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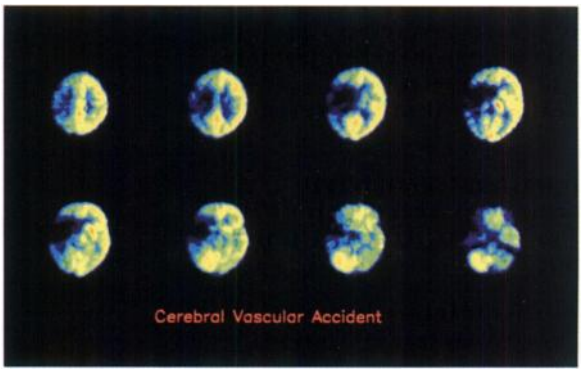
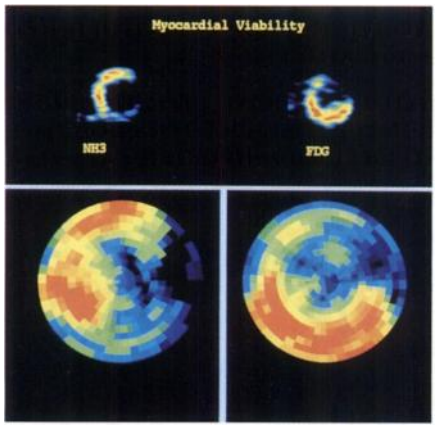


"PET has the ability to measure biochemical responses to disease in the brain prior to gross changes in anatomy and, in some cases, prior to symptom onset resulting in early diagnosis and improved patient management."

John C. Mazziotta, M.D., Ph.D.
President of Institute for Clinical PET (ICP)
Vice-Chairman of Neurology
Professor of Neurology and Radiology
UCLA School of Medicine

CARDIOLOGY



"PET is the only reliable technique currently available to assess myocardial viability. This information is often invaluable in making therapeutic decisions."

Peter Alagona, Jr., M.D.
Associated Medical Director
St. Joseph's Positron Center

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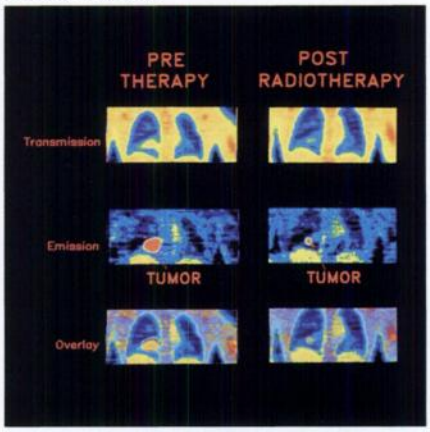

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Mathis P. Frick, M.D.
Professor and Chairman
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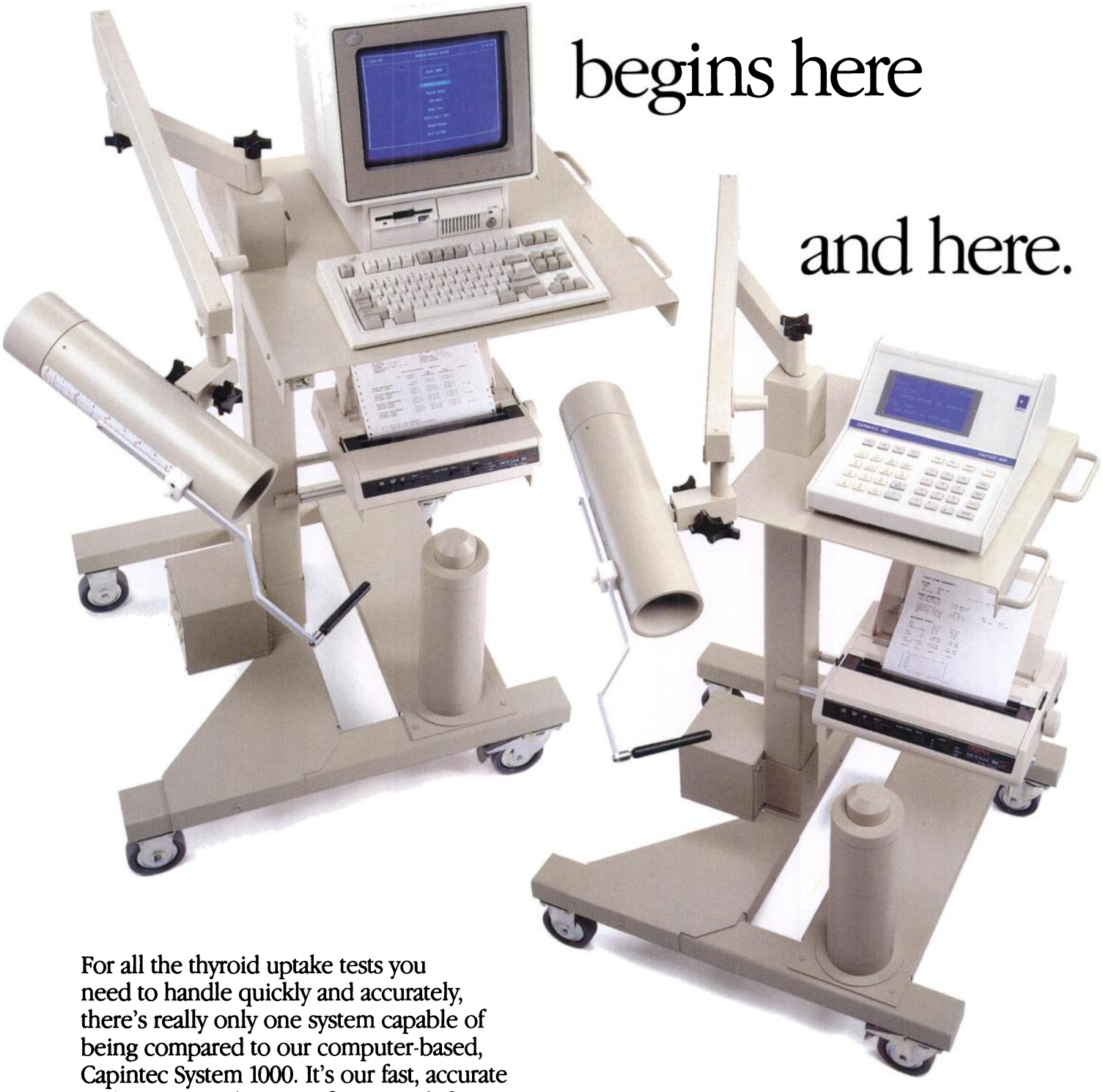

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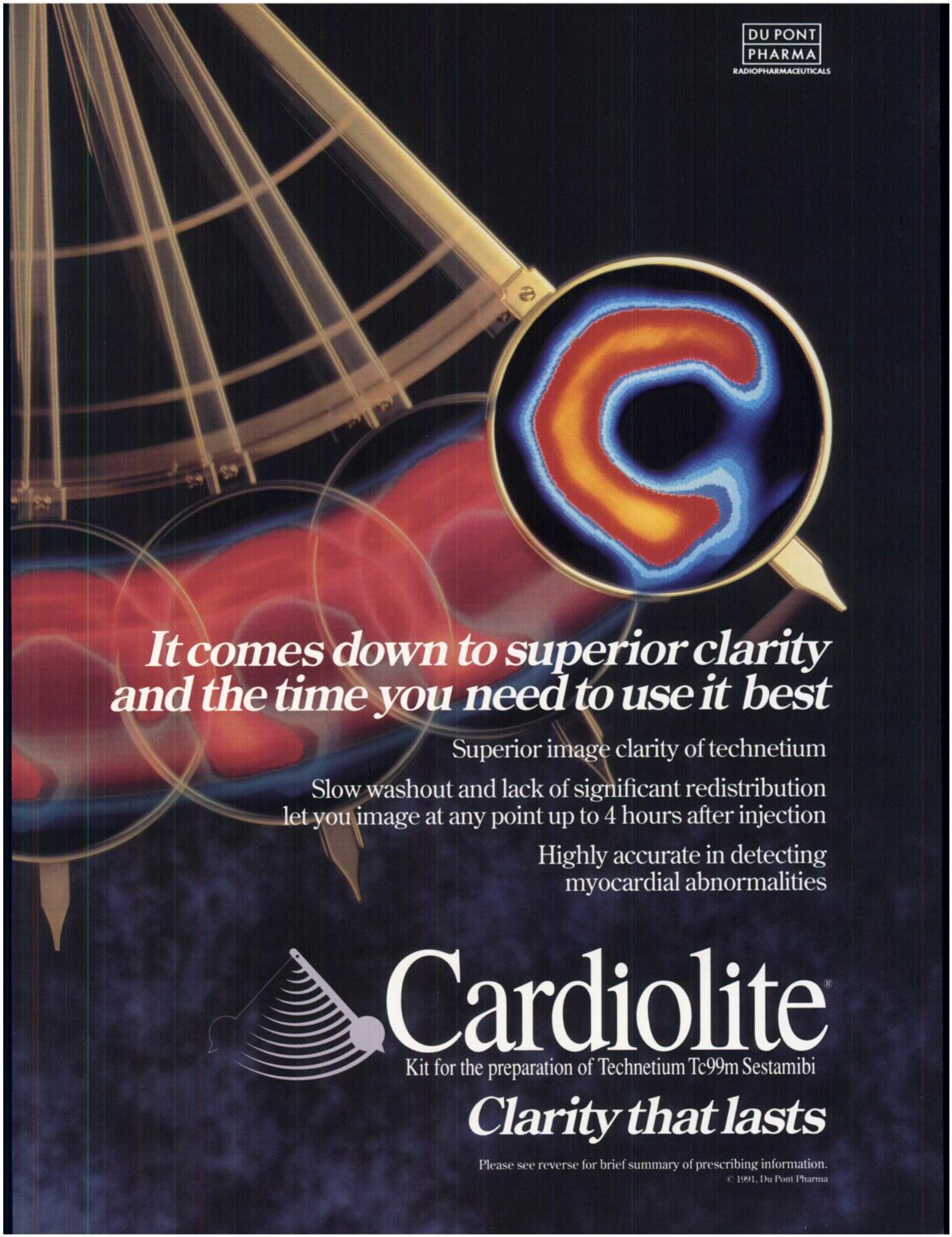
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Brief Summary

Cardiolite®

Kit for the preparation of Technetium Tc99m Sestamibi

F O R D I A G N O S T I C U S E

DESCRIPTION: Each 5 mL vial contains a sterile, non-pyrogenic, lyophilized mixture of:

Tetrakis (2-methoxy isobutyl isonitrile) Copper (I) tetrafluoroborate - 1.0 mg
Sodium Citrate Dihydrate - 2.6 mg
L-Cysteine Hydrochloride Monohydrate - 1.0 mg
Mannitol - 20 mg
Stannous Chloride, Dihydrate, minimum ($SnCl_2 \cdot 2H_2O$) - 0.025 mg
Stannous Chloride, Dihydrate, ($SnCl_2 \cdot 2H_2O$) - 0.075 mg
Tin Chloride (Stannous and Stannic) Dihydrate, maximum (as $SnCl_2 \cdot 2H_2O$) - 0.086 mg

Prior to lyophilization the pH is 5.3 to 5.9. The contents of the vial are lyophilized and stored under nitrogen.

This drug is administered by intravenous injection for diagnostic use after reconstitution with sterile, non-pyrogenic, oxidant-free Sodium Pertechnetate Tc99m Injection. The pH of the reconstituted product is 5.5 (5.0–6.0). No bacteriostatic preservative is present.

The precise structure of the technetium complex is $Tc99m[MIBI]_6^+$ where MIBI is 2-methoxy isobutyl isonitrile.

INDICATIONS AND USAGE: CARDIOLITE®, Kit for the preparation of Technetium Tc99m Sestamibi, is a myocardial perfusion agent that is useful in distinguishing normal from abnormal myocardium, and in the localization of the abnormality, in patients with suspected myocardial infarction. It is also useful in the evaluation of myocardial function using the first-pass technique.

CONTRAINDICATIONS: None known.

WARNINGS: In studying patients in whom cardiac disease is known or suspected, take care to assure continuous monitoring and treatment in accordance with safe, accepted clinical procedure.

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 (as outlined in the full prescribing information).

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.

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) is high. Minimal exposure (ALARA) is necessary in women of childbearing capability. (See Dosimetry subsection in DOSAGE AND ADMINISTRATION section.)

The active intermediate, $Cu(MIBI)_4BF_4$, 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. $Cu(MIBI)_4BF_4$ 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 × 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.

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

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 children below the age of 18 have not been established.

ADVERSE REACTIONS: During clinical trials, approximately 8% of patients experienced a transient metallic or bitter taste immediately after the injection of Technetium Tc99m Sestamibi. A few cases of transient headache, flushing and non-itching rash have also been attributed to administration of the agent. One patient demonstrated signs and symptoms consistent with seizure, 8 to 10 minutes after administration of the drug. No other adverse reactions specifically attributable to the use of Technetium Tc99m Sestamibi have been reported.

