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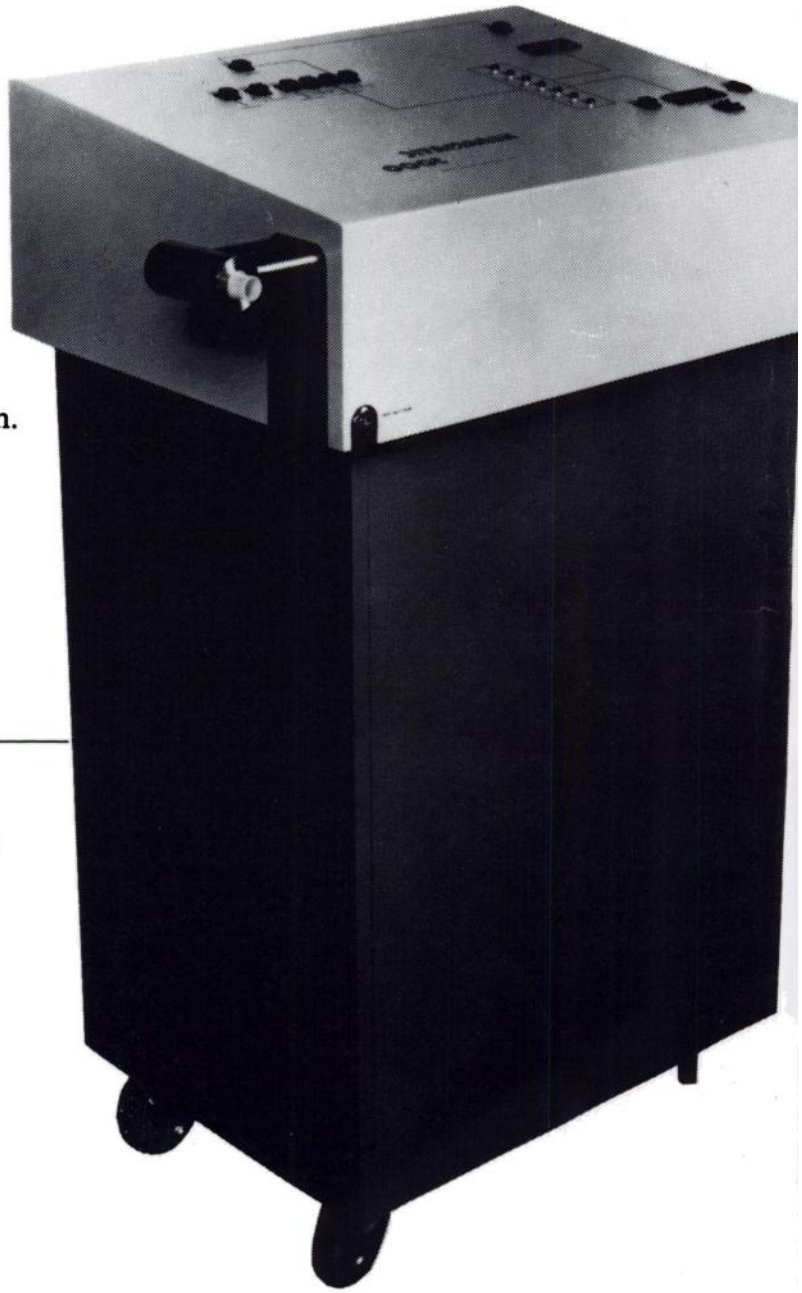

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CALL FOR ABSTRACTS FOR SCIENTIFIC PAPERS AND SCIENTIFIC EXHIBITS

The Society of Nuclear Medicine
42nd Annual Meeting
June 12 - June 15, 1995
Minneapolis, Minnesota

The 1995 Scientific Program Committee, Scientific Exhibits Subcommittee and the Scientific & Teaching Sessions Committee solicit the submission of abstracts from members and nonmembers of The Society of Nuclear Medicine for the 42nd Annual Meeting in Minneapolis, MN. Accepted Scientific Paper and Scientific Exhibit abstracts will be published in a special supplement to the May issue of the *Journal of Nuclear Medicine* and accepted Technologist Section abstracts will be published in the June issue of the *Journal of Nuclear Medicine Technology.* Original contributions on a variety of topics related to nuclear medicine will be considered, including:

- Instrumentation and Data Analysis
- Radioassay
- Radiopharmaceutical Chemistry
- Dosimetry/Radiobiology
- Nuclear Magnetic Resonance Chemistry
- Clinical Science Applications:
  - Bone/Joint
  - Cardiovascular (clinical, basic, and PET)
  - Endocrine
  - Gastroenterology
  - Neurosciences: Basic, Neurology and Psychiatry
  - Pediatrics
  - Pulmonary
  - Renal/Electrolyte/Hypertension
  - Hematology/Infectious Disease
  - Oncology Diagnosis (antibody)
  - Oncology Diagnosis (non-antibody)
  - Oncology/Therapy

Authors seeking publication for the full text of their papers are strongly encouraged to submit their work for immediate review to JNM, and for the technologist section, to JNMT.

There are two abstract forms for the annual meeting. The Scientific Paper abstract form can be obtained in the October 1994 JNM. The Scientific Exhibits abstract form is only available by calling or writing to:

The Society of Nuclear Medicine
Att: Abstracts
1850 Samuel Drive
Reston, VA 22090
Tel: (703)708-9000 • FAX: (703)708-9015

DEADLINE FOR RECEIPT OF ABSTRACTS FOR SCIENTIFIC PAPERS IS WEDNESDAY, JANUARY 4, 1995.

DEADLINE FOR RECEIPT OF ABSTRACTS FOR SCIENTIFIC EXHIBITS IS WEDNESDAY, JANUARY 4, 1995.

1S

SPECT BRAIN IMAGING CLINICAL FELLOWSHIP

Department of Radiology
Section of Nuclear Medicine

MEDICAL COLLEGE OF WISCONSIN

BENEFIT

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Objectives include:

- Development of interpretation skills for brain images.
- Appreciation of clinical applications of SPECT brain imaging.
- Knowledge of image acquisition and reconstruction.
- Appreciation of factors that influence image quality.
- Knowledge of quality control techniques for SPECT.

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.

CREDIT:

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.

Register me for the following dates: *(Please indicate a second choice)*

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I will need reservations for Sunday and Monday night / _____ only on Monday night,
I will need a _____ single / _____ double room.

A check in the amount of $650 should accompany this registration form and be made payable to the Medical College of Wisconsin. Telephone registrations must be confirmed by check within 10 days.

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Address _____

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❑ **work address** ❑ **home address**

Registrations and payment should be sent to:

LisaAnn Trembath
SPECT Brain Imaging Fellowship Coordinator
Nuclear Medicine Division
Medical College of Wisconsin
8700 W. Wisconsin Avenue
Milwaukee, WI 53226 • (414) 777-3756

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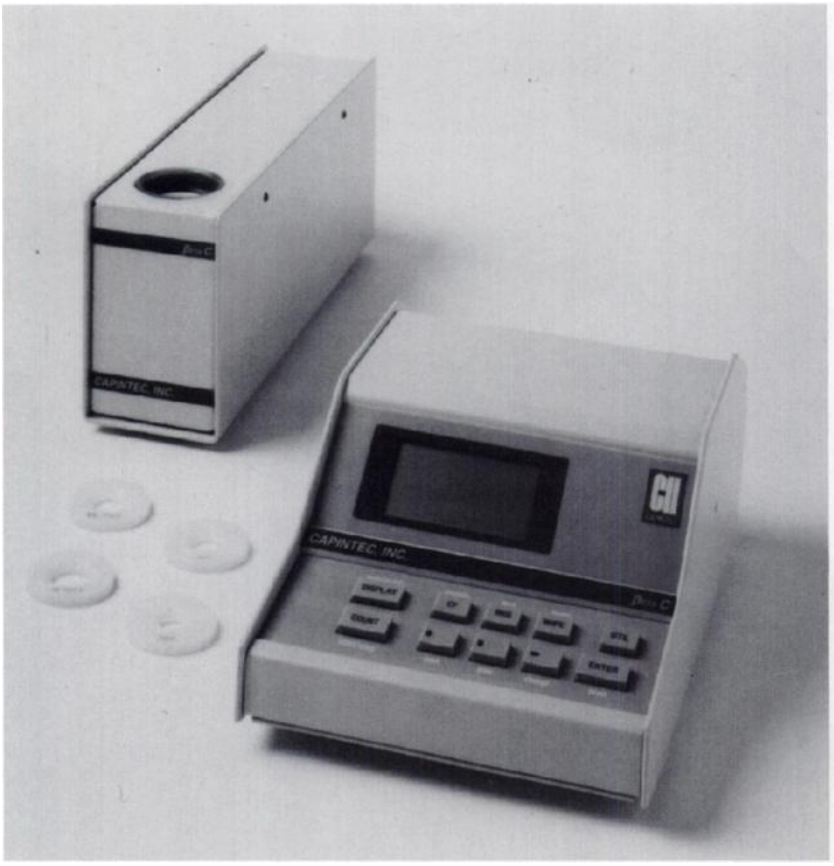

