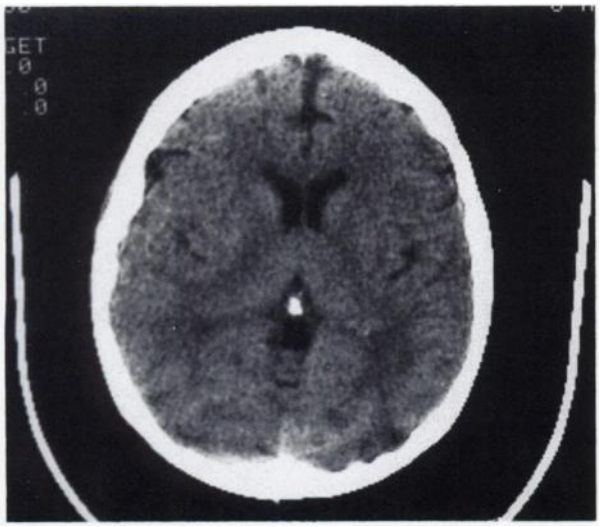
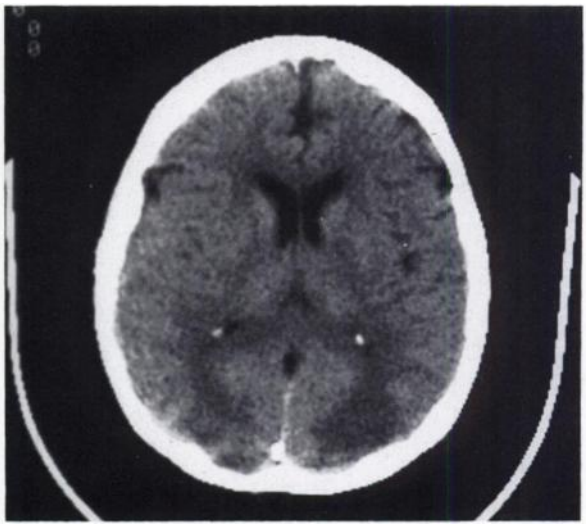
SPECTamine®
Iofetamine HCl I 123 Injection
STUDY: Confirms Diagnosis



Initial CT (5/6/88)

Showed multiple low-density regions involving white and gray matter in the parietal and occipital areas. Thought to be related to an inflammatory process, less likely an embolic insult. A confirmatory diagnosis was not possible.



Repeat CT (5/16/88)

Showed some change to the low attenuation areas—appearing larger and more confluent than previously noted. The pattern was atypical for infarction. Again, infectious etiology for the abnormality was entertained and diagnosis nonconfirmatory.

Images Courtesy of
Deaconess Hospital
Boston, MA

For additional information on the use of SPECTamine in stroke diagnosis, contact your local Medi-Physics Territory Manager, or call the SPECTamine® Hotline 1-800-451-7732.

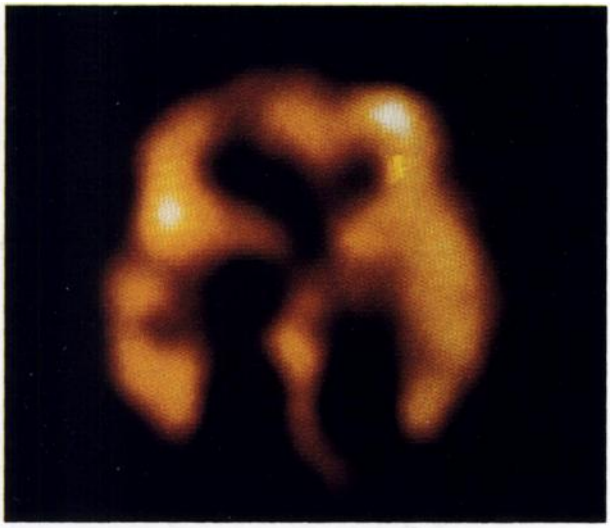
Please see adjacent page for summary of product information.

A Case Study:

61-year-old female postop aorta bifemoral graft with a complicated 7-month postoperative course including renal failure, diverticulitis, Candida sepis, multiple enteric cutaneous fistulous with multiple surgical procedures.

On 5/6/88, patient was noted to have two generalized seizures.

On 5/16/88, patient began to deteriorate neurologically. Complained of blindness.



SPECT Study (5/19/88)

Demonstrated bilaterally posterior cerebral artery infarction. Subsequent neurologic exams and clinical course confirmed diagnosis.

Your partner in advancing nuclear medicine

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140 East Ridgewood Avenue
Paramus, NJ 07652
Circle Reader Service No. 30

SPECTamine®
Iofetamine HCl I 123 Injection

For complete product information, consult package insert, a brief summary of which follows:

DIAGNOSTIC – FOR INTRAVENOUS USE

DESCRIPTION: SPECTAMINE® Iofetamine HCl I 123 Injection, is supplied as a sterile, apyrogenic, aqueous, isotonic sodium chloride solution for intravenous administration. Each milliliter of the solution contains 37 megabecquerels (1 millicurie) of iofetamine HCl I 123 at calibration time, 0.15 milligram iofetamine HCl, 0.017 millimole sodium phosphate, and 8.0 milligrams sodium chloride for isotonicity. The pH is adjusted to 4.5-6.0 with sodium hydroxide or hydrochloric acid. SPECTAMINE contains no bacteriostatic preservative. The radionuclidic composition at calibration time is not less than 94.7 percent I 123, not more than 4.8 percent I 124, and not more than 0.5 percent all others (I 125, I 126, I 130 and Te 121). The radionuclidic composition at the 6-hour expiration time is not less than 93.1 percent I 123, not more than 6.2 percent I 124, and not more than 0.7 percent all others.

INDICATIONS AND USAGE: SPECTAMINE (Iofetamine HCl I 123 Injection) is recommended for use as a lipid-soluble brain-imaging agent. It has been shown to be useful in the evaluation of nonlacunar stroke especially when used within 96 hours of onset of focal neurological deficit. The rates of agreement between abnormal images and the neurological examination suggestive of ischemic cerebrovascular insufficiency, appear to increase with the severity of symptoms. Its usefulness for the measurement of cerebral blood flow has not been established.

CONTRAINDICATIONS: None known.

WARNINGS: SPECTAMINE (Iofetamine HCl I 123 Injection) should not be administered to individuals with known hypersensitivity to sympathomimetic amines or to those individuals taking monoamine oxidase inhibitors.

PRECAUTIONS:

General

Some primate (Macaca fascicularis) studies have shown marked eye uptake of iofetamine HCl I 123. Localization has not been studied in the isolated human eye although in vivo images suggest the concentration of iofetamine HCl I 123 is below the limit of detection. Individual human variations in pharmacokinetics of this drug and the long-term effect on the eye have not been elucidated.

The contents of the vial are radioactive. Adequate shielding of the preparation must be maintained at all times.

Do not use after the expiration time and date (6 hours after calibration time) stated on the label.

Potassium Iodide Oral Solution should be administered before the examination to minimize thyroid uptake of iodine 123.

The prescribed iofetamine HCl I 123 dose should be administered as soon as practical from the time of receipt of the product (i.e., as close to calibration time or before, if possible), in order to minimize the fraction of radiation exposure due to relative increase of radionuclidic contaminants with time.

To minimize radiation dose to the bladder, the patient should be encouraged to drink fluids and void frequently.

SPECTAMINE, as well as other radioactive drugs, must be handled with care. Appropriate safety measures should be used to minimize radiation exposure to clinical personnel. Care should also be taken to minimize radiation exposure to the patient consistent with proper patient management.

Radiopharmaceuticals should be used 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.

Drug Interactions

There has been a single report of elevated diastolic hypertension (about 30 mm Hg) occurring 18 hours after administration of SPECTAMINE in a patient maintained on therapeutic doses of valproic acid.

Concurrent use of monoamine oxidase (MAO) inhibitors and compounds containing the amphetamine structure has been known to result in hypertensive crisis. Caution, therefore, should be exercised when administering SPECTAMINE (Iofetamine HCl I 123 Injection) to individuals taking medications known to potentiate the effects of sympathomimetic amines. It is recommended that SPECTAMINE not be administered during or within 14 days following administration of MAO inhibitors.

Sympathomimetic amines may affect the biodistribution of SPECTAMINE and, thus, may influence the image quality and diagnostic utility of the image.

Carcinogenesis, Mutagenesis, Impairment of Fertility

No long-term animal studies have been performed to evaluate carcinogenic potential, mutagenic potential or effects on fertility in male or female animals. The Ames test was negative for mutagenic effects.

Pregnancy Category C

Animal reproduction studies have not been conducted with SPECTAMINE. It is also not known whether SPECTAMINE can cause fetal harm when administered to a man or a pregnant woman or can affect reproduction capacity. SPECTAMINE should be given to a pregnant woman only if clearly needed.

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

Nursing Mothers

Since Iodine I 123 is excreted in human milk, formula feeding should be substituted for breast feeding if the agent must be administered to the mother during lactation.

Pediatric Use

Safety and effectiveness in children have not been established.

ADVERSE REACTIONS: In a clinical study in 93 patients with sudden onset of focal neurological deficit, e.g., cerebral infarction, 7 patients died within 2 to 55 days after administration. The deaths were considered to be a result of the disease state. Although there was no concurrent control group, statistics from historical controls support this evaluation.

There is evidence suggesting that the administration of 1 to 2 milligrams of iofetamine HCl, the carrier in SPECTAMINE, may increase systolic blood pressure by about 10 mm Hg. In a patient with a history of hypertension, there has been a single report of sudden onset of hypertension and dizziness with transient chest tightness which occurred 5-10 minutes after administration of SPECTAMINE. One case of transient unilateral hearing loss also was reported several hours after the use of SPECTAMINE in a patient with a coincidental upper respiratory infection.

As with all organic-iodine-containing compounds, the possibility of allergic reactions must be considered.

HOW SUPPLIED: SPECTAMINE is supplied in nominal 3.5 ml vials as a sterile, apyrogenic, aqueous, isotonic sodium chloride solution for intravenous injection. Each milliliter contains 37 megabecquerels (1 mCi) of iofetamine HCl I 123 at calibration time.