DOSAGE AND ADMINISTRATION: The suggested dose range for I.V. administration to be employed in the average patient (70 kg) is:

370 to 1110 MBq (10 to 30 mCi)

The dose administered should be the lowest required to provide an adequate study consistent with ALARA principles (See also PRECAUTIONS).

When used in the diagnosis of myocardial infarction, imaging should be completed within four hours after administration (see also CLINICAL PHARMACOLOGY section in full prescribing information).

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 room temperature (15 to 30°) before and after reconstitution.

RADIATION DOSIMETRY: Table 4 shows the radiation doses to organs and tissues of an average patient (70 kg) per 1110 MBq (30 mCi) of Technetium Tc99m Sestamibi injected intravenously.

Table 4. Radiation Absorbed Doses from Tc99m Sestamibi

	Estimated Radiation Absorbed Dose			
	REST			
	2.0 hour void		4.8 hour void	
Organ	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

Stabin, M., July, 1990, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge, TN 37831, (615) 576-3449.

HOW SUPPLIED: Du Pont's CARDIOLITE®, Kit for the preparation of Technetium Tc99m Sestamibi is supplied as a 5 mL vial in kits of two (2), five (5) and thirty (30) vials, sterile and non-pyrogenic.

Prior to lyophilization the pH is between 5.3 and 5.9. The contents of the vials are lyophilized and stored under nitrogen. Store at room temperature (15 to 30°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.

The US Nuclear Regulatory Commission has approved this reagent kit for distribution to persons licensed to use byproduct material identified in 35.100 and 35.200 of 10 CFR Part 35, to persons who hold an equivalent license issued by an Agreement State, and, outside the United States, to persons authorized by the appropriate authority.

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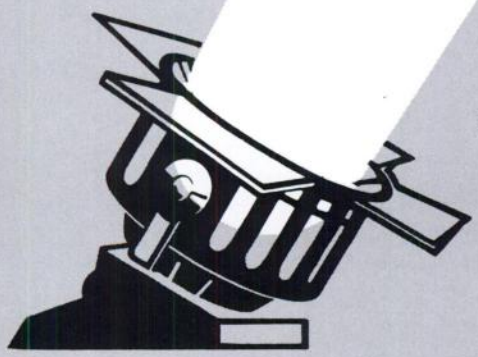

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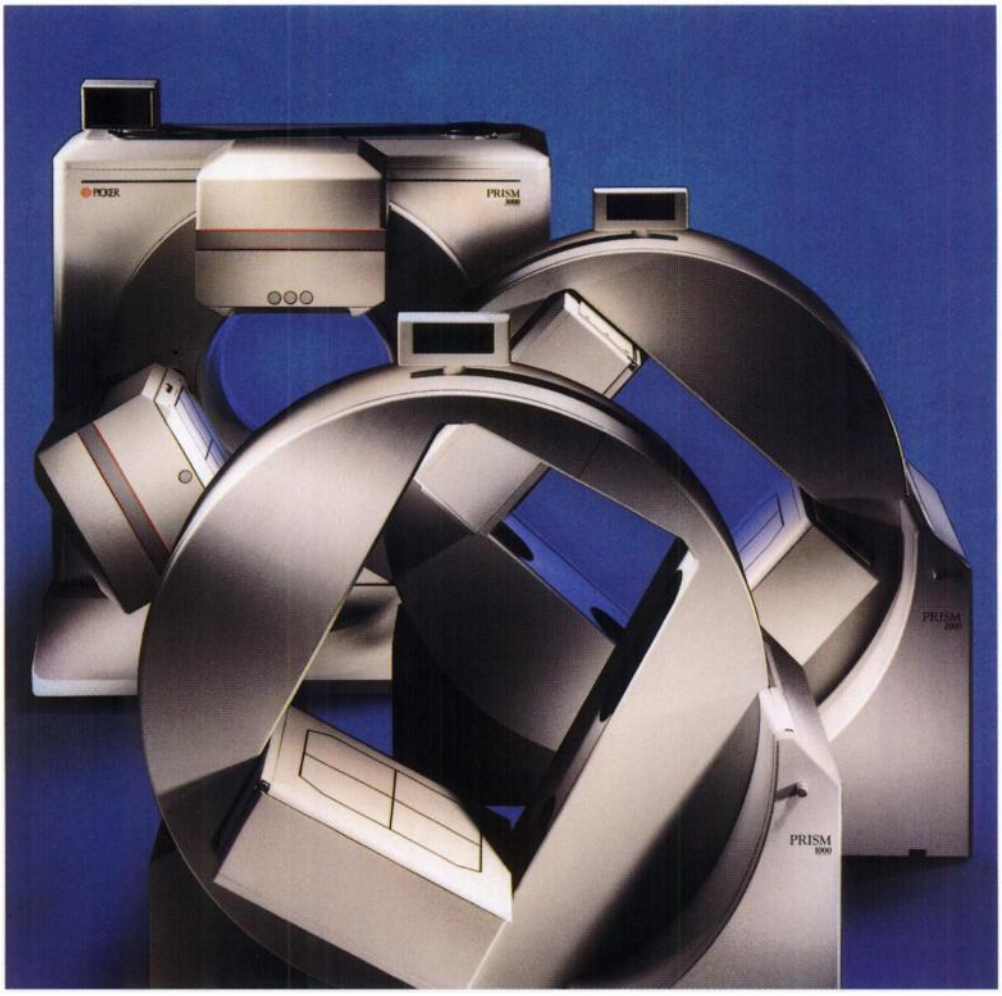

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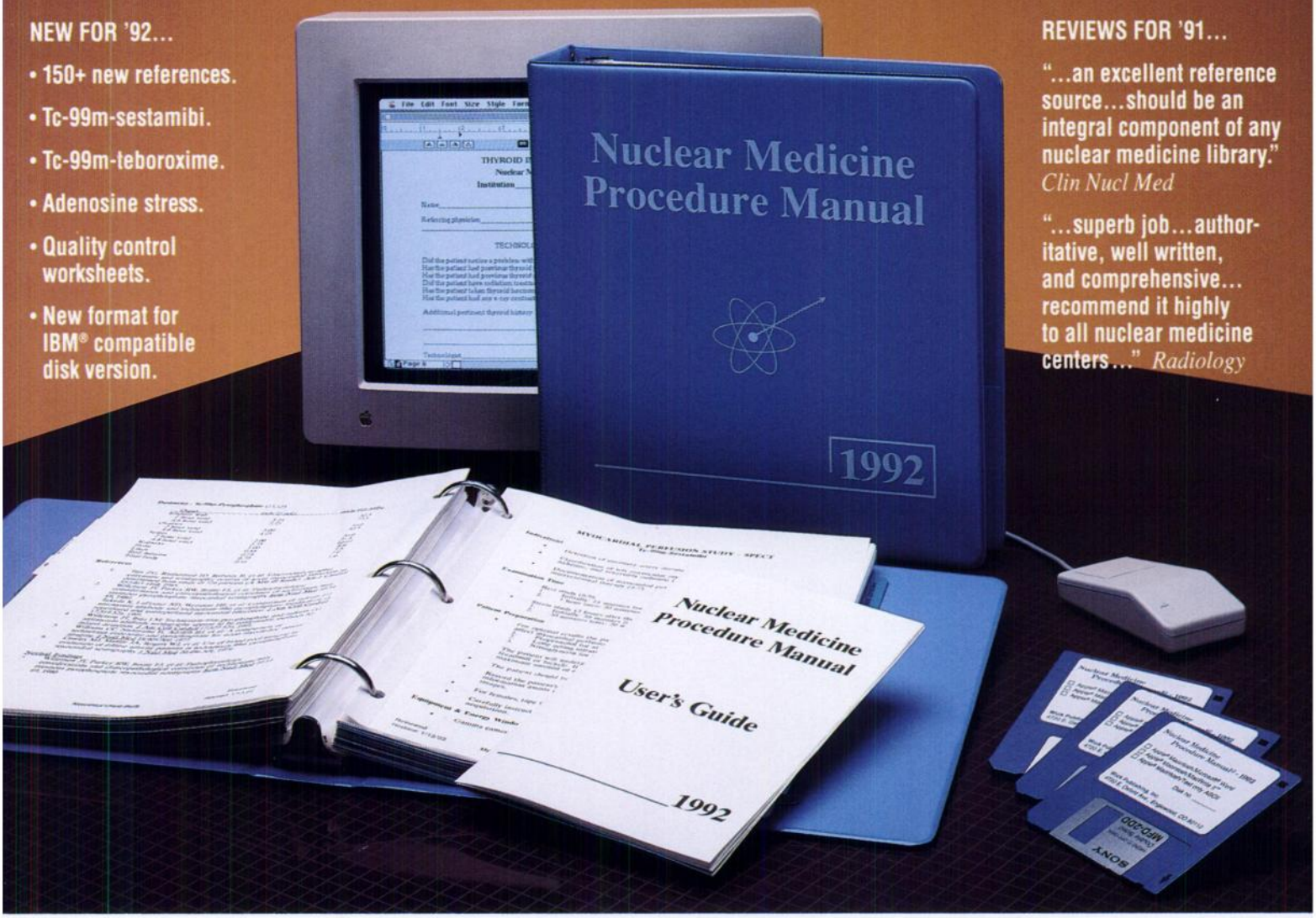

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DESCRIPTION: Thallous Chloride Tl 201 is supplied in isotonic solution as a sterile, non-pyrogenic diagnostic radiopharmaceutical for intravenous administration. The aqueous solution at the time of calibration contains 37MBq/ml (1mCi/ml) Thallous Chloride Tl 201. The pH is adjusted with hydrochloric acid and/or sodium hydroxide solution. It is made isotonic with 9mg/ml sodium chloride and is preserved with 9mg/ml benzyl alcohol.
Thallium Tl 201 is cyclotron produced with no carrier added and contains no less than 98% Thallium Tl 201 as a percentage of total activity with contaminants less than 0.3% Thallium Tl 200, 1.2% Thallium Tl 202, and 0.2% Lead Pb 203 expressed as a percentage of Tl 201 activity at calibration.
It is recommended that Thallous Chloride Tl 201 be administered close to calibration time to minimize the effect of higher levels of radionuclide contaminant.

INDICATIONS AND USAGE: Thallous Chloride Tl 201 may be useful in myocardial perfusion imaging for the diagnosis and localization of myocardial infarction. It may also have prognostic value regarding survival, when used in the clinically stable patient following the onset of symptoms of an acute myocardial infarction, to assess the site and size of the perfusion defect.
Thallous Chloride Tl 201 may also be useful in conjunction with exercise stress testing as an adjunct in the diagnosis of ischemic heart disease (atherosclerotic coronary artery disease).
It is usually not possible to differentiate recent from old myocardial infarction, or to differentiate exactly between recent myocardial infarction and ischemia.
Thallous Chloride Tl 201 is indicated also for the localization of sites of parathyroid hyperactivity in patients with elevated serum calcium and parathyroid hormone levels. It may also be useful in pre-operative screening to localize extrathyroidal and mediastinal sites of parathyroid hyperactivity and for post-surgical reexamination. Thallous Chloride Tl 201 has not been adequately demonstrated to be effective for the localization of normal parathyroid glands.

CONTRAINDICATIONS: None known.

WARNINGS: In studying patients in whom myocardial infarction or ischemia is known or suspected, care should be taken to assure continuous clinical monitoring and treatment in accordance with safe, accepted procedure. Exercise stress testing should be performed only under the supervision of a qualified physician and in a laboratory equipped with appropriate resuscitation and support apparatus.

PRECAUTIONS: 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 Thallous Chloride Tl 201 scans. Attention is directed to the fact that thallium is a potassium analog, and since the transport of potassium is affected by these factors, the possibility exists that the thallium may likewise be affected.

GENERAL: Do not use after the expiration time and date (5 days maximum after calibration time) stated on the label.
Do not use if contents are turbid.
The patient dose should be measured by a suitable radioactivity calibration system immediately prior to administration.
Thallous Chloride Tl 201, as all radioactive materials, must be handled with care and used with appropriate safety measures to minimize external radiation exposure to clinical personnel. Care should also be taken to minimize radiation exposure to patients in a manner consistent with proper patient management.
Carcinogenesis, Mutagenesis, Impairment of Fertility: No long-term animal studies have been performed to evaluate carcinogenic potential, mutagenic potential, or whether Thallous Chloride Tl 201 affects fertility in males or females.
Ideally, examinations using radiopharmaceuticals, especially those elective in nature, of a woman of childbearing capability should be performed during the first few (approximately 10) days following the onset of menses.
Pregnancy Category C: Adequate reproductive studies have not been conducted in animals with Thallous Chloride Tl 201. It is also not known whether Thallous Chloride Tl 201 can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Thallous Chloride Tl 201 should not be given to a pregnant woman except when benefits clearly outweigh the potential risks.
Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, nursing should not be undertaken when a patient is administered radioactive material.
Pediatric Use: Safety and effectiveness in children below the age of 18 have not been established.
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.