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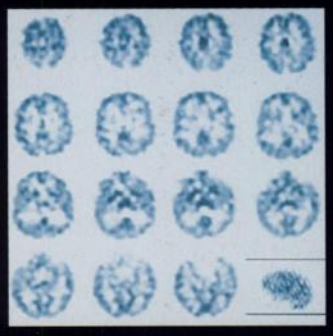

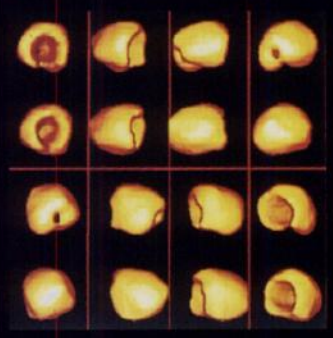

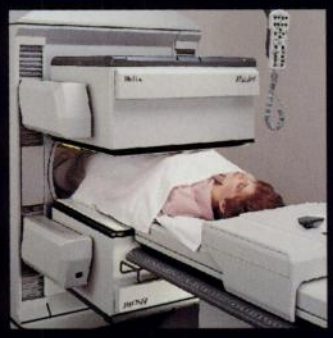

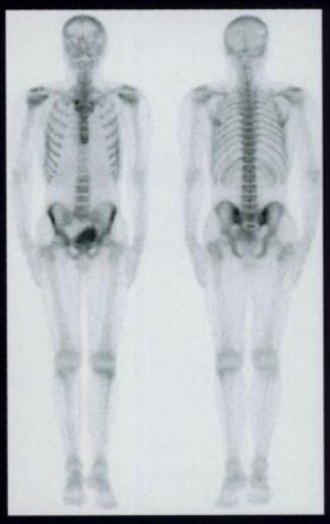

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Cardiolite®

Kit for the preparation of Technetium Tc99m Sestamibi

To reduce soft-tissue attenuation Cardiolite comes through

DU PONT
PHARMA
Radiopharmaceuticals

Stress testing should be performed only under the supervision of a qualified physician in a laboratory equipped with appropriate resuscitation and support apparatus. There have been infrequent reports of signs and symptoms consistent with seizure and severe hypersensitivity after administration of Tc99m Sestamibi.

Please see brief summary of prescribing information on adjacent page.

Brief Summary

Cardiolite®

Kit for the preparation of Technetium Tc99m Sestamibi

FOR DIAGNOSTIC USE

DESCRIPTION: Each 5ml vial contains a sterile, non-pyrogenic, lyophilized mixture of:
Tetrakis (2-methoxy isobutyl isonitrile) Copper (I) tetrafluoroborate - 1.0mg
Sodium Citrate Dihydrate - 2.6mg
L-Cysteine Hydrochloride Monohydrate - 1.0mg
Mannitol - 20mg
Stannous Chloride, Dihydrate, minimum ($SnCl_2 \cdot 2H_2O$) - 0.025mg
Stannous Chloride, Dihydrate, ($SnCl_2 \cdot 2H_2O$) - 0.075mg
Tin Chloride (Stannous and Stannic) Dihydrate, maximum (as $SnCl_2 \cdot 2H_2O$) - 0.086mg

Prior to lyophilization the pH is 5.3-5.9. 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 the evaluation of ischemic heart disease. CARDIOLITE®, Kit for the Preparation of Technetium Tc99m Sestamibi is useful in distinguishing normal from abnormal myocardium and in the localization of the abnormality, in patients with suspected myocardial infarction, ischemic heart disease or coronary artery disease. Evaluation of ischemic heart disease or coronary artery disease is accomplished using rest and stress techniques.

CARDIOLITE®, Kit for the Preparation of Technetium Tc99m Sestamibi is also useful in the evaluation of myocardial function using the first pass technique.

Rest-exercise imaging with Tc99m Sestamibi in conjunction with other diagnostic information may be used to evaluate ischemic heart disease and its localization.

In clinical trials, using a template consisting of the anterior wall, inferior-posterior wall and isolated apex, localization in the anterior or inferior-posterior wall in patients with suspected angina pectoris or coronary artery disease was shown. Disease localization isolated to the apex has not been established. Tc99m Sestamibi has not been studied or evaluated in other cardiac diseases.

It is usually not possible to differentiate recent from old myocardial infarction or to differentiate recent myocardial infarction from ischemia.

CONTRAINDICATIONS: None known.

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

PRECAUTIONS:

GENERAL

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

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

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

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

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

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

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

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

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

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

Carcinogenesis, Mutagenesis, Impairment of Fertility

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

The active intermediate, $[Cu(MIBI)_4]BF_4$, 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 (≥ 20μg/ml), an increase in cells with chromosome aberrations was observed in the *in vitro* human lymphocyte assay. $[Cu(MIBI)_4]BF_4$ did not show genotoxic effects in the *in vivo* mouse micronucleus test at a dose which caused systemic and bone marrow toxicity (9mg/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.

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 parosmia and/or taste perversion (metallic or bitter taste) immediately after the injection of Technetium Tc99m Sestamibi. A few cases of transient headache, flushing, edema, injection site inflammation, dyspepsia, nausea, vomiting, pruritus, rash, urticaria, dry mouth, fever, dizziness, fatigue, dyspnea, and hypotension also have been attributed to administration of the agent. Cases of angina, chest pain, and death have occurred (see Warnings and Precautions). The following adverse reactions have been rarely reported: signs and symptoms consistent with seizure occurring shortly after administration of the agent; transient arthritis in a wrist joint; and severe hypersensitivity, which was characterized by dyspnea, hypotension, bradycardia, asthenia and vomiting within two hours after a second injection of Technetium Tc99m Sestamibi.

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

370-1110MBq (10-30mCi)

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.

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

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

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

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

Table 4. Radiation Absorbed Doses from Tc99m Sestamibi

	Estimated Radiation Absorbed Dose			
	REST			
	2.0 hour void		4.8 hour void	
Organ	rads/ 30mCi	mGy/ 1110MBq	rads/ 30mCi	mGy/ 1110MBq
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

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

Radiopharmaceutical Internal Dose Information Center, July, 1990, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge, TN 37831, (615) 576-3449.

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

Prior to lyophilization the pH is between 5.3-5.9. The contents of the vials are lyophilized and stored under nitrogen. Store at 15-25°C before and after reconstitution. Technetium Tc99m Sestamibi contains no preservatives. Included in each two (2) vial kit are one (1) package insert, six (6) vial shield labels and six (6) radiation warning labels. Included in each five (5) vial kit are one (1) package insert, six (6) vial shield labels and six (6) radiation warning labels. Included in each thirty (30) vial kit are one (1) package insert, thirty (30) vial shield labels and thirty (30) radiation warning labels.

The U.S. Nuclear Regulatory Commission has approved this reagent kit for distribution to persons licensed to use byproduct material pursuant to section 35.11 and section 35.200 of Title 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

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Brief Summary

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METASTRON®
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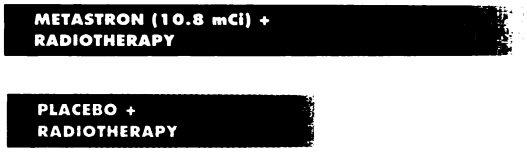
Simultaneously targets all sites of metastatic bone pain.

LONG-TERM PALLIATION IN ONE CONVENIENT DOSE.

- Palliation of pain demonstrated in the majority of patients.[1,2]
- One dose of Metastron provides pain relief for an average of up to 6 months.[1]
- As an adjunct to radiotherapy, 63.6% of patients receiving Metastron (10.8 mCi) had reduced pain at 6 months as compared to 35.0% of patients receiving placebo (n=42).[3]
- Preferentially incorporates into multiple sites of metastatic bone — the dose absorbed in metastatic deposits is approximately ten times that absorbed in normal bone marrow.[4,5]

ADJUNCTIVELY DELAYS THE MEDIAN TIME TO PROGRESSION OF PAIN BY 28.1 WEEKS OVER RADIOTHERAPY ALONE.

Median time to requirement for additional radiotherapy at new pain site.[3]



From a multicenter, double-blind study of 126 patients who received a single injection of either Metastron 400 MBq, 10.8 mCi or placebo with fractionated doses of local field radiotherapy (20-30 Gy).

HIGHLY EFFECTIVE NON-NARCOTIC THERAPY.

- Metastron may reduce or eliminate the need for dose escalation of narcotic analgesics.[1,3]
- Onset of pain relief is generally within 7 to 20 days—Metastron is therefore not recommended in patients with very short life expectancy.

GENERALLY WELL TOLERATED.

- A depression of white blood cell (20%) and platelet (30%) levels may occur in patients treated with Metastron—clinically significant toxicity is rare.
- Metastron should be used with caution in patients with significantly compromised bone marrow from previous treatment. Caution should also be used in patients with platelet counts below 60,000 or white blood cell counts below 2,400.
- Some patients have reported a transient increase in bone pain lasting 36 to 72 hours following an injection—this can usually be controlled with analgesics.

AN IMPROVED QUALITY OF LIFE FOR PATIENTS.