It is available in individual vials containing 111 megabecquerels (3 mCi) of iofetamine HCl I 123 at calibration time in a volume of 3 ml.

Vials are packaged in individual lead shields with plastic outer container.

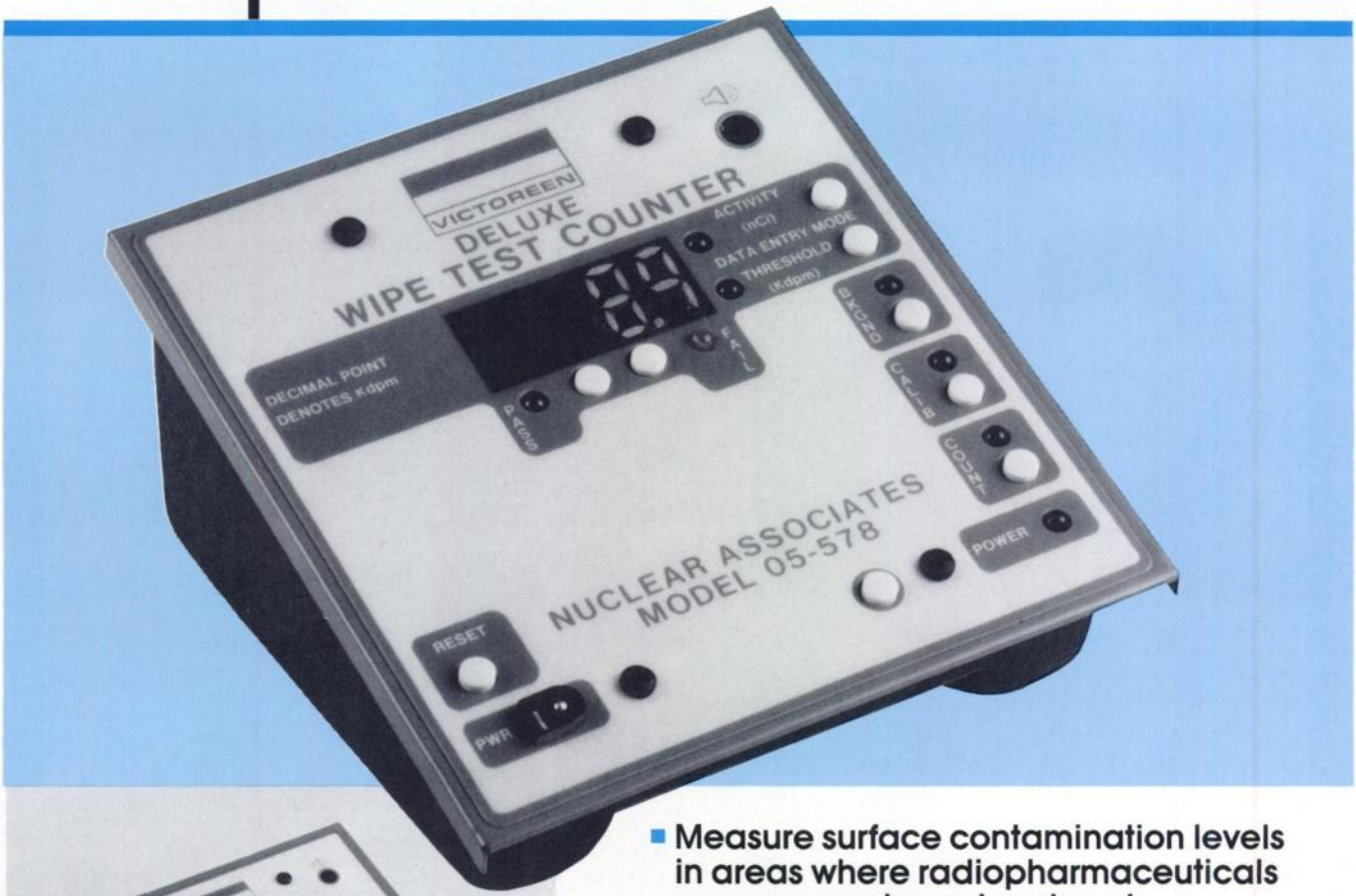
THIS PRODUCT INFORMATION ISSUED DECEMBER 1987

Medi-Physics, Inc.
140 East Ridgewood Avenue, Paramus, NJ 07652

Now there's an easy way to meet the new NRC requirements for wipe testing!

NEW!

Wipe Test Counters



- Measure surface contamination levels in areas where radiopharmaceuticals are prepared, used or stored.
- Meet new Nuclear Regulatory Commission requirements for determining contamination levels.
- Dedicated instruments are low in cost, easy to use.

Both the Deluxe Wipe Test Counter (with LED digital display) and the Standard Wipe Test Counter include a ^{137}Cs, 1 μCi test source, plus a package of 200 pre-numbered ½" diameter wipes.

For more details, request Bulletin 407-35

Circle Reader Service No. 2

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The nerve injury illustration (Fig. 1) was shot on PolaBlue 35mm Instant Slide Film to provide a bright, high quality, white-on-blue slide in minutes. PolaBlue is the most cost-effective way to get white-on-blue slides of text and illustrations. And like all Polaroid 35mm instant films, PolaBlue can be exposed in virtually any 35mm camera and developed in minutes using the Polaroid 35mm PowerProcessor.

This fundus image (Fig. 2) was made with a fundus camera on Polaroid Colorgraph Type 691 Transparency film. This full-color film creates small format overhead transparencies in just minutes.

The X-ray copy of the pelvic area (Fig. 3) was made on PolaPan 35mm Instant Slide Film. PolaPan produces a black and white continuous tone image.

This slide of an ear illustration (Fig. 4) was made on PolaGraph 35mm Instant Slide Film. It produces a high contrast black and white slide in minutes.

This close-up slide of a surgical procedure (Fig. 5) was made on High Contrast PolaChrome 35mm Instant Slide Film. This film is specifically balanced to give visuals rich, saturated color and pure whites.

This Doppler Color Flow Mapping image of a normal heart during systole (Fig. 6) was also captured on High Contrast PolaChrome 35mm Instant Slide Film using the Polaroid FreezeFrame Medical Video Image Recorder.

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Fig. 1

PolaBlue Instant Slide

Polaroid

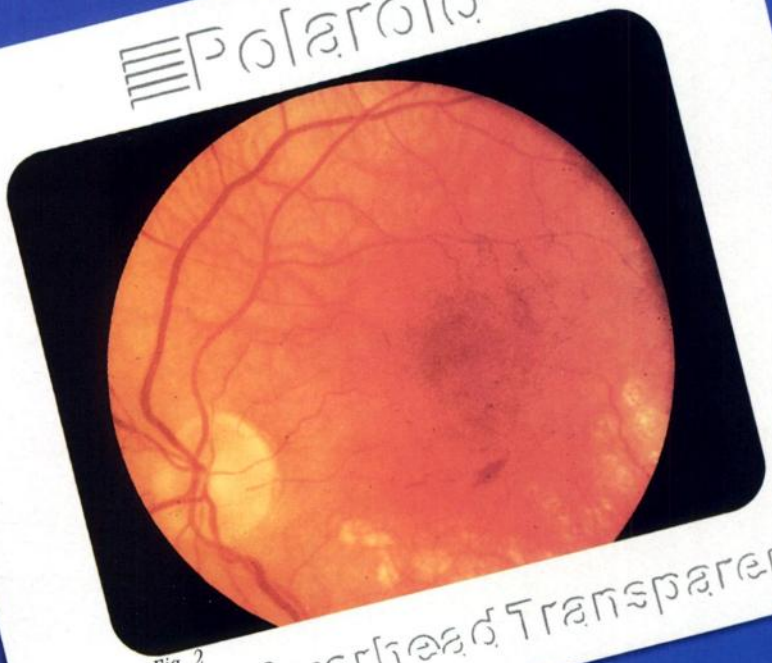


Fig. 2

Instant Overhead Transparency

Polaroid

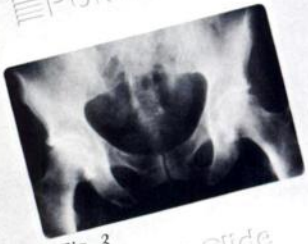


Fig. 3

Instant Slide

Polaroid

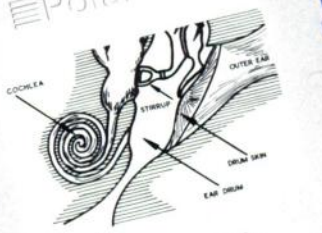


Fig. 4

Instant Slide

Polaroid

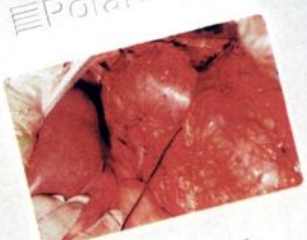


Fig. 5

Instant Slide

Polaroid

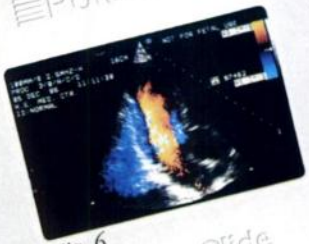
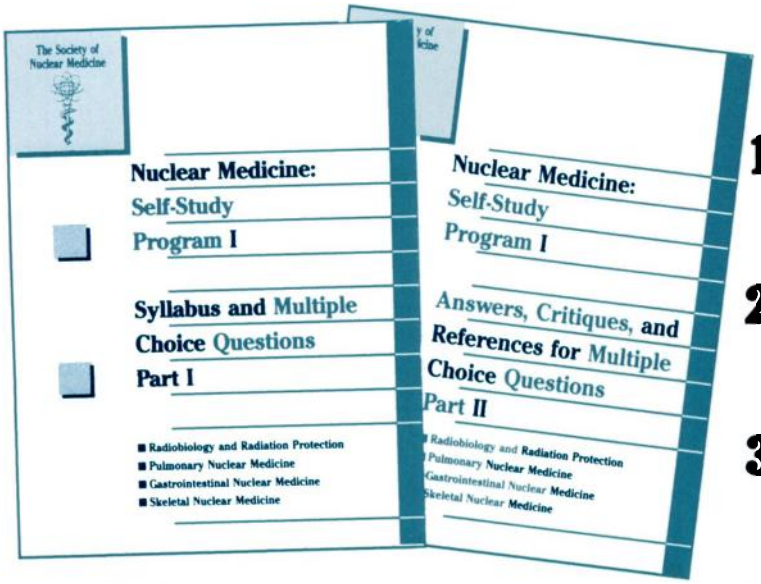


Fig. 6

Instant Slide

Improve Your Knowledge of Nuclear Medicine

At last, an effective and convenient self-study method is available in nuclear medicine.



