ext. 246, Facsimile: 703/708-9777. Downloadable application materials are also available on the Society's homepage ([www.snm.org](http://www.snm.org))

Deadline for receipt of applications and all supporting materials is April 15, 1999.

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\_\_\_ #14 (1 Audio) **HOT NEW IDEAS AND DEVICES** — Raghuvver K. Halkar, MD; Donald A. Podoloff, MD

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#63 (2 Tapes, \$22) **NUCLEAR CARDIOLOGY - TECHNOLOGIST PROGRAM** — Donna Natale, CNMT; Brenda McSherry, CNMT; Andre Gagnon, CNMT; E. Lindsey Tauxe, CNMT

#64 **NUCLEAR MEDICINE: WHERE WE'VE BEEN, WHERE WE'RE GOING** — Jennifer Prekeges, MS, CNMT; Nancy S. Sawyer, CNMT

#65 (2 Tapes, \$22) **GOVERNMENT AND HEALTH-CARE: UPDATE ON POLICY, LEGISLATION AND REGULATION** — David Nichols; Wendy Smith, MPH; LisaAnn Trembath, CNMT

#66 (2 Tapes, \$22) **PRACTICAL RADIATION SAFETY IN THE 90'S** — Phillip M. Chambliss, ME; Thomas G. Ruckdeschel, MS; Carole A. South-Winter, BS, RT, CNMT

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#68 **HOW TO USE THE SNM-TS "PREP" PROGRAM TO INCREASE REFERRALS AND TARGET KEY MARKETING AREAS** — Mary J. Struttman, CNMT; Joni L. Herbst, CNMT

#69 **CONTINUING COMPETENCY ASSESSMENT: REGULATORY PRESSURES AND PROFESSIONAL OBLIGATIONS** — Martha W. Pickett, CNMT, FSNMITS

#70 **THE WINNERS CIRCLE** — Valerie R. Cronin, CNMT; Mary Jo Struttman, CNMT; Joni L. Herbst, CNMT

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**Positions Wanted**

**Nuclear Medicine Physician**

BC NM physician with IM seeks employment. Experience in nuclear cardiology, SPECT, PET and therapy. Will relocate. E-mail: ronmar\_717@yahoo.com or write to Society of Nuclear Medicine, Box #401-99, 1850 Samuel Morse Dr., Reston, VA 20190-5316.

**Positions Available**

**Nuclear Medicine Practice Opportunity**

Board-certified general radiologist with expertise in nuclear medicine to join an established mid-sized radiology practice. The practice is in a rapidly expanding medical community and covers a 340-bed referral hospital, two small community hospitals, outpatient imaging office and a large multi-specialty clinic. Anticipating PET service in 2000. Intention of long-term partnership is a necessity. Contact James Bonifield, MD, 3417 Ensign Rd., NE, Olympia, WA 98506-5075. Phone: (360) 493-4602. Fax: (360) 493-4603.

**Research Fellowship Position—PET Imaging Science Center**

*University of Southern California, Department of Radiology*

The Department of Radiology at the University of Southern California is recruiting a Research Fellow for the PET Imaging Science Center, starting July 1, 1999. The qualified candidates will have a PhD or MD. The program includes functional and metabolic imaging using SPECT and PET with a special interest in clinical oncology. Interdisciplinary research opportunities in the areas of pharmacy and pharmacology, biomedical engineering and physiology that are directed at improving the diagnosis of cancer and to affect patient management are available. Candidates will be expected to participate in clinical and/or basic science research and publish findings. We offer competitive salary and fringe benefits. EOE. Qualified applicants should send CV, 3 letters of recommendations, a personal statement of interest and current certificates to Peter S. Conti, MD, PhD, PET ISC, 1510 San Pablo St., Suite 350, Los Angeles, CA 90033 or fax to (323) 442-5778.

**Fellowship Positions (2)—Nuclear Medicine, Department of Radiology**

*University of Southern California*

The Department of Radiology at the University of Southern California is recruiting two Fellows to train in Nuclear Medicine and PET. This year-long program provides a broad clinical experience in all aspects of nuclear radiology including general nuclear medicine, SPECT and PET. Training emphasis will be placed on the use of multi-modality imaging approach to the diagnosis of disease. The qualified candidates will have successfully completed board certification or be board eligible in Diagnostic Radiology or Nuclear Medicine in an ACGME accredited program and hold a California License. Candidates are encouraged to participate in active ongoing research programs in oncology, neurology, cardiology and infectious disease. USC offers competitive salary and excellent fringe benefits. EOE. Qualified applicants should send CV, 3 letters of recommendation (including one from your Program Chairman), a personal statement of interest and current certificates to Peter S. Conti, MD, PhD, PET ISC, 1510 San Pablo St., Suite 350, Los Angeles, CA 90033 or fax to (323) 442-5778.