- Metastron may improve patient quality of life, as measured by assessments of mood, mobility, appetite, sleep pattern, and analgesic consumption.[1-4]

Please see following page for full prescribing information.

METASTRON®

(STRONTIUM-89 CHLORIDE INJECTION)

An effective way to manage metastatic bone pain.

METASTRON®
(STRONTIUM-89 CHLORIDE INJECTION)

An effective way to manage metastatic bone pain.

Consult your radiation safety officer for product availability or call Amersham Healthcare/ Medi-Physics Technical Services at 1-800-554-0157.

Metastron® (Strontium-89 Chloride Injection)

Description: Metastron is a sterile, non-pyrogenic, aqueous solution of Strontium-89 Chloride for intravenous administration. The solution contains no preservative.

Each milliliter contains:	Strontium Chloride	10.9 - 22.6 mg
	Water for Injection	q.s. to 1 mL

The radioactive concentration is 37 MBq/mL, 1 mCi/mL and the specific activity is 2.96 - 6.17 MBq/mg, 80-167 µCi/mg at calibration. The pH of the solution is 4 - 7.5.

Physical Characteristics: Strontium-89 decays by beta emission with a physical half-life of 50.5 days. The maximum beta energy is 1.463 MeV (100%). The maximum range of ß- from Strontium-89 in tissue is approximately 8 mm.

Radioactive decay factors to be applied to the stated value for radioactive concentration at calibration, when calculating injection volumes at the time of administration, are given in Table 1.

Table 1: Decay of Strontium-89

Day*	Factor	Day*	Factor	Day*	Factor	Day*	Factor
-24	1.39	-12	1.18	+6	0.92	+18	0.78
-22	1.35	-10	1.15	+8	0.90	+20	0.76
-20	1.32	-8	1.12	+10	0.87	+22	0.74
-18	1.28	-6	1.09	+12	0.85	+24	0.72
-16	1.25	-4	1.06	+14	0.83	+26	0.70
-14	1.21	-2	1.03	+16	0.80	+28	0.68
		0 = calibration	1.00				

*Days before (-) or after (+) the calibration date stated on the vial.

Clinical Pharmacology: Following intravenous injection, soluble strontium compounds behave like their calcium analogs, clearing rapidly from the blood and selectively localizing in bone mineral. Uptake of strontium by bone occurs preferentially in sites of active osteogenesis; thus primary bone tumors and areas of metastatic involvement (blastic lesions) can accumulate significantly greater concentrations of strontium than surrounding normal bone.

Strontium-89 Chloride is retained in metastatic bone lesions much longer than in normal bone, where turnover is about 14 days. In patients with extensive skeletal metastases, well over half of the injected dose is retained in the bones.

Excretion pathways are two-thirds urinary and one-third fecal in patients with bone metastases. Urinary excretion is higher in people without bone lesions. Urinary excretion is greatest in the first two days following injection.

Strontium-89 is a pure beta emitter and Strontium-89 Chloride selectively irradiates sites of primary and metastatic bone involvement with minimal irradiation of soft tissues distant from the bone lesions. (The maximum range in tissue is 8 mm; maximum energy is 1.463 MeV.) Mean absorbed radiation doses are listed under the **Radiation Dosimetry** section.

Clinical trials have examined relief of pain in cancer patients who have received therapy for bone metastases (external radiation to indexed sites) but in whom persistent pain recurred. In a multi-center Canadian placebo-controlled trial of 126 patients, pain relief occurred in more patients treated with a single injection of Metastron than in patients treated with an injection of placebo. Results are given in the following tables.

Table 2 compares the percentage and number of patients treated with Metastron or placebo who had reduced pain and no increase in analgesic or radiotherapy re-treatment.

Table 2: Comparison of the effects of Strontium-89 and placebo, as adjunct to radiotherapy, on treatment outcome over time.

	Months Post-Treatment					
	1	2	3	4	5	6
Metastron	71.4% (n=42)	78.9% (n=38)	60.6% (n=33)	59.3% (n=27)	36.4% (n=22)	63.6% (n=22)
Placebo	61.4% (n=44)	57.1% (n=35)	55.9% (n=34)	25.0% (n=24)	31.8% (n=22)	35.0% (n=20)

At each visit, treatment success, defined as a reduction in a patient's pain score without any increase in analgesic intake and without any supplementary radiotherapy at the index site, was more frequent among patients assigned to Metastron than to placebo.

Table 3 compares the number and percentage of patients treated with Metastron or placebo as an adjunct to radiotherapy who were pain free without analgesic at the intervals shown.

Table 3: Comparison of the effects of Strontium-89 and placebo, as adjunct to radiotherapy, on reduction of pain score and analgesic score to zero.

	Months Post-Treatment						
	1	2	3	4	5	6	9
Metastron	6	5	5	3	4	4	2
	14.3% (n=42)	13.2% (n=38)	15.2% (n=33)	11.1% (n=27)	18.2% (n=22)	18.2% (n=22)	18.2% (n=11)
Placebo	3	3	2	0	1	1	0
	6.8% (n=44)	8.6% (n=35)	5.9% (n=34)	(n=24)	4.5% (n=22)	5% (n=20)	(n=17)

The number of patients classified at each visit as treatment successes who were pain free at the index site *and* required no analgesics was consistently higher in the Metastron group.

New pain sites were less frequent in patients treated with Metastron.

In another clinical trial, pain relief was greater in a group of patients treated with Metastron compared with a group treated with non-radioactive strontium-88.

Indications and Usage: Metastron (Strontium-89 Chloride Injection) is indicated for the relief of bone pain in patients with painful skeletal metastases.

The presence of bone metastases should be confirmed prior to therapy.

Contraindications: None known.

Warnings: Use of Metastron in patients with evidence of seriously compromised bone marrow from previous therapy or disease infiltration is not recommended unless the potential benefit of the treatment outweighs its risks. Bone marrow toxicity is to be expected following the administration of Metastron, particularly white blood cells and platelets. The extent of toxicity is variable. It is recommended that the patient's peripheral blood cell counts be monitored at least once every other week. Typically, platelets will be depressed by about 30% compared to pre-administration levels. The nadir of platelet depression in most patients is found between 12 and 16 weeks following administration of Metastron. White blood cells are usually depressed to a varying extent compared to pre-administration levels. Thereafter, recovery occurs slowly, typically reaching pre-administration levels six months after treatment unless the patient's disease or additional therapy intervenes.

In considering repeat administration of Metastron, the patient's hematologic response to the initial dose, current platelet level and other evidence of marrow depletion should be carefully evaluated.

Verification of dose and patient identification is necessary prior to administration because Metastron delivers a relatively high dose of radioactivity.

Metastron may cause fetal harm when administered to a pregnant woman. There are no adequate and well-controlled studies in pregnant women. If this drug is used during pregnancy, or if the patient becomes pregnant while receiving this drug, the patient should be apprised of the potential hazard to the fetus. Women of childbearing potential should be advised to avoid becoming pregnant.

Precautions: Metastron is not indicated for use in patients with cancer not involving bone. Metastron should be used with caution in patients with platelet counts below 60,000 and white cell counts below 2,400.

Radiopharmaceuticals should only be used 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.

Metastron, like other radioactive drugs, must be handled with care and appropriate safety measures taken to minimize radiation to clinical personnel.

In view of the delayed onset of pain relief, typically 7 to 20 days post injection, administration of Metastron to patients with very short life expectancy is not recommended.

A calcium-like flushing sensation has been observed in patients following a rapid (less than 30-second injection) administration.

Special precautions, such as urinary catheterization, should be taken following administration to patients who are incontinent to minimize the risk of radioactive contamination of clothing, bed linen and the patient's environment.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Data from a repetitive dose animal study suggests that Strontium-89 Chloride is a potential carcinogen. Thirty-three of 40 rats injected with Strontium-89 Chloride in ten consecutive monthly doses of either 250 or 350 µCi/kg developed malignant bone tumors after a latency period of approximately 9 months. No neoplasia was observed in the control animals. Treatment with Strontium-89 Chloride should be restricted to patients with well documented metastatic bone disease.

Adequate studies with Strontium-89 Chloride have not been performed to evaluate mutagenic potential or effects on fertility.

Pregnancy: Teratogenic effects.

Pregnancy Category D. See **Warnings** section.

Nursing Mothers: Because Strontium acts as a calcium analog, secretion of Strontium-89 Chloride into human milk is likely. It is recommended that nursing be discontinued by mothers about to receive intravenous Strontium-89 Chloride. It is not known whether this drug is excreted in human milk.

Pediatric Use: Safety and effectiveness in children below the age of 18 years have not been established.

Adverse Reactions: A single case of fatal septicemia following leukopenia was reported during clinical trials. Most severe reactions of marrow toxicity can be managed by conventional means.

A small number of patients have reported a transient increase in bone pain at 36 to 72 hours after injection. This is usually mild and self-limiting, and controllable with analgesics. A single patient reported chills and fever 12 hours after injection without long-term sequelae.

