The Journal of Nuclear Medicine

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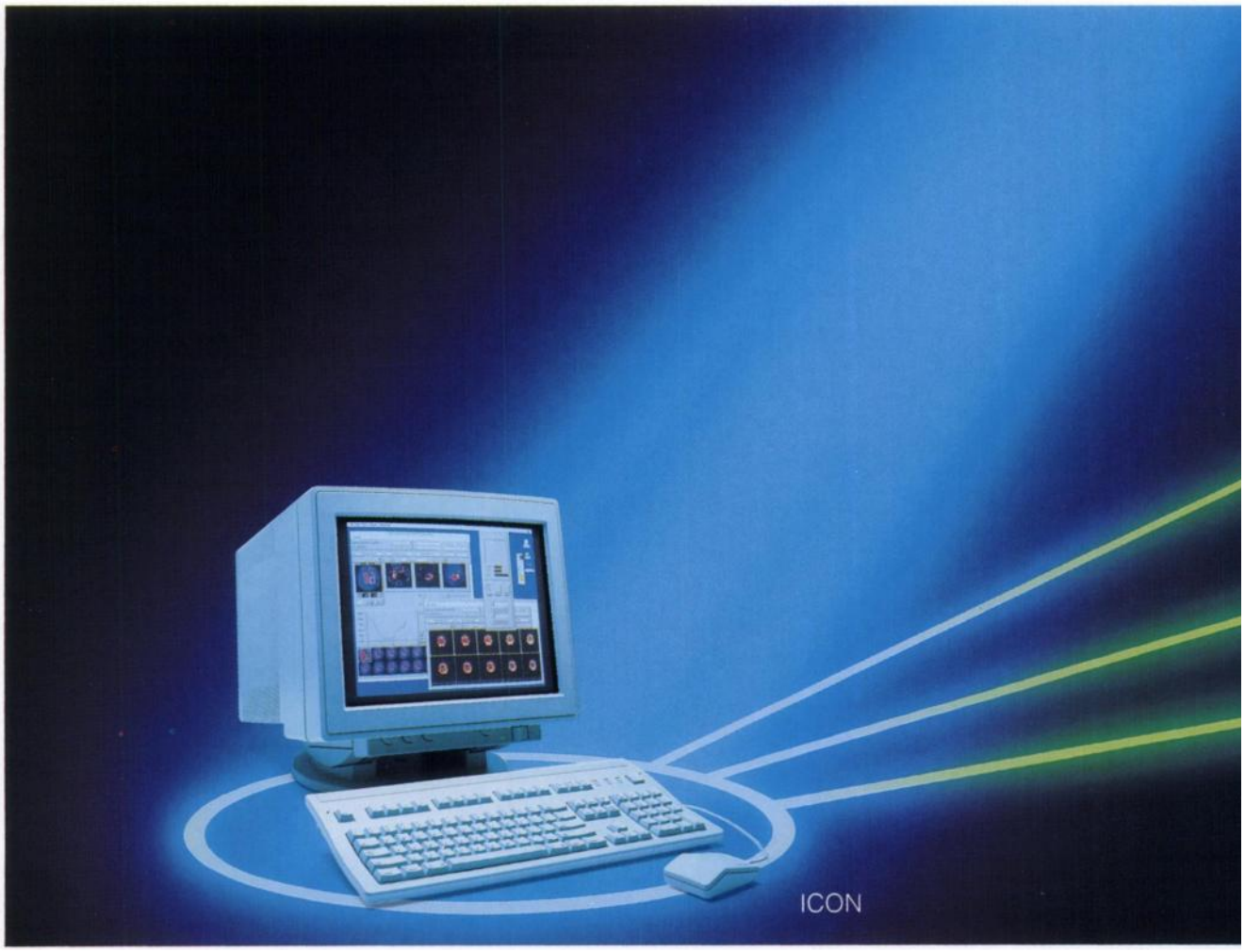

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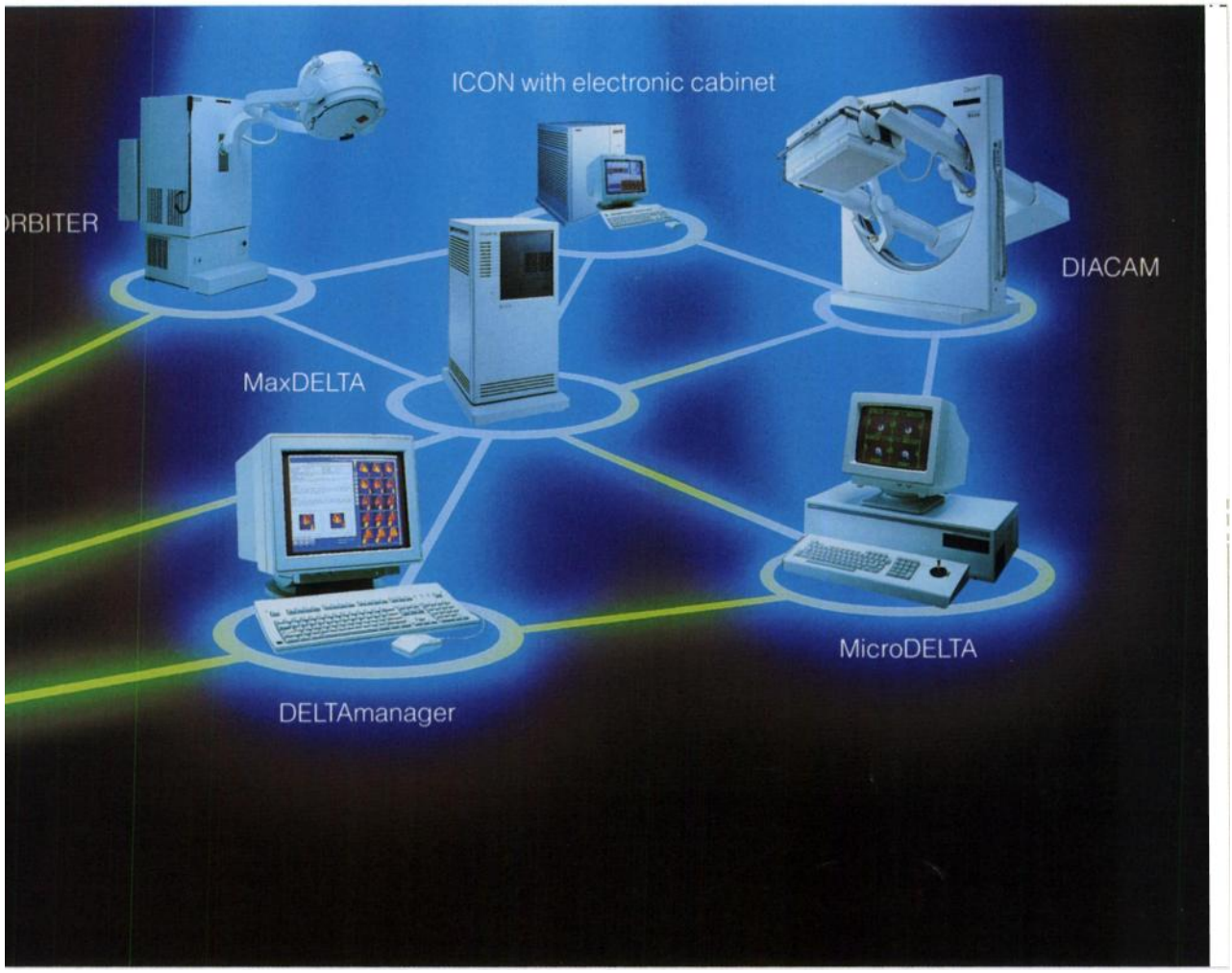

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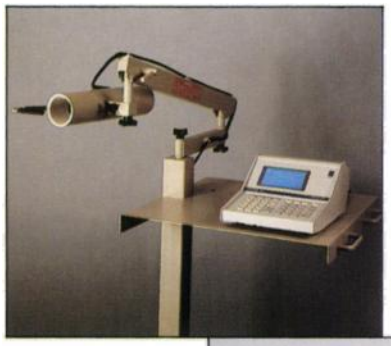

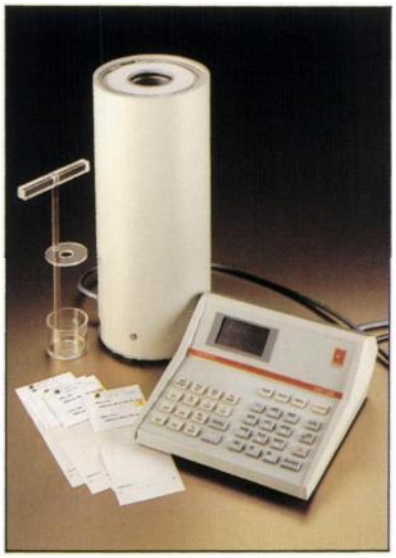

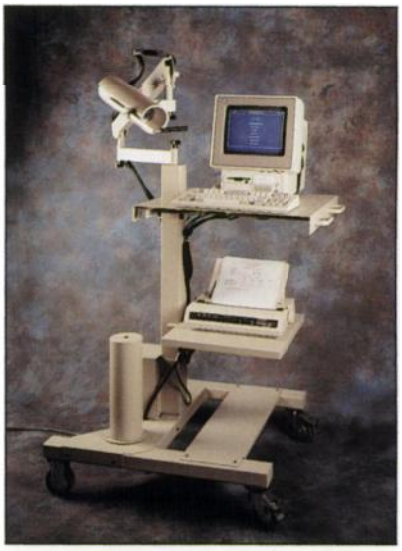

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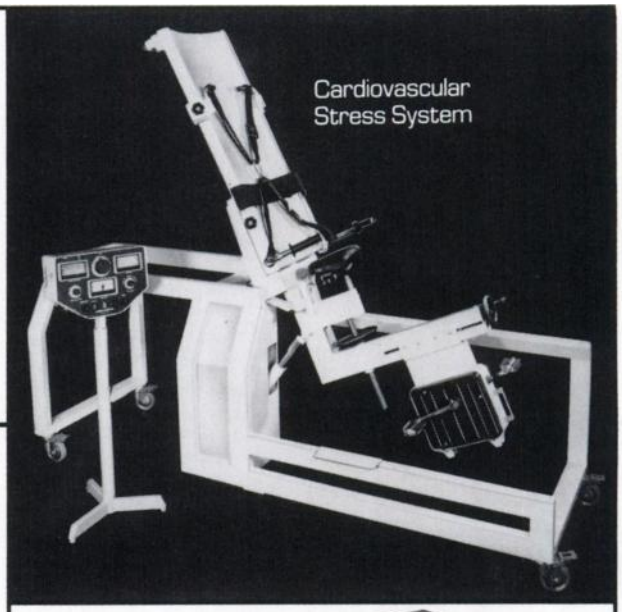

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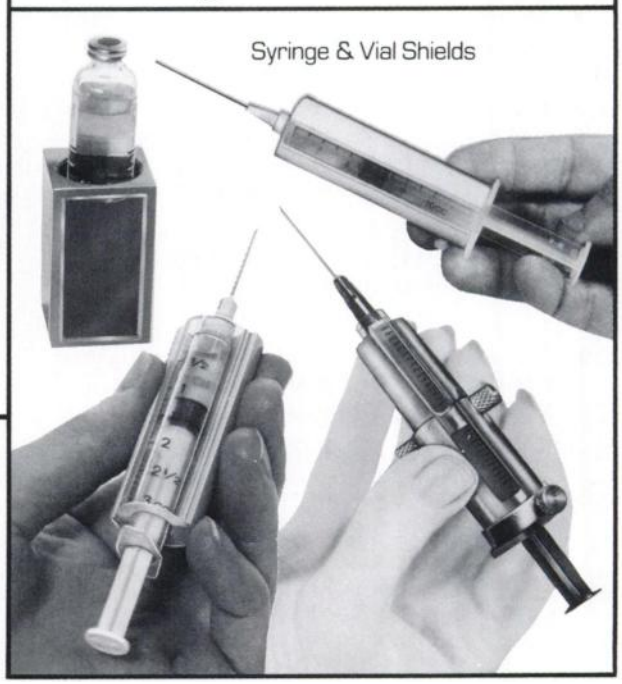