**New Department Chief**

Radiology group needs radiologist with extensive Nuc Med experience to run new department. This is an exciting and rare opportunity. Contact C. Morgan, MD, 507 NE 47th Ave., Portland, OR 97213. Phone: (503) 215-6342. E-mail: morganch@providence.org.

**Full-Time Nuclear Medicine Physician**

ABNM, entry level, O/P center Boca Raton, FL. Dedicated PET (Siemens 951R), ADAC, Lunar, Research. Avail 6/1/99. P.O. Box 11697 Ft. Laud., FL 33339. <http://www.mydoctor.com/pet>. E-mail: jkotler@pol.net.

**BC IM/NM**

Unique practice opportunity available for expanding two-man group practice for BC IM/NM physician. Practice responsibilities include hospital-based and outpatient NM facilities and private practice of IM with special emphasis on thyroid disease, osteoporosis

and diabetes. Qualified applicants send CV to Carolina Nuclear Medicine, 841 Heather Rd., Burlington, NC 27215.

**Nuclear Medicine Technologist**

Clinishare, a member of Health Midwest has an opening for a Nuclear Medicine Technologist who performs either in vivo or in vitro tasks with limited supervision. Individual must demonstrate competence in performing all procedures with quality to assist physicians in the care of patients. Must be a graduate from an approved school of Nuclear Medicine technology or equivalent and have certification in Nuclear Medicine technology or eligibility for certification. This position requires the technologist to travel to multiple sites and a chauffeur's license is required in some states. Please send resume to: Clinishare, Attn: John Schario, 2316 E. Meyer, 2 North, Kansas City, MO 64132. EOE/Drug Screen Required.

**Postdoctoral Fellowship in PET/SPECT/fMRI Imaging**

Unique opportunity for postdoctoral training in functional imaging research. Emphasis on neuropsychiatric, psycho-pharmacologic, oncology imaging and quantification techniques. Excellent mix of clinical and basic research. Opportunity for fMRI/PET correlation. MD/clinical credentials required. May start as early as June 1999. Applications to Dean F. Wong, MD, PhD, Johns Hopkins Medical Inst, Radiology-JHOC Bldg, Rm. 3245, 601 N. Caroline St., Baltimore, MD 21287-0807. E-mail: dfwong@rad.jhu.edu.

**Locum Tenens (June & July 1999)**

ABNM to serve as associate in active nuclear department in 600-bed hospital in Ft. Laud. John Kotler, MD, Holy Cross Hospital, 4725 North Federal Highway, Ft. Laud., FL 33308. Phone: (954) 492-5748. Fax: (954) 351-5983.

**Mid-Eastern Chapter, SNM**

**29th Annual Meeting**

**Tumor Imaging: Nuclear Medicine for the Next Century**

APRIL 16 & 17, 1999, HYATT/DULLES HOTEL, 2300 DULLES CORNER BLVD., HERNDON, VIRGINIA

**Meeting hours:**

Friday, April 16th - 10:00 AM to 8:30 PM

Saturday, April 17th - 8:00 AM to 5:30 PM

Invited Speakers include: Drs. H.-J. Biersack, J.A. Carrasquillo, R. Coleman, D. Cooper, B. Czerniecki, W. Dooley, D. Egli, G. Johnston, P. Lechner, S. Libutti, J. Links, R. Lissak, I. Khalkhali, E. Kotlyarov, R. Neumann and D. Van Nostrand.

Hotel rooms are available at a "special rate" until March 25th. To make your reservation, call (800) 233-1234 and identify the meeting as "Mid-Eastern Chapter, SNM". Room rates are \$104/night for a single or double.

All meals will be by ticket sale only, during pre-registration. A group lunch and dinner is planned for Friday evening (cash bar Friday night) as well as a group lunch on Saturday.