ADVERSE REACTIONS: A single adverse reaction to the administration of Thallous Chloride Tl 201 has been reported consisting of hypotension accompanied by pruritus and a diffuse rash which responded to antihistamines and steroids within one hour.

HOW SUPPLIED: Thallous Chloride Tl 201 for intravenous administration is supplied as a sterile, nonpyrogenic solution containing at calibration time 37MBq/ml (1mCi/ml) of Thallous Chloride Tl 201, 9mg/ml sodium chloride, and 9mg/ml of benzyl alcohol. The pH is adjusted with hydrochloric acid and/or sodium hydroxide solution. Vials are available in the following quantities of radioactivity: 81.4, 122.1, 162.8, 244.2, 325.6 and 366.3MBq (2.2, 3.3, 4.4, 6.6, 8.8 and 9.9mCi) of Thallous Chloride Tl 201.
Store at room temperature (15-30°C).

DU PONT
PHARMA
Radiopharmaceuticals

Du Pont Radiopharmaceuticals, Inc.
331 Treble Cove Road
Billerica, MA, USA 01862

Printed in U.S.A.
August 1988

References:

1. Iskandrian AS, Heo J, Askenase A, et al. *Am Heart J.* 1988;115:432-443.
2. Leppo JA. *J Nucl Med.* 1989;30:281-287.
3. Brown KA, O'Meara J, Chambers CE, Plante DA. *Am J Cardiol.* 1990;65:160-167.
4. Hendel RC, Layden JJ, Leppo JA. *J Am Coll Cardiol.* 1990;15:109-116.
5. Boucher CA, Brewster DC, Darling RC, et al. *N Engl J Med.* 1985;312:389-394.
6. Eagle KA, Coley CM, Newell JB, et al. *Ann Intern Med.* 1989;110:859-866.
7. Ranhosky A, Kempthorne-Rawson J, et al. *Circulation.* 1990;81:1205-1209.
8. Data on file, Boehringer Ingelheim Pharmaceuticals, Inc.

Prescribing Information **For Intravenous Injection**

INDICATIONS AND USAGE IV Persantine® (dipyridamole USP) is indicated as an alternative to exercise in thallium myocardial perfusion imaging for the evaluation of coronary artery disease in patients who cannot exercise adequately.

CONTRAINDICATIONS Hypersensitivity to dipyridamole.

WARNINGS Serious adverse reactions associated with the administration of intravenous Persantine® (dipyridamole USP) have included fatal and non-fatal myocardial infarction, ventricular fibrillation, symptomatic ventricular tachycardia, transient cerebral ischemia, and bronchospasm.
In a study of 3911 patients given intravenous Persantine as an adjunct to thallium myocardial perfusion imaging, two types of serious adverse events were reported: 1) four cases of myocardial infarction (0.1%), two fatal (0.05%); and two non-fatal (0.05%); and 2) six cases of severe bronchospasm (0.2%). Although the incidence of these serious adverse events was small (0.3%,10 of 3911), the potential clinical information to be gained through use of intravenous Persantine thallium imaging (see Indications and Usage noting the rate of false positive and false negative results) must be weighed against the risk to the patient. Patients with a history of unstable angina may be at a greater risk for severe myocardial ischemia. Patients with a history of asthma may be at a greater risk for bronchospasm during IV Persantine use.
When thallium myocardial perfusion imaging is performed with intravenous Persantine, parenteral aminophylline should be readily available for relieving adverse events such as bronchospasm or chest pain. Vital signs should be monitored during, and for 10-15 minutes following, the intravenous infusion of Persantine and an electrocardiographic tracing should be obtained using at least one chest lead. Should severe chest pain or bronchospasm occur, parenteral aminophylline may be administered by slow intravenous injection (50-100 mg over 30-60 seconds) in doses ranging from 50 to 250 mg. In the case of severe hypotension, the patient should be placed in a supine position with the head tilted down if necessary, before administration of parenteral aminophylline. If 250 mg of aminophylline does not relieve chest pain symptoms within a few minutes, sublingual nitroglycerin may be administered. If chest pain continues despite use of aminophylline and nitroglycerin, the possibility of myocardial infarction should be considered. If the clinical condition of a patient with an adverse event permits a one minute delay in the administration of parenteral aminophylline, thallium-201 may be injected and allowed to circulate for one minute before the injection of aminophylline. This will allow initial thallium perfusion imaging to be performed before reversal of the pharmacologic effects of Persantine on the coronary circulation.

PRECAUTIONS See WARNINGS.
Drug Interactions Oral maintenance theophylline may abolish the coronary vasodilatation induced by intravenous Persantine® (dipyridamole USP) administration. This could lead to a false negative thallium imaging result.
Carcinogenesis, Mutagenesis, Impairment of Fertility In studies in which dipyridamole was administered in the feed at doses of up to 75 mg/kg/day (9.4 times* the maximum recommended daily human oral dose) in mice (up to 128 weeks in males and up to 142 weeks in females) and rats (up to 111 weeks in males and females) there was no evidence of drug related carcinogenesis. Mutagenicity tests of dipyridamole with bacterial and mammalian cell systems were negative. There was no evidence of impaired fertility when dipyridamole was administered to male and female rats at oral doses up to 500 mg/kg/day (63 times* the maximum recommended daily human oral dose). A significant reduction in number of corpora lutea with consequent reduction in implantations and live fetuses was, however, observed at 1250 mg/kg/day.
*Calculation based on assumed body weight of 50 kg.
Pregnancy Category B Reproduction studies performed in mice and rats at daily oral doses of up to 125 mg/kg (15.6 times* the maximum recommended daily human oral dose) and in rabbits at daily oral doses of up to 20 mg/kg (2.5 times* the maximum recommended daily human oral dose) have revealed no evidence of impaired embryonic development due to dipyridamole. There are, however, no adequate and well controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human responses, this drug should be used during pregnancy only if clearly needed.
*Calculation based on assumed body weight of 50 kg.
Nursing Mothers Dipyridamole is excreted in human milk.
Pediatric Use Safety and effectiveness in children have not been established.

ADVERSE REACTIONS Adverse reaction information concerning intravenous Persantine® (dipyridamole USP) is derived from a study of 3911 patients in which intravenous Persantine was used as an adjunct to thallium myocardial perfusion imaging and from spontaneous reports of adverse reactions and the published literature.
Serious adverse events (fatal and non-fatal myocardial infarction, severe ventricular arrhythmias, and serious CNS abnormalities) are described above (see WARNINGS).
In the study of 3911 patients, the most frequent adverse reactions were: chest pain/angina pectoris (19.7%), electrocardiographic changes (most commonly ST-T changes) (15.9%), headache (12.2%), and dizziness (11.8%).
Adverse reactions occurring in greater than 1% of the patients in the study are chest pain/angina pectoris (19.7%), headache (12.2%), dizziness (11.8%), electrocardiographic abnormalities/ST-T changes (7.5%), electrocardiographic abnormalities/extrasystoles (5.2%), hypotension (4.6%), nausea (4.6%), flushing (3.4%), electrocardiographic abnormalities/tachycardia (3.2%), dyspnea (2.6%), pain unspecified (2.6%), blood pressure lability (1.6%), hypertension (1.5%), paresthesia (1.3%), fatigue (1.2%).
Less common adverse reactions occurring in 1% or less of the patients within the study included:
Cardiovascular System: Electrocardiographic abnormalities unspecified (0.8%), arrhythmia unspecified (0.6%), palpitation (0.3%), ventricular tachycardia (0.2% see WARNINGS), bradycardia (0.2%), myocardial infarction (0.1% see WARNINGS), AV block (0.1%), syncope (0.1%), orthostatic hypotension (0.1%), atrial fibrillation (0.1%), supraventricular tachycardia (0.1%), ventricular arrhythmia unspecified (0.03% see WARNINGS), heart block unspecified (0.03%), cardiomyopathy (0.03%), edema (0.03%).
Central and Peripheral Nervous System: Hypothesia (0.5%), hypertonia (0.3%), nervousness/anxiety (0.2%), tremor (0.1%), abnormal coordination (0.03%), somnolence (0.03%), dysphonia (0.03%), migraine (0.03%), vertigo (0.03%).
Gastrointestinal System: Dyspepsia (1.0%), dry mouth (0.8%), abdominal pain (0.7%), flatulence (0.6%), vomiting (0.4%), eructation (0.1%), dysphagia (0.03%), tenesmus (0.03%), appetite increased (0.03%).
Respiratory System: Pharyngitis (0.3%), bronchospasm (0.2% see WARNINGS), hyperventilation (0.1%), rhinitis (0.1%), coughing (0.03%), pleural pain (0.03%).
Other: Myalgia (0.9%), back pain (0.6%), injection site reaction unspecified (0.4%), diaphoresis (0.4%), asthenia (0.3%), malaise (0.3%), arthralgia (0.3%), injection site pain (0.1%), rigor (0.1%), earache (0.1%), tinnitus (0.1%), vision abnormalities unspecified (0.1%), dysgeusia (0.1%), thirst (0.03%), depersonalization (0.03%), eye pain (0.03%), renal pain (0.03%), perineal pain (0.03%), breast pain (0.03%), intermittent claudication (0.03%), leg cramping (0.03%).
Caution Federal law prohibits dispensing without prescription.

DU PONT
PHARMA
Radiopharmaceuticals

Boehringer Ingelheim

Manufactured by
Du Pont Radiopharmaceuticals, Inc.
Manati, Puerto Rico 00701

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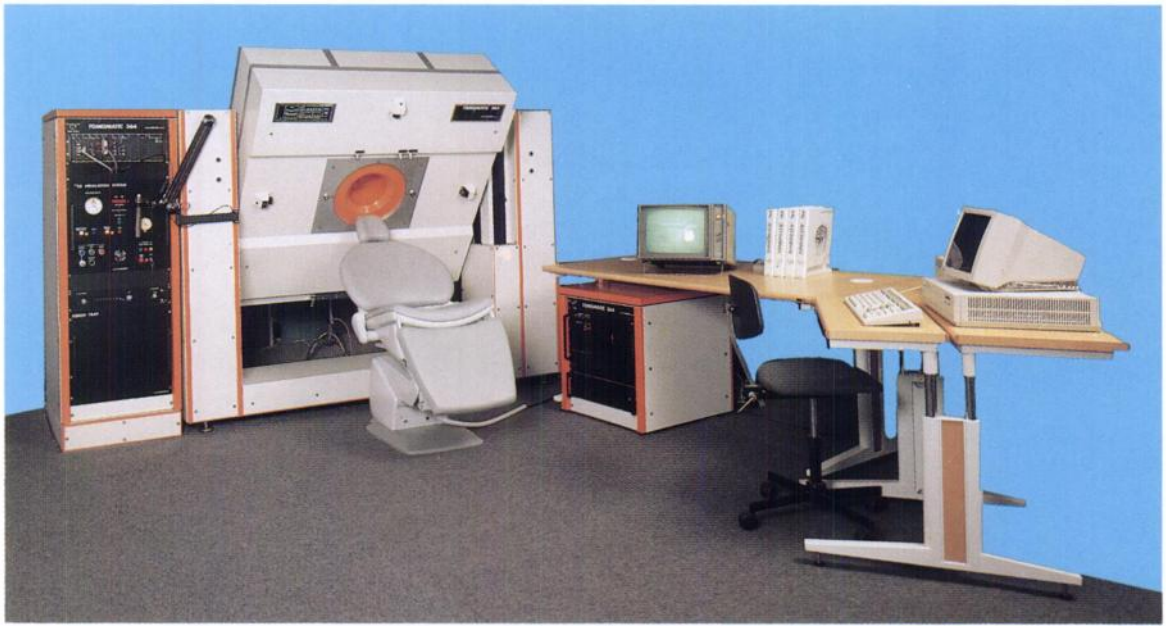
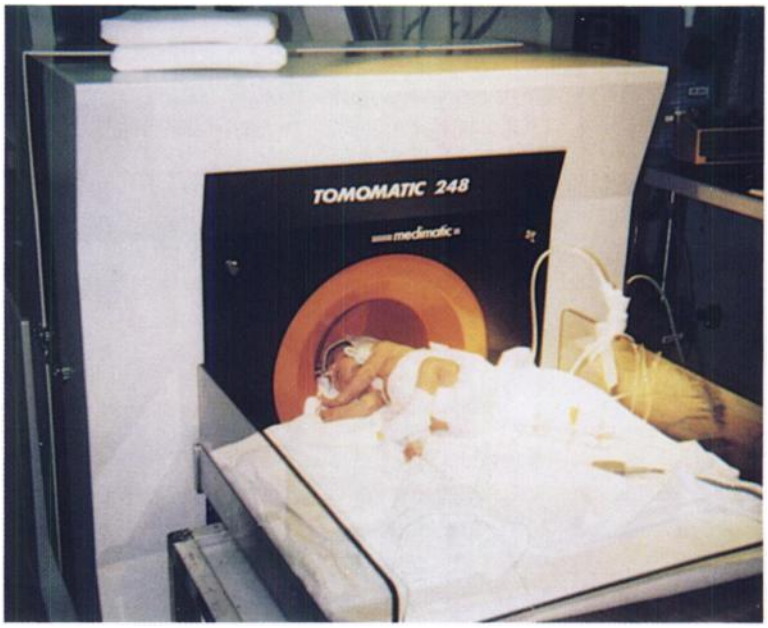
EVOLUTION OF TOMOMATIC DEDICATED BRAIN SPECT SYSTEMS



TOMOMATIC 564 - Dedicated Brain SPECT System



TOMOMATIC 248 - Mobile Dedicated Brain SPECT System specially designed for Neonatal Applications

EVOLUTION OF TOMOMATIC DEDICATED BRAIN SPECT SYSTEMS

Per Rommer, President, Medimatic M.I.D. Inc.