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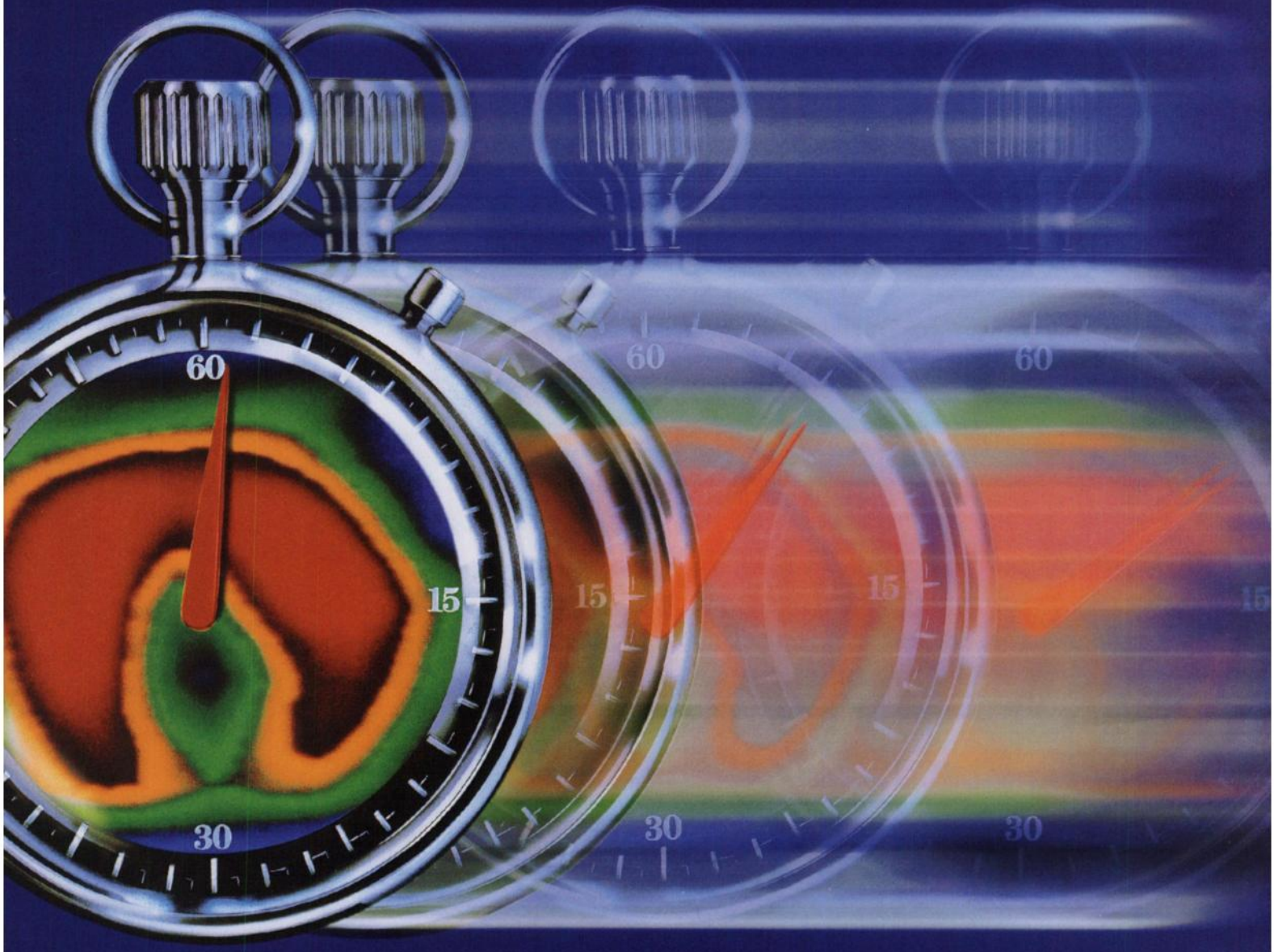

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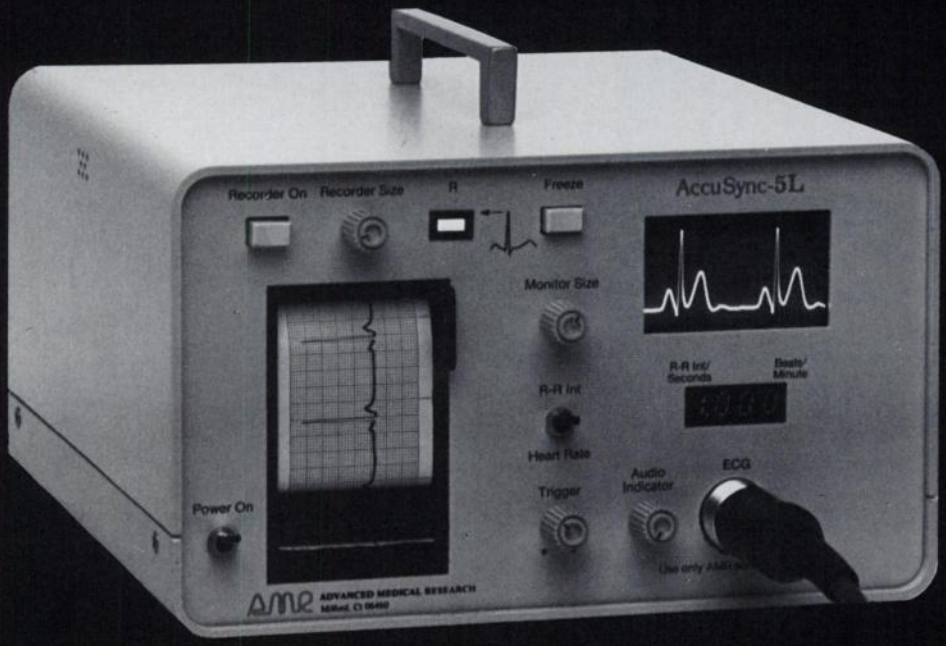

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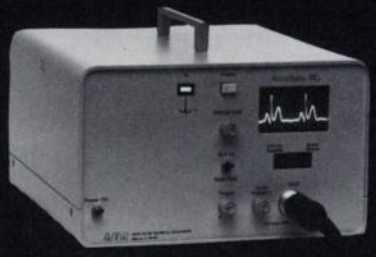
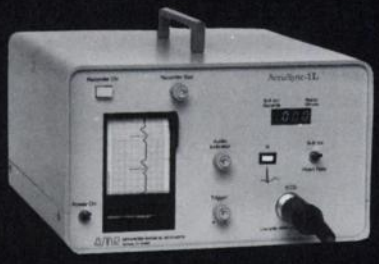
AccuSync-6L		All **AccuSync-5L** features with the exception of the Strip Chart Recorder.
AccuSync-1L		All **AccuSync-5L** features with the exception of the Digital CRT Monitor.
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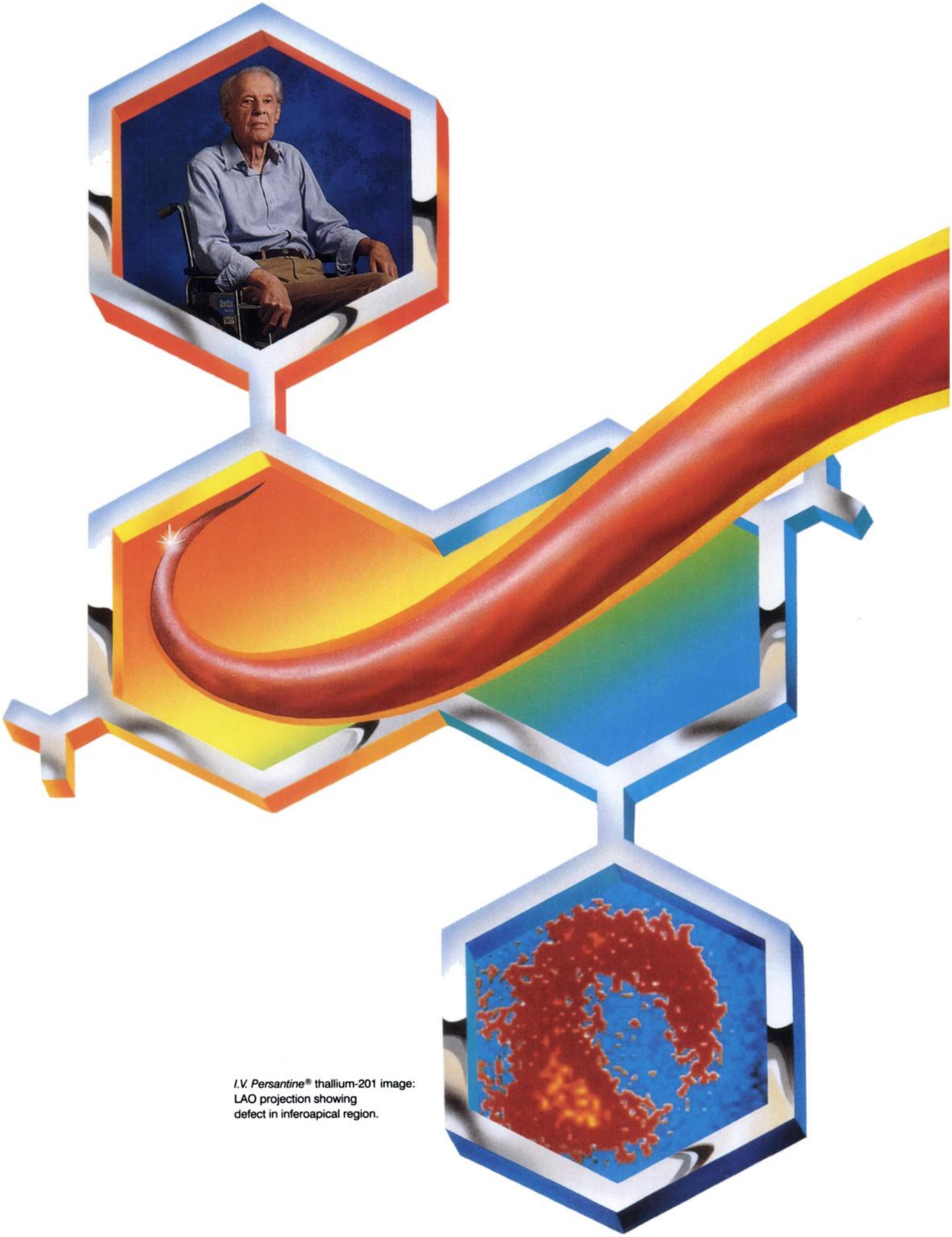

I.V. Persantine® thallium-201 image:
LAO projection showing
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- Extends the benefits of thallium imaging to patients who cannot achieve adequate levels of exercise such as[1*†]
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*As a coronary vasodilator, *I.V. Persantine*® increases coronary blood flow to the levels required for thallium imaging.

†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.

‡Side effects are usually mild and can include chest pain, dizziness, headache, hypotension, and nausea.

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. Ranhosky A, Kempthorne-Rawson J, et al: *Circulation* 1990; 81:1205-1209.
4. Data on file, Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, CT.

Please see prescribing information on last page of ad for contraindications, warnings, and adverse reactions.

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THALLOUS CHLORIDE Tl 201
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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).