The Society of Nuclear Medicine presents *Nuclear Medicine: Self-Study Program I,* the first volume of a comprehensive series that will cover all areas of nuclear medicine. It has been designed to help physicians, scientists, pharmacists, and technologists expand their knowledge of the clinical, basic science and technical aspects of nuclear medicine.

Nuclear Medicine: Self-Study Program I is the successor to the highly acclaimed *Nuclear Medicine Review Syllabus,* which reviewed the major advances in nuclear medicine of the early 1970's. *Nuclear Medicine Review Syllabus,* under the editorship of Peter Kirchner, MD, sold 4,000 copies, more than any other SNM title for nuclear medicine physicians. *Nuclear Medicine: Self-Study Program I* covers the advances in nuclear medicine since the publication of the *Nuclear Medicine Review Syllabus,* and features many of the same contributors, including Barry A. Siegel, MD, and Peter T. Kirchner, MD, the Co-Editors, and Richard L. Witcofski, PhD, a Section Editor.

You will find that *Nuclear Medicine: Self-Study Program I* is unsurpassed in helping you keep abreast of the lastest advances and is an excellent resource for your teaching responsibilities. It is, of course, invaluable as preparation for board and recertification exams. In addition, participants are eligible for CEU, CME or ACPE credits.

Nuclear Medicine: Self-Study Program I will cover four areas: Radiobiology and Radiation Protection; Gastrointestinal Nuclear Medicine; Skeletal Nuclear Medicine; and Pulmonary Nuclear Medicine.

***Nuclear Medicine: Self-Study Program I* is divided into three parts:**

1. *Syllabus and Questions*–Emphasize essential, clinically related topics, with annotated references to more detailed information on each subject. Questions are formulated to approximate the level of difficulty of those found in specialty exams;
2. *Answers and Critiques*–Correct answer for each question is followed by a discussion of the rationale for correct and incorrect answers. Additional tables, illustrations and references ensure that you gain an in-depth understanding of each topic;
3. *Personal Psychometric Evaluation*–Available to those who return the answer form before **December 15, 1988.** Included here is a norms table that indicates your percentile ranking in each subject area by comparison with your peers.

Act Now! To be eligible for a Personal Psychometric Evaluation, and to earn CEU, CME or ACPE credits, you must complete and return your answer sheets before **December 15, 1988.**

Nuclear Medicine: Self-Study Program I is available to SNM members for $90, to non-members for $115, and to residents and technologists (enclose documentation) for $75.

Name

Institution

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City

State/Province Zip/Postal Code

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Visa # Expiry Date

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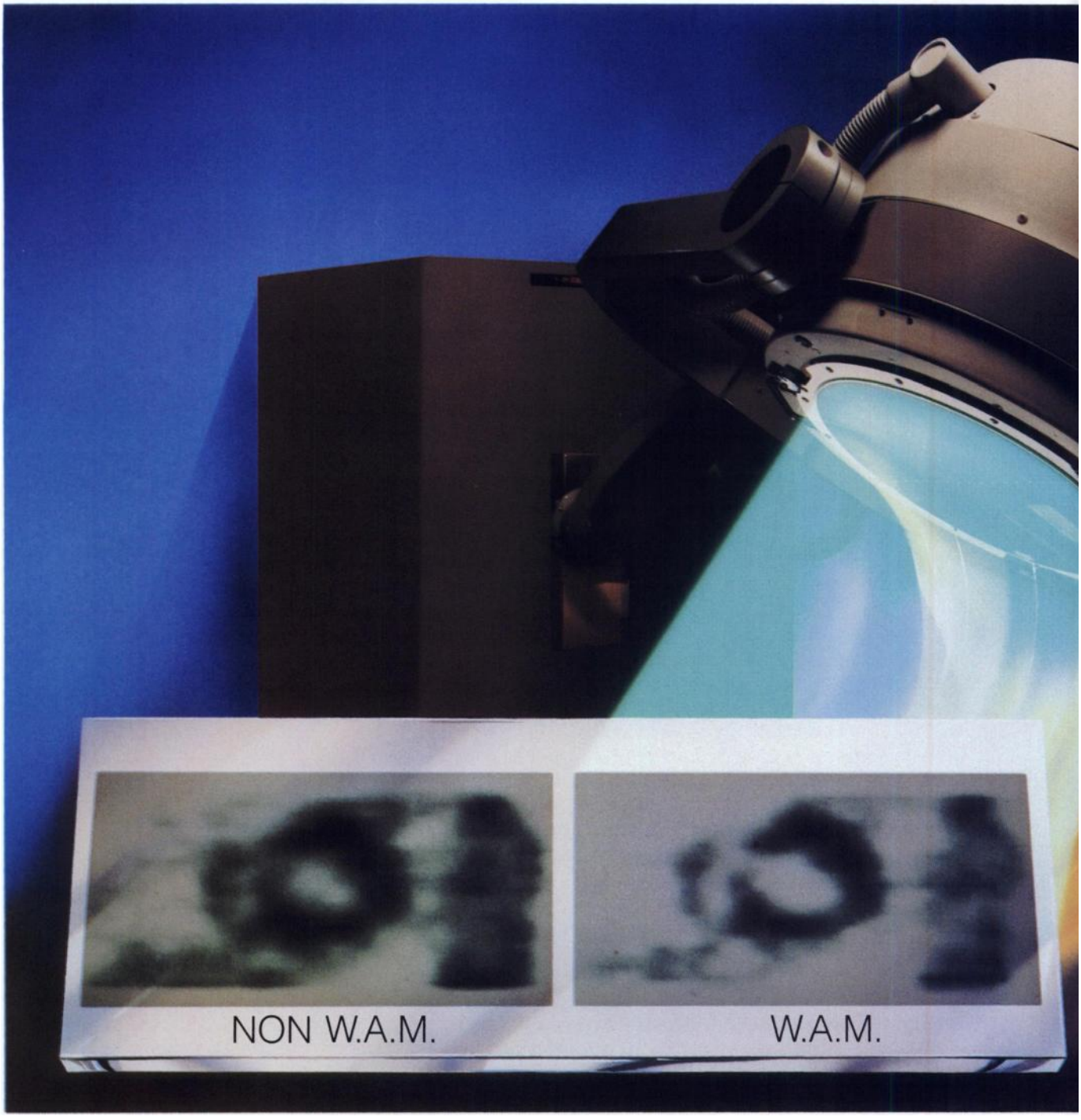
Signature

Send to: **The Society of Nuclear Medicine, SSPI, 136 Madison Avenue, New York, NY 10016-6760**

SIEMENS



Unretouched Thallium 201 SPECT Reconstruction Images. Clinical Impression: W.A.M. Invaluable for Thallium SPECT Imaging.

A to Z... our technical edge gets sharper! From Anger, to DIGITRAC™, to ZLC™, we've never stopped improving the Gamma Camera!

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The Weighted Acquisition Module is NOT a software package. It is an exclusive accessory for all Siemens Rotational cameras that interfaces directly to the DIGITRAC detector system.

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W.A.M. improves upon less efficient, conventional pre-selected energy windowing. The proprietary W.A.M., "realtime spatial filtering signal processor," uses *each* event weighted value, from *every* detected photon, to produce a *complete* image.

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*Includes 10% overfill. Please see next page for brief summary.

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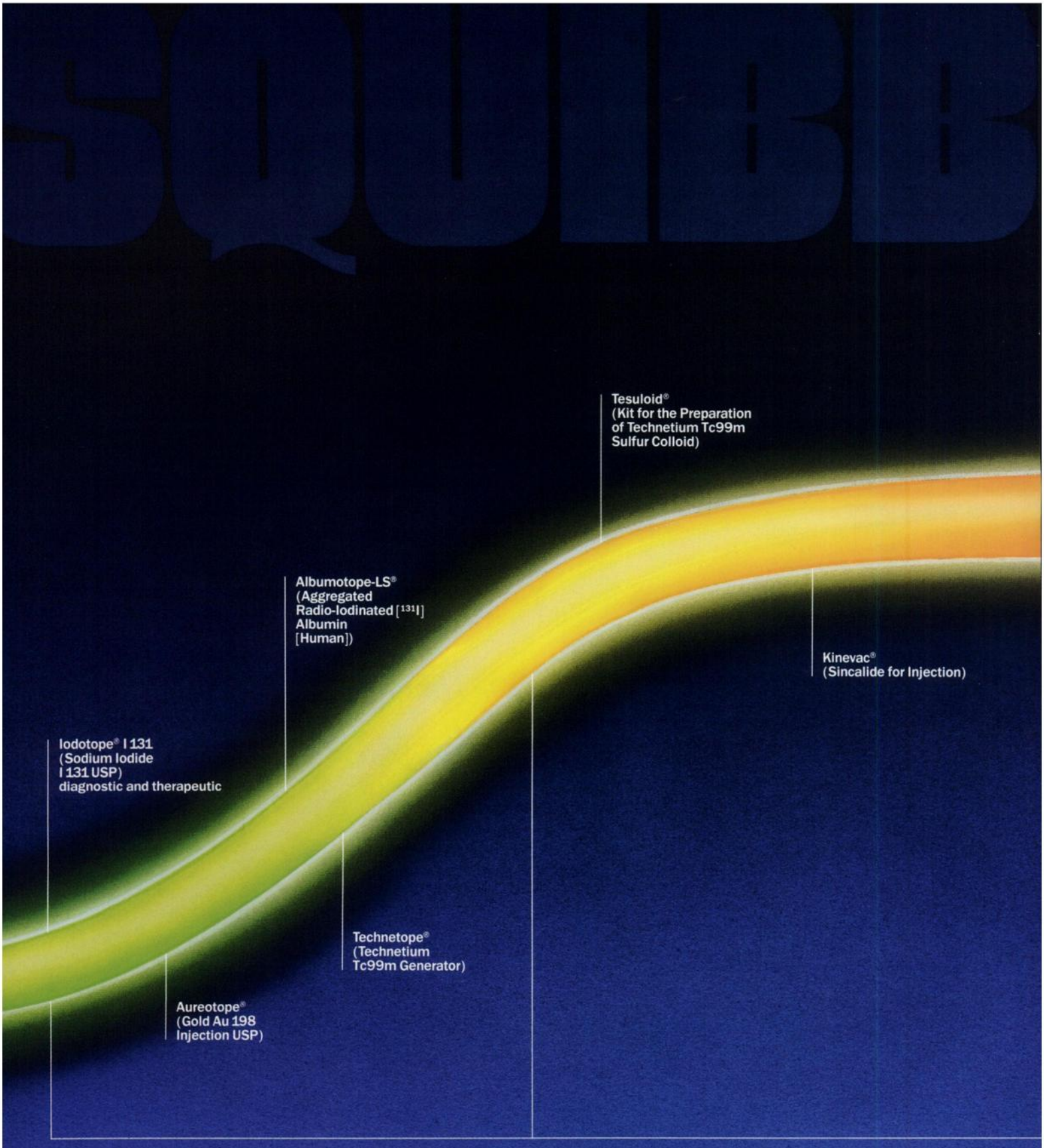
SQUIBB