<b>Registration fees:</b>	<b>Pre-Registration</b>	<b>Door</b>
Full/Associate SNM members	.....\$130	.....\$160
Technologist, SNM members	.....\$50	.....\$65
Fellows/Scientists (training)	.....\$50	.....\$65
Student Technologists (with letter)	.....Free	.....Free
Physician, senior scientists, non-SNM members	..\$120	.....\$150
Technologist/Scientists, non-SNM members	.....\$75	.....\$95

Pre-registration will end April 2, 1999.

Herndon is approximately: 55 miles from Baltimore, 15 miles from DC, 105 miles from Richmond, 105 miles from Charlottesville and 160 miles from Philadelphia. We will accept VISA, MasterCard & Amex for registration and meals.

Contact: Dick Gramm, (410) 465-8323.

### Nuclear Medicine Physician—University of Southern California, School of Medicine, Department of Radiology

The Department of Radiology at the University of Southern California has an immediate opening for a Nuclear Medicine Physician to join the Radiology staff, with responsibilities for clinical, teaching and research. Qualified candidate will have successfully completed board certification in Nuclear Medicine in an ACGME accredited program or ABR certified with CAQ in Nuclear Radiology. Must have a California License.

Position will be Assistant or Associate Professor on a clinical or tenure track depending on qualifications. Located on the USC/LA County Health Science Campus, which encompasses a large public hospital, a tertiary care university teaching hospital, an NCI supported cancer center, outpatient imaging facilities and PET center. Performing 13,000 procedures per year, the facilities encompasses 13 state-of-the-art gamma cameras and a dedicated PET scanner.

USC offers competitive salary and excellent fringe benefits. EOE. Qualified applicants should send CV, 3 letters of recommendations, a personal statement of interest and current certificates to Peter S. Conti, MD, PhD, PET ISC, 1510 San Pablo St., Suite 350, Los Angeles, CA 90033 or fax to (323) 442-5778.

### Tenure Track Faculty Position Tumor Biologist



The University of Missouri-Columbia invites applications and nominations for a tenure track tumor biologist at the level of Assistant Professor. Candidates should have a PhD or D.V.M. with extensive research experience in the area of animal tumor models. The successful candidate will facilitate the development and utilization of novel radiopharmaceuticals, using rodent and spontaneous domestic animal cancer models. As such, candidates are expected to have experience in the use of rodent tumor models and/or veterinary oncology. The candidate is expected to establish an independent laboratory program in cancer research with an emphasis on therapeutic and/or diagnostic nuclear oncology. He/she will be expected to collaborate with a nationally recognized research program coordinated within the Radiopharmaceutical Sciences Institute comprised of faculty from the School of Medicine, College of Arts and Sciences, College of Veterinary Medicine and the MU Research Reactor. Previous experience with radiopharmaceutical research is desirable, but not required. The successful candidate will be expected to develop an independent, extramurally funded research program in collaboration with other faculty in the radiopharmaceutical group. The research program of the candidate should complement, contribute to and enhance the research directions of the faculty.

Review of applications will begin May 15, 1999, and continue until the position is filled. Please send curriculum vitae, a statement of career plans, and three letters of reference to: Dr. Carolyn J. Henry, Department of Veterinary Medicine and Surgery, College of Veterinary Medicine, 379 E. Campus Dr., University of Missouri-Columbia, Columbia, MO 65211. Phone: (573) 882-7821.

*The University of Missouri-Columbia is an Equal opportunity/ADA institution. For ADA accommodations, please contact Dr. Everett Aronson, W. 203 Vet. Med. Bldg. at the address above. Phone: (573) 882-1902.*

## Physician—Nuclear Medicine/Radiology Mayo Clinic, Rochester, Minnesota

The Nuclear Medicine Section of the Department of Radiology, Mayo Clinic, has an immediate opening for a specialist physician. The qualified candidate should have a MD degree and should have board certification in either diagnostic radiology or nuclear medicine with experience in clinical PET, particularly oncology. A track record in research in the field of PET and nuclear medicine would also be desirable. The responsibilities of this clinically funded position include clinical duties with occasional on-call, research, teaching and professional advancement.