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August 1988

IV PERSANTINE®
(dipyridamole USP) **For Intravenous Injection**
Prescribing Information

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%).
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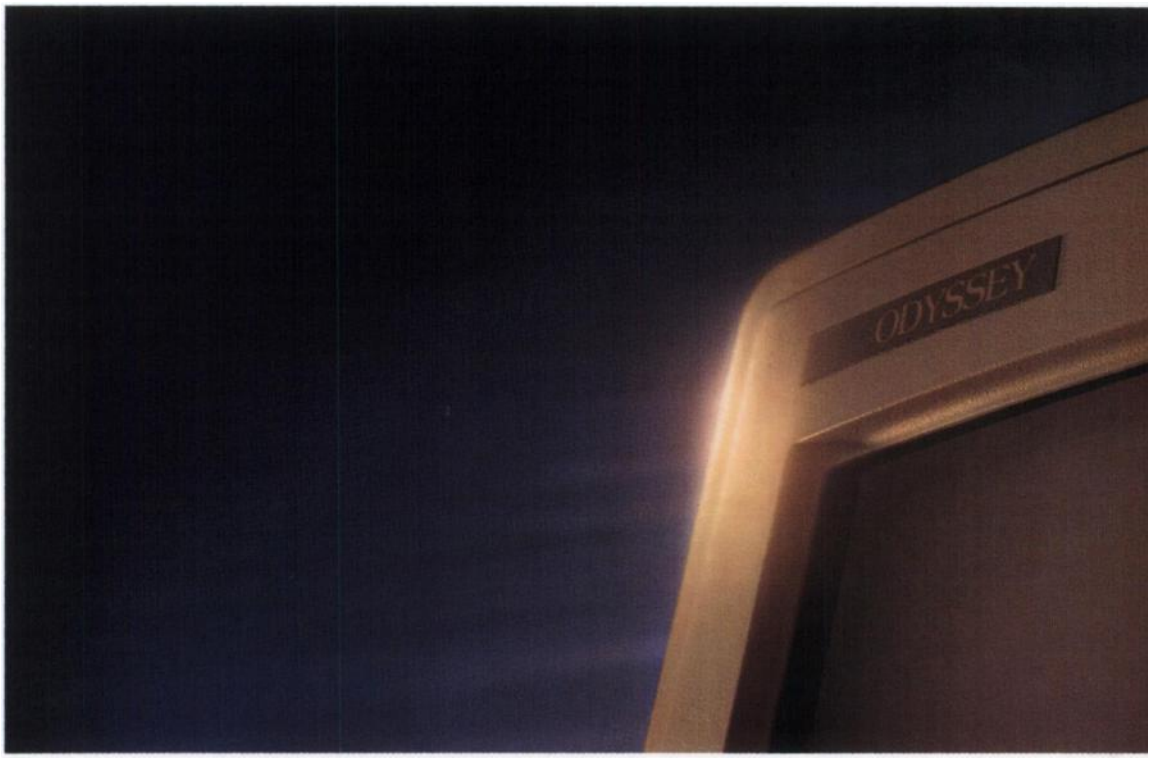

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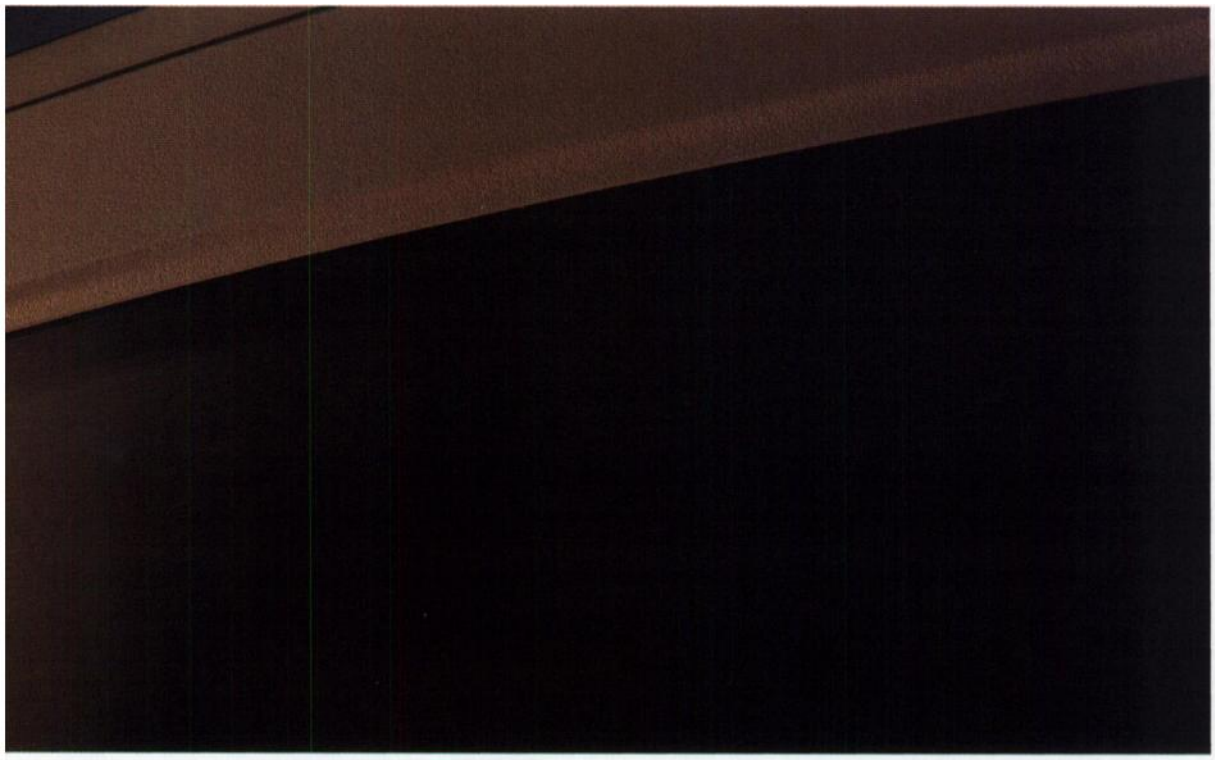

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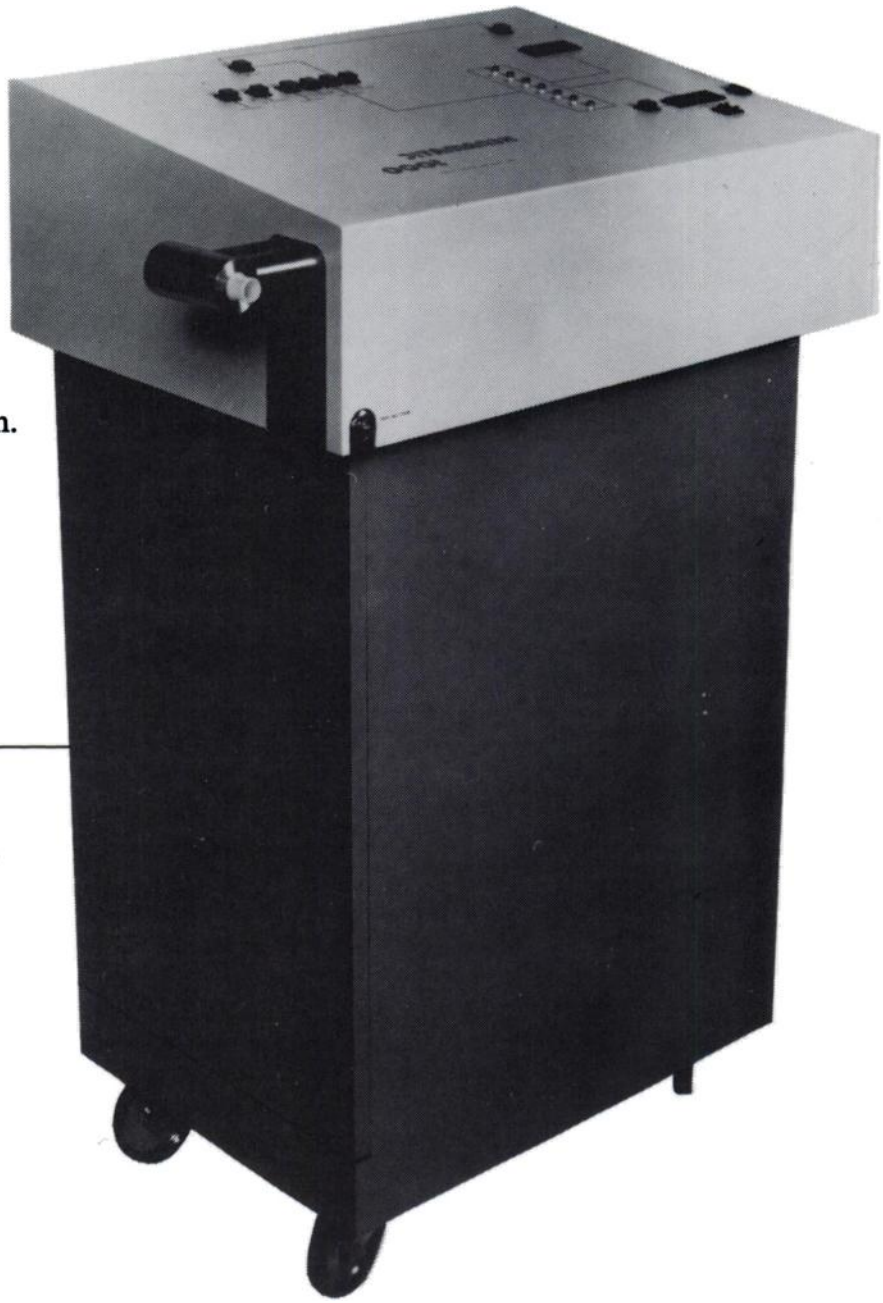

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The superior image clarity of technetium...

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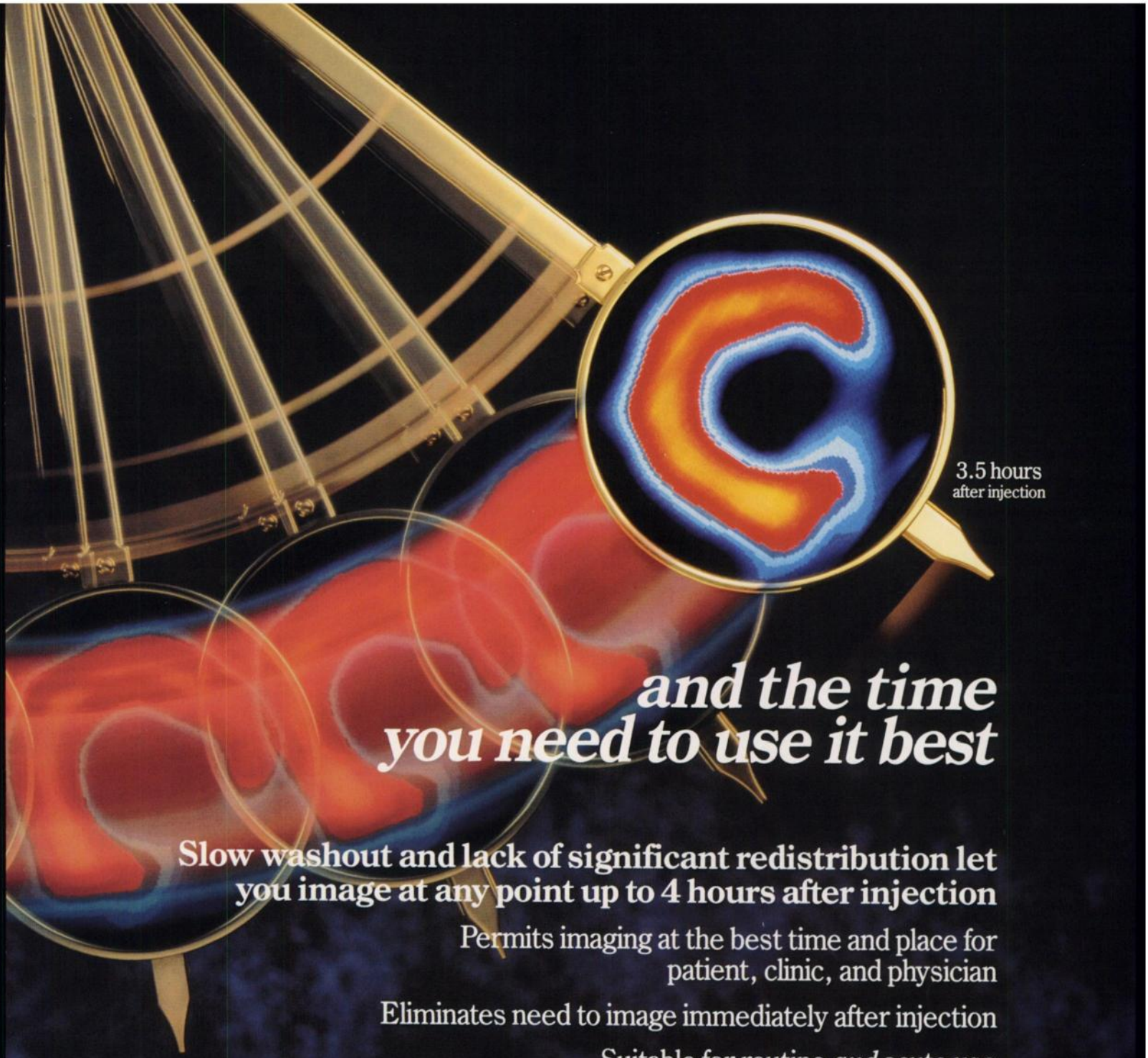

and the time you need to use it best

Slow washout and lack of significant redistribution let you image at any point up to 4 hours after injection