A Profile of Progress in Nuclear Medicine

SQUIBB™
Diagnostics



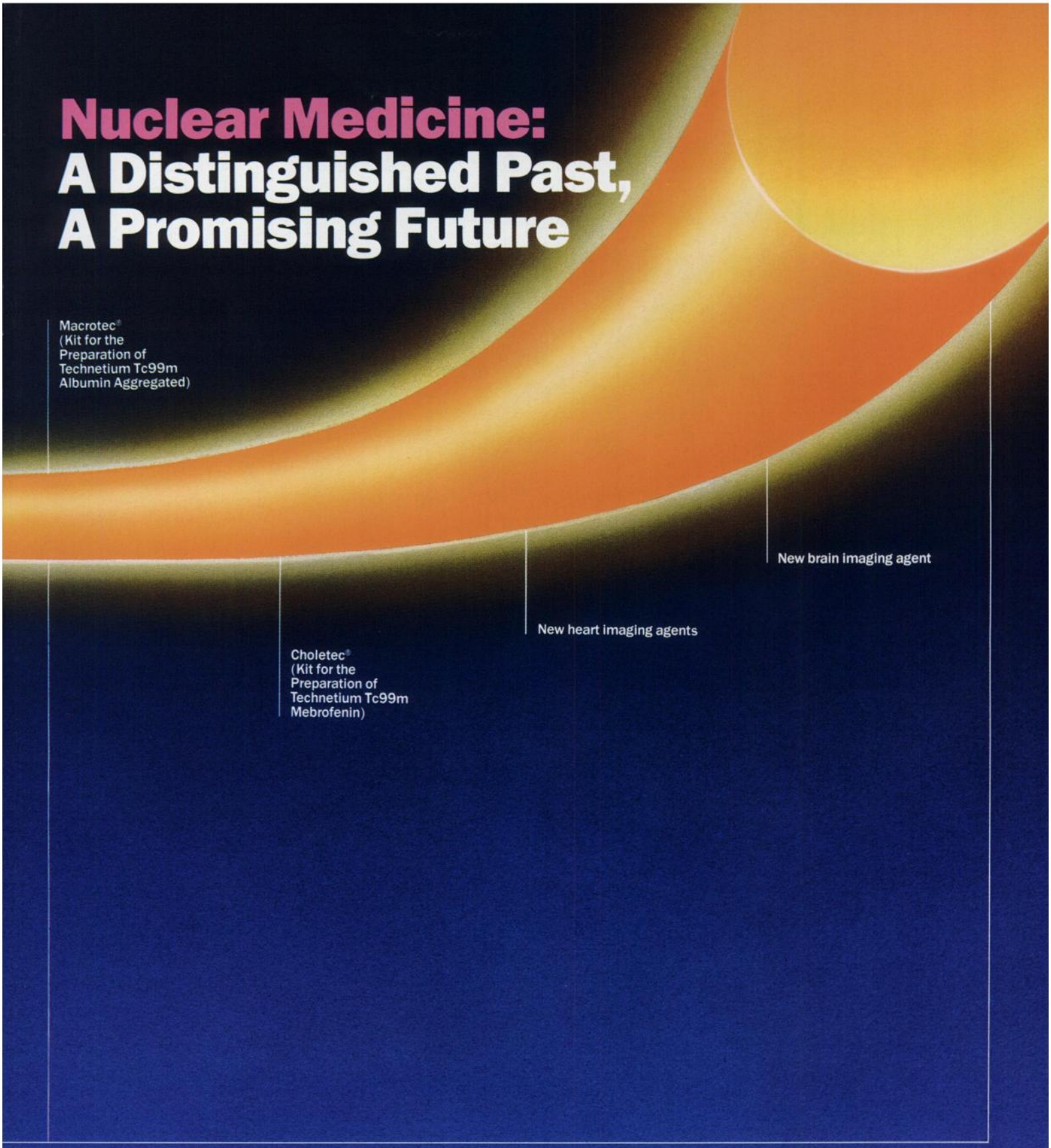
The Years of Growth

Nuclear medicine emerged from the experimental stage into a phase of rapid clinical growth. The number of procedures performed rose rapidly during the 1960s. During this same period, Squibb Diagnostics developed and introduced important products and services for nuclear medicine, including the first sterile technetium generator, nuclear medicine training seminars and technical support through the Technical Associates Program.

The Years of Refinement

The '70s saw the development of other imaging modalities which drew procedures away from nuclear medicine and slowed its growth. Developments and advances continued, however, and Squibb introduced a variety of radiopharmaceutical products, including Macrotec. Squibb's Choletec* was introduced in 1987, and quickly became the premier hepatobiliary imaging agent.

Nuclear Medicine: A Distinguished Past, A Promising Future



The Years of Promise
The future of nuclear medicine is bright, and Squibb's contributions to it continue. New Squibb brain and heart agents are now in clinical development. In addition to extensive research and development, the Squibb contribution to nuclear medicine continues with technical support and professional education programs.

*See brief summary on following page.

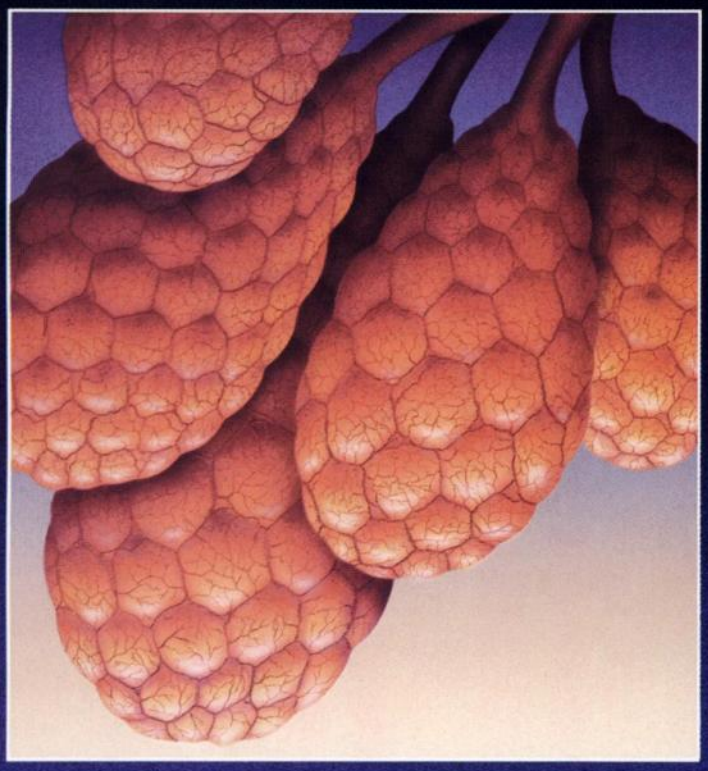
Call 1-800-257-5181 for educational materials, product information or technical assistance. In New Jersey: 1-800-582-5913

SQUIBB™ Diagnostics

MACROTEC®

(Kit for the Preparation of Technetium Tc 99m Albumin Aggregated)

The Highest Radiochemical Purity, The Lowest Supernatant Activity*



"It can be assumed that maximum target-to-background ratios in lung perfusion imaging are associated with minimum supernatant activity levels."*

In a multicenter in vitro evaluation of MAA kits, MACROTEC demonstrated the highest radiochemical purity and the lowest supernatant activity of all kits tested.* MACROTEC tested consistently better than other kits, with the lowest supernatant activity levels at the time of reconstitution and 6 hours postpreparation.