MULTI-CRYSTAL TOMOMATIC SPECT LINE

for

Repetitive and Quantitative rCBF Measurements:

TOMOMATIC 64:	First dedicated multi-crystal SPECT system TOMOMATIC developed in 1978 with the first clinical installation in 1979
TOMOMATIC 564:	Released in 1984
TOMOMATIC 232:	Released in 1985
TOMOMATIC 248:	The first neonatal SPECT in the world. Released in 1991
TOMOMATIC 348:	To be released in 1992
TOMOMATIC 864:	Brain SPECT and whole body SPECT. To be released in 1992

MEDIMATIC's RESEARCH AND DEVELOPMENT DEPARTMENTS

DEDICATED VERSUS MULTI-PURPOSE SPECT

Developments in recent years and continuous improvement in gamma cameras have made it possible to convert those devices to multi-detector SPECT. Such general purpose cameras are now able to produce images of reasonably good quality. Until now, most SPECTS performed in nuclear medicine departments have been for brain research.

Although general purpose SPECTS are common items in major nuclear medicine departments, the use of the dedicated brain SPECT instruments has increased only slowly. Because of an insufficient reimbursement system for SPECT brain scans, other clinical SPECT examinations are performed more frequently in departments of nuclear medicine.

The fundamental principle of dedicated brain SPECT is by no means similar to the principle used in the multi-purpose gamma camera SPECT (multi-detector SPECT). Further development of Kuhl's Mark IV scanner into the more sophisticated TOMOMATIC SPECT has almost revolutionized the SPECT imaging market.

The key consideration for a dedicated brain SPECT is maximum count rate and sensitivity performance. An efficient dedicated brain SPECT requires a count rate and sensitivity that are 10 to 20 times higher than those obtained by conventional rotating 1-, 2-, 3-, and 4-head gamma cameras or similar systems based on the gamma camera principle.

Thus, a quality dedicated SPECT system is distinguished from the conventional gamma camera based system by fulfilling fundamental requirements for the quality of primary information, rather than by refining insufficient statistical data acquisition used to produce cosmetic/filtrated images in transversal, sagittal or coronal sections by refined reconstruction algorithms and image processing systems.

The sensitivity of the TOMOMATIC SPECT of 6 kcps/ml/mCi/slice with 9 x 9 mm spatial resolution obtained by Tc-99, using double focusing collimator technique and high count rates (up to 200 kcps with Xe-133 with a loss of less than 2 percent) is made possible by the multi-crystal technique. A combination of high sensitivity and count rate capability

DEDICATED VERSUS MULTI-PURPOSE SPECT (continued)

enables the TOMOMATIC SPECT device to make quantitative regional Cerebral Blood Flow (rCBF) images which can be repeated every 15 minutes using the Xenon isotope, with data acquisition time of only 4 minutes. Furthermore, this dynamic processing feature is an ultimate requirement for producing kinetic studies of new compounds and ligands.

DEDICATED SPECT SYSTEM DEVELOPMENT

In 1978 the first prototype of a multi-crystal TOMOMATIC SPECT was developed by E. Stokley, Ph.D., of the Southwestern Medical Center, University of Texas, Dallas, et al. This multi-crystal SPECT was taken into clinical routine in 1979 and delivered results which have not been overtaken by other SPECT systems except the TOMOMATIC devices.

At that time, the objective was to develop a three-dimensional method for the imaging of rCBF (regional Cerebral Blood Flow) during activation. A method which earlier successfully led to essential knowledge of the location of the main centers in the brain cortex and their functional activity during rCBF activation measurements was performed laterally and bilaterally by a multi-crystal gamma camera designed by MEDIMATIC called DYNAMATIC 254. This special gamma camera designed with 254 single NaI scintillation crystals used a focusing collimator and high resolution to measure count rates of 1,000,000 cps with a loss of less than 1%.

The clinical studies using Xe-133 were based on either invasive or non-invasive methods. The TOMOGRAPHIC replacement for the DYNAMATIC camera was a multi-crystal rotating four-camera unit system consisting of 4 x 64 single NaI crystal segments divided electronically into four slices. That SPECT, called TOMOMATIC 64, was installed in over 30 hospitals and clinics in the United States, Europe and Japan, where it is still used daily.

A further development in the four-slice TOMOMATIC 64 SPECT led in 1984 to release of the TOMOMATIC 564 based on VAX/DEC computer systems, which provided equal and/or improved results in five slices of the brain taken simultaneously. Dynamic data acquisition performed with data collection of 3.5 million counts in 4.5 minutes was based on Xe-133 or Xe-127 with a resolution of 12 mm during dynamic flow studies.

That improved system, which was created as a high-sensitivity device, could be collimated so intensively that it allowed processing of static images based on Tc-99 and I-123 with spatial resolution down to 6 mm. By 1991 more than ten of these more expensive models had been sold in the United States, Europe and Japan.

During that period, the fan beam collimator, which can perform examinations on premature infants and primates with a spatial resolution down to 3.5 mm, was developed by Douglas Jones, Ph.D. NIMH, Washington, D.C., et al, in 1990, and released by Medimatic for clinical use on premature infants in 1991.

DESIGN FUNDAMENTALS OF DYNAMIC SPECT

MAIN PROBLEM TO SOLVE IN SPECT: Good primary information during data acquisition ensures satisfactory SPECT results from each slice. Insufficient collected primary information may, of course, be compensated for by artificial calculations in the data processing. It is difficult to evaluate the results of those adjustments and corrections in regard to static

imaging based on Tc-99 or I-123 compounds, where it is mainly a question of allocating the time necessary to obtain a statistically sufficient number of counts per slice. The problems of primary data quality become evident when more demanding dynamic data acquisitions by Xe-133 or Xe-127 are involved.

For a slice thickness of 10 mm, a sufficient amount of collected data should be 2 million counts for data acquisition by Tc-99. If the time when the patient may not move is reduced as much as possible, a good time resolution is still required in order to obtain as good a spatial resolution as it is possible to get with the TOMOMATIC SPECT.

In TOMOMATIC SPECT, dynamic data acquisition means data acquisition that produces a SPECT image in a few seconds (30-45 sec.). Such short acquisition time is necessary in order to evaluate the clearance per voxel periodically with sufficient statistical certainty to allow each data acquisition during 3-5 periods to be used to calculate the blood flow per voxel (ml/min./100 g tissue), i.e. quantitative rCBF. Only dedicated brain SPECT systems such as the TOMOMATIC systems can achieve this, and consequently they are the only real potential competitors to the PET systems.

In contrast, static data acquisition involves collecting specific numbers of counts that are statistically sufficient to reveal even very small areas (voxels) of low activity. While the relative change in the collected number of counts forms the basis of the calculations in dynamic data acquisition, static data acquisition involves a specific number of counts that are reliable for image information (in this case 2 million counts).

The high sensitivity of the instrument is a decisive factor in determining data acquisition time. In that regard, TOMOMATIC is the only SPECT instrument able to collect a sufficient number of counts in a very short time. That ability results from the double-focusing collimator technique used in the TOMOMATIC SPECT. High SPECT sensitivity combined with an intense collimation provides a high spatial resolution that allows even very small non-active regional areas of the studied object to be revealed.

But it is not only spatial resolution that is important. Time resolution is also of great importance, especially for dynamic data acquisitions in which a large amount of activity is used to establish the rate of the regional clearance. At this point it should be noted that the TOMOMATIC SPECT systems do not allow any false adressess from the individual rotating camera surface at high count rates, which can happen when using the gamma camera technique of the multi-purpose SPECT systems. In the TOMOMATIC SPECT instruments each camera unit has been built with multicrystals covered by individual photomultiplicators to ensure that each arriving photon that passes the collimator unit is slowed down by the individual crystals. That means that the position of the crystals is unambiguously characterized even at very high count rates.

If the fan beam collimator technique and high count rates are used in a double-focusing collimator configuration, a small collimator surface is projected on a large individual scintillation crystal surface by means of which a large number of counts limited to a single crystal can be used. Erroneous positioning can be avoided whether the count rate is small or large. This is the principle used in the new TOMOMATIC SPECT systems, as opposed to the new multi-detector gamma camera SPECT systems, where only one crystal can be divided electronically, which can result in errors in electronical positioning. Additionally, mechanical non-alignment problems may occur. That happens especially if the rotation speed is increased to a level of 6 turns per minute, which is necessary for dynamic quantitative measurement of blood flow. Not even the finest and most sophisticated computer correction programs will be able to correct such errors.

That is the reason why MEDIMATIC has always insisted on a single crystal technique and a double focusing standard, as well as a

fan beam collimator technique. MEDIMATIC has solved the SPECT problems by developing a series of SPECT instruments since the first TOMOMATIC 64 was launched in 1978. The series comprises seven different dedicated brain SPECT scanners, each having its own price range. They have all been developed based on Prof. Niels A. Lassen's work in the field of clinical neurophysiology. The latest model is TOMOMATIC 864, which is also used for other kinds of SPECT than brain SPECT due to its variable aperture.

CLINICAL IMPACT OF TOMOMATIC SPECT: The dedicated brain SPECT instruments were designed with the specific purpose of imaging cerebrovascular conditions. Eighty to 90% of all neurologically conditioned diseases are caused by insufficient regional circulation in the brain. Until the launching of TOMOMATIC SPECT, objective examination methods, e.g. screening, were in great demand. In this respect, especially within apoplexy research, it has been important for quantitative flow to be determined, mainly using tests where autoregulation conditions could be examined and where the diamox test could reveal the functional capability of the collateral blood flow in case of blocked blood afflux to large brain segments.

In migraine research, quantitative flow measurement during and after a migraine attack is of great importance. Only dynamic measurements are able to indicate the relevant treatment. In contrast, static high resolution studies are of great importance in the diagnosis of diseases like Parkinsons, Alzheimers and other form of dementia.

In epilepsy research, surgical treatment of the temporal lobe after a TOMOMATIC SPECT has marked a new era in the treatment of this disease.

The development of routine clinical diagnosis based on dynamic and static high resolution SPECT studies now awaits only improved patient reimbursement, and the news about the effectiveness of the TOMOMATIC SPECT system to reach some conservative groups of doctors.

The most recent studies on primates and premature infants indicate even more important neurological applications, in which only the TOMOMATIC SPECT, which is the current leader and has no competitors, can demonstrate the value of the dedicated brain SPECT.

INDUSTRIAL IMPACT ON THE TOMOMATIC SPECT IN A COMPETITIVE MARKET: The SPECT manufacturer's market has not been particularly stable in the past decade. Today, only Medimatic, which has enjoyed more than 20 years of stability in the field of brain diagnostic equipment and which is owned by the same group as when it was founded, is able to offer a series of SPECT devices for routine clinical application.

So far Medimatic has not encountered any further competition concerning time and spatial resolution. Looking back on the 12 years of intensive SPECT research shows that Medimatic's stress on developing SPECT systems based on individual slice performance due to multi-crystals was the right choice. That is what has led to the reliable primary information that can make the dedicated brain SPECT a genuine clinical tool in neurology and neurological surgical treatment. It is a method that, when used together with CT or MR information, can provide indications on treatment requirements in the early stages of a disease.

FUTURE TOMOMATIC SPECT

New TOMOMATIC multi-crystal SPECT models will be released during 1992-93, once the initial clinical tests have been completed:

TOMOMATIC 348M: A mobile version with 144 scintillation channels optimized for high sensitivity and a count rate appropriate for dynamic measurements on the adult brain, as well as on the brain of premature infants and primates. Resolution down to 5 mm using fan beam collimator.

TOMOMATIC 864: A stationary 8-slice device equipped with 768 Nal crystal elements arranged in four rotating detectors and prepared for a special fan beam collimator technique with resolution of 5 to 6 mm in brain mode and 10 to 12 mm spatial resolution in heart mode. This model carries an adjustable aperture which can change the field of view to optimize the aperture for different types of examinations and collimator utilization.

BREAKING THE VICIOUS CIRCLE

At the beginning of 1992 it is amazing to observe the conservatism continually displayed by diagnosticians, i.e. neurologists, vascular surgeons, neurosurgeons and psychiatrists, in the leading hospitals and clinics. They are hesitant to order clinical examinations based on SPECT and consequently reluctant to support the purchase of special SPECT devices by by departments of nuclear medicine.