Permits imaging at the best time and place for patient, clinic, and physician

Eliminates need to image immediately after injection

Suitable for routine *and* acute use

Introducing

Cardiolite®

Kit for the preparation of Technetium Tc99m Sestamibi

Clarity that lasts

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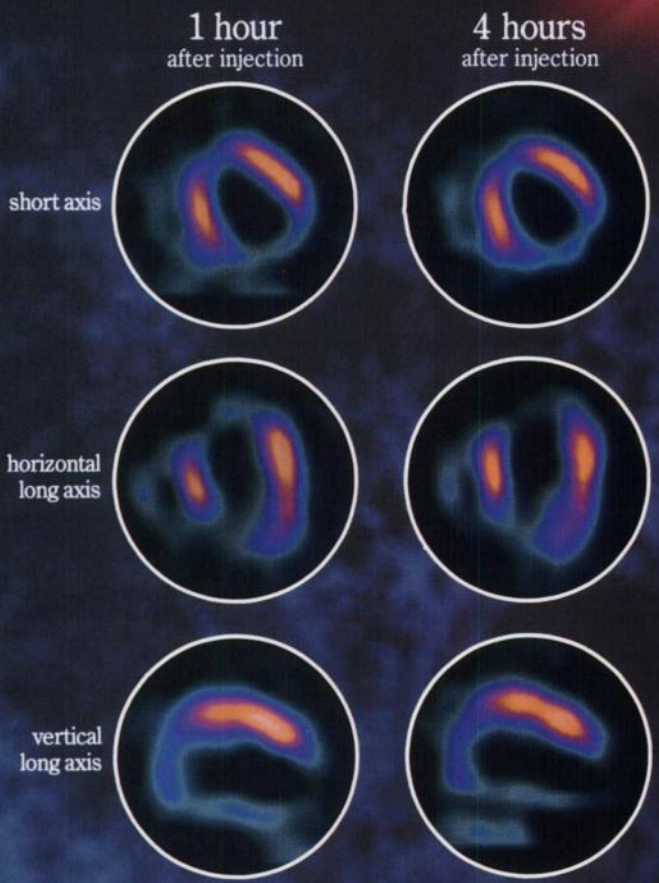

CARDIOLITE scans (SPECT) from a 62-year-old male with three prior myocardial infarctions (LFOV camera equipped with a high-resolution collimator, 64 x 64 matrix, 180° arc RAO to LPO, 64 projections, 25 s/projection)

High degree of accuracy in detection of myocardial abnormalities

In blinded studies, CARDIOLITE imaging was 83% to 96% sensitive and 79% to 100% specific in detecting myocardial infarction, when compared with final diagnoses[1]

Reassuring safety profile

No known contraindications
Few adverse reactions

Of 2780 patients in worldwide trials, approximately 8% experienced a transient metallic taste following injection. A few cases of transient headache, mild nausea, flushing, and non-itching rash have also been reported. In worldwide commercial experience, one patient showed signs and symptoms consistent with seizure 8 to 10 min after injection. No other adverse reactions specifically attributable to the use of CARDIOLITE have been reported.[1]

Reference
1. Data on file, Du Pont File H-23531.

Please see last page of advertisement for brief summary of prescribing information.

DU PONT PHARMA
Radiopharmaceuticals

Brief Summary

Cardiolite®

Kit for the preparation of Technetium Tc99m Sestamibi

FOR DIAGNOSTIC USE

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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Radiopharmaceuticals Division
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Billerica, Massachusetts USA 01862
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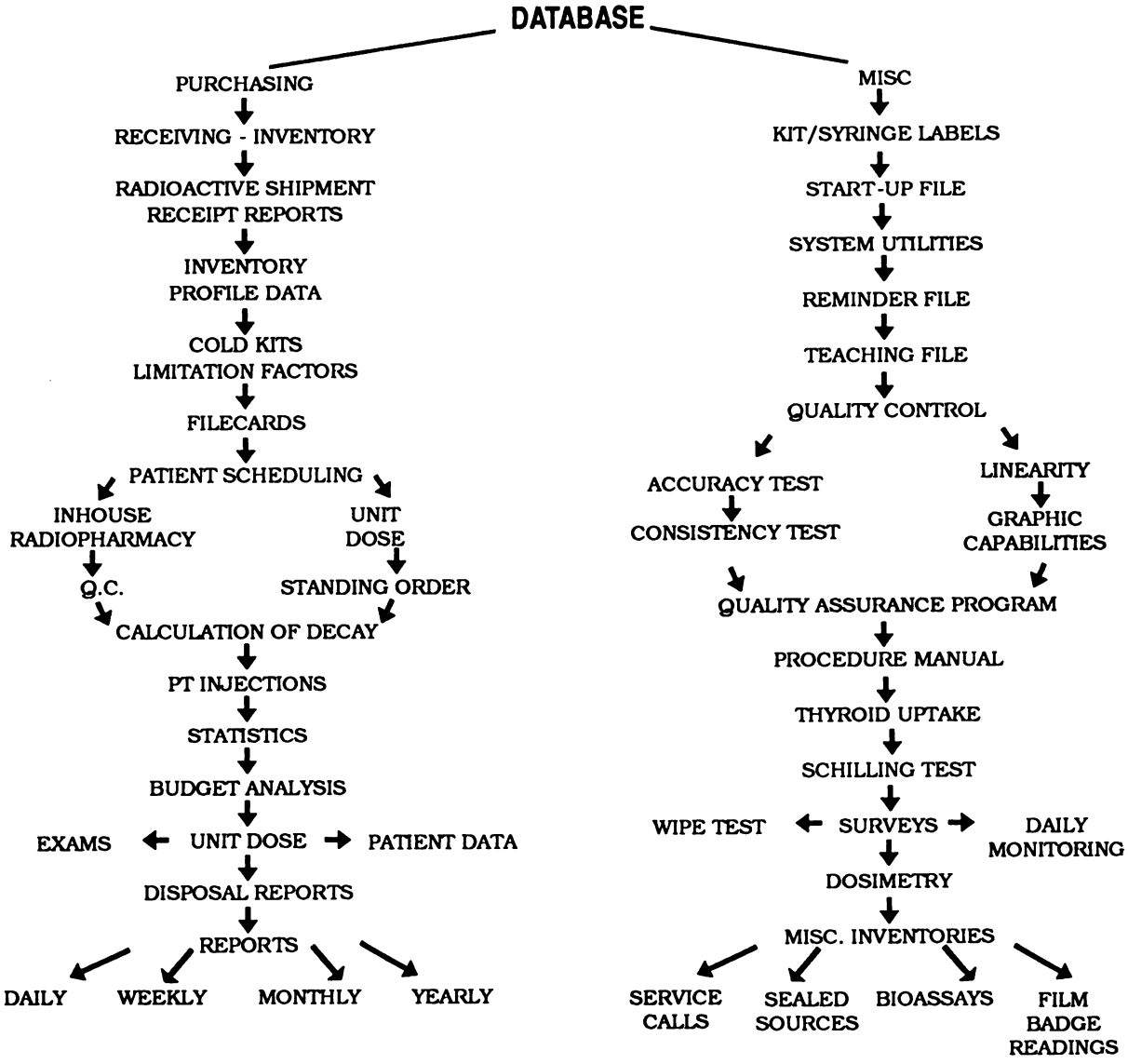

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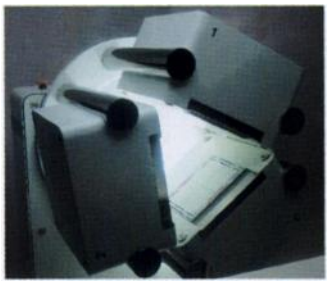

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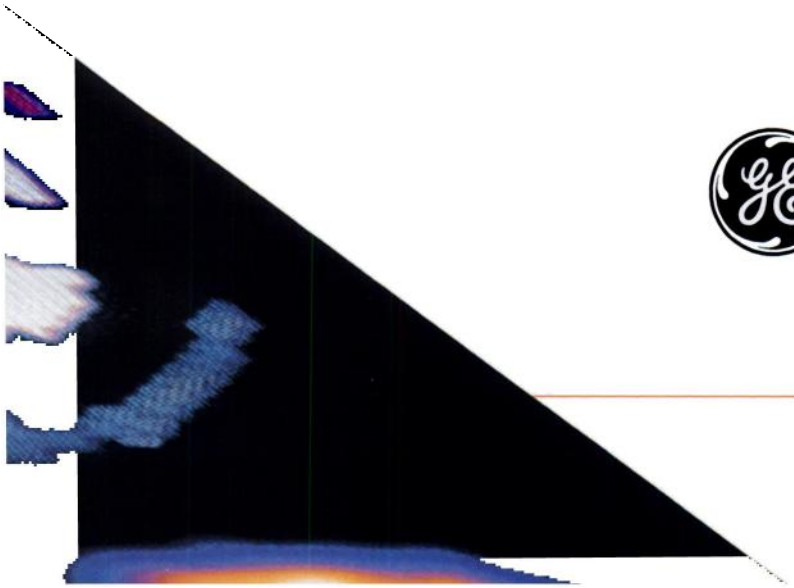

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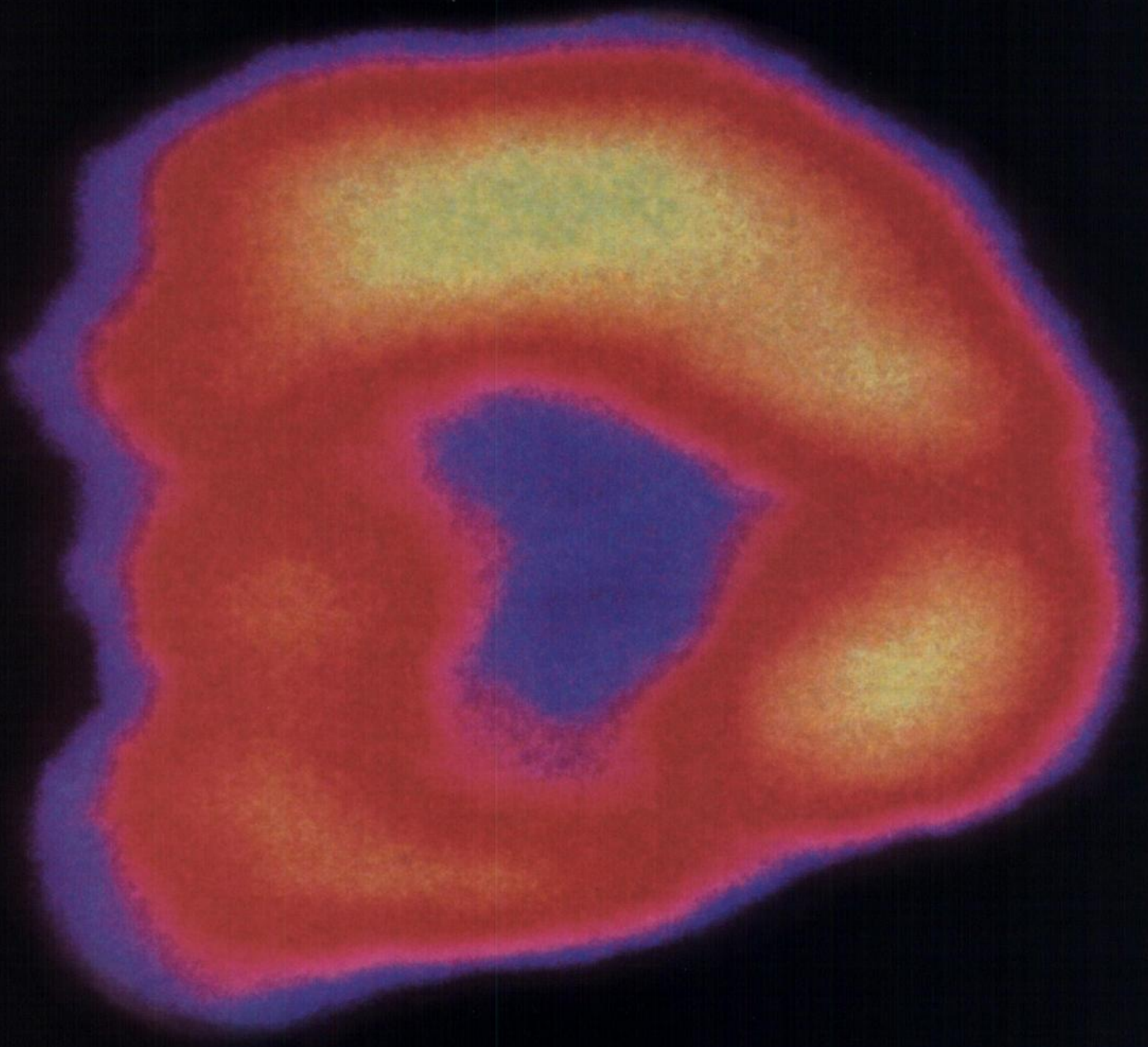
NEW!
CardioTec®
(Kit for the Preparation of Technetium Tc 99m Teboroxime)
THE ONLY TECHNETIUM-BASED AGENT FOR STRESS AND REST
QUICK...
CLEAR...
CLEAN...
CardioTec® Myocardial Perfusion Study
Results