Dosage and Administration: The recommended dose of Metastron is 148 MBq, 4 mCi, administered by slow intravenous injection (1-2 minutes). Alternatively, a dose of 1.5 - 2.2 MBq/kg, 40-60 µCi/kg body weight may be used.

Repeated administrations of Metastron should be based on an individual patient's response to therapy, current symptoms, and hematologic status, and are generally not recommended at intervals of less than 90 days.

The patient dose should be measured by a suitable radioactivity calibration system immediately prior to administration.

Radiation Dosimetry: The estimated radiation dose that would be delivered over time by the intravenous injection of 37 MBq, 1 mCi of Strontium-89 to a normal healthy adult is given in Table 4. Data are taken from the ICRP publication "Radiation Dose to Patients from Radiopharmaceuticals"-ICRP #53, Vol. 18 No. 1-4, Page 171, Pergamon Press, 1988.

Table 4: Strontium-89 Dosimetry

Organ	mGy/MBq	rad/mCi	Organ	mGy/MBq	rad/mCi
Bone Surface	17.0	63.0	Testes	0.8	2.9
Red Bone Marrow	11.0	40.7	Ovaries	0.8	2.9
Lower Bowel Wall	4.7	17.4	Uterine Wall	0.8	2.9
Bladder Wall	1.3	4.8	Kidneys	0.8	2.9

When blastic osseous metastases are present, significantly enhanced localization of the radiopharmaceutical will occur with correspondingly higher doses to the metastases compared with normal bones and other organs.

The radiation dose hazard in handling Strontium-89 Chloride injection during dose dispensing and administration is similar to that from phosphorus-32. The beta emission has a range in water of about 8 mm (max.) and in glass of about 3 mm, but the bremsstrahlung radiation may augment the contact dose.

Measured values of the dose on the surface of the unshielded vial are about 65 mR/minute/mCi.

It is recommended that the vial be kept inside its transportation shield whenever possible.

How Supplied: Metastron is supplied in a 10 mL vial containing 148 MBq, 4 mCi. The vial is shipped in a transportation shield with approximately 3 mm lead wall thickness, package insert, and two therapeutic agent warning labels.

The vial and its contents should be stored inside its transportation container at room temperature (15-25° C, 59-77° F).

The calibration date (for radioactivity content) and expiration date are quoted on the vial label. The expiration date will be 28 days after calibration. Stability studies have shown no change in any of the product characteristics monitored during routine product quality control over the period from manufacture to expiration.

This radiopharmaceutical is licensed by the Illinois Department of Nuclear Safety for distribution to persons licensed pursuant to 32 Illinois Adm. Code 330.260 (a) and Part 335 Subpart F.335.5010 or under equivalent licenses of the USNRC or an Agreement State.

THIS PRODUCT INFORMATION ISSUED JUNE, 1993. Product Code: SMS.2PA

Manufactured by: **Amersham International plc**, Amersham, England

Medi-Physics, Inc.
2636 S. Clearbrook Drive
Arlington Heights, Illinois 60005

References:

1. Data on file, Amersham International plc, Amersham, England. 2. Lewington VJ, McEwan AJ, Ackery DM, et al. A prospective, randomised double-blind crossover study to examine the efficacy of strontium-89 in pain palliation in patients with advanced prostate cancer metastatic to bone. *Eur J Cancer*. 1991;27:954-958. 3. Porter AT, McEwan AJB, Powe JE, et al. Results of a randomized phase-III trial to evaluate the efficacy of strontium-89 adjuvant to local field external beam irradiation in the management of endocrine resistant metastatic prostate cancer. *Int J Radiat Oncol Biol Phys*. 1993;25:805-813. 4. Blake GM, Zivanovic MA, McEwan AJ, et al. "Sr radionuclide therapy: dosimetry and haematological toxicity in two patients with metastasising prostatic carcinoma. *Eur J Nucl Med*. 1987;13:41-46. 5. Blake GM, Zivanovic MA, McEwan AJ, et al. Sr-89 therapy: strontium kinetics in disseminated carcinoma of the prostate. *Eur J Nucl Med*. 1986;12:447-454.

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ZENECA
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Wilmington, Delaware 19897 USA

Amersham **HEALTHCARE**

ADJUNCTIVELY DELAYS THE MEDIAN TIME TO PROGRESSION OF PAIN BY 28.1 WEEKS OVER RADIOTHERAPY ALONE.

Median time to requirement for additional radiotherapy at new pain site.[3]

From a multicenter, double-blind study of 126 patients who received a single injection of either Metastron 400 MBq, 10.8 mCi or placebo with fractionated doses of local field radiotherapy (20-30 Gy).

HIGHLY EFFECTIVE NON-NARCOTIC THERAPY.

- Metastron may reduce or eliminate the need for dose escalation of narcotic analgesics.[1,3]
- Onset of pain relief is generally within 7 to 20 days—Metastron is therefore not recommended in patients with very short life expectancy.

GENERALLY WELL TOLERATED.

- A depression of white blood cell (20%) and platelet (30%) levels may occur in patients treated with Metastron—clinically significant toxicity is rare.
- Metastron should be used with caution in patients with significantly compromised bone marrow from previous treatment. Caution should also be used in patients with platelet counts below 60,000 or white blood cell counts below 2,400.
- Some patients have reported a transient increase in bone pain lasting 36 to 72 hours following an injection—this can usually be controlled with analgesics.

AN IMPROVED QUALITY OF LIFE FOR PATIENTS.

- Metastron may improve patient quality of life, as measured by assessments of mood, mobility, appetite, sleep pattern, and analgesic consumption.[1-4]

Please see following page for full prescribing information.

METASTRON®
(STRONTIUM-89 CHLORIDE INJECTION)

An effective way to manage metastatic bone pain.

METASTRON®
(STRONTIUM-89 CHLORIDE INJECTION)

An effective way to manage metastatic bone pain.

Consult your radiation safety officer for product availability or call Amersham Healthcare/ Medi-Physics Technical Services at 1-800-554-0157.

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Each milliliter contains:	Strontium Chloride	10.9 - 22.6 mg
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Strontium-89 Chloride is retained in metastatic bone lesions much longer than in normal bone, where turnover is about 14 days. In patients with extensive skeletal metastases, well over half of the injected dose is retained in the bones.

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THIS PRODUCT INFORMATION ISSUED JUNE, 1993. Product Code: SMS.2PA

Manufactured by: **Amersham International plc**, Amersham, England

Medi-Physics, Inc., 2636 S. Clearbrook Drive, Arlington Heights, Illinois 60005

References:

1. Data on file, Amersham International plc, Amersham, England. 2. Lewington VJ, McEwan AJ, Ackery DM, et al. A prospective, randomised double-blind crossover study to examine the efficacy of strontium-89 in pain palliation in patients with advanced prostate cancer metastatic to bone. *Eur J Cancer*. 1991;27:954-958. 3. Porter AT, McEwan AJB, Powe JE, et al. Results of a randomized phase-III trial to evaluate the efficacy of strontium-89 adjuvant to local field external beam irradiation in the management of endocrine resistant metastatic prostate cancer. *Int J Radiat Oncol Biol Phys*. 1993;25:805-813. 4. Blake GM, Zivanovic MA, McEwan AJ, et al. "Sr radionuclide therapy: dosimetry and haematological toxicity in two patients with metastasising prostatic carcinoma. *Eur J Nucl Med*. 1987;13:41-46. 5. Blake GM, Zivanovic MA, McEwan AJ, et al. Sr-89 therapy: strontium kinetics in disseminated carcinoma of the prostate. *Eur J Nucl Med*. 1986;12:447-454.

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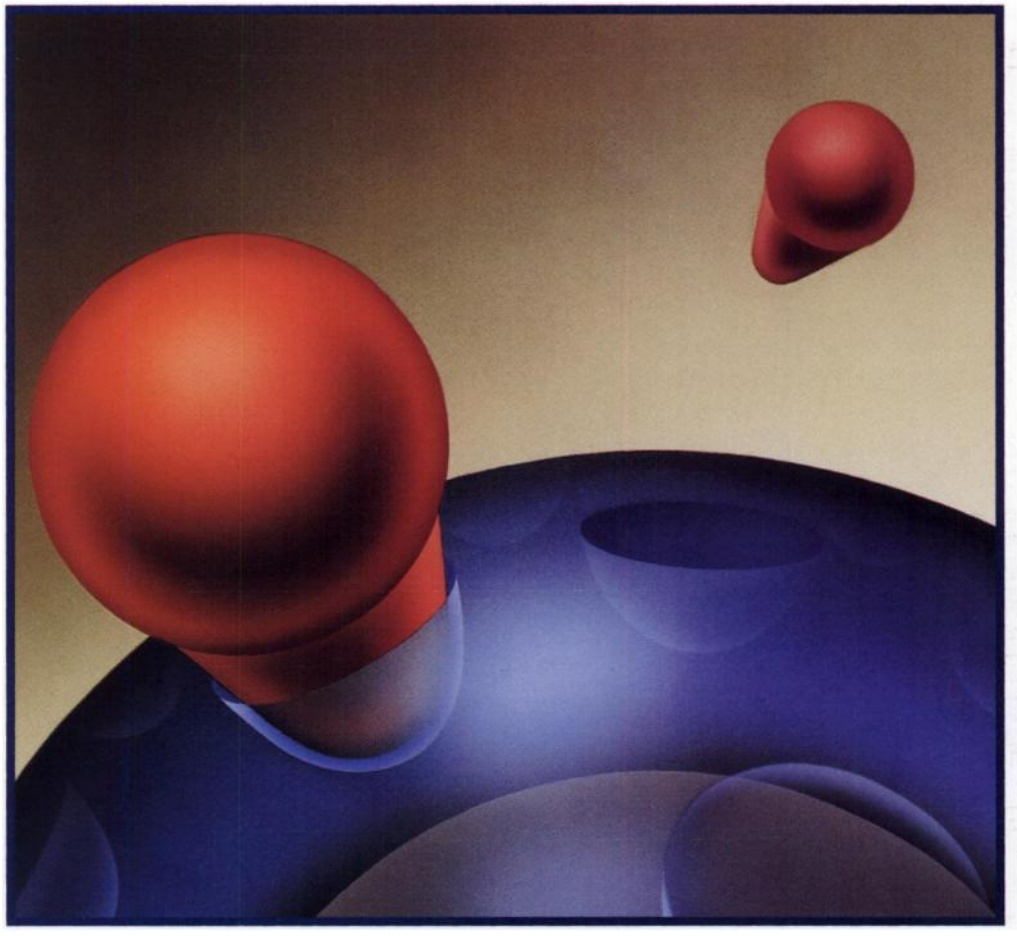
Amersham **HEALTHCARE**