*Callahan RJ, Swanson DP, et al. A multi-institutional in vitro evaluation of commercial Tc 99m Macroaggregated Albumin Kits. J Nucl Med Tech;14:(No. 4)206-209, 1986

MACROTEC demonstrated the highest radiochemical purity (RCP) as measured by supernatant activity

LOW SUPERNATANT ACTIVITY—for high target-to-background ratios

OPTIMAL PARTICLE SIZE—more than 90% of particles in the 10-90 micron range for diagnostic efficacy and reduced activity in the liver and nontarget areas

LOW RADIATION EXPOSURE—consistent with ALARA (as low as reasonably achievable)

A UNIQUE INDICATION—the only MAA product indicated for use in isotopic venography

MACROTEC®
Kit for the Preparation of Technetium Tc 99m Albumin Aggregated
Diagnostic—For Intravenous Use

DESCRIPTION

Macrotec is a sterile, nonpyrogenic, lyophilized preparation of albumin aggregated. Each 5 mL vial of Macrotec contains 1.5 mg of Albumin Aggregated, 10.0 mg Albumin Human, 0.07 mg (minimum) stannous chloride ($SnCl_2 \cdot 2H_2O$) and 0.19 mg total tin, maximum (as stannous chloride, $SnCl_2 \cdot 2H_2O$), 1.8 mg of sodium chloride with trace amounts of sodium acetate, acetic acid and hydrochloric acid. Macrotec contains no preservatives. The pH of the reconstituted product is between 3.8 and 8.0.

The aggregated particles are formed by denaturation of Albumin Human in a heating and precipitation process. Each vial contains 2-7 million particles, 90% of which are between 10 and 90 microns in size. The average size is 20 to 40 microns; no particles are greater than 150 microns.

Reconstitution of Macrotec with sterile sodium pertechnetate Tc 99m forms an aqueous suspension of Technetium Tc 99m Albumin Aggregated for diagnostic use by intravenous injection. No less than 90% of the pertechnetate Tc 99m added to the reaction vial is bound to the aggregates at preparation time and remains bound throughout the 6-hour lifetime of the suspension.

INDICATIONS AND USAGE

Lung Imaging

Macrotec (Kit for the Preparation of Technetium Tc 99m Albumin Aggregated) is a lung imaging agent which may be used as an adjunct in the evaluation of pulmonary perfusion in adults and children. It is useful in the early detection of pulmonary emboli and in the evaluation of the status of the pulmonary circulation in such conditions as pulmonary neoplasm, pulmonary tuberculosis and emphysema.

Isotopic Venography

Macrotec is also indicated for use in isotopic venography as an adjunct in the screening, diagnosis and management of deep vein thrombosis in the lower extremities.

Combined isotopic venography of the lower extremities and the pulmonary vasculature may be performed.

CONTRAINDICATIONS

Technetium Tc 99m Albumin Aggregated Injection should not be administered to patients with severe pulmonary hypertension.

The use of Technetium Tc 99m Albumin Aggregated Injection is contraindicated in persons with a history of hypersensitivity reactions to products containing human serum albumin.

WARNINGS

The literature contains reports of deaths occurring after the administration of Albumin Aggregated to patients with pre-existing severe pulmonary hypertension. Instances of hemodynamic or idiosyncratic reactions to preparations of Technetium Tc 99m Albumin Aggregated have been reported.

PRECAUTIONS

General

In patients with right to left heart shunts, additional risk may exist due to the rapid entry of Albumin Aggregated into the systemic circulation. The safety of this agent in such patients has not been established.

Hypersensitivity reactions are possible whenever protein-containing materials such as pertechnetate labeled Albumin Aggregated are used in man. Epinephrine, antihistamines and corticosteroids should be kept available for immediate use.

The intravenous administration of any particulate material such as Albumin Aggregated imposes a temporary, small mechanical impediment to blood flow. While this effect is probably physiologically insignificant in most patients, the administration of Albumin Aggregated is possibly hazardous in acute cor pulmonale and other states of severely impaired pulmonary blood flow.

The components of the Macrotec (Kit for the Preparation of Technetium Tc 99m Albumin Aggregated) are sterile and nonpyrogenic. It is essential to follow directions carefully and adhere to strict aseptic procedures during preparation.

Contents of the vial are intended only for use in the preparation of Technetium Tc 99m Albumin Aggregated Injection and are **NOT** to be administered directly to the patient.

The contents of the kit before preparation are not radioactive. However, after the sodium pertechnetate Tc 99m is added, adequate shielding of the final preparation must be maintained.

The technetium Tc 99m labeling reactions involved depend on maintaining the stannous ion in the reduced state. Hence, sodium pertechnetate Tc 99m containing oxidants should not be employed.

The preparation contains no bacteriostatic preservative. Technetium Tc 99m Albumin Aggregated Injection should be stored at 2-8°C and discarded 6 hours after formulation.

Technetium Tc 99m Albumin Aggregated Injection is a physically unstable suspension and consequently the particles settle with time. Failure to agitate the vial adequately before use may result in non-uniform distribution of radioactive particles.

If blood is drawn into the syringe, unnecessary delay prior to injection may result in clot formation.

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 other radioactive material, care should be taken to minimize radiation exposure to patients consistent with proper patient management, and to minimize radiation exposure to clinical personnel.

Carcinogenesis, Mutagenesis, Impairment of Fertility

No long-term animal studies have been performed to evaluate carcinogenic potential or whether Technetium Tc 99m Albumin Aggregated Injection affects fertility in males or females.

Pregnancy Category C

Animal reproduction and teratogenicity studies have not been conducted with Technetium Tc 99m Albumin Aggregated Injection. It is also not known whether Technetium Tc 99m Albumin Aggregated Injection can cause fetal harm when administered to a pregnant woman or can affect reproductive capacity. There have been no studies in pregnant women. Technetium Tc 99m Albumin Aggregated Injection should be given to a pregnant woman only if clearly needed.

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

The lowest possible number of particles should be used in the right-to-left shunting, in neonates and in severe pulmonary disease.

ADVERSE REACTIONS

Although adverse reactions specifically attributable to the Technetium Tc 99m Albumin Aggregated Injection have not been noted, the literature contains reports of deaths occurring after the administration of Albumin Aggregated to patients with pre-existing severe pulmonary hypertension. Instances of hemodynamic or idiosyncratic reactions to preparations of Technetium Tc 99m Albumin Aggregated have been reported.

HOW SUPPLIED

Macrotec (Kit for the Preparation of Technetium Tc 99m Albumin Aggregated) is supplied as a kit containing 10 reaction vials (5 mL size), 10 pressure sensitive labels and 1 package insert. (J3-436L)

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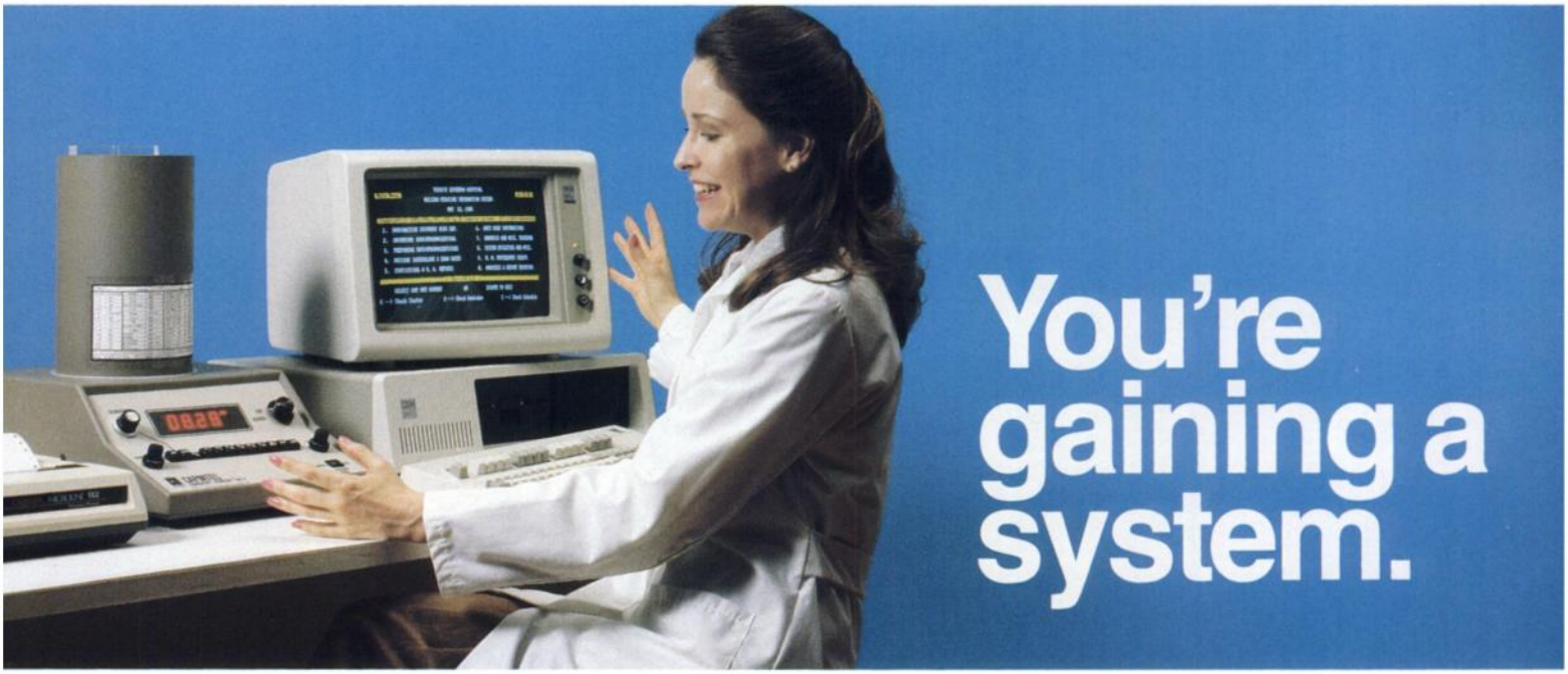