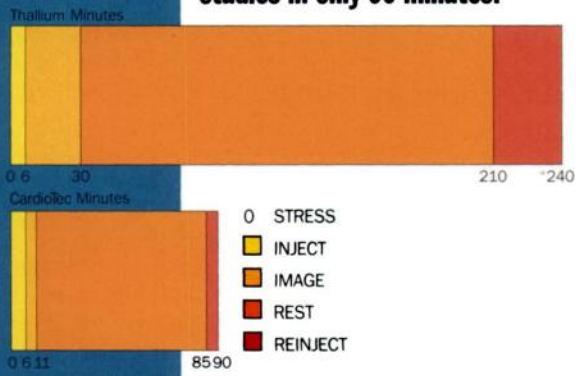
INTRODUCING CARDIOTEC®

(Kit for the Preparation of
Technetium Tc 99m Teboroxime)



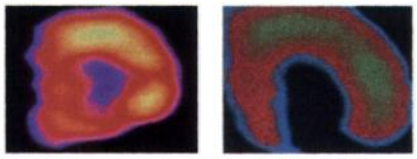
EFFICIENCY REDEFINED

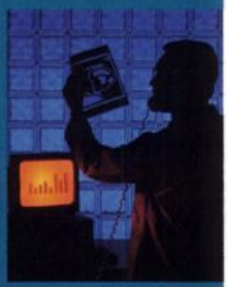
QUICK...
permits complete stress and rest studies in only 90 minutes!



The rapid uptake and washout of CardioTec enables you to start imaging two minutes after injection, and complete a resting-state study within 90 minutes![1] CardioTec speed may let you begin patient treatment earlier, enabling patients to return home sooner, improving throughput and scheduling.

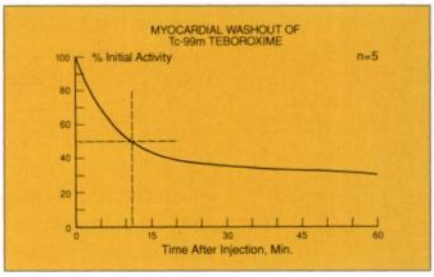
CLEAR...
sharp images enhance diagnostic ability





Good spatial resolution, high myocardial extraction, sensitivity and specificity enhance the ability to distinguish myocardial ischemia and infarction![1]

CLEAN...
rapid clearance; greater patient comfort



MYOCARDIAL WASHOUT[1]

CardioTec redefines efficiency in myocardial perfusion imaging. *Potential uses for myocardial perfusion agents include imaging patients undergoing post-angioplasty (PTCA), post-surgical (CABG) and post-medicinal (thrombolysis).*

The only technetium-based myocardial perfusion imaging agent for rest and stress imaging

CardioTec®

(Kit for the Preparation of Technetium Tc 99m Teboroxime)

Please see the brief summary of prescribing information for CardioTec on the adjacent page.

SQUIBB Diagnostics

Cardiotec®

Kit for the Preparation of Technetium Tc 99m Teboroxime

FOR DIAGNOSTIC USE

DESCRIPTION

Each 5 mL reaction vial contains a sterile, nonpyrogenic, lyophilized formulation of 2.0 mg cyclohexanedione dioxime, 2.0 mg methyl boronic acid, 2.0 mg pentetic acid, 9.0 mg citric acid, anhydrous; 100 mg sodium chloride, 50 mg gamma cyclodextrin and 0.058 mg (maximum) total tin expressed as stannous chloride ($SnCL_2$), 0.020 mg (minimum) stannous chloride ($SnCl_2$). The pH is adjusted with sodium hydroxide and/or hydrochloric acid prior to lyophilization. The contents of the vial are lyophilized and sealed under nitrogen at the time of manufacture. No bacteriostatic preservative is present.

When sterile, pyrogen-free sodium pertechnetate Tc 99m injection is added to the vial, and the solution is heated at 100°C for 15 minutes, the diagnostic agent Technetium Tc 99m Teboroxime is formed for administration by intravenous injection. The pH of the reconstituted product is 3.7 (range 3.3 to 4.1).

INDICATIONS AND USAGE

Technetium Tc 99m Teboroxime is a myocardial perfusion agent that is useful in distinguishing normal from abnormal myocardium in patients with suspected coronary artery disease using rest and stress techniques.

CONTRAINDICATIONS

None known.

WARNINGS

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

PRECAUTIONS

General

Contents of the reaction vial are intended only for use in the preparation of Technetium Tc 99m Teboroxime and are not to be administered directly to the patient.

Contents of the kit before preparation are not radioactive. However, after the addition of sodium pertechnetate Tc 99m injection, adequate shielding of the final preparation must be maintained.

The components of the kit are supplied sterile and non-pyrogenic. Aseptic procedures normally employed in making additions and withdrawals from sterile, non-pyrogenic containers should be used during the addition of the pertechnetate solution and the withdrawal of doses for patient administration.

The technetium Tc 99m labeling reactions involved in preparing the agent depend on maintaining the stannous ion in the reduced state. Any oxidant present in the sodium pertechnetate Tc-99m supply may thus adversely affect the quality of the radiopharmaceutical. Hence, sodium pertechnetate Tc-99m containing oxidants should not be employed.

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.

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 ensure minimum radiation exposure to occupational workers.

Tc-99m Teboroxime should be formulated no more than 6 hours prior to clinical use.

Carcinogenesis, Mutagenesis, Impairment of Fertility

In comparison with most other diagnostic technetium labeled radiopharmaceuticals, the radiation dose to the ovaries (1.8 rads/50 mCi) is high. Minimal exposure (ALARA) is necessary in women of childbearing capability. (See Dosimetry subsection in DOSAGE and ADMINISTRATION section.)

No long-term animal studies have been performed to evaluate carcinogenic potential or to determine the effects of Cardiotec on fertility in males or females.

Three different mutagenicity assays (a reversion test with bacteria, a chromosomal aberration assay and an *in vivo* mouse micronucleus assay) conducted with cold (decayed) technetium labeled Cardiotec gave negative results. Cardiotec was weakly positive for inducing forward mutations at the TK locus in L5178Y mouse lymphoma cells in the absence of metabolic activation (but only at high concentrations that were toxic to the cells and reduced growth to 33% or less relative to vehicle controls). Cardiotec was negative in this assay in the presence of metabolic activation.

Pregnancy Category C

Animal reproduction studies have not been conducted with Technetium Tc 99m Teboroxime. It is also not known whether Technetium Tc 99m Teboroxime can cause fetal harm when administered to a pregnant woman or can affect reproductive capacity. Technetium Tc 99m Teboroxime should be given to a pregnant woman only if the expected benefits to be gained clearly outweigh the potential hazards.

Ideally, examinations using radiopharmaceuticals, especially those 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

Technetium Tc 99m is excreted in human milk during lactation. 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

Uncommon adverse reactions reported in clinical trials include metallic taste in mouth, burning at injection site, facial swelling, numbness of hand and arm, hypotension and nausea after administration of Technetium Tc 99m Teboroxime.

HOW SUPPLIED

Cardiotec® (Kit for the Preparation of Technetium Tc 99m Teboroxime) is supplied in kits of 5, 10, and 25 reaction vials.

(J4-282A)

SQUIBB™ Diagnostics

Reference
1. Data on file, Squibb Diagnostics.

550-502 Issued: March 1991 Printed in U.S.A.

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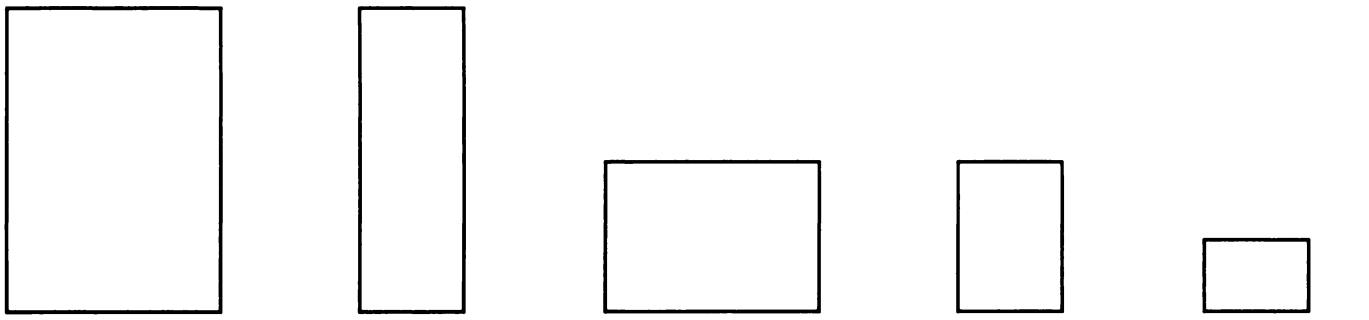

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Radionuclide Data and Decay Schemes

This new publication from the MIRD committee compiles decay schemes and output tables for 242 radionuclides.

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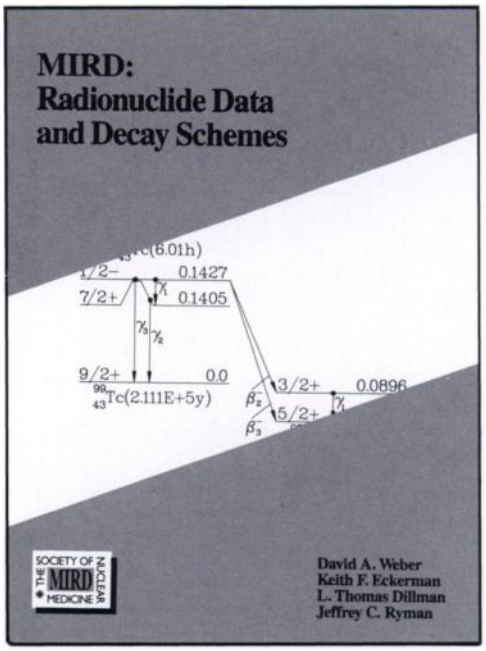

MIRD: Radionuclide Data and Decay Schemes
David A. Weber, Keith F. Eckerman, L. Thomas Dillman, Jeffrey C. Ryman. 456 pp. Hard-bound. $45 members; $60 nonmembers.