Unfortunately, there is still little or no demand for examination results based on data and image information of regional physiological states rather than qualitative description or imaging of the morphologic structures. That is why it is still a challenge for nuclear medicine specialists to work on convincing claimants and increasing the demand, before expensive dedicated brain SPECT instruments can be purchased.

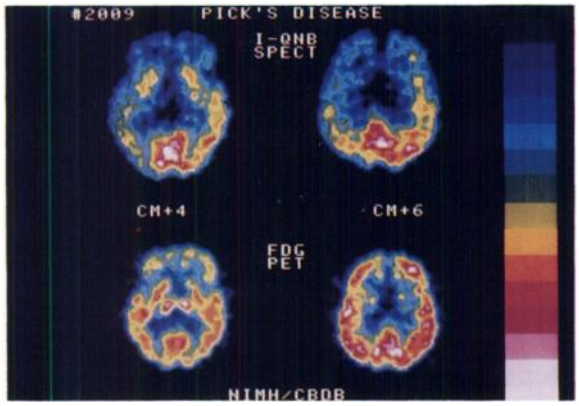
That has already caused the departments of nuclear medicine to continue in the almost unbreakable vicious circle of buying "low-cost general purpose multi-detector SPECT devices which do not provide applicable and satisfactory diagnostic results to the groups of claimants for their decisive process of correct patient treatment." The accepance of irrelevant diagnostic devices reduces demand for brain SPECT examinations, and the limited number of patients means that the departments of nuclear medicine may have to continue with the insufficient multi-purpose instruments.

In future, progressive nuclear medicine departments will purchase instruments (cheap or expensive) only if they are convinced they can fulfill latent needs that will exist and increase in the future. Consequently, in future departments of nuclear medicine will have to equip themselves with special instruments dedicated to unique specialties such as the brain, the torso and/or the extremities.

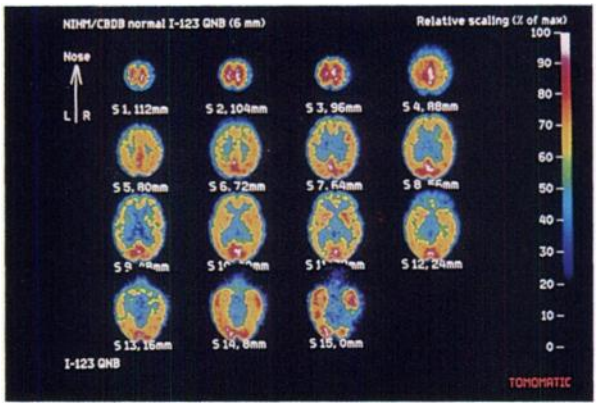
IN SUMMARY:

To save money by a low-cost purchase which does not correspond to a no-cost purchase can easily be an investment error. It is better to obtain the understanding of claimant groups if you are responsible for nuclear medicine before purchasing an insufficient SPECT for general purpose. TOMOMATIC SPECT has been dedicated to the brain and the individual brain slices from the outset.

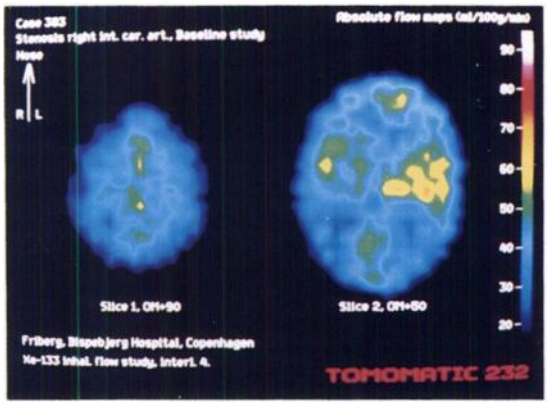
TOMOMATIC CLINICAL IMAGES

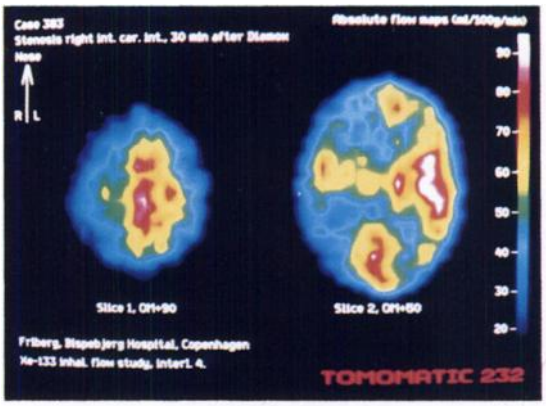


"Image of the Year" SNM Meeting 1989
PET quality at SPECT prices!
TOMOMATIC 564 at N.I.M.H.

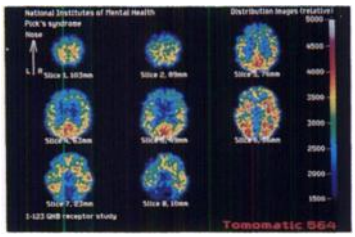


6 mm 15 slice recording
TOMOMATIC 564 at N.I.M.H.

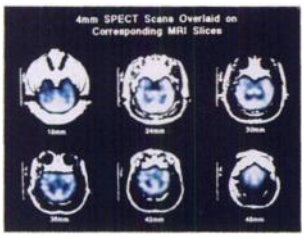




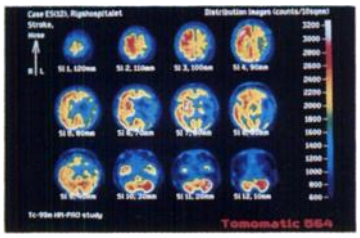
Repetitive xenon studies before (left) and after (right) Diamox - TOMOMATIC 232



Muscarinic neuro-receptor
study - IQNB-123,
TOMOMATIC 564 at N.I.M.H.

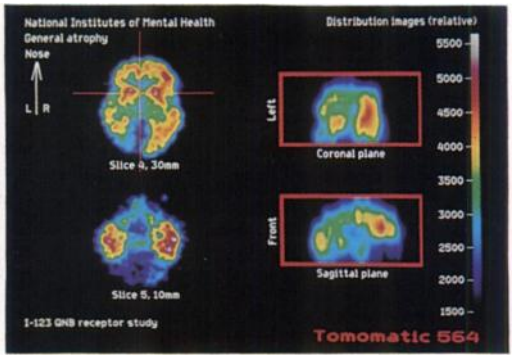


3.5 mm resolution primate
study overlaid on the
corresponding MRI image
TOMOMATIC 564 at N.I.M.H.

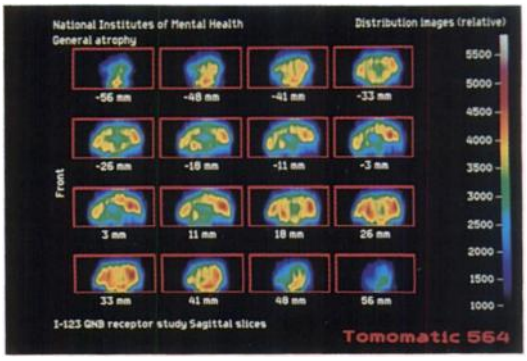


9 mm resolution Tc-99 HMPAO
TOMOMATIC 64

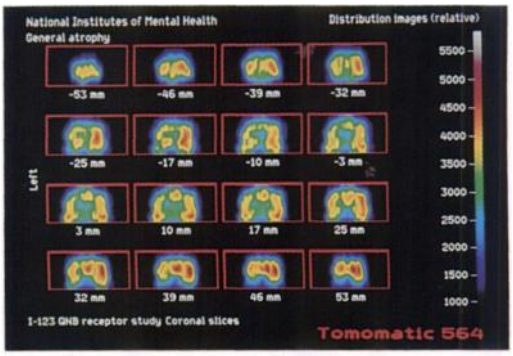
TOMOMATIC CLINICAL IMAGES



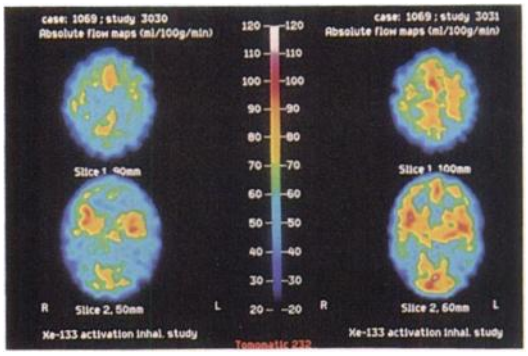
Dynamic selection of levels for coronal and sagittal cross-sections based on one or more transversal slices.



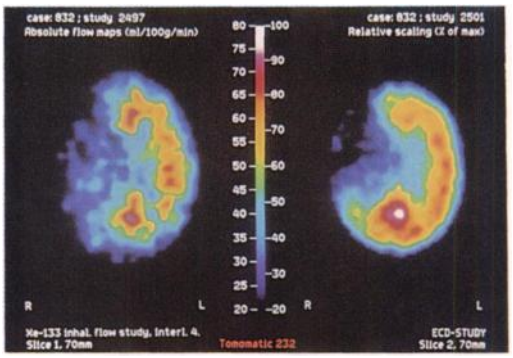
Simultaneous display of multiple coronal slices for easy localization of abnormalities



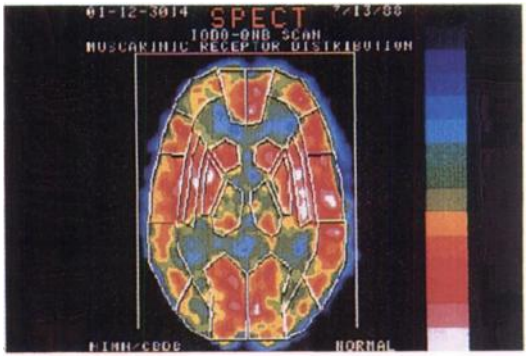
Simultaneous display of multiple sagittal slices for easy localization of abnormalities.



Xe-133 activation study. Left: Baseline study, resting with eyes closed. Right: Open eyes and right hand movement.



Comparative study using ECD (right) and Xe-133 (left)



Statistical calculations with user-defined geometrical or irregular regions of interest (ROI) sets automatically adapted to actual slice position and size.

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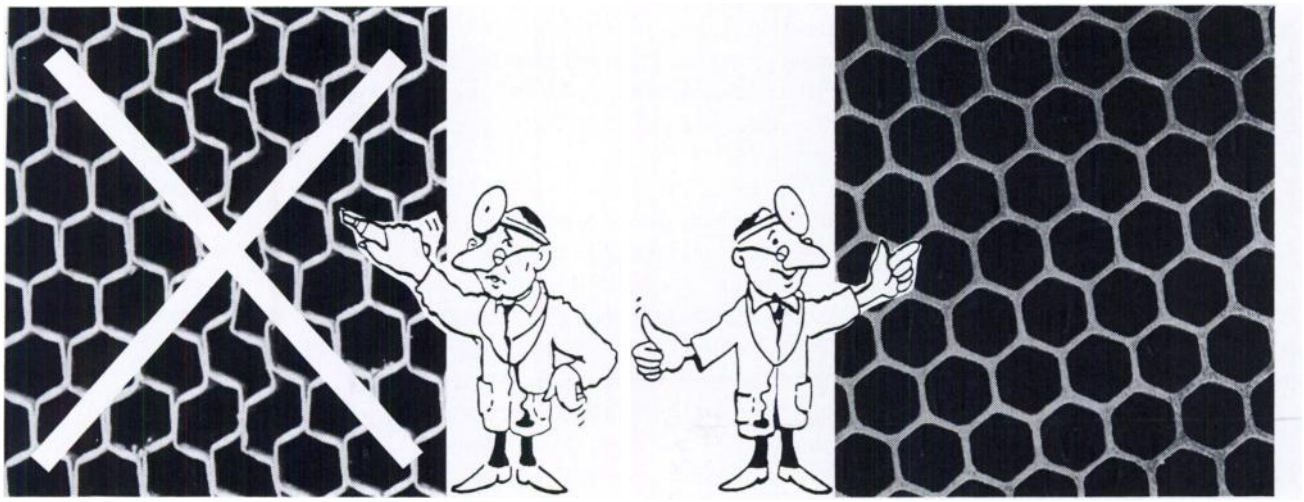