Introducing

A New Way to Image Neuroendocrine Tumors

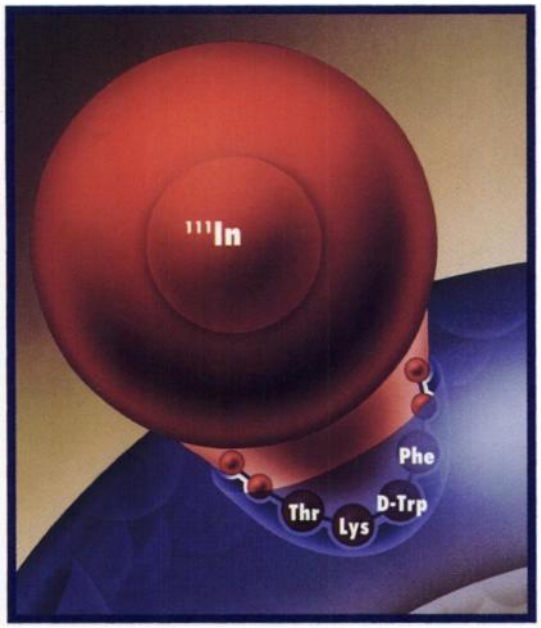


MALLINCKRODT
Nuclear Medicine

Introducing

OCTREOSCAN®

Kit for the Preparation of Indium In-111 Pentetreotide

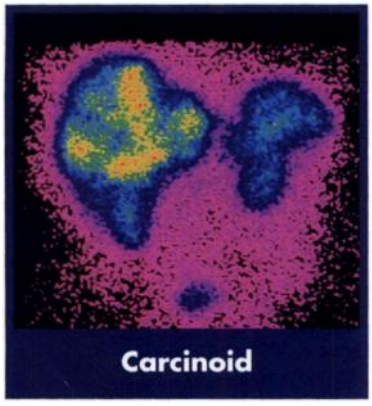


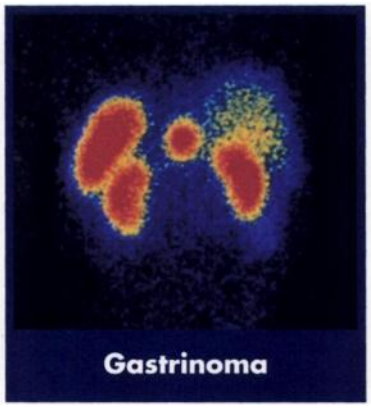
Somatostatin Receptor Imaging for Neuroendocrine Tumors

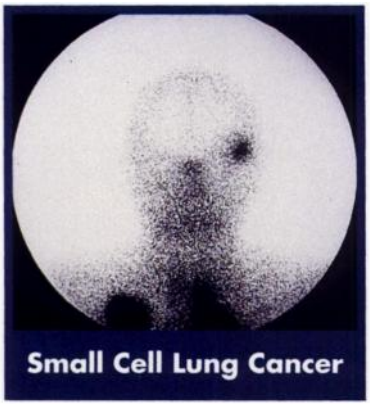
Somatostatin is an endogenous neuropeptide that acts as a regulator of growth hormone secretion. Neuroendocrine tumors contain a high density of somatostatin receptors. OctreoScan®, a radiolabeled form of the somatostatin analog octreotide, shares the same binding site as naturally occurring somatostatin, which makes it a sensitive indicator for somatostatin receptor-bearing neuroendocrine tumors. Since the concentration of receptors on tumors may vary, the sensitivity of OctreoScan® may vary among tumor types.

Enhances Neuroendocrine Tumor Localization

Neuroendocrine tumors generally are small and slow-growing in nature, which can make localization difficult. Functional imaging with OctreoScan® frequently is sensitive enough to enable localization of small primary tumors or metastases. In a multicenter study, OctreoScan® results were consistent with the final diagnosis in 86.4% of patients (267/309).* OctreoScan imaging results produced a change in patient management in 31.1% of cases (64/206).*


Carcinoid


Gastrinoma

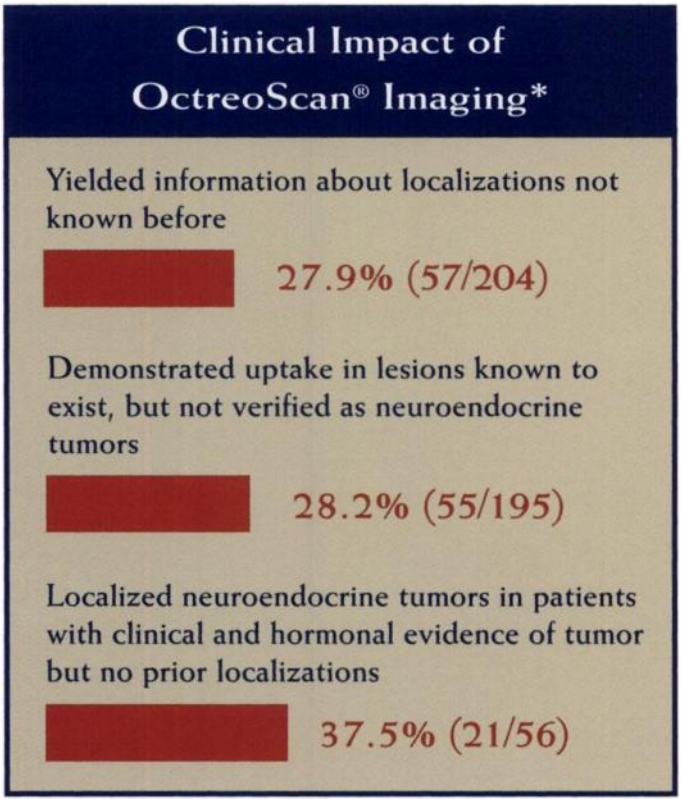

Small Cell Lung Cancer

*Source: Data on file, Mallinckrodt Medical, Inc.

Patient Management Benefits

OctreoScan® whole-body imaging enables rapid localization of the primary neuroendocrine tumor and sites of metastatic spread. OctreoScan® imaging also provides tumor localization and characterization information that can help determine the extent of a patient's disease accurately, which may obviate the need for additional invasive procedures such as biopsy or angiography.

OctreoScan® imaging may enable clinicians to modify a patient's diagnostic work-up and initiate appropriate measures (resection, octreotide therapy) at an early stage of the disease process. OctreoScan® also can be used for patient follow-up to monitor the effects of surgery, radiotherapy, or chemotherapy.



Special Considerations

Adverse effects observed in clinical trials (at a frequency of <1%) included dizziness, fever, flush, headache, hypotension, changes in liver enzymes, joint pain, nausea, sweating and weakness. Pentetreotide is an analog of octreotide, which has been shown to produce severe hypoglycemia in insulinoma patients. In patients suspected of having an insulinoma, an IV solution containing glucose should be administered before and during OctreoScan® administration. Patients should be well hydrated prior to OctreoScan® administration to enhance renal clearance and reduce the radiation dose to the bladder and other target organs. Use in patients with impaired renal function should be carefully considered.

The sensitivity of OctreoScan® scintigraphy may be reduced in patients concurrently receiving therapeutic doses of octreotide acetate. Consideration should be given to suspending octreotide therapy before OctreoScan® administration and monitoring the patient for signs of withdrawal.

Please consult the following page for a brief summary of prescribing information.

OCTREOSCAN®

Kit for the Preparation of Indium In-111 Pentetreotide

BRIEF SUMMARY OF PRESCRIBING INFORMATION

DESCRIPTION

OctreoScan® is a kit for the preparation of indium In-111 pentetreotide, a diagnostic radiopharmaceutical. It is a kit consisting of two components:

1) A 10-mL OctreoScan Reaction Vial which contains a lyophilized mixture of 10 µg pentetreotide.