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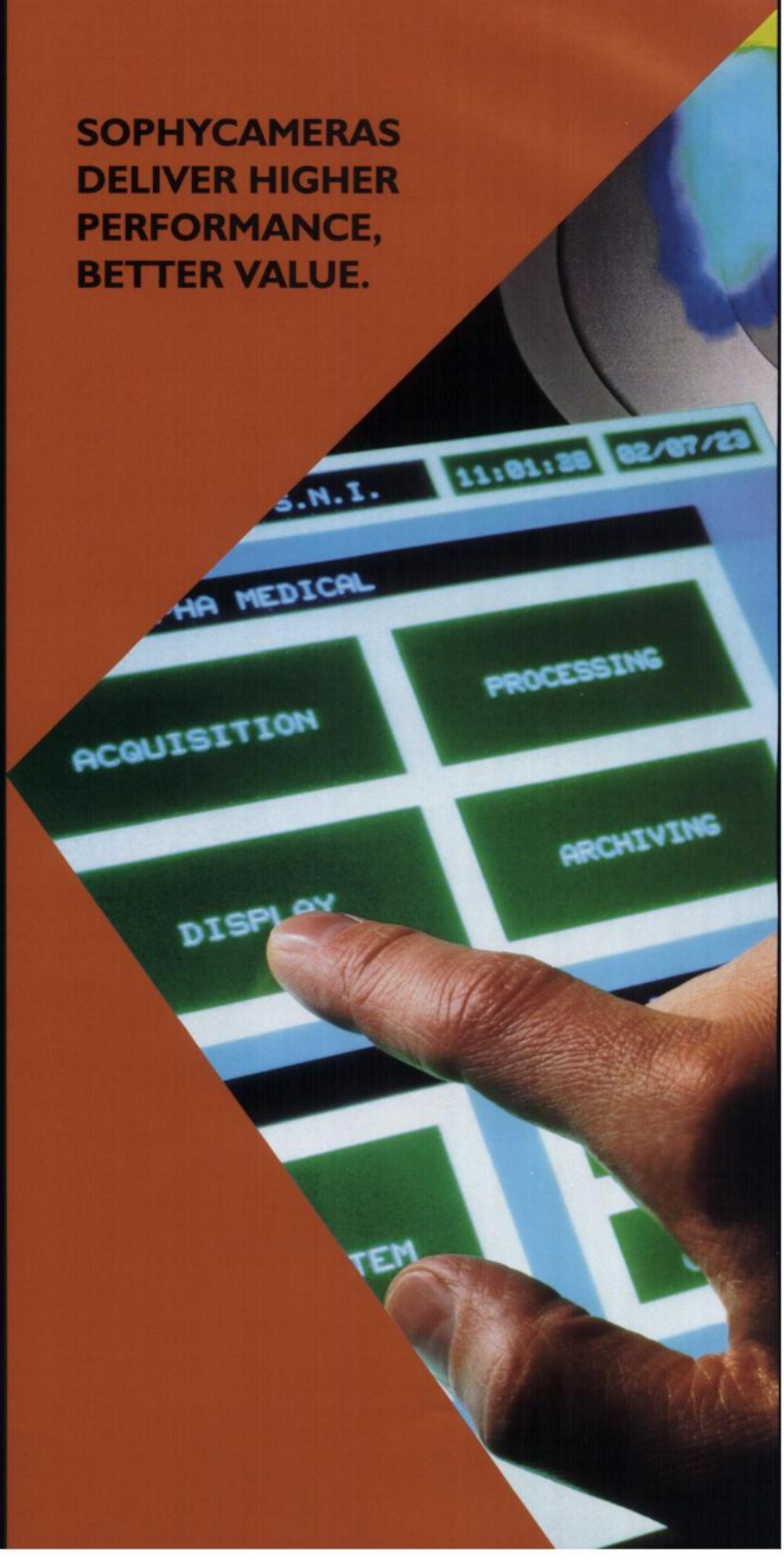

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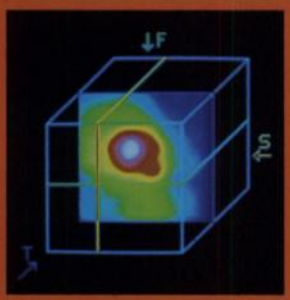

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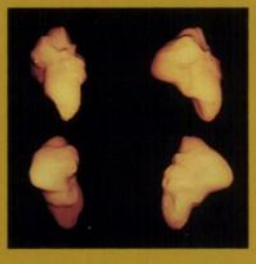

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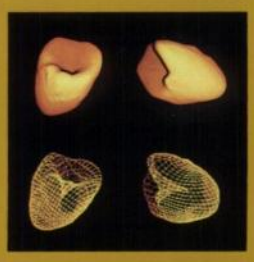

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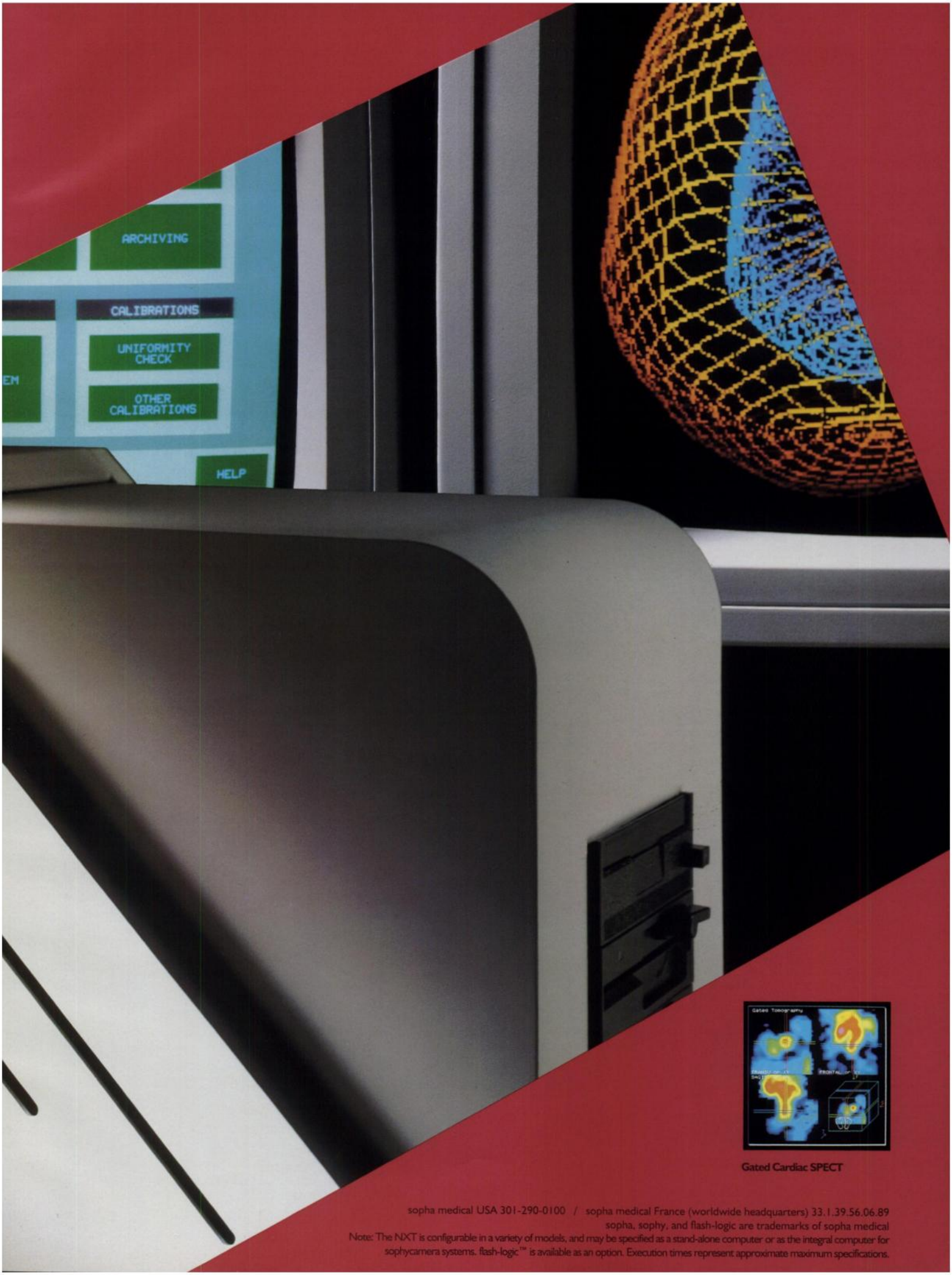

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Note: The NXT is configurable in a variety of models, and may be specified as a stand-alone computer or as the integral computer for sophycamera systems. flash-logic™ is available as an option. Execution times represent approximate maximum specifications.

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SYSTEMS AND SOFTWARE MANAGER, Positron Emission Tomography Center. The Department of Nuclear Medicine, State University of New York at Buffalo, is seeking a systems and software manager for a new PET Imaging Center. Background in computer programming and systems operation (UNIX and C). Please send CV to: Dr. Joseph Prezio, 105 Parker Hall, Buffalo, NY 14214. AA/EOE.

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FELLOWSHIP in BRAIN SPECT IMAGING—The Department of Radiology at the Brigham and Women's Hospital/Harvard Medical School, has an opening for one year fellowship, and an optional second year, in brain SPECT imaging. The department has a dedicated system for brain imaging and four rotating-head GE units. The department does approximately 1,000 brain SPECT examinations per year, including perfusion, tumor seeking, and blood pool studies. Ongoing research areas include dementia, substance abuse, tumor detection and therapy, and cerebrovascular disease. Please send curriculum vitae to: B. Leonard Holman, MD, Chairman, Department of Radiology, Brigham and Women's Hospital, 75 Francis Street, Boston, MA 02115. Brigham and Women's Hospital/Harvard Medical School is an affirmative action/equal opportunity educator and employer.

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RADIOLOGIST-strong in ultrasound, vascular imaging, and angiography needed for South Jersey hospital practice. BC or in process. $175-$200K+ base salary plus excellent benefit package. Send CV in confidence to Box 603, The Society of Nuclear Medicine, 136 Madison Avenue, New York, NY 10016.

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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 in the Professor of Clinical Radiology Series). Candidates must be Board certified in Nuclear Medicine or Radiology with a special competence 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 December 31, 1991. 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. The Mt. Sinai Medical Center in NY is seeking applicants for a junior faculty position. Candidates with experience preferred. The department has a full clinical, research and educational program and is developing a PET imaging center. Send CV to: Stanley J. Goldsmith, MD, Dept. of Physics/Nuclear medicine, Box 1141, Mt. Sinai Medical Center, One Gustave L. Levy Place, New York, NY 10029.

NUCLEAR MEDICINE PHYSICIAN at the Assistant Professor level in academically oriented program. Board (ABNM) certified or eligible. Experience in all aspects of nuclear medicine with interest in research. Send CV to: John R. Hansell, MD, Chief, Department of Nuclear Medicine, VA Medical Center, 39th & Woodland, Philadelphia, PA 19104. Equal Opportunity/Affirmative Action Employer. Qualified female and minority candidates are encouraged to apply.

DIRECTOR OF NUCLEAR MEDICINE. The Brigham and Women's Hospital is seeking a Director of Nuclear Medicine. The Division of Nuclear Medicine has a strong research program in SPECT and radiopharmaceutical development. The successful candidate must qualify for a faculty appointment as Associate Professor at Harvard Medical School and be board certified in Nuclear Medicine. Please send curriculum vitae to: B. Leonard Holman, MD, Chairman, Department of Radiology, Brigham and Women's Hospital, 75 Francis Street, Boston, MA 02115. Brigham and Women's Hospital/Harvard Medical School is an affirmative action/equal opportunity educator and employer.

DIRECTOR, DIVISION OF NUCLEAR MEDICINE. The Department of Radiology, University of British Columbia is seeking a Director of Nuclear Medicine. Salary commensurate with experience and qualifications. Proposed start date July 1, 1991. The deadline for closing this competition is May 31, 1991. Please send curriculum vitae and bibliography and names of three references to: Brain C. Lentle, MD, Professor and Head, Department of Radiology, Vancouver General Hospital, Heather Pavilion, Room 63, Floor A, Vancouver, BC, V5Z 1M9. In accordance with the Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents of Canada. The University of British Columbia is committed to the federal government's employment equity programme and encourages applications from all qualified individuals.

NUCLEAR MEDICINE PHYSICIAN. We are seeking an ABNM board eligible or recently board certified nuclear medicine physician to join the Nuclear Medicine Department at St. Luke's Medical Center in Milwaukee, WI. St. Luke's Medical Center is the largest private hospital in Wisconsin, is well known as a cardiac center, and has recently begun a 5-year expansion program that will see the hospital grow from its current 600 beds to well over 1,000 beds. The department is very active in nuclear cardiology, SPECT imaging, and general nuclear medicine excluding RIA. The department currently has 8 gamma cameras, a large Siemens computer system, and funding to purchase both a triple head camera and a dual rectangular head camera later this year. The department has an approved 4-year nuclear medicine residency which will shortly be affiliated with the University of Wisconsin. The position includes a combination of clinical, teaching, and research responsibilities. The salary and benefits of this position are excellent. For more information, please contact David L. Yuille, MD, at (414)649-6418, or send your curriculum vitae to Nuclear Medicine, St. Luke's Medical Center, 2900 W. Oklahoma Ave., Milwaukee, WI 53215.