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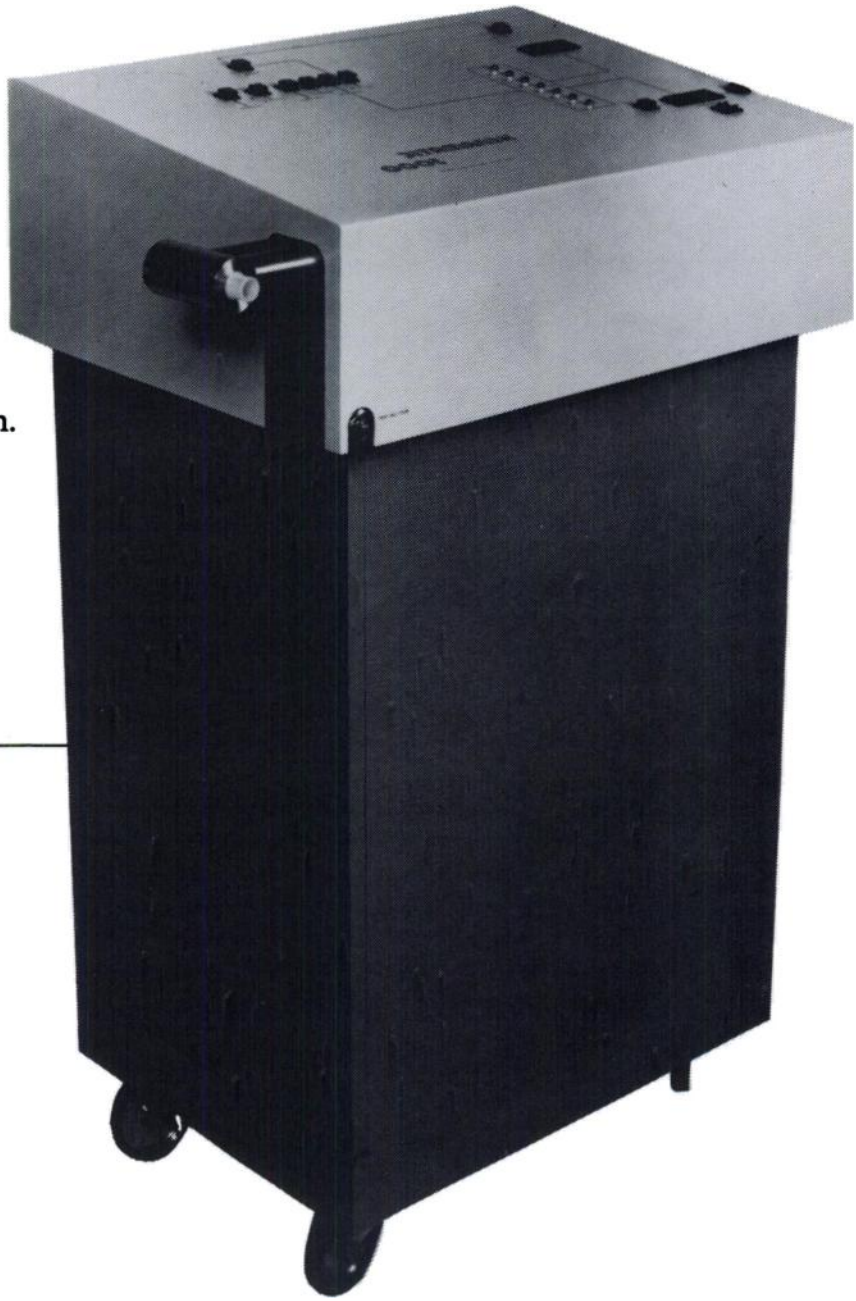

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Continuing Medical Education Primary Focus of The Society of Nuclear Medicine's 39th Annual Meeting June 9-12, 1992 Los Angeles, California

The 39th Annual Meeting of The Society of Nuclear Medicine will be held in Los Angeles, California on Tuesday, June 9 through Friday, June 12, 1992. The Los Angeles Convention Center is the site of most of the educational activities for this meeting.

CONTINUING EDUCATION ACTIVITIES

A primary focus for every SNM Annual Meeting is the Continuing Education activities that are offered for physicians, scientists, pharmacists, and technologists.

This year we are pleased to offer 11 categorical seminars and 41 continuing education courses. There will also be a Nuclear Medicine Review Course which is geared for the nuclear medicine resident preparing for the ABNM boards and others who wish to refresh their knowledge for practice in nuclear medicine.

All of the categorical seminars will take place on Monday, June 8 from 8:30 am-2:30 pm. All other continuing education sessions will occur over the dates of the meeting.

This year, for the first time, continuing medical education credits will be offered along with VOICE credits for technologist programs. The Scientific and Teaching Sessions Committee invites all physicians to participate.

The Society of Nuclear Medicine is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to sponsor continuing medical education for physicians.

The Society of Nuclear Medicine is approved by the American Council on Pharmaceutical Education as a provider of continuing pharmaceutical education.

Technologist Section courses are approved for continuing education credit by the Technologist Section of The Society of Nuclear Medicine under the criteria and guidelines established by the Council on the Continuing Education Unit.

TECHNICAL EXHIBITS

Another important component of the meeting is the technical exhibition, where the most advanced products and services for the nuclear medicine practitioner will be displayed. Attendees will have the opportunity to speak with technical experts and to see demonstrations of new equipment in an atmosphere free from the pressures of their busy practices.

Suppliers to the nuclear medicine community traditionally take advantage of the Society's Annual Meeting to showcase the innovations developed over the past year and to introduce new products. They make their greatest effort to impress and influence their most important customers—our attendees.

This year will be no different: several long-time exhibitors have increased their space, and we anticipate an even larger show, with more exhibitors than 1991's record-breaking meeting.

SPECT BRAIN IMAGING PRACTICUM

This year's special innovation is a hands-on brain SPECT workshop for physicians desiring to optimize their practice and interpretative skills in this area. These workshops will be offered twice each day on Wednesday and Thursday, June 9-10, 1992, 8:30 am - 10:00 am and 3:30 pm - 5:00 pm. This workshop will have a maximum of 30 registrants for each session, so early sign-up is strongly suggested. Registration materials for this SPECT workshop will be included in the matrix mailing.

For further information contact:

The Society of Nuclear Medicine
Department of Meeting Services
136 Madison Avenue
New York, New York 10016-6760
(212) 889-0717
Fax: (212) 545-0221

Did You Receive

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Housing Form
was included with your
December *JNM*

If you have missed any of these forms, or require additional information, please contact us at the phone number, fax number and/or address given below.

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Attn: Meeting Services Dept.

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The Society of Nuclear Medicine's 39th Annual Meeting

Tuesday, June 9 - Friday, June 12, 1992
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Policy — *The Journal of Nuclear Medicine* accepts classified advertisements from medical institutions, groups, suppliers, and qualified specialists in nuclear medicine. Acceptance is limited to Positions Open, Positions Wanted, and Equipment. We reserve the right to decline, withdraw, or modify advertisements.

Rates for Classified Listings — $19.00 per line or fraction of line (approx. 50 characters per line, including spaces). Please allow 28 characters for the first line which will appear in capital letters. Special rates for *SNM members* on Positions Wanted: $10.00 per line. *Note: Box numbers are available for the cost of the 2 lines required.*

Rates for Display Ads — Agency commissions are offered on display ads only.

Full page	$1400	Quarter page	$550
Half page	825	Eighth page	450

Publisher-Set Charges — Page $100; half page $75; quarter page $40; eighth page $25.

Terms — Payment must accompany order. Make checks payable, in U.S. dollars on U.S. banks only, to: The Society of Nuclear Medicine.

Deadline — First of the month preceding the publication date (January 1 for February issue). Please submit classified listings typed double spaced. No telephone orders are accepted.

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Positions Available

Faculty

ASSISTANT PROFESSOR, DIVISION OF NUCLEAR MEDICINE—University of Kentucky, Lexington is seeking applicants in Nuclear Medicine. Candidates should be Board certified or eligible in Nuclear Medicine. The successful candidate will be expected to have expertise in the clinical activity of the division as well as participate in research and teaching. Please address replies along with a CV to Dr. U. Yun Ryo, M.D., Ph.D., Professor and Director, Division of Nuclear Medicine, Department of Diagnostic Radiology, University of Kentucky Medical Center, Lexington, KY 40536-0084. UK is an Equal Opportunity Employer.

Fellowship

PEDIATRIC NUCLEAR MEDICINE FELLOWSHIP position in a 270-bed preeminent pediatric center. 2,800 imaging procedures per year encompassing all aspects of nuclear medicine with emphasis on teaching and research. Staff includes three full-time ABNM, ABR certified practitioners. Four state-of-the-art gamma cameras and image processing and display system with networking. Salary 30-45K per annum. ABNM/ABR eligibility or certification required. Contact: James J. Conway, MD, The Children's Memorial Hospsital, 2300 Children's Plaza, Chicago, IL 60614. (312) 880-4416.

SUNY, Stony Brook, Division of Nuclear Medicine. FELLOWSHIP position available for July 1992. For applications call (516) 444-2470.

Physician

Oregon Health Sciences University, Portland, Oregon invites applications for a FACULTY POSITION available immediately either part time in NUCLEAR MEDICINE or full time divided between nuclear medicine and another division of diagnostic radiology. Position requires that radiologist be certified by either American Board of Radiology (Special Competence in Nuclear Radiology) and/or American Board of Nuclear Medicine. Send CV and references to William Weidner, MD, Chairman, Diagnostic Radiology, UHN-72, Oregon Health Sciences University, Portland, OR 97201-3098. OHSU is an affirmative action equal opportunity employer.

MEDICAL DIRECTOR. Department of Nuclear Radiology, Meridia Hillcrest Hospital has an imediate full-time position available in the nuclear medicine department. Candidates should be board certified in nuclear medicine or radiology with special competence in nuclear medicine. Meridia Hillcrest is an acute care community hospital of 320 beds and a radiology staff of eight. The nuclear medicine department has 5 gamma cameras (4 with SPECT capability) including the Picker Prism Triple-Head. The technical staff consists of 9 technologists. Current volumes annually are 7,000 imaging and 30,000 radioassay procedures. Please sent curriculum vitae to Ronald J. Ross, Director, Department of Radiology, Meridia Hillcrest Hospital, 6780 Mayfield Road, Cleveland, OH 44124. (216) 449-4595.

NUCLEAR MEDICINE PHYSICIAN. The University of California, Davis, School of Medicine has a full-time faculty position available in the nuclear medicine division of the Department of Radiology. Appointment will be at the assistant/associate/full professor level (in residence or professor of clinical radiology series). Candidates must be board certified in nuclear medicine, eligible for licensure in California, and have an academic background in nuclear medicine. Since this position will be open until filled please forward curriculum vitae, a letter outlining background and interests in teaching/research, and the names of five references as promptly as possible. Applications will not be accepted after March 31, 1992. Reply to: William E. Brant, MD, Chairman, Search Committee for Nuclear Medicine Physician, Department of Radiology, 2516 Stockton Boulevard, Ticon II Building, Sacramento, California 95817. The University of California is an Equal Opportunity/Affirmative Action Employer and encourages applications from members of minority groups and women.

NUCLEAR MEDICINE PHYSICIAN. Unique staff position available in the Department of Nuclear Medicine at William Beaumont Hospital. Academically oriented department with 7.5 ABNM full-time physicians offers residency and technologists training. Instrumentation includes PET and 17 cameras (50% SPECT). Support staff of radiopharmacists, physicists, computer programmers/operators, and scientists facilitate patient care, research, and RIA. Seeking ABNM-certified physician with less than 5 years post-training. Interests must include teaching and research. Position available 5/1/92. Contact Howard Dworkin, MD, Director, Department of Nuclear Medicine, William Beaumont Hospital, 3610 W. 13 Mile Rd., Royal Oak, MI 48073.

NUCLEAR MEDICINE PHYSICIAN: Immediate opening for radiologist with Nuclear Boards or Special Competency to head growing Nuclear Department in 330-bed community hospital in Salinas, California, 100 miles south of San Francisco, 15 miles from Monterey Bay. Eleven amiable radiologists in comfortable practice which includes both in- and outpatient radiology. Single-head SPECT camera, LFOV whole body scanner, SFOV for backup and portables, all linked to ADAC PEGASYS computer system. Must be willing and able to cover other areas of Diagnostic Imaging. Competitive first year salary; three years to full partnership; excellent benefits. Send inquiries to Richard L. Mattson, M.D., 515 E. Romie Lane, Salinas, CA 93901, (408) 424-8041.

NUCLEAR MEDICINE PHYSICIAN position available for a Board Certified (ABNM) physician to join an active community hospital based practice. This is an entry level position and an individual with an internal medicine background is preferred. Send CV and references to William Ruppel, M.D., Director, Nuclear Medicine, Huntington Hospital, Huntington, NY 11743.

Physicist

PHYSICIST. The University of Pittsburgh Medical Center, Department of Radiology, is seeking a full-time Nuclear Medicine Physicist. The candidate must be Board certified or Board eligible, and possess a Ph.D. in Physics/Medical Physics. The position involves physics support for the clinical activities of a large, academic nuclear medicine program and includes quality control, teaching of residents, physicians, and other scientists in nuclear medicine and involvement in support activities of nuclear medicine related research. The applicants are expected to have a good working knowledge of gamma cameras, SPECT technology, and computers. The physicist will be part of a clinical team dedicated to high quality and innovative clinical nuclear medicine. Faculty rank will be based on previous experience and salary and fringe benefits are very competitive. Inquiries and curriculum vitae should be addressed to: Manual L. Brown, MD, Division of Nuclear Medicine, University of Pittsburgh Medical Center, DeSoto at O'Hara Streets, Pittsburgh, PA 15213. University of Pittsburgh is an Affirmative Action/Equal Opportunity Employer.