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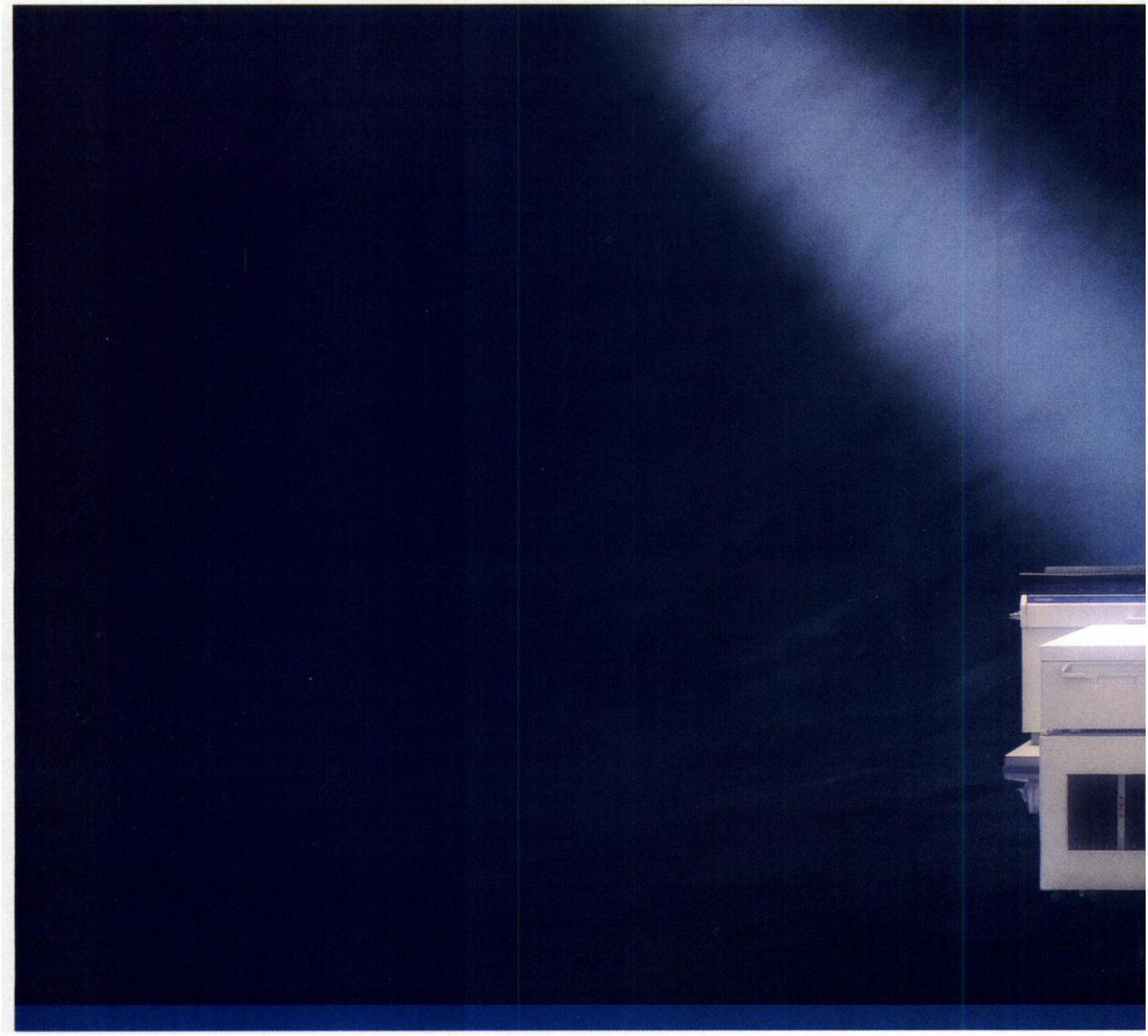

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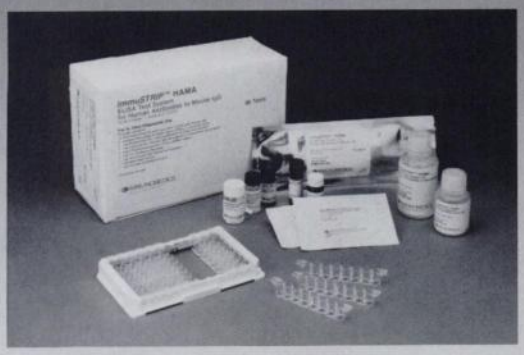

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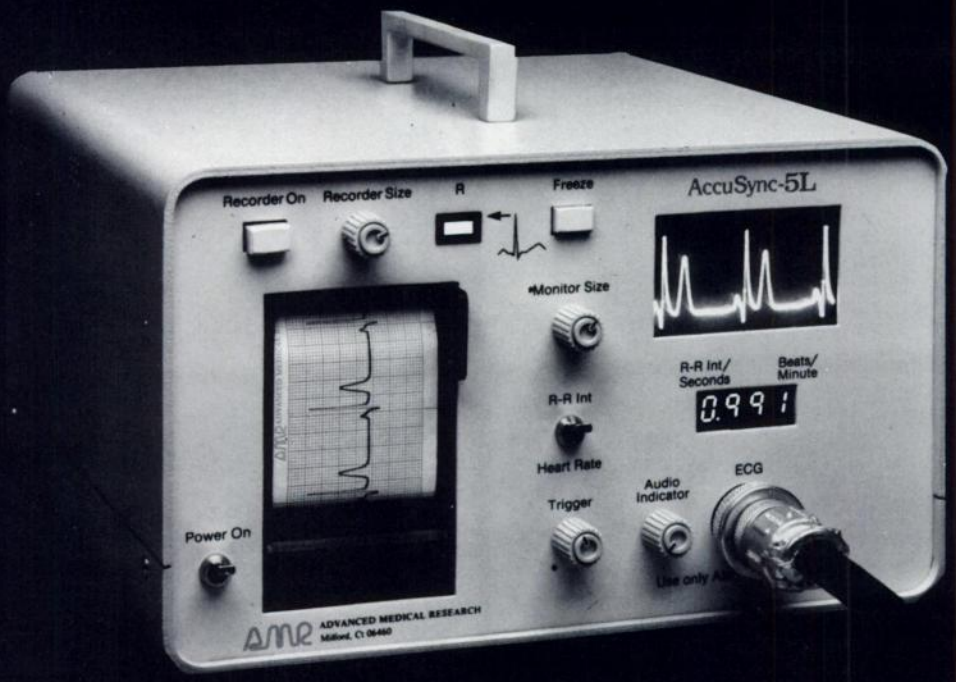

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Chromatography of Technetium-99m Radiopharmaceuticals —A Practical Guide

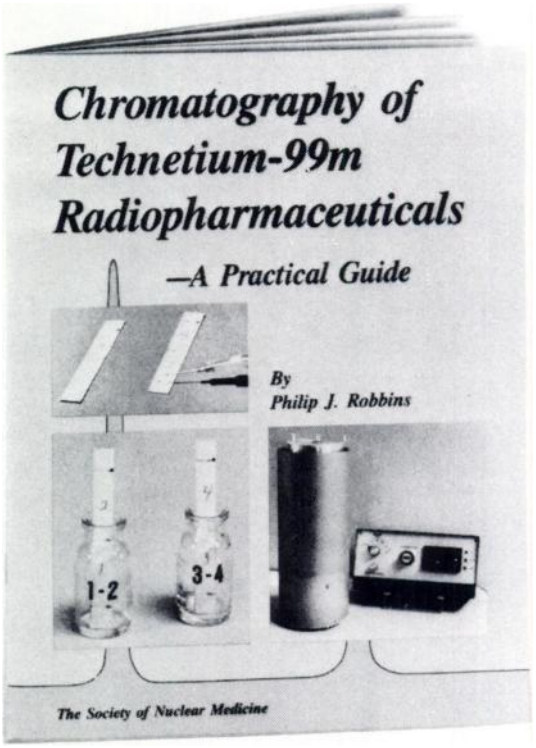
By Philip J. Robbins

To provide up-to-date information about the most accurate procedures for ensuring quality control of radiopharmaceuticals, The Society of Nuclear Medicine has published *Chromatography of Technetium-99m Radiopharmaceuticals—A Practical Guide.*

This important manual offers readers a collection of miniaturized chromatographic methods for the rapid and precise determination of the radiochemical purity of commonly used Tc-99m radiopharmaceuticals.

Topics covered include the nature and source of impurities, principles and classic techniques of chromatography, methods for counting miniature chromatographic strips, and pitfalls of miniature methods and how to avoid them. Also contained herein is a listing of each radiopharmaceutical with the USP criteria for radiochemical purity, typical scans of impure products, and standards and interlaboratory comparisons for miniaturized systems.

Prepared to aid nuclear medicine personnel in implementing voluntary quality-assurance programs, the material may also be used as a training resource for individuals preparing for professional licensure and certification.



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The Society of Nuclear Medicine

SNM 36th Annual Meeting

Tuesday, June 13–
Friday, June 16, 1989

St. Louis, MO
Cervantes Convention Center

Call for Abstracts for Scientific Papers
Call for Abstracts for Scientific Exhibits

The 1989 Scientific Program Committee and Scientific Exhibits Subcommittee solicits the submission of abstracts from members and nonmembers of The Society of Nuclear Medicine for the 36th Annual Meeting in St. Louis. Abstracts accepted for the program will be published in a special supplement to the May issue of *The Journal of Nuclear Medicine*. Original contributions on a variety of topics related to nuclear medicine will be considered, including:

- INSTRUMENTATION
- COMPUTERS AND DATA ANALYSIS
- RADIOASSAY
- RADIOPHARMACEUTICAL CHEMISTRY
- DOSIMETRY/RADIOBIOLOGY
- NUCLEAR MAGNETIC RESONANCE
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  - Cardiovascular
  - Endocrine
  - Gastroenterology
  - Infectious Disease and Immunology
  - Neurology
  - Onçology/Hematology
  - Pediatrics
  - Pulmonary
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Authors seeking publication for the full text of their papers are strongly encouraged to submit their work to the *JNM* for immediate review.

The official abstract form may be obtained from the September, 1988 issue of the *JNM* or by calling or writing:

The Society of Nuclear Medicine
Att: Abstracts
136 Madison Avenue, New York, NY 10016-6760
Tel: (212)889-0717
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Deadline for receipt of abstracts for Scientific Papers is Thursday, January 12, 1989.

Deadline for receipt of abstracts for Scientific Exhibits is Thursday, January 19, 1989.