Northern California—The Permanente Medical Group, Inc., a growing multispecialty group practice, is seeking a BC/BE NUCLEAR MEDICINE PHYSICIAN to join a staff of two physicians and one physicist at our Oakland medical center. Strong clinical background required with emphasis in cardiovascular and thyroid diseases. Full complement of SPECT equipment. University affiliations are available and clinical research is encouraged. We offer competitive salaries and an excellent benefits package. Respond with CV to: Dan Navarro, MD, Department of Nuclear Medicine, Kaiser Permanente Medical Center, 280 W. MacArthur Blvd., Oakland, CA 94611. EOE.

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RADIOLOGIST/nuclear medicine-25-person radiology group in central New Jersey seeks a board certified radiologist with additional nuclear medicine boards or ABR special competency to share responsibilities in nuclear medicine and some general radiology. Cardiac, nuclear and SPECT experience required. Practice includes two 450-bed hospitals, 3 offices, radiology residency, and medical student teaching. Send CV to Richard Feinstein, MD, c/o Kathy McGrath, Radiology Group of New Brunswick, 230 Old Bridge Turnpike, South River, NJ 08882.

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CHIEF TECHNOLOGIST. Nuclear Medicine Department. Salary: $37,800-$56,700. The UCSF, Dept. of Nuclear Medicine at SFGH, is seeking an individual to admin., develop and maintain program in Q.A., Radiation Safety and Equip. Maintenance in both In Vivo and In Vitro procedures. Must have excel. interpersonal and comm. skills, 3 yrs. recent super. exper. + computer & software Mgt., B.S. in biological/physical science and current CA. Nuc. Med. certificate. Send resumé to: JO: CM1E89122, UCSF Personnel, 1350-7th Avenue, SF, CA 94143. EOE.

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In this position, you will be responsible for the daily operation and play an integral role in the planning and growth of this multi-camera department. You must have a current CA state licensure and/or be eligible in all categories of Nuclear Medicine Technology and previous supervisory experience. NMTCB, ARRT-NM and ASCP-NM preferred. Relocation assistance will be offered on an individual basis.

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2nd Edition

Edited by Naomi P. Alazraki, MD and Fred S. Mishkin, MD

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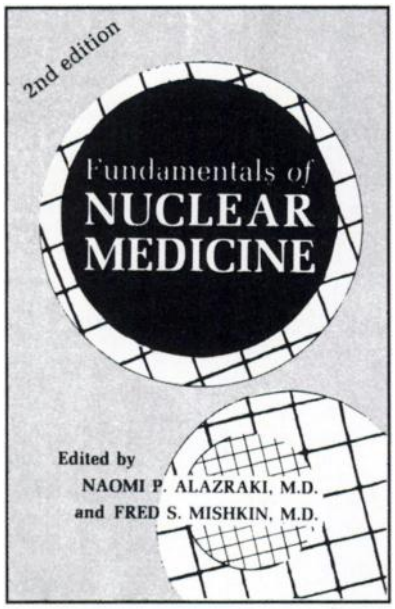

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Nuclear Medicine Division
Medical College of Wisconsin
8700 W. Wisconsin Avenue
Milwaukee, WI 53226 (414)257-6068

CardioGen-82®
Rubidium Rb 82 Generator

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 (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.

HOW SUPPLIED

Cardiogen-82 (Rubidium Rb 82 Generator) is supplied in the form of strontium Sr 82 adsorbed on a hydrous stannic oxide column with an activity of 90-150 millicuries Sr-82 at calibration time. The generator is encased in a lead shield surrounded by a labeled plastic container. Complete assay data for each generator are provided on the container label. Cardiogen-82 (Rubidium Rb 82 Generator) is intended for use only with an appropriate, properly calibrated infusion system labeled for use with the generator.

(J4-263)

600-501 Issued: March 1991

We've removed your PET collar

PET perfusion studies without a cyclotron

CardioGen-82® (Rubidium Rb 82 Generator) is the only generator-based myocardial perfusion agent indicated for PET imaging.

Now in 45 to 60 minutes you can have PET images to help you distinguish normal from abnormal myocardium. All without the expense of a cyclotron!

The short 75-second half-life lowers the radiation burden to the patient. When incorporated into the Rubidium Infusion System, serial imaging of myocardial blood flow changes can be performed as often as every ten minutes.

Rubidium-82
Infusion System

The CardioGen-82 System also improves patient throughput and scheduling efficiency by enabling you to perform multiple studies in a short time.

Remove the PET collar from your department. Get the PET images you need in 45 to 60 minutes, without a costly cyclotron.

CardioGen-82®
Rubidium Rb-82 Generator

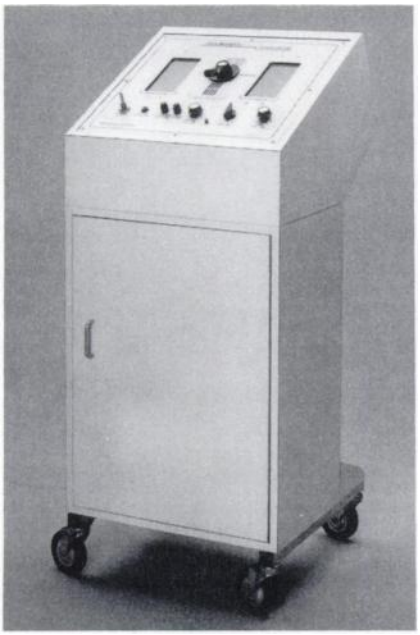
Please see adjacent page for brief summary of prescribing information.

Circle Reader Service No. 77

SQUIBB™ Diagnostics

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.*

Pulmonex Xenon System



Atomic Products introduces the Pulmonex Xenon System, a complete integrated system with a delivery unit and built-in gas trap. Simple operation of a single handle on the front panel permits full-system control of xenon gas flow from initial application to the final washout of the xenon into the gas trap. With all the controls located on the front panel, the user can control the system, observe the patient, and monitor the gamma camera from one position. There are three easy functions to use when performing a ventilation study on the Pulomonex: Start, Single Breath and Equilibrium Imaging, and Washout. One technologist can perform an entire study by moving a single handle. It's safe and simple. All internal systems are completely shielded for patient and operator safety. A bacteriostatic filter is used at the mouthpiece to prevent system contamination. **Atomic Products Corporation, P.O. Box 702, Shirley, NY 11967. (516) 924-9000.**

Circle Reader Service No. 101

Nuclear Medicine Workstation

Siemens Medical Systems, Inc. has designed a nuclear medicine workstation, ICON, that features a direct-manipulation user interface, distributed processing, and universal networking to existing configurations. The direct-manipulation user interface effectively meets the need of the user by saving time through simplicity of operation and high processing speed. The system provides direct access to all tasks, eliminating repetitive user interactions and increasing processing speed, while the software incorporates pull-down menus and graphics for all functions. Dedicated processors provide true distributed processing and task independence without compromising speed and clinical throughput. Software protocols may be customized to ensure consistency in application, intuitive interaction, and accuracy. Comprehensive software, standard with all ICON computers, offers a spectrum of acquisition, processing, and display capabilities, including an easy to learn software interface. ICON systems support many network configurations including a high speed bi-directional data transfer between MicroDELTA™/MaxDELTA™ computers and DELTAmanager for virtually unrestricted data access, a high speed Ethernet interface, and local area networking. ICON's universal networking cabability extends and enhances the value of existing computer systems. **Scott Moore, Nuclear Medical Division, Siemens Medical Systems, Inc., 2501 Barrington Road, Hoffman Estates, IL 60195. (708) 304-7252.**

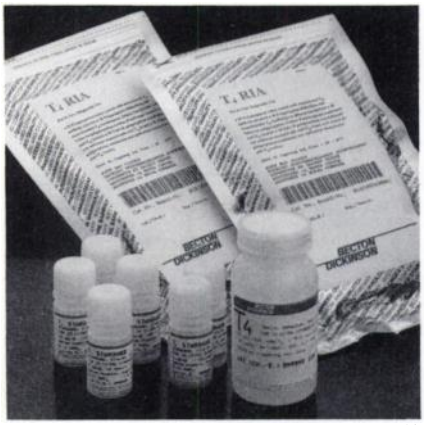
Circle Reader Service No. 102

Radioisotope Calibrator

Capintec, Inc. announces the availability of the CRC® -712 series, radioisotope dose calibration systems designed specifically for PET applications. Features include manual and automatic range selection for fast activity reading, up to five remote chamber configurations, Curie/Becquerel readout, RS-232 interface, auxiliary display units, and data logging printer capabilities. When the CII ionization chamber is used in a laboratory hot cell, it is advantageous to mount the chamber under an opening in the floor of the hot cell so that the chamber doesn't take up work space in the hot cell. A mounting flange is available for the ionization chamber, which matches the mounting holes that are provided in the laboratory cell. **Capintec Instruments, Inc., 6 Arrow Road, Ramsey, NJ 07446. (201) 825-9500.**

Circle Reader Service No. 103

Mab Solid Phase RIA



Becton Dickinson has released a new T4 monoclonal antibody (Mab) solid phase radioimmunoassay test. Solid phase antibody coated tubes are used so no centrifugation or shaking is necessary. No reagent reconstitution is required because the reagents are supplied in liquid form. Handling is reduced because the procedure only requires two pipetting steps for sample and tracer and one incubation. Incubation is done at room temperature. Sample requirements are flexible. Assay requires only 25 μL of sample and can be run on serum, EDTA, plasma, or heparinized plasma. The assay covers the range of 0 to 20 μg/dL with a sensitivity of 0.38 μg/dL. Comparison studies with other commercially available T4 radioimmunoassay procedures indicate good correlation between methods. **Irene Forssen, Becton Dickinson Diagnostic Instrument Systems, 7 Loveton Circle, Sparks, MD 21152. (301) 785-6204.**

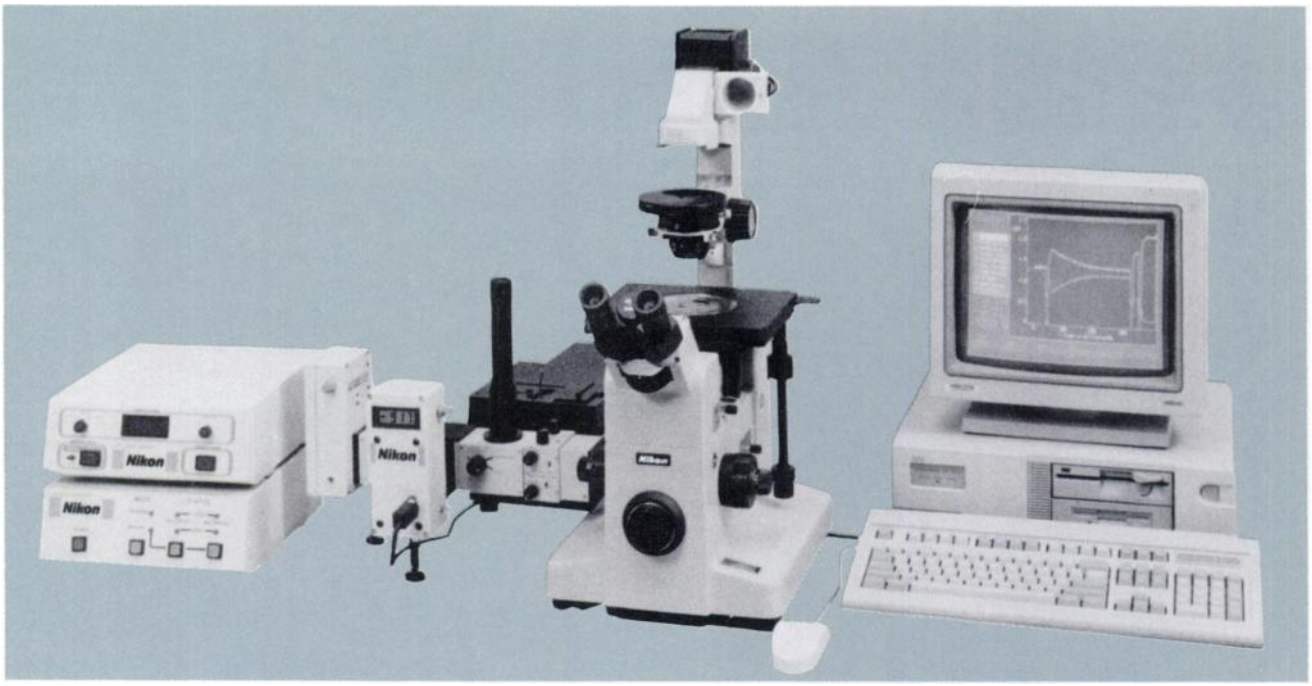
Circle Reader Service No. 104

CAMAC ADC

EG&G Ortec introduces the Model AD114 CAMAC 16K ADC, a 14-bit analog-to-digital (ADC) converter with a fast FERabus readout and CAMAC. The converter has the digital resolution and synchronization needed for high-multiplicity coincidence experiments with germanium detectors. Its 16,000 channels and 5 μs conversion time allow handling of high count rates over a wide range of energies. With 5 μs conversion zero-suppression, the FERabus readout skips ADCs without data in 3 ns, and reads out active ADCs at a rate of 100 ns per word. Individual gates, pile-up rejection inputs, and a master gate input offer unprecedented control for coincidence experiments. The converter's live-time clock takes the guesswork out of coincidence dead-time corrections. CAMAC controls include zero and overflow suppression, FERabus or CAMAC readout, individual gates, master gate, singles or coincidence modes, individual lower-level discriminators, upper-level discriminator, and dc-offset. **Sanford Wagner, EG&G Ortec, 100 Midland Road, Oak Ridge, TN 37831. (615) 482-4411.**