Technologist

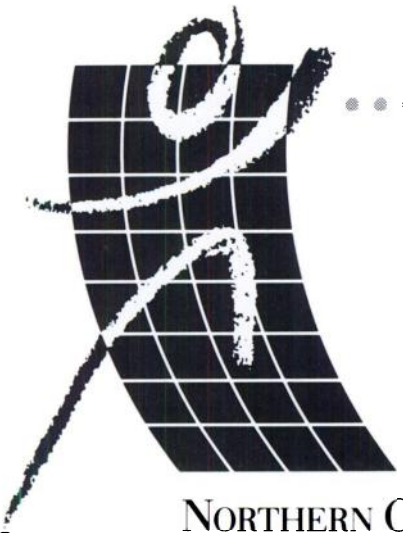
SUPERVISING NUCLEAR MEDICINE TECHNOLOGIST for San Francisco Bay Area outpatient practice. Requires 4 years experience with 2 years supervisory experience and registry. We offer a diverse range of nuclear medicine services including SPECT, dual photon absorptiometry and body composition studies, radioimmunoassay, and radionuclide therapy. Main laboratory location across the street from the University of California in San Francisco. Satellite laboratories in Marin County and Alameda, California. Excellent salary and benefits. Contact: Kathleen A. Meier or Malcolm Powell, M.D. at (415) 664-7400.

Memorial Hospital, a division of the Sisters of Charity of Nazareth Health Corporation, a 365-bed community hospital has a full-time position for a registered or registry eligible TECHNOLOGIST. State-of-the-art equipment including two GE starcam 4000 XRT, two Sieman Orbiter 75 WAM, two MDS A3 and a Siemans LEM + camera. Approximately 3800 studies per year with a heavy cardiac load. Staff includes full-time Harvard physician, three additional technologists, and support staff. Competitive salary commensurate with experience and an excellent fringe benefit package. Ideal for a technologist who enjoys working in a top caliber environment using modern equipment and the latest procedures in a community hospital setting. Please send resumé to Debbi Honey, RN, BSN, Human Resources, 2525 Desales Avenue, Chattanooga, TN 37404, (800) 476-6785. Title VI/Section 504/EEOC.

NUCLEAR MEDICINE TECHNOLOGIST. The Mallinckrodt Institute of Radiology at Washington University Medical Center, St. Louis, MO, has an immediate opening for a F/T registered or registry eligible technologist. Progressive department with excellent benefit package. Interested applicants call Kathleen Johnson-Brunsden at (314) 362-2808. Affirmative Action/Equal Opportunity Employer. M/F/H/V.

Positions Wanted

ABNM eligible (in June 1992) M.D., graduating from highly prestigious medical school with varied Nuclear Medicine experience, including Nuclear Cardiology and SPECT, seeking full time attending position. Call (212) 360-1781 or write: Box 301, The Society of Nuclear Medicine, 136 Madison Avenue, New York, NY 10016-6760.



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Qualifications include successful completion of an AMA approved Nuclear Medicine training program and 5 years nuclear medicine work experience. Additional requirements include Nuclear Medicine Technology Board Certification, ARRT and California Nuclear Medicine registrations, as well as current CPR certificate. A BS in Engineering or Computer Science is preferred.

Duties will include preparing patients, performing exams, processing images, and may include supervision of techs and office staff. Applicants with previous P.E.T. technologist experience will be given immediate consideration.

P.E.T. Technologist/Nurse

Qualifications include successful completion of AMA approved Nuclear Medicine and accredited RN training programs. Additional requirements include Nuclear Medicine Technology Board Certification, ARRT and California Nuclear Medicine registrations, current CPR certificate, as well as a California Nursing License.

Duties will include educating patients, preparing patients and performing P.E.T. exams.

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Qualifications include a BS or MS in Chemistry and a basic understanding of radiation physics. Work experience in a clinical P.E.T. radiochemistry laboratory, including the operation of a medical cyclotron and automated radiochemical synthesis modules, is preferred.

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In return for your expertise, RAS offers a competitive salary/benefits package, a sign-on bonus and relocation assistance. Our Northern California location features affordable housing and a wide range of recreational activities, plus close proximity to San Francisco, Lake Tahoe and Yosemite. For consideration, send your resume to: **RAS, Dept. P.E.T., 1800 "I" Street, Sacramento, CA 95814-3056.** EOE.

Radiological Associates of Sacramento

(Hartford, CT)

NUCLEAR MEDICINE TECHNOLOGIST

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In addition to the hire bonus, we offer a revised competitive salary scale, plus an excellent paid benefits program and free secure parking. Relocation assistance is available. Please send your resume to **Colette Austin-Greene, Human Resources, Mount Sinai Hospital, 500 Blue Hills, Avenue, Hartford, CT 06112.**

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Currently, an opportunity exists for a Nuclear Medicine Technologist who is registered or registry-eligible. Working in a department equipped with five gamma cameras (four with SPECT capabilities) and five computers all slated for networking, this position works with a variety of cases, including cardiovascular, neurological and orthopaedics.

In addition to challenge and diversity, this position offers a competitive salary, generous benefits, strong support for continuing education and interview/ relocation assistance.

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American Board of Science in Nuclear Medicine Announces

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- **Nuclear Medicine Computer Science**
- **NMR Physics and Instrumentation**
- **Radiopharmaceutical and Radiochemistry Science**
- **Radiation Protection**

June 8, 1992
Los Angeles, Calfiornia

For details write:

American Board of Science in Nuclear Medicine
c/o The Society of Nuclear Medicine
136 Madison Avenue
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School of Medicine PET Center

The WVU School of Medicine invites applications for the staffing of its new PET Center expected to open in 1993. Openings exist for a **Center Director** and several other members of the professional staff (e.g., Radiochemists, Radiophysicists). The Director, who will report to the Dean of the School of Medicine, should hold an M.D., Ph.D., or equivalent degree and must have experience with PET technology, particularly its research applications. The other members of the professional staff will be selected by the Director to complement his or her own expertise. In each case, salary and level of academic appointment will be commensurate with experience. We expect to appoint the Director approximately one year before opening the Center to provide him or her with the opportunity of participating in the planning process.

This search will remain active until the positions are filled, and thus there are no formal application deadlines. However, those applications received by April 15, 1992 will be assured of consideration during the first cycle of review. Applicants should send a Curriulum Vitae, a summary of professional goals, and the names of three references to:

George A. Hedge, Ph.D.
Chairman, PET Center Search Committee
Associate Dean for Research and Graduate Studies,
and E.J. Van Liere, Professor
West Virginia University School of Medicine
2267 Health Sciences South
Morgantown, WV 26506

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Fourth Conference on Radioimmunodetection and Radioimmunotherapy of Cancer

September 17-19, 1992, Princeton Marriott, NJ

Conference Chairmen:
D.M. Goldenberg, Sc.D., M.D.
Center for Molecular Medicine and Immunology
S.E. Order, M.D., Sc.D.
Robert Wood Johnson Medical School
Cooper Hospital/University Medical Center.

Abstract Deadline is May 15, 1992

Abstracts may be Submitted on:
Radiochemistry of antibodies * Physics and dosimetry of radiolabeled antibodies * Radiation biology * Experimental studies of targeting with monoclonoal antibodies * Clinical studies of radioimmunodetection of cancer * Experiemental and clinical radioimmunotherapy * Reengineering of monoclonal antibodies * Host responses to monoclonal antibodies

Abstract forms and information:
CMMI, One Bruce Street, Newark, NJ 07103
Telephone (201) 456-4600/Telefax (201) 456-7047
Registration fee: $400, $470 after July 1.

NUCLEAR MED TECHS

Backed by a dynamic, future-directed outlook, the Novus Health Group has gained a strong position of leadership in the Fox Valley health care community. Both of our member facilities–Theda Clark Regional Medical Center and Appleton Medical Center– have positions available for skilled Nuclear Med Techs who are eager to join sophisticated departments that emphasize Nuclear Cardiology. Both departments boast a firm commitment to total quality management and welcome your input into the decision-making/operations process.

The candidate selected for Appleton Medical Center will join a department equipped with two SPECT gamma cameras and one portable camera. The newest SPECT system is less than one year old.

Theda Clark Regional Medical Center offers a department equipped with two gamma cameras, one with SPECT and one with a portable camera.

All candidates must be registered or registry eligible with strong communication skills and the proven ability to apply innovative approaches. A background in nuclear cardiology and SPECT is preferred.

In exchange for your expertise, we offer an attractive salary/benefits package and ongoing opportunity for professional growth and enrichment. For confidential consideration, direct your resume in confidence to:

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(414) 738-6248
1818 N. Meade Street
Appleton, WI 54911

THEDA CLARK Regional Medical Center
(414) 729-2903
130 2nd Street
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MONASH
medical centre

Director of Nuclear Medicine

Applications are sought from appropriately qualified medical practitioners for this position. Monash Medical Centre is a 747 bed modern teaching hospital in the south east of Melbourne affiliated with the Monash University Medical School. The Department of Nuclear Medicine is part of the Division of Diagnostic Imaging which is in a physically new facility and provides all services but M.R.I. (for which a submission is in place). The Medical Centre offers tertiary clinical services in all disciplines.

The current staff component within the Department comprises a full-time Director, a part-time Physician in Nuclear Medicine, a full-time trainee Registrar and five Technologists. The new Director appointment can either be a full-time position with the right to private practice or a maximum part-time position with private practice in an arrangement agreed to between the Board of Management and the Monash Medical Centre Diagnostic Imaging Group.

Enquiries regarding further details of this position ought be directed to **Dr Fred Jensen,** Chairman, Division of Diagnostic Imaging on **(613) 550 2200** or **(613) 550 2274.**

Application forms may be obtained from Miss Fay Jones on (03) 550 2745 and ought be returned to Dr Syd Allen, Executive Director – Medical Services, Monash Medical Centre, Locked Bag 29, Clayton, Victoria, 3168, Australia. Closing date for applications is 11th April 1992.

The Monash Medical Centre is an Equal Opportunity Employer and promotes a smoke-free work environment.

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CELEBRATE NUCLEAR MEDICINE WEEK

October 4 – 10

Nuclear Pharmacist

The Pharmacy Department at Kaiser Permanente's Los Angeles Medical Center, a 628 bed tertiary-care, teaching facility, is seeking a highly motivated pharmacist to provide Nuclear Pharmacy services. Candidates must possess a knowledge of the basic principles of radioactive materials and radiation safety and be licensed or eligible for licensure in California.

Responsibilities include conferring with and assisting nuclear medicine personnel in the care and treatment of patients who present for nuclear diagnostic/therapeutic procedures. The selected candidates will provide drug information, drug preparation and distribution of radioactive and non-radioactive pharmacy products. Research and student teaching opportunities are available.

Kaiser Permanente offers an excellent salary and benefits package, including employer paid medical/dental/vision care coverage, dependent care, tax sheltered annuity plan, pension plan, paid educational leave and a generous vacation plan. For immediate consideration, please call or send resume to: **Gail Franklin, Kaiser Permanente, Dept. JOU-108-03/01/92, 1515 N. Vermont Ave., 2nd Floor, Los Angeles, CA 90027-5337, (213) 667-4747.** We are an Equal Opportunity/Affirmative Action Employer.