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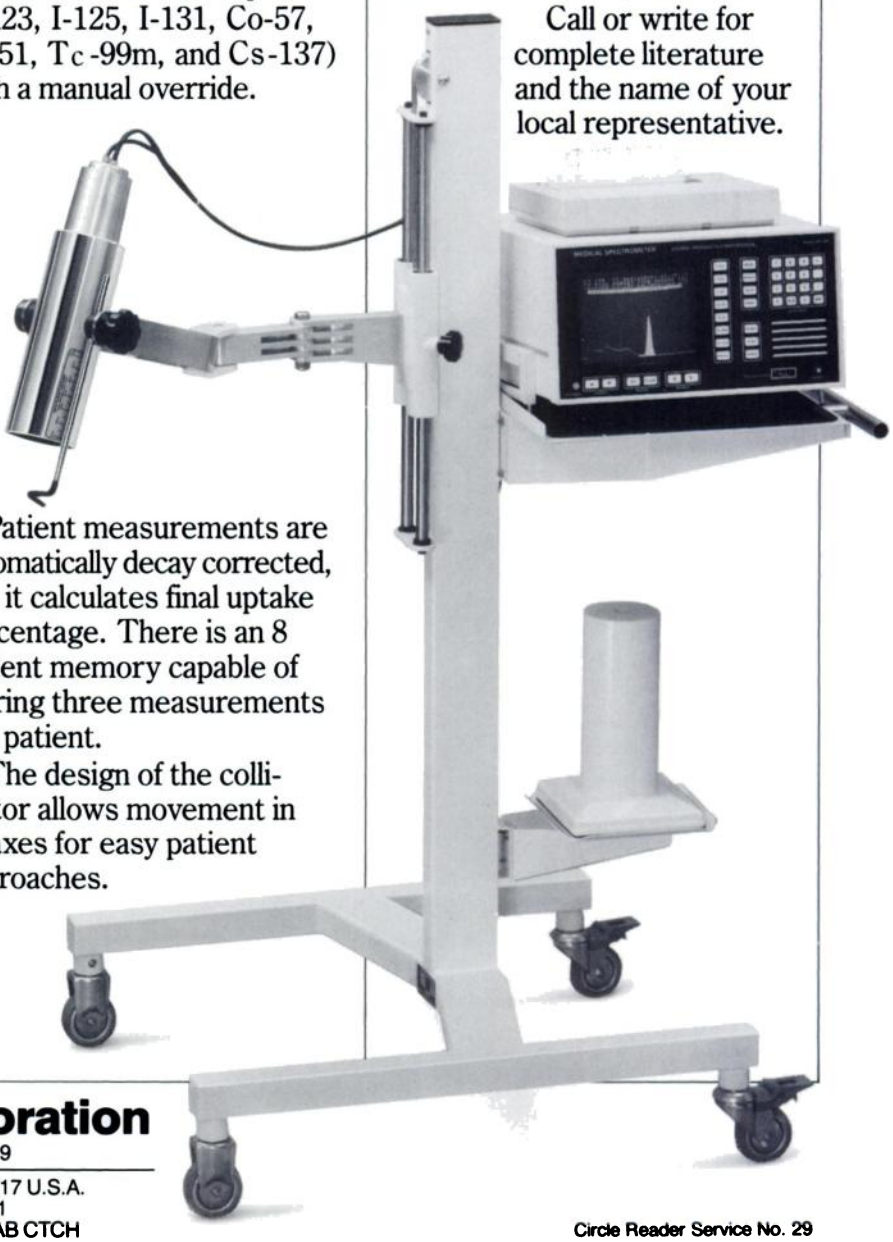

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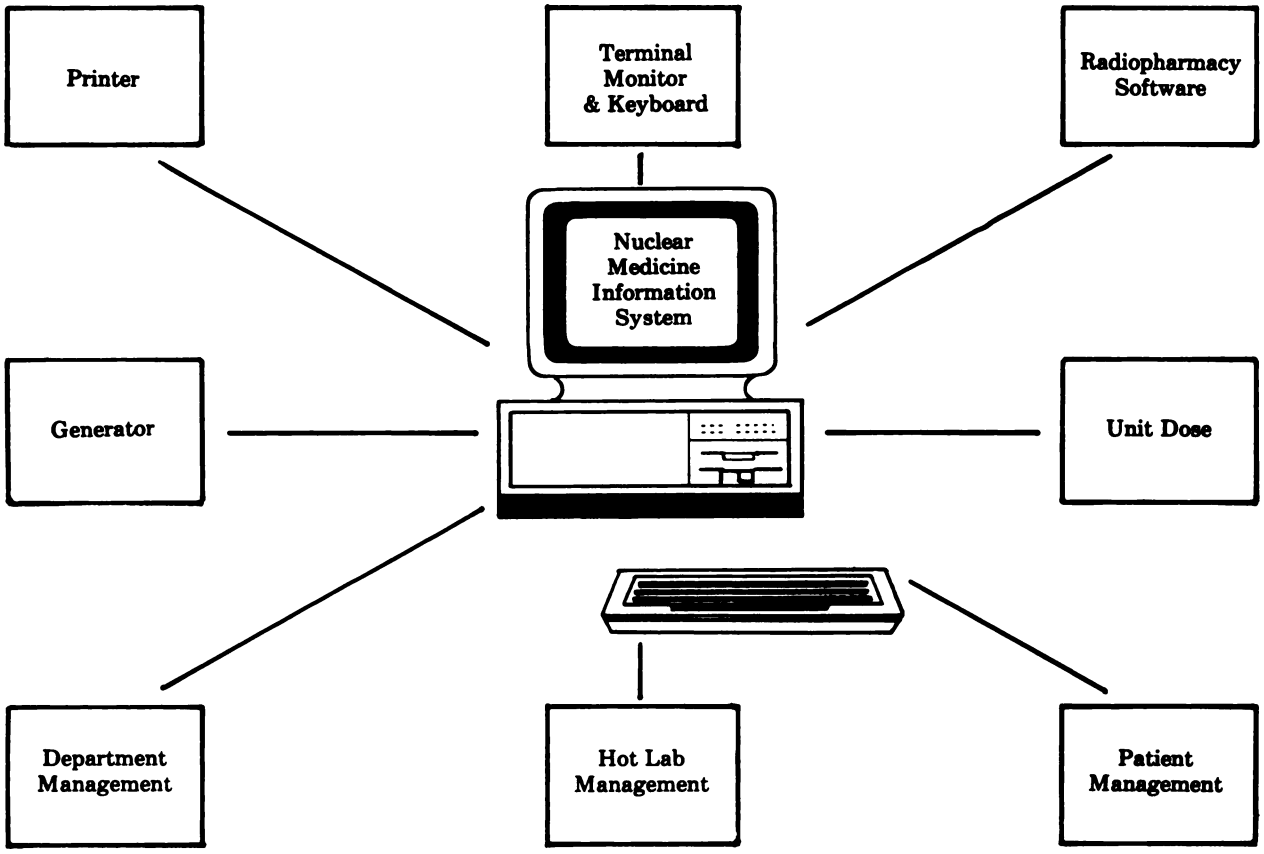

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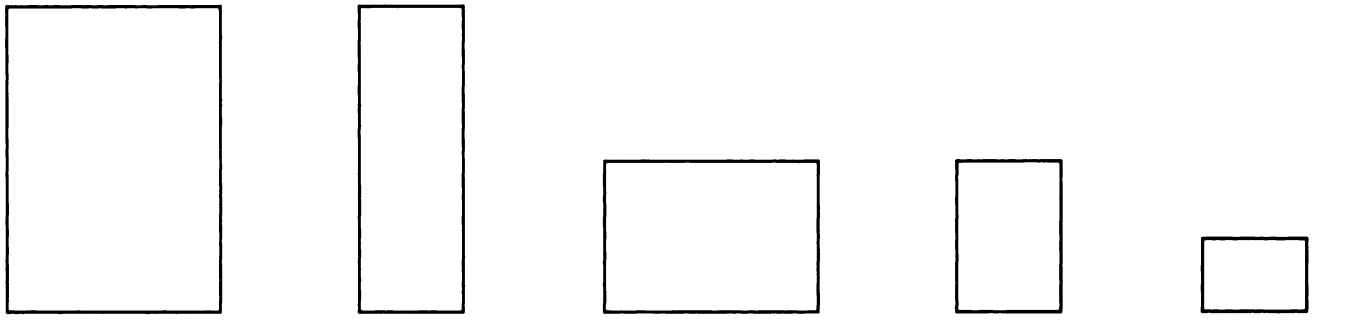

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NUCLEAR MEDICINE TECHNOLOGIST. Immediate full-time positions available for registered nuclear medicine technologists at the Cox Medical Center South, which is a new, 510-bed general hospital in Springfield, MO, located in the vacation land of the Ozark Mountains. Excellent salary and benefits are offered. Please contact: Personnel Office, Cox Medical Center South, 3801 S. National Ave., Springfield, MO 65807; (417)885-6125. EOE.

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NUCLEAR MEDICINE TECHNOLOGIST. Position available for registered or registry eligible technologist to work in busy outpatient cardiology clinic doing cardiac nuclear studies. Located in Eastern Maine. Send resume to: Northeast Cardiology Clinic, Attn: Office Manager, 700 Mt. Hope Ave., Bangor, ME 04401, (207)947-4940. EOE.

NUCLEAR MEDICINE TECHNOLOGIST. Immediate full-time position available for a registered or registry eligible technologist at Lakeside Community Hospital. 63-bed facility. Experienced in Gamma and SPECT imaging. Excellent benefits. Rural area. Please contact: Lakeside Community Hospital, 5176 Hill Rd.East, Lakeport, CA 95453; (707)263-5651 ext. 236. EOE.

NUCLEAR MEDICINE TECHNOLOGIST. Hamot Medical Center is seeking a certified or certifiable nuclear medicine technologist to participate with a dynamic staff of five technologists performing 4,000 studies per year. Hamot is an innovative 540-bed teaching hospital and regional referral center located in Erie, PA on Presque Isle Bay. The area provides Great Lakes beauty, year-round recreational activities, several colleges and universities, and many cultural events. We offer excellent salary and benefits, opportunities and assistance for learning and professional development. Call or send resume to: Al Richards, Employment Manager, Hamot Medical Center, 201 State St., Erie, PA 16550 (814)870-6081. An equal opportunity employer.