The Nuclear Medicine section currently performs approximately 23,000 studies per year and operates a total of 23 gamma camera systems. There are 11 dual-head systems and 10 systems with SPECT capability. We have approximately 40 image processing workstations and are developing our own NT-based system. In the next 6 months we will be installing a cyclotron and PET

scanner. The successful candidate will join a group of 5 MD's, 2 PhD physicists, 1 PhD radiopharmacist and 1 MS PET chemist, together with a large support staff of fellows and technologists. This position is an excellent opportunity for a physician who is highly motivated to help develop a clinical PET program and desires to work in a setting with a strong clinical research component.

Interested candidates should send or fax a copy of their resume, together with the names of three references to:

Brian P. Mullan, MD  
Mayo Clinic  
Section of Nuclear Medicine  
Charlton 1N-215  
Rochester, MN 55905  
Fax (507) 266-4461  
E-mail: bmullan@mayo.edu

*Mayo Clinic is an equal opportunity employer.*

**Nuclear Medicine  
Portland, Oregon**

Northwest Permanente, P.C., a physician-managed multi-specialty group serving over 440,000 members of Kaiser Permanente in the North-

west has an excellent opportunity for a physician (board certified or eligible) in Nuclear Medicine in the Portland area. The position is half-time Nuclear Medicine with additional time available in radiology.

Our program in Oregon and Washington offers a collegial and professionally stimulating environment in one of the most successful managed care systems in the country, plus a quality lifestyle in the Pacific Northwest. In addition we provide a competitive salary and benefits package which includes a generous retirement program, sabbatical leave, professional liability coverage and more. Please forward CV to:

N.M. Clark, Director, Professional Resources, Northwest Permanente, P.C., 500 NE Multnomah, Suite 100, Portland, OR 97232-2099. EOE.

**Nuclear Medicine  
Bone Imaging**

As a clinician, you know nuclear medicine procedures are safe and effective. But you also know that patients are sometimes uneasy about them.

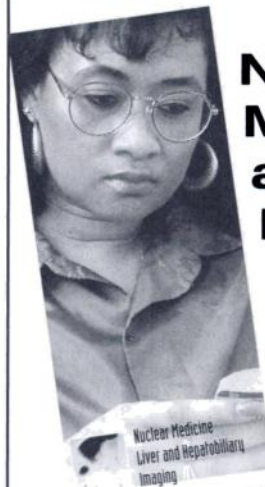
Give your patients peace of mind by providing them with concise and thorough information.

Since bone scans are used to detect arthritis, osteoporosis, fractures and sports injuries, as well as unexplained bone pain, bone

imaging is one of the most commonly performed nuclear medicine tests. The *Nuclear Medicine Bone Imaging* pamphlet prepares patients for the test, explains exam procedures and informs patients what needs to be done after the test.

To order, simply contact SNM's book distributor, Matthews Medical Books, at their toll free number (800) 633-2665 (non-U.S. 314-432-1401), or Fax: (314) 432-7044. Check SNM's on-line book catalog ([www.snm.org](http://www.snm.org)) for future patient pamphlets and books.

**SNM Patient Pamphlets Offer the Reassurance  
Your Patients Need.**



**Nuclear  
Medicine Liver  
and  
Hepatobiliary  
Imaging**

As a clinician, you know nuclear medicine procedures are safe and effective. But you also know

that patients are sometimes uneasy about them. Give your patients peace of mind by providing them with concise and thorough information.

This pamphlet describes what patients will experience when they have a nuclear medicine liver or hepatobiliary scan. This pamphlet explains liver scans and how they help diagnose hepatic disorders such as cirrhosis, hepatitis, tumors, as well as problems in other parts of the digestive system. The *Nuclear Medicine Liver and Hepatobiliary Imaging* pamphlet provides instructions to the patient before, during and after their exam.

To order, simply contact SNM's book distributor, Matthews Medical Books, at their toll free number (800) 633-2665 (non-U.S. 314-432-1401), or Fax: (314) 432-7044. Check SNM's on-line book catalog ([www.snm.org](http://www.snm.org)) for future patient pamphlets and books.

E-mail the Publications Department for pamphlet samples at [ssilver@snm.org](mailto:ssilver@snm.org). Whatever your most commonly ordered procedure, you'll find an SNM patient pamphlet that will address your patient education needs.

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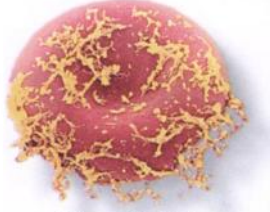


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