2) A 10-mL vial of Indium In-111 Chloride Sterile Solution.

Indium In-111 pentetreotide is prepared by combining the two kit components.

INDICATIONS AND USAGE

Indium In-111 pentetreotide is an agent for the scintigraphic localization of primary and metastatic neuroendocrine tumors bearing somatostatin receptors.

CONTRAINDICATIONS

None known.

WARNINGS

DO NOT ADMINISTER IN TOTAL PARENTERAL NUTRITION (TPN) ADMIXTURES OR INJECT INTO TPN INTRAVENOUS ADMINISTRATION LINES; IN THESE SOLUTIONS, A COMPLEX GLYCOSYL OCTREOTIDE CONJUGATE MAY FORM.

The sensitivity of scintigraphy with indium In-111 pentetreotide may be reduced in patients concurrently receiving therapeutic doses of octreotide acetate. Consideration should be given to temporarily suspending octreotide acetate therapy before the administration of indium In-111 pentetreotide and to monitoring the patient for any signs of withdrawal.

PRECAUTIONS

General

1. Therapy with octreotide acetate can produce severe hypoglycemia in patients with insulinomas. Since pentetreotide is an analog of octreotide, an intravenous line is recommended in any patient suspected of having an insulinoma. An intravenous solution containing glucose should be administered just before and during administration of indium In-111 pentetreotide.

2. The contents of the two vials supplied with the kit are intended only for use in the preparation of indium In-111 pentetreotide and are NOT to be administered separately to the patient.

3. Since indium In-111 pentetreotide is eliminated primarily by renal excretion, use in patients with impaired renal function should be carefully considered.

4. To help reduce the radiation dose to the thyroid, kidneys, bladder, and other target organs, patients should be well hydrated before the administration of indium In-111 pentetreotide. They should increase fluid intake and void frequently for one day after administration of this drug. In addition, it is recommended that patients be given a mild laxative (e.g., bisacodyl or lactulose) before and after administration of indium In-111 pentetreotide (see Dosage and Administration section).

5. Indium In-111 pentetreotide should be tested for labeling yield of radioactivity prior to administration. The product must be used within six hours of preparation.

6. Components of the kit are sterile and nonpyrogenic. To maintain sterility, it is essential that directions are followed carefully. Aseptic technique must be used during the preparation and administration of indium In-111 pentetreotide.

7. Octreotide acetate and the natural somatostatin hormone may be associated with cholelithiasis, presumably by altering fat absorption and possibly by decreasing motility of the gallbladder. A single dose of indium In-111 pentetreotide is not expected to cause cholelithiasis.

8. As with any other radioactive material, appropriate shielding should be used to avoid unnecessary radiation exposure to the patient, occupational workers, and other persons.

9. Radiopharmaceuticals should be used only by physicians who are qualified by specific training in the safe use and handling of radionuclides.

Carcinogenesis, Mutagenesis, Impairment of Fertility

Studies have not been performed with indium In-111 pentetreotide to evaluate carcinogenic potential or effects on fertility. Pentetreotide was evaluated for mutagenic potential in an in vitro mouse lymphoma forward mutation assay and an in vivo mouse micronucleus assay; evidence of mutagenicity was not found.

Pregnancy Category C

Animal reproduction studies have not been conducted with indium In-111 pentetreotide. It is not known whether indium In-111 pentetreotide can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Therefore, indium In-111 pentetreotide should not be administered to a pregnant woman unless the potential benefit justifies the potential risk to the fetus.

Nursing Mothers

It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when indium In-111 pentetreotide is administered to a nursing woman.

Pediatric Use

Safety and effectiveness in children have not been established.

ADVERSE REACTIONS

The following adverse effects were observed in clinical trials at a frequency of less than 1% of 538 patients: dizziness, fever, flush, headache, hypotension, changes in liver enzymes, joint pain, nausea, sweating, and weakness. These adverse effects were transient. Also in clinical trials, there was one reported case of bradycardia and one case of decreased hematocrit and hemoglobin.

Pentetreotide is derived from octreotide which is used as a therapeutic agent to control symptoms from certain tumors. The usual dose for indium In-111 pentetreotide is approximately 5 to 20 times less than for octreotide and is subtherapeutic. The following adverse reactions have been associated with octreotide in 3% to 10% of patients: nausea, injection site pain, diarrhea, abdominal pain/discomfort, loose stools, and vomiting. Hypertension and hyper- and hypoglycemia have also been reported with the use of octreotide.

DOSAGE AND ADMINISTRATION

Before administration, a patient should be well hydrated. After administration, the patient must be encouraged to drink fluids liberally. Elimination of extra fluid intake will help reduce the radiation dose by flushing out unbound, labelled pentetreotide by glomerular filtration. It is also recommended that a mild laxative (e.g., bisacodyl or lactulose) be given to the patient starting the evening before the radioactive drug is administered, and continuing for 48 hours. Ample fluid uptake is necessary during this period as a support both to renal elimination and the bowel-cleansing process. In a patient with an insulinoma, bowel-cleansing should be undertaken only after consultation with an endocrinologist.

The recommended intravenous dose for planar imaging is 111 MBq (3.0 mCi) of indium In-111 pentetreotide prepared from an OctreoScan kit. The recommended intravenous dose for SPECT imaging is 222 MBq (6.0 mCi) of indium In-111 pentetreotide.

The dose should be confirmed by a suitably calibrated radioactivity ionization chamber immediately before administration.

As with all intravenously administered products, OctreoScan should be inspected visually for particulate matter an discoloration prior to administration, whenever solution and container permit. Preparations containing particulate matter or discoloration should not be administered. They should be disposed of in a safe manner, in compliance with applicable regulations.

Aseptic techniques and effective shielding should be employed in withdrawing doses for administration to patients Waterproof gloves should be worn during the administration procedure.

Do not administer OctreoScan in TPN solutions or through the same intravenous line.

Radiation Dosimetry

The estimated radiation doses[1] to the average adult (70 kg) from intravenous administration of 111 MBq (3 mCi) and 222 MBq (6 mCi) are presented below. These estimates were calculated by Oak Ridge Associated Universities using the data published by Krenning, et al.[2]

Estimated Absorbed Radiation Doses after Intravenous Administration of Indium In-111 Pentetreotide[3] to a 70 kg patient

	PLANAR		SPECT	
Kidneys	54.16	5.42	108.32	10.83
Liver	12.15	1.22	24.31	2.43
Spleen	73.86	7.39	147.73	14.77
Uterus	6.34	0.63	12.67	1.27
Ovaries	4.89	0.49	9.79	0.98
Testes	2.90	0.29	5.80	0.58
Red Marrow	3.46	0.35	6.91	0.69
Urinary Bladder Wall	30.24	3.02	60.48	6.05
GI Tract				
Stomach Wall	5.67	0.57	11.34	1.13
Small Intestine	4.78	0.48	9.56	0.96
Upper Large Intestine	5.80	0.58	11.59	1.16
Lower Large Intestine	7.73	0.77	15.46	1.55
Adrenals	7.55	0.76	15.11	1.51
Thyroid	7.43	0.74	14.86	1.49
Effective Dose[4] Equivalent	13.03	1.30	26.06	2.61

1. Values listed include a correction for a maximum of 0.1% indium In-114m radiocontaminant at calibration.

2. E.P. Krenning, W.H. Bakker, P.P.M. Kooij, W.A.P. Breeman, H.Y.Oei, M. de Jong, J.C. Reubi, T.J. Visser, C. Bruns, D.J. Kwekkeboom, A.E.M. Reijs, P.M. van Hagen, J.W. Koper, and S.W.J. Lamberts, "Somatostatin Receptor Scintigraphy with Indium-111-DTPA-D-Phe-1-Octreotide in Man: Metabolism, Dosimetry and Comparison with Iodine-123-Tyr-3-Octreotide," The Journal of Nuclear Medicine, Vol. 33, No. 5, May 1992, pp. 652-658.

3. Assumes 4.8 hour voiding interval and International Commission on Radiological Protection (ICRP) 30 model f the gastrointestinal tract calculations.

4. Estimated according to ICRP Publication 53.

HOW SUPPLIED

The OctreoScan kit, NDC 0019-9050, is supplied with the following components:

1. A 10-mL OctreoScan Reaction Vial which contains a lyophilized mixture of:
   (i) 10 µg pentetreotide [N-(diethylenetriamine-N,N,N',N"-tetraacetic acid-N"-acetyl)-D-phenylalanyl-L-hemicystyl-L-phenylalanyl-D-tryptophyl-L-lysyl-L-threonyl-L-hemicystyl-L-threoninol cyclic (2 – 7) disulfide], (also known as octreotide DTPA),
   (ii) 2.0 mg gentisic acid [2,5-dihydroxybenzoic acid],
   (iii) 4.9 mg trisodium citrate, anhydrous,
   (iv) 0.37 mg citric acid, anhydrous, and
   (v) 10.0 mg inositol.