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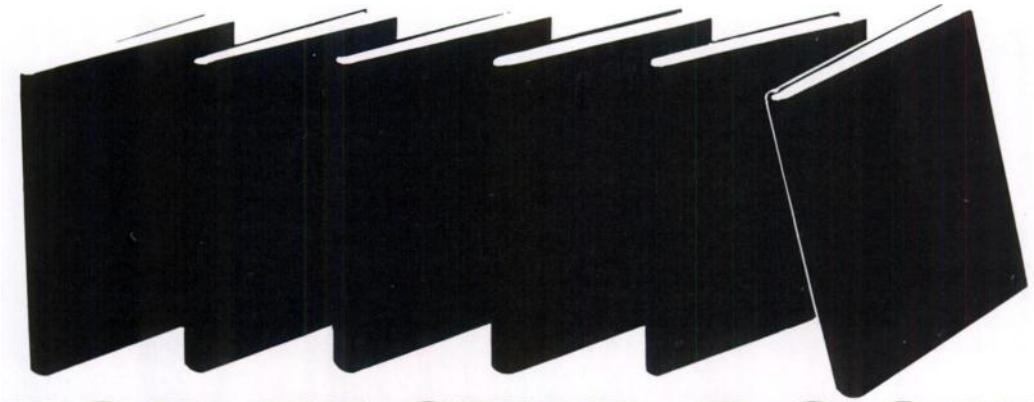

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European Journal of
Nuclear Medicine
Volume 18
Number 10
1991

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European Journal of
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Volume 18
Number 11
1991

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Volume 18 Number 10 1991

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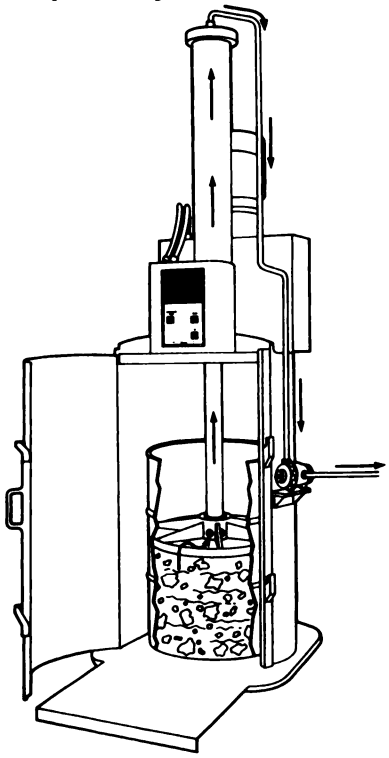
Each description of the products below was condensed from information supplied by the manufacturer. The reviews are published as a service to the professionals working in the field of nuclear medicine and their inclusion herein does not in any way imply an endorsement by the Editorial Board of The Journal of Nuclear Medicine *or by The Society of Nuclear Medicine.*

Pumpout System for Drum Compactors



S&G Enterprises announces a pumpout system for hazardous and other liquids squeezed out during compaction of materials within a drum. Commonly compacted materials that contain liquids include paint filters, cleaning rags, bottles, cans, absorbent papers, and medical wastes. In some cases, up to one-third of a drum's volume may be filled with liquid. The system automatically removes such liquids, increasing the drum's storage capacity and reducing ultimate disposal costs. In operation, as the hydraulic ram shaft descends for compaction, liquids squeezed out of the material flow upward, onto the compaction head. Removal ports in the compaction head collect the liquids, which are then pumped out of the drum through the hydraulic shaft for disposal or treatment. The compactor can be used with the pumpout system turned on or off. The pumpout system is an optional feature available with all Ram Flat compactors. Ram Flat models are designed to compact materials within an 85 gallon drum or smaller. **Bulletin RFPO 791, Lorin Griffith, S & G Enterprises, 5626 N. 91st Street, Milwaukee, WI 53225. (800) 233-3721.**

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Automatic Chemical Mixer

The new CADI XL Automatic Chemical Mixer from Picker International is designed to improve the quality and consistency of radiographic chemistry. The compact mixer can fit beneath a counter top and delivers precisely mixed developer and fixer to one or two film processors. The unit improves safety and quality because chemicals remain factory-sealed and undiluted until it punctures the seal during the mixing process. Because the chemistry is sealed from the factory to the film processor, the possibility of employee contact with processing chemicals is almost eliminated. All necessary safety and handling information is plainly labeled on every container, simplifying OSHA compliance and minimizing right-to-know concerns. All three-part developers begin to break down as soon as they are mixed, losing 40% of their original stability in just two days. The unit requires water pressure of only 15 PSI to precisely mix every batch of chemistry, assuring proper dilution and eliminating human error. The unit uses CADI-PAK factory concentrates that are set directly onto the mixer. The automatic mix cycle operates unattended, enabling employees to load a new batch of chemistry at their convenience. The new batch remains sealed until the current batch is depleted. This improves quality by minimizing chemistry oxidation and breakdown. **Picker International, Inc., P.O. Box 739, Berea, OH 44017. (216) 473-3539.**

Please see page 50A

Medical Online Database

Maxwell Online, Inc. announces Colleague Consult, their new online database. Developed for the new or occasional online database searcher who needs immediate access to current medical information, Colleague Consult leads the user through an online computer search of 25 databases to locate the necessary information. The system asks the user for the author's name, publication title, or subject keyword and then responds in seconds with all relevant citations found. Users can access a wide range of biomedical databases with the system—including MEDLINE—and the complete text of more than 70 medical journals, textbooks, and other publications such as *The New England Journal of Medicine, The Lancet,* and *Annals of Internal Medicine.* Colleague Consult does not require a separate password or account and can be invoked at any time while the searcher is using Maxwell Online's BRS Colleague. **Maxwell Online, Inc., 8000 Westpark Drive, McLean, VA 22102. (703) 442-0900 or (800) 456-7248.**

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Proton Therapy System

Ion Beam Applications, s.a. and Sumitomo Heavy Industries, Ltd. have joined efforts to create a new proton therapy system consisting of a 230 MeV fixed energy cyclotron, beam transport equipment, isocentric or fixed gantries, dose monitors, and computerized controls. It is patient-dedicated, designed for in-hospital operation and will be delivered as a complete, turn-key facility. It has the capacity for over 20,000 therapy sessions per year. **Ion Beam Applications, S.A., Chemin du Cyclotron, 2, B-1348 Louvain-la-Neuve, Belgium. 32-10-47-58-11.**

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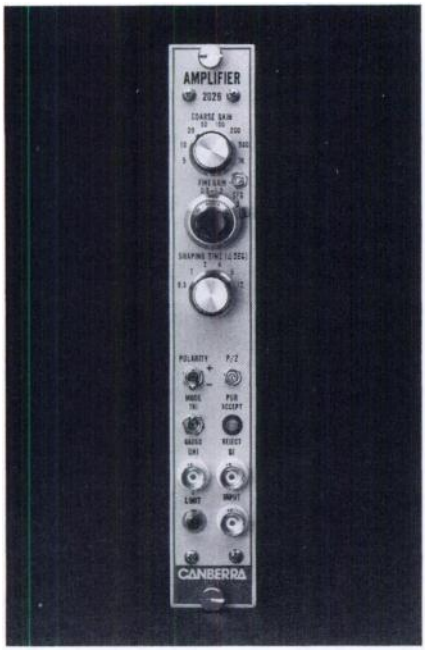
Spectroscopy Amplifier



Canberra Nuclear announces the Model 2026 Spectroscopy Amplifier, which comes in a compact single width NIM package with features for high-resolution spectroscopy. The unit features triangular or gaussian shaping for high-energy resolution; differential input for input noise reduction; super fine gain for precise peak locations; pulse pileup rejection/live time correction circuitry for improved spectral data and more accurate activity calculations; and automatic PUR threshold and BLR rate and BLR threshold adjustment circuits for easy set-up and consistency. The model 2026 is compatible with Canberra's full line of NIM products including optical and transistor reset preamplifiers. **Canberra Industries Inc., One State Street, Meriden, CT 06450. (203) 238-2351.**

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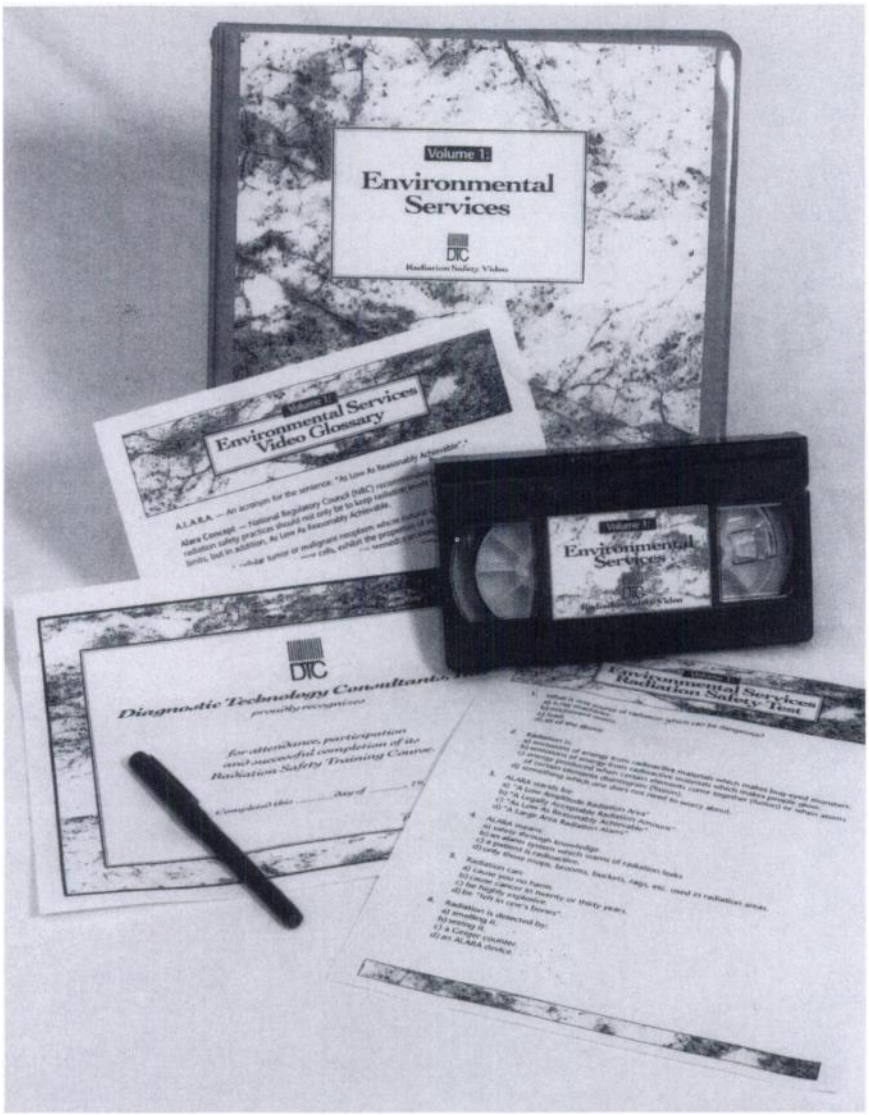
Radiation Safety Video Library



Diagnostic Technology Consultants, Inc. has developed a Radiation Safety Video Library designed to assist with the increasing requirements for in-service education. It provides a cost-effective way to train all personnel who must work around radiation producing machines or radioactive materials. Each video focuses on a specific area of concern and provides a complete radiation safety course for those involved. Each instructional video tape in the library series is accompanied by a book including a number of teaching aids such as a sign-in sheet indicating who attended the presentation, a test, an in-depth answer key, a handy glossary of terms, a certificate of completion, and other helpful information. Topics in the radiation safety video library are: environmental services, security, procedures for nurses involving iodine-131 therapy patients and brachytherapy patients, general radiation safety for radiology and nuclear medicine, pregnancy and the radiation worker, procedures for the cardiac catheterization lab; and ALARA for administrators. **Diagnostic Technology Consultants, Inc., 4747 Troost, Kansas City, MO 64110. (816) 753-2985 or (800) 753-4DTC.**

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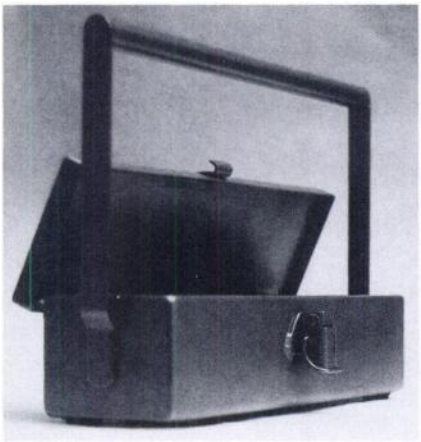
Nuclear Medicine Syringe Carrier



JRT Associates announces their JRT EUROLOCK Deluxe Syringe Carrier. The product features a 1/8" lead shielding incased in medical grade stainless steel, which leaves no exposed lead. Its extra length facilitates radiopharmacy syringe holders and 10cc syringes with needles and needle covers left on. A high handle provides easy access even while the syringe carrier is being held. All joints are welded to assure a long usable life. The unit also features a European type spring tension latch, an extra long carrier box, and padded footings. **JRT Associates, 116 S. Central Avenue, Elmsford, NY 10523, (914) 592-2929.**

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JNM
DIRECT RESPONSE

The *Journal* is testing a new method to enable you to get information on a more timely basis from our advertisers.

Listed below are the companies that have advertised in this issue, as well as those that have been mentioned in the *New Products* section. Simply fill out the form and FAX it to the Society (FAX: 212/545-0221), and we will send it to the advertiser.

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Topics include:
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General inquiries to:
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Jalan Pasirkaliki 192 Bandung 40161
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SPONSORSHIP:
This program is sponsored by the Medical College of Wisconsin.

TUITION:
The tuition fee of $650 includes the course syllabus, handouts, breaks, breakfasts, lunches, and other amenities involved in making this a pleasant learning experience. Maximum enrollments have been established. Cancellations prior to the course will be refunded, less a $30 administrative fee.

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The Medical College of Wisconsin is accredited by the Accreditation Council for Continuing Medical Education to sponsor continuing medical education for physicians.

Accordingly, the Medical College of Wisconsin designates this continuing medical education activity as meeting the criteria for 13.00 hours in Category I toward the Physician's Recognition Award of the American Medical Association.

Nuclear Medicine Technologists who attend the SPECT Brain Imaging Clinical Fellowship are eligible for 1.0 VOICE credit.

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☐ May 11–12, 1992 ☐ April 6–7, 1992
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I will need hotel reservations for _____ Sunday and Monday night/ _____ only Monday night.
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