Circle Reader Service No. 105

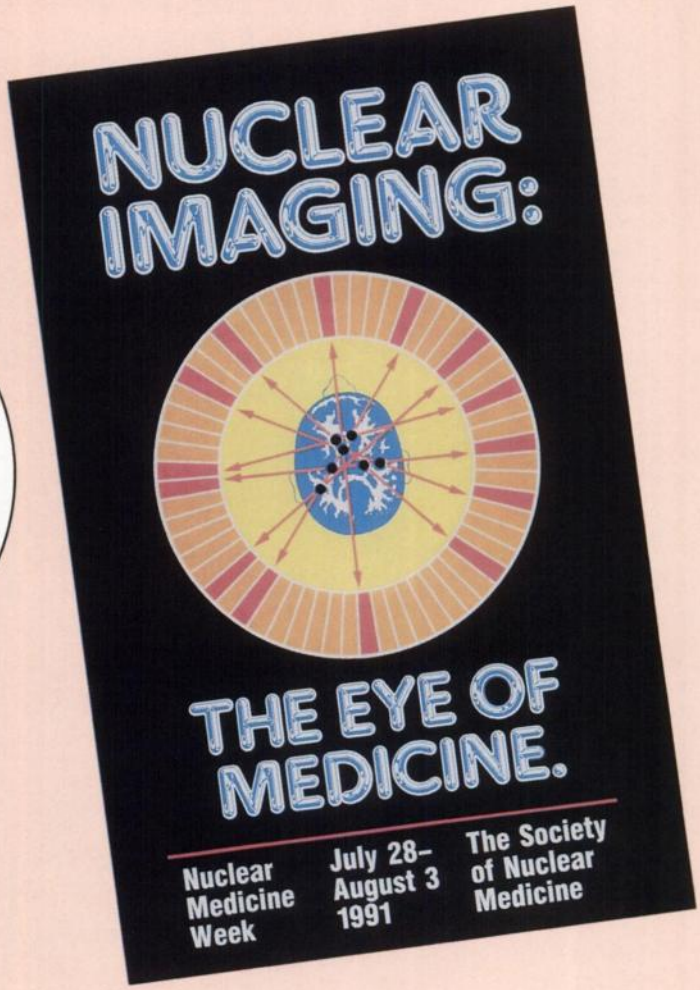
Fluorescence Photometry System



Nikon Inc.'s Instrument Group has developed a comprehensive photometry system for measuring and analyzing low-level intracellular ions in living cells. The Photoscan™ system provides digital photometers for measuring photon counts per millisecond and versatile software for single- or dual-channel data acquisition and data analysis. Neuroscientists, cell biologists, and others working with fluorescence microscopy can integrate Photoscan with their fluorescence microscopes regardless of brand. Photoscan can connect the system to IBM-compatible personal computers for complete data acquisition, analysis, and publication-quality hard copy. Three versions of the photometry system are available. Photoscan 1 is designed for studying single-emission fluorochromes such as FLUO-3 or the dual-emission probes such as INDO-1 for calcium analysis. It is a single-emission or a simultaneous dual-emission photon counting photometer system complete with data acquisition and analysis capabilities. Photoscan 2 is ideal for studying dual excitation ratio fluorescence probes such as the popular calcium fluorochrome FURA-2. It performs real-time ratio fluorescence measurements for both single- and dual-wavelength excitation probes with either single- or dual-emission capability. It is a complete system with digital PMTs, optical chopper-based dual wavelength fiber optic illumination system, and easy-to-use data acquisition and analysis software. Photoscan 3 is similar to Photoscan 2 but uses a 10-hole filter wheel for multi-wavelength excitation, which allows simultaneous multiple fluorochrome studies. Photoscan was developed by Photon Technology International Inc. of South Brunswick, New Jersey and is being marketed in the United States by Nikon. **Instrument Group, Nikon Inc., 1300 Walt Whitman Drive, Melville, NY 11747. (516) 547-8500.**

Circle Reader Service No. 106

CELEBRATE NUCLEAR MEDICINE WEEK



This year Nuclear Medicine Week will be observed from July 28–August 3. Nuclear Medicine Week, sponsored by The Society of Nuclear Medicine and Technologist Section, was developed to educate the general public and health care professionals of the diagnostic and treatment capabilities of nuclear medicine.

Nuclear Medicine Week is the only time during the year that the entire nuclear medicine community unites to present its message. It is an excellent opportunity to reach out to those who could benefit from nuclear medicine; it is also a most opportune time to promote your facility to referring physicians and potential patients.

A new poster, button and sticker have been designed to help you promote this worldwide event in your community. In addition, a set of guidelines with suggestions to increase participation is available from the Society. We encourage all those involved in nuclear medicine to join with us to increase the awareness and improve the perception of nuclear medicine.

To purchase posters, buttons and stickers for your institution, and to receive a guidelines packet, visit the Nuclear Medicine Week booth located in the registration area of the Convention Center.

CELEBRATE NUCLEAR MEDICINE WEEK

July 28 – August 3, 1991

The following materials are available for promoting Nuclear Medicine Week in your area.

One poster, sticker, and a button, all in full color, have been designed for this year.

Posters — $5.00 each, 4 - 9 posters are $4.50 each, 10 or more $4.00 each.

I would like _____ posters × $ _____ $ _____

Buttons — $1.00 each

I would like to order _____ buttons $ _____

Stickers — $.25 each (same design as the button)

I would like to receive _____ stickers.
(Minimum order is 10 stickers) $ _____

Total $ _____

☐ I would like to order a free set of Guidelines for promoting Nuclear Medicine Week.

Payment must be enclosed with your order. Payments must be made in U.S. dollars drawn on U.S. banks. No foreign funds will be accepted. Make checks payable to

The Society of Nuclear Medicine

Orders will be sent out by 1st class mail or UPS. *Orders received after July 1, 1991 will be assessed a 15% surcharge, payable before shipment, to ensure timely delivery.*

Name	Address
Hospital/Company	City
Telephone	State Zip

Please return this form to:

Nuclear Medicine Week
The Society of Nuclear Medicine
136 Madison Avenue,
New York, NY 10016-6760

Cardiotec®

Kit for the Preparation of Technetium Tc 99m Teboroxime

FOR DIAGNOSTIC USE

DESCRIPTION

Each 5 mL reaction vial contains a sterile, nonpyrogenic, lyophilized formulation of 2.0 mg cyclohexanedione dioxime, 2.0 mg methyl boronic acid, 2.0 mg pentetic acid, 9.0 mg citric acid, anhydrous; 100 mg sodium chloride, 50 mg gamma cyclodextrin and 0.058 mg (maximum) total tin expressed as stannous chloride ($SnCL_2$), 0.020 mg (minimum) stannous chloride ($SnCl_2$). The pH is adjusted with sodium hydroxide and/or hydrochloric acid prior to lyophilization. The contents of the vial are lyophilized and sealed under nitrogen at the time of manufacture. No bacteriostatic preservative is present.

When sterile, pyrogen-free sodium pertechnetate Tc 99m injection is added to the vial, and the solution is heated at 100°C for 15 minutes, the diagnostic agent Technetium Tc 99m Teboroxime is formed for administration by intravenous injection. The pH of the reconstituted product is 3.7 (range 3.3 to 4.1).

INDICATIONS AND USAGE

Technetium Tc 99m Teboroxime is a myocardial perfusion agent that is useful in distinguishing normal from abnormal myocardium in patients with suspected coronary artery disease using rest and stress techniques.

CONTRAINDICATIONS

None known.

WARNINGS

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

PRECAUTIONS

General

Contents of the reaction vial are intended only for use in the preparation of Technetium Tc 99m Teboroxime and are not to be administered directly to the patient.

Contents of the kit before preparation are not radioactive. However, after the addition of sodium pertechnetate Tc 99m injection, adequate shielding of the final preparation must be maintained.

The components of the kit are supplied sterile and non-pyrogenic. Aseptic procedures normally employed in making additions and withdrawals from sterile, non-pyrogenic containers should be used during the addition of the pertechnetate solution and the withdrawal of doses for patient administration.

The technetium Tc 99m labeling reactions involved in preparing the agent depend on maintaining the stannous ion in the reduced state. Any oxidant present in the sodium pertechnetate Tc-99m supply may thus adversely affect the quality of the radiopharmaceutical. Hence, sodium pertechnetate Tc-99m containing oxidants should not be employed.

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.

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 ensure minimum radiation exposure to occupational workers.

Tc-99m Teboroxime should be formulated no more than 6 hours prior to clinical use.

Carcinogenesis, Mutagenesis, Impairment of Fertility

In comparison with most other diagnostic technetium labeled radiopharmaceuticals, the radiation dose to the ovaries (1.8 rads/50 mCi) is high. Minimal exposure (ALARA) is necessary in women of childbearing capability. (See Dosimetry subsection in DOSAGE and ADMINISTRATION section.)

No long-term animal studies have been performed to evaluate carcinogenic potential or to determine the effects of Cardiotec on fertility in males or females.

Three different mutagenicity assays (a reversion test with bacteria, a chromosomal aberration assay and an *in vivo* mouse micronucleus assay) conducted with cold (decayed) technetium labeled Cardiotec gave negative results. Cardiotec was weakly positive for inducing forward mutations at the TK locus in L5178Y mouse lymphoma cells in the absence of metabolic activation (but only at high concentrations that were toxic to the cells and reduced growth to 33% or less relative to vehicle controls). Cardiotec was negative in this assay in the presence of metabolic activation.

Pregnancy Category C

Animal reproduction studies have not been conducted with Technetium Tc 99m Teboroxime. It is also not known whether Technetium Tc 99m Teboroxime can cause fetal harm when administered to a pregnant woman or can affect reproductive capacity. Technetium Tc 99m Teboroxime should be given to a pregnant woman only if the expected benefits to be gained clearly outweigh the potential hazards.

Ideally, examinations using radiopharmaceuticals, especially those 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

Technetium Tc 99m is excreted in human milk during lactation. 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

Uncommon adverse reactions reported in clinical trials include metallic taste in mouth, burning at injection site, facial swelling, numbness of hand and arm, hypotension and nausea after administration of Technetium Tc 99m Teboroxime.

HOW SUPPLIED

Cardiotec® (Kit for the Preparation of Technetium Tc 99m Teboroxime) is supplied in kits of 5, 10, and 25 reaction vials.

(J4-282A)

SQUIBB™ Diagnostics

Reference
1. Data on file, Squibb Diagnostics.


NEW!
CardioTec®
(Kit for the Preparation of Technetium Tc 99m Teboroxime)
THE ONLY TECHNETIUM-BASED AGENT FOR STRESS AND REST
QUICK...
Rapid uptake and washout: complete stress and rest studies in only 90 minutes.[1]
CLEAR...
Sharp images: enhance diagnostic ability to distinguish ischemia and infarction.[1]
CLEAN...
Rapid blood clearance: greater patient comfort.
The first technetium-based myocardial perfusion agent for rest and stress imaging.
NEW
CardioTec®
(Kit for the Preparation of Technetium Tc 99m Teboroxime)
SQUIBB Diagnostics
Please see the brief summary of prescribing information for CardioTec on the adjacent page.
Circle Reader Service No. 77