Before lyophilization, sodium hydroxide or hydrochloric acid may have been added for pH adjustment. The vial contents are sterile and nonpyrogenic. No bacteriostatic preservative is present.

2. A 10-mL vial of Indium In-111 Chloride Sterile Solution, which contains 1.1 mL of 111 MBq/mL (3.0 mCi/mL) indium In-111 chloride in 0.02 N HCl at time of calibration. The vial also contains ferric chloride at a concentratio of 3.5 µg/mL (ferric ion, 1.2 µg/mL). The vial contents are sterile and nonpyrogenic. No bacteriostatic preservati is present.

In addition, the kit also contains the following items: (1) a 25 G x 5/8" needle (B-D, Monoject) used to transfer Indium In-111 Chloride Sterile Solution to the OctreoScan Reaction Vial, (2) a pressure sensitive label, and (3) a package insert.

MALLINCKRODT
Nuclear Medicine

Mallinckrodt Medical, Inc.,
Mallinckrodt Nuclear Medicine Division
P.O. Box 5840
St. Louis, MO 63134

For orders, product information, and medical assistance, call us toll free at (800) 325-3688.

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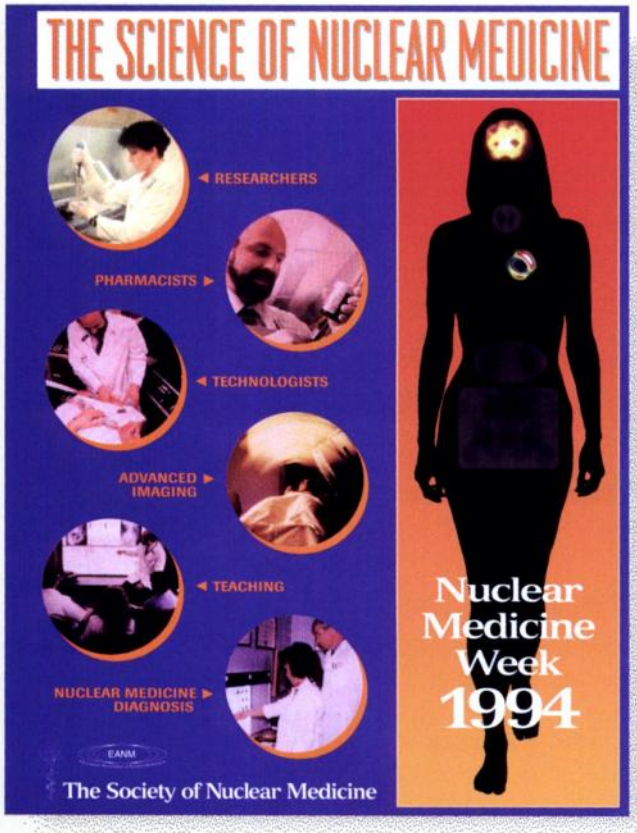
CELEBRATE NUCLEAR MEDICINE WEEK OCTOBER 2-8 1994



Nuclear Medicine Week—October 2 through 8—is the prime time to demonstrate pride in your profession — and to make the profession's presence known both among the public and other health care professionals.

Under the sponsorship of the Society of Nuclear Medicine and SNM's Technologist Section, Nuclear Medicine Week offers an excellent opportunity to educate, to stimulate, and to promote the successes of nuclear medicine. This week also gives you a specific time to spotlight your facility to referring physicians, potential patients, and to anyone else in your community who could benefit from nuclear medicine.

To help enhance the visibility of nuclear medicine facilities, the Technologist Section, has designed a striking new poster to mark this year's event. Buttons, stickers, and guidelines are also available to assist you with your celebration. We guarantee that this year's sensational design — will draw attention and spur positive comment.

P.S. Don't Forget Syncor's PR Star Contest — details in "Guidelines." Packet. Look for details in upcoming journals. Be a Public Relations Star and win prizes for yourself and your institution.

CELEBRATE NUCLEAR MEDICINE WEEK

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 Sept. 1, 1994 will be assessed a 15% surcharge, payable before shipment, to ensure timely delivery.

Name _____

Hospital/Company _____

Address _____

City _____ State _____ Zip _____

Telephone _____

Please return this form to:
Nuclear Medicine Week
The Society of Nuclear Medicine
136 Madison Avenue
New York, NY 10016-6760

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.

Innovative Uninterrupted Power System Defines New Standard in On-Line Performance

Best Power Technology Inc., introduces the Unity/I™ uninterruptible power system (UPS). in 4 kW, 5 kW and 8 kW sizes. The Unity/I series is designed specifically to address the needs of business and industry as they rapidly approach the power protection challenges of the 21st century.

Unity/I incorporates Best's exceptional microprocessor control with new on-line transformer and inverter technology, making it the most efficient, reliable and cost-effective UPS available.

Unity/I is a full kilowatt-rated system allowing users to achieve significant savings by applying price/performance criteria in order to buy the smallest kilowatt-sized Unity/I needed to power their load. Unity/I's critical systems have several layers of redundancy built in bringing together new levels of fault tolerance to the UPS field. Alternate power paths are available so computer systems remain protected. Unity/I incorporates PhonTek™ an internal, intelligent monitoring capability allowing Best to perform advanced diagnostics for convenient, planned maintenance.

Unity/I is designed to offer users the lowest life-cycle cost in the UPS industry. Service costs are minimal because of its innovative design and unique battery management system. Unity/I operates at 96% efficiency during normal conditions and provides an immediate energy-savings payback. **Best Power Technology, Inc., P.O. Box 280, Necedah, WI 54646. (800) 356-5794.**

Parallel Port Interface to 3M's Laser Imager Models 969, 959, 952 and 831.

Digital Design Medical Systems has developed a standard centronics parallel port interface to 3M's laser imager models 969, 959, 952 and 831. The interface allows direct digital transfer of data to the laser imager rather than digitizing video images, to preserve data integrity and for higher resolution imagery. This general-purpose interface can be used by standard PCs and graphic workstations and connects between the computer's parallel printer port and 3M's digital interface (DIEB).

Digital Design Medical Systems is a manufacturer of Nuclear Medicine Gamma Cameras, CRYSTAL™ and Computer Systems, Dx CRYSTAL™ and Dx MULTIMODALITY™, a universal system for image review, comparison and interpretation between all imaging modalities. The 3M Laser Interface was developed to allow the user to output high-quality film images from these systems. **Digital Design Medical Systems. (800) 822-6001.**

IN/US Systems, Inc. Introduces γ-RAM™ Radio HPLC Gamma Detectors On Line Measurement

The γ-RAM is a research grade, on-line radioactivity quantitation system of ^{125}I, ^{131}I and ^{99m}Tc and other gamma emitters for HPLC techniques. This system is indispensable for label verification and dosing. Features include: Thallium-activated NaI well-type crystal for superb counting geometry; flexible GLP software with half-life correction; two independent radio channels; three analog inputs for mass detectors; four analog outputs for chart recording and chromatography systems; external control for any HPLC system and remote computer; and detector shielding for low backgrounds. Gamma and Positron cells meet all application needs. Liquid connections are located at the front panel for convenience and control of possible leaks, all housed in a compact stackable unit. **IN/US Systems, Inc., 5809 North 50th St., Tampa, FL 33610-4809. (813) 626-6848. Fax: (813) 620-3708.**

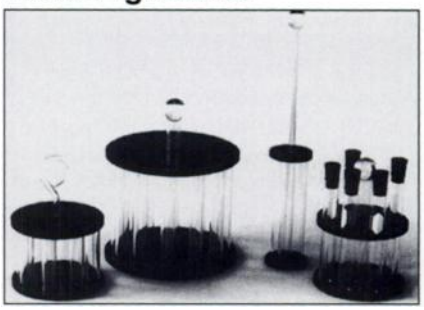
Twice the Breathing Capacity with Pulmonex

The Pulmonex Xenon System performs xenon studies with twice the breathing capacity of older Pulmonex systems. An injected bolus of xenon will reach the patient exactly when desired with wider tubing and a 25-liter air capacity for unrestricted patient breathing, regardless of pulmonary condition.

The Pulmonex is a closed xenon system with a built-in xenon gas trap and disposable charcoal cartridge to move all xenon effluent after each study, eliminating the cost of expensive venting systems. All three phases of a xenon study, (startup, equilibrium and washout) are controlled by a single master valve located on the front panel. Conveniently, the user can control the system, observe the patient and monitor the gamma camera from one position.

Departments performing a high volume of xenon studies will appreciate the double cartridge option that provides a longer migration path for the xenon effluent, allowing greater decay and absorption before exhaustion. **Biodex Medical Systems, Brookhaven R&D Plaza, P.O. Box 702, Shirley, NY 11967-0917. (800) 224-6339. Fax: (516) 924-9241.**

Porta-Pig Inserts



Reactor Experiments, Inc., introduces a series of inserts to be used in conjunction with their standard Porta-Pig® radionuclide carriers. These inserts are designed to allow the user to easily withdraw sources which are held inside the Porta-Pig® carrier. The inserts are fabricated from acrylic plastics for strength and ease of decontamination. Reactor Experiments can also custom-fabricate an insert to an end-user's specifications. **Reactor Experiments, Inc., 1275 Hammerwood Ave., Sunnyvale, CA 94089-2231. (408) 745-6770. Fax: (408) 745-7013.**

Positions Available

Fellowship

RESEARCH FELLOWSHIP IN NUCLEAR MEDICINE at the University of Illinois and Michael Reese Hospitals. One year position starting 1/1/95 is offered to BE/BC applicants interested in advanced clinical nuclear medicine research. Send CV to M.J. Blend, Section of Nuclear Medicine (M/C 931) University of Illinois, 1740 West Taylor, Chicago, IL, 60612.

Pathologist

Immediate opening available. Prefer AP/CP/ABNM certified pathologist. Contact Dr. Loeb at (516) 241-6445 (8:30 a.m. to 4:30 p.m. CT).

Physician

NUCLEAR MEDICINE PHYSICIAN The department of Nuclear Medicine at the University Hospital Gasthuisberg, Leuven, Belgium, a 2000 bed hospital near Brussels, is seeking a certified nuclear medicine physician for a 2 year full time position at the junior staff level. A definitive position as staff member can be offered after fulfilling the requirements for a Ph.D. thesis. Willingness to learn the Dutch language is indispensable. The department has 8 gamma cameras including several multihead SPECT gamma cameras, a brain dedicated SPECT apparatus, a PET center with cyclotron and a section of radiopharmacy. For more details contact the head of the department: Professor Dr. M. De Roo: +32-16-343714. FAX: +32-16-343759.

NUCLEAR MEDICINE POSITION BC/BE NM. Physician BC/BE in IM needed for expanded hospital-based and private OP facility in the Southeast. Practice is 50% internal medicine clinical duties with emphasis on thyroid diseases and osteoporosis. Routine NM with SPECT and Radionuclide therapy. Qualified candidates send CV to: Box 901, The Society of Nuclear Medicine, 136 Madison Avenue, New York, NY, 10016.

NORTHERN CALIFORNIA -The Kaiser Permanente Medical Center in Santa Clara, CA is seeking a BC\BE Nuclear Medicine Physician for a career opportunity with the nation's leading HMO. All aspects of nuclear medicine services are provided to a 250,000 member prepaid patient population. Clinical and administrative experience required. Internal medicine background preferred. Academic opportunities are available. Competitive salary, generous benefits and a comprehensive retirement program. For more information, send CV with cover letter to: Diane Butler, The Permanente Medical Group, Inc. Physician Recruitment, Dept. 68, 1814 Franklin, 4th floor, Oakland, CA, 94612. EOE.

Radiologist

RADIOLOGIST/NUCLEAR MEDICINE -5 person NY/NJ group seeking radiologist with special competency in Nuclear Medicine. Interest in mammography desired but not essential. Young, progressive group located in 400 bed hospital with nearby imaging center. Send CV to: James Heimann, M.D., 5 Franklin Ave., Belleville, NJ, 07109; (201) 450-2038, (201) 751-2011

Outstanding professional opportunity for full-time RADIOLOGIST (U.S. citizen or permanent resident) prefer BC in both Radiology and Nuclear Medicine; will consider BC in Radiology with additional certifiable experience in Nuclear Medicine; professional faculty appointment commensurate with qualifications and experience; opportunities for teaching and research. The Augusta VAMC is a 1033 bed, two division medical center affiliated with and adjacent to the Medical College of Georgia. Write or send CV to: Chief, Radiology Service (114), VA Medical Center, Augusta, Georgia, 30904-6285. An Equal Opportunity Employer.

Residency

NUCLEAR MEDICINE RESIDENCY/FELLOWSHIP The Division of Nuclear Medicine at the Yale University School of Medicine invites applications to the two year residency and one year fellowship programs that begin July 1995. Comprehensive training is offered in general and cardiovascular nuclear medicine, as well as PET imaging. Participation in both the clinical and research activities of the Section is encouraged. Please direct inquiries to: Holley Day, M.D., Residency Director, Section of Nuclear Medicine, TE-2, Yale University School of Medicine, 333 Cedar Street, New Haven, CT 06520 AA/EOE.

Positions Wanted

Nuclear Medicine Physician

F.R.C.P.(C). ABNM. Extensive experience in general nuclear medicine/nuclear cardiology including SPECT, pharmacologic and exercise stress testing supervision. Experienced in management and treatment of thyroid disorders, osteoporosis and radionuclide therapies. Replies: Box 902, The Society of Nuclear Medicine, 136 Madison Avenue, New York, NY, 10016. FAX: (408) 559-8880.

SAINT LUKE'S AND SAINT ANNE'S HOSPITAL

Highfield Road, Rathgar, Dublin 6, Ireland

Radiotherapy and Oncology Service

PRINCIPAL PHYSICIST-NUCLEAR MEDICINE/IMAGING

Applications are invited from suitably qualified persons for the above position.

Candidates should preferably have seven years experience in medical physics, at least three of which have been at senior level in Nuclear Medicine and should preferably be experienced in computerized imaging techniques, in-vitro testing and therapy with unsealed radioactive sources. Experience in a General Diagnostic Imaging Department would be advantageous.

Salary and conditions as approved by the *Department of Health.*

Applicants should send curriculum vitae, together with the names of two references, to: **Personnel Officer, Saint Luke's Highfield Road, Rathgar, Dublin 6, Ireland. To arrive no later than Monday, September 19th, 1994.**

Saint Luke's and Saint Anne's Hospital are Equal Opportunity Employers.

Director of Nuclear Medicine Physics

Cedars-Sinai Medical Center, affiliated with the UCLA School of Medicine, is currently seeking a Director of Nuclear Medicine Physics to organize and direct research activities.

Through experience, candidates must demonstrate: independent research evident by extramural funding; the ability to direct software development used in implementing research results in a clinical environment; an extensive record of publications in peer-reviewed journals; experience in teaching nuclear medicine courses (meeting U.S.N.R.C. licensure requirements); administrative experience encompassing human resources/ finance management in a research setting.

This position requires a Ph.D. in Medical Physics or Biomedical Engineering (or a related discipline), min. of 5 years nuclear medicine research experience with an emphasis on cardiac tomography as well as knowledge of FORTRAN/C programming languages, UNIX/VMS operating systems and Graphical User Interfaces.

For consideration, please send c.v., salary req. and 3 references to: Rebecca Chandler, CEDARS-SINAI MEDICAL CENTER, Employee Relations, SSB-610, 8723 Alden Drive, Los Angeles, CA 90048. Fax: (310) 652-8608. *(AA/EOE)*

CELEBRATE NUCLEAR MEDICINE WEEK OCTOBER 2-8, 1994

KUWAIT UNIVERSITY
HEALTH SCIENCES CENTER
Faculty of Medicine
Department of Nuclear Medicine

APPLICATIONS ARE INVITED FOR THE FOLLOWING APPOINTMENTS:

Professor/Associate/Assistant.....Clinical Nuclear Medicine Physicians
Professor/Associate/Assistant.....Nuclear Medicine Physicist
Professor/Associate/Assistant.....Radioimmunoassay Scientist

QUALIFICATIONS:
Applicants should possess a Ph.D., American Board, or an equivalent high professional qualification and a proven research record in their respective specialty.

CONDITIONS OF APPOINTMENT:
Salaries Total monthly salaries will be within the following scales according to qualifications and experience and **(1 KD = 2.1 St. pounds, US$ 3.4 approximately). Increment per year KD 20/-.**

Professor		
With clinical appointments	=	**KD 1210-1370 (8 increments)**
Medically Qualified with a Ph.D. in Medical Science	=	**KD 1140-1300 (8 increments)**
Non-Medically Qualified	=	**KD 1070-1230 (8 increments)**
Associate Professor		
With clinical appointments	=	**KD 999-1149 (8 increments)**
Assistant Professor		
With clinical appointments	=	**KD 768-928 (8 increments)**
Medically Qualified with a Ph.D. in Medical Science	=	**KD 724-884 (8 increments)**
Non-Medically Qualified	=	**KD 680-840 (8 increments)**

OTHER ALLOWANCES:
Social allowance will be paid in addition to the monthly salary as per the University regulations. Furnished accommodation provided with water and electric power, against deducting sum from the social allowance.
Clinical allowance from the Ministry of Public Health for **10 months** a year (i.e., the University academic year from **September** to the end of **June**) for clinical service commitments as follows:

Professor	**KD 400/-**
Associate Professor	**KD 300/-**
Assistant Professor	**KD 200/-**

OTHER BENEFITS: Conference attendance . Gratuity. Free medical treatment in Kuwait. Free annual round-trip airplane tickets from country of citizenship or permanent residence for self and family; up to three children in Kuwait from elementary through high school. **No taxation.** Currency is transferrable without restriction. 60days paid annual leave.

METHOD OF APPLICATION: Curriculum vitae in duplicate which should include the names of three references; personal particulars; copy of the relevant pages of passport; qualifications with dates; career history, teaching experience, research accomplishments and clinical experience, where appropriate, should be sent to:

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