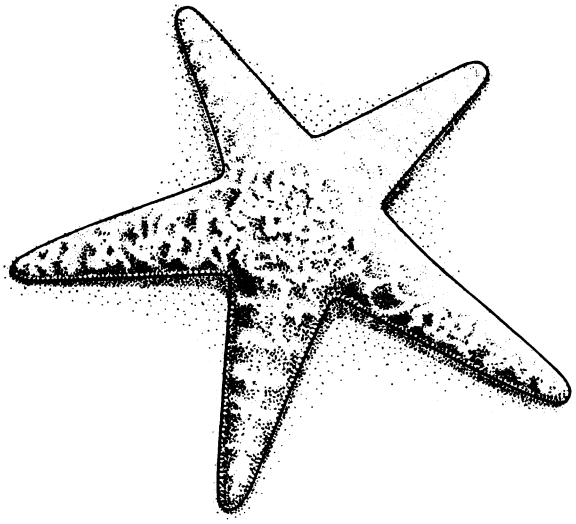
NUCLEAR MEDICINE TECHNOLOGIST. SwedishAmerican Hospital is seeking a staff nuclear medicine technologist to be the third member of our busy nuclear medicine department. We are a 427-bed general acute care hospital designated as the Radiation Oncology Center for this region of Illinois. As part of our department you will be involved with all imaging, including nuclear cardiology and related duties. This position requires a registered or registry eligible nuclear medicine tech. We offer a starting salary commensurate with experience, additional pay for on-call and excellent benefits including flexible paid time off. Rockford, Illinois, a city of 140,000, is located in north-central Illinois. For further information, contact: Faith Reese, Personnel Dept., SwedishAmerican Hospital, 1400 Charles St., Rockford, IL 61104; (815) 966-2080. Equal Opportunity Employer m/f.

NUCLEAR MEDICINE TECHNOLOGIST. Position available for technologist at the VA Medical Center, Syracuse, NY. Located in Central New York adjacent to the Syracuse University Campus and affiliated with the SUNY Health Science Center. We offer competitive benefits and salary. Call our Personnel Dept. at (315)476-3950 or send resume to: VA Medical Center, Personnel (05), 800 Irving Ave., Syracuse, NY 13210. An equal opportunity employer.

NUCLEAR MEDICINE TECHNOLOGISTS. Good Samaritan Medical Center, a 770-bed teaching institution needs NUCLEAR MEDICINE TECHNOLOGISTS for the Imaging and Nuclear Cardiology sections of the department. We are a progressive nuclear medicine department with MDS and VAX/Microdelta computers, two Siemen's 7500 ZLC ECT camera, two picker Dyna-Mo cameras, a Technicare Omega 500, Siemen's LFOV and a Lunar Radiation DP4 Bone Density Unit. Qualified applicants must be hard working, able to work independently and have good communication skills. We offer an excellent benefits package and a competitive salary commensurate with experience. Applicants must be registered or registry eligible. Please send resume to: Samaritan Health Service, Personnel Dept., 1441 N. 12th St., Phoenix, AZ 85006. EOE.

Equipment

We will arrange the purchase of any type of equipment you need to be leased back to your department. This will be on a monthly basis to fit the department budget and the lease is totally tax deductible. The purchase price must be $3000 or more and there can be a small buy-out at the end of the lease. For more information call (301)760-9283 or (301)789-1910 and ask for Mr. J. Stumpf.



Become a rising star at Hoag Hospital.

At Hoag Hospital, our corridors echo with the sounds of challenge, recognition, and reward. Ours is a hospital where you can realize your full potential as a Nuclear Medicine Technologist and discover what you were really meant to be — a vital member of a growing team, committed to the highest standards of health care.

Our 471-bed non-profit hospital located in Southern California's popular Orange County has an exciting opportunity available for an experienced Nuclear Medicine Technologist. You must possess a NMTCB, and 3 years' experience for this full-time position.

In addition, you will be rewarded with outstanding compensation and benefits. To hear more about becoming a member of our team contact: Teresa LeBeau, Allied Health Recruiter, Human Resources Dept. JO-036, 301 Newport Blvd., P.O. Box Y, Newport Beach, CA 92658-8912. Or call collect: (714) 760-5863. EOE. M/F/H.

HOAG HOSPITAL

NUCLEAR MEDICINE TECHNOLOGIST

Explore your professional possibilities with Kaiser Permanente, one of the nation's leading health care providers. An opportunity currently exists within our Bellflower, California medical center for a full-time Nuclear Medicine Technologist.

This individual must have the ability to perform all phases of diagnostic nuclear medicine procedures. Will be required to operate computers and perform Muga and Stress Thallium tests. Qualified candidates will have a CNMNT or ARRT in Nuclear Medicine, plus Thallium profiling and GE Spect Camera experience.

Kaiser Permanente offers competitive salaries and a comprehensive benefits package which includes dependent employer paid health coverage, dental and life insurance, transfer options, vacation and sick leave, eleven paid holidays, tuition reimbursement and pension benefits. Interested candidates should submit resumes to: **Kaiser Permanente, Personnel Dept. JOU-093-10/88, 9333 E. Rosecrans Ave., Bellflower, CA 90706.** Equal Opportunity Employer.

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Southern California Region

NUCLEAR MEDICINE TECHNOLOGIST

Saint John's Hospital and Health Center, a 551-bed acute care facility, located by the sea in sunny Santa Monica, California, has a part-time opening for a Nuclear Medicine Technologist.

The successful candidate will have one year of experience in Nuclear Medicine or a recent degree from a Nuclear Medicine Technologist program. ARRT and/or NMTB is necessary.

For immediate consideration, Call Sandy Cooper at (213)829-8945 or send resume to the Employment Department.

SAINT JOHN'S HOSPITAL AND HEALTH CENTER
1328 Twenty-Second Street
Santa Monica, CA 90404

We are an affirmative action/equal opportunity employer.

Monoclonal Antibody Research Fellowship

The Department of Nuclear Medicine at Northwestern University is accepting applications for a one year fellowship in Monoclonal Antibody Research to include radioimmunodetection and radioimmunotherapy. Applicants must possess an M.D. or PhD. degree. Responsibility will include basic laboratory investigation and clinical research. Interested individuals should send a current C-V and letter of inquiry to:

Stewart M. Spies M.D., Director of Nuclear Medicine
Northwestern Memorial Hospital
250 East Superior Street
Chicago,IL 60611

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SOUTH WESTERN SYDNEY AREA HEALTH SERVICE

NUCLEAR MEDICINE TECHNOLOGIST

The Nuclear Medicine Department requires an experienced Nuclear Medicine Technologist.

The Liverpool Hospital is situated in The South Western Region of Sydney, 30 km from the centre of Sydney. The Department caters for the needs of a 460 bed Hospital and offers a wide range of Nuclear Medicine procedures, including computerised studies, real-time ultrasound and radio-immunoassays.

Applicants must be prepared to participate in on-call services.

Applicants should be accredited or be eligible for accreditation by the Australian and New Zealand Society of Nuclear Medicine. Reciprocity exists with Canadian Association of Medical Radiation Technologists.

Applications in writing giving full details of qualifications and experience together with names and addresses of two referees should be forwarded to:

The Personnel Manager
South Western Sydney Area Health Service
Private Mailbag 17,
Liverpool, NSW 2170 Australia.

NUCLEAR CARDIOLOGY TECHNOLOGIST

University of Virginia Non-Invasive Cardiac Lab has a full-time position for nuclear medicine technologist interested in clinical research and computer applications in nuclear cardiology. In a recent nationally known publication, UVA Health Sciences Center was rated as one of the best hospitals in America. Our staff technologists can fully express and expand their professional skills in many different areas and work with a group of internationally known physicians who are constantly developing new procedures, some of which are used only in a few hospitals today. We are situated in the foothills of the Blue Ridge Mountains, in an area that offers beautiful scenery and climate, easy access to major urban areas, and a friendly university community. We reward your commitment with an excellent salary program, benefits, relocation, spouse employment assistance, daycare, educational assistance, and much more. We can offer you an opportunity for career advancement that is second to none. D.D. Watson, PhD, Director. Find out more about our programs by calling (804)924-7899 collect, or by sending your confidential resume to:

Ms. Martha N. Garland, Employment Supervisor, University of Virginia, Department of Personnel Administration, Carruthers Hall, PO Box 9007, Charlottesville, VA 22906. An Equal Opportunity/Affirmative Action Employer.

MINNEAPOLIS VA MEDICAL CENTER

Chief Nuclear Medicine Technologist **$25,000–30,000**

This new replacement hospital has an opening in its ultra modern Nuclear Medicine Department for a Chief Technologist with 2–3 years supervisory experience. Special emphasis on nuclear cardiology, brain and bone SPECT and extensive computer applications. The department is equipped with four state-of-the-art Siemens SPECT cameras, 6-station Microvax system, stress laboratory and additional cameras. We feel we have a unique opportunity for an enthusiastic, highly motivated, career-oriented individual. Minneapolis/St. Paul represents the ultimate in quality living—Land of 10,000 lakes, fresh air, sunshine and low crime area.

The VA values you as a professional. This is reflected by our competitive salary and benefits. Contact Rex B. Shafer, M.D., (612) 725-2000, ext. 2605.

Nuclear Medicine Service (115)
Veterans Administration Medical Center
One Veterans Drive
Minneapolis, MN 55417

An Equal Opportunity Employer

Clinical Applications Specialist
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Capintec, Inc. a leading manfacturer of products for Nuclear Medicine, Radiology, and Radiation Therapy, is offering a position for an experienced Nuclear Medicine Technologist. Responsibilities include customer training, equipment installation, system trouble-shooting, telephone applications support and inhouse assistance with software testing and documentation. Up to 50% travel is required.

This position is an excellent opportunity for a technologist desiring to pursue a career in the medical products field with a dynamic, successful company. It is a perfect opportunity for someone who enjoys teaching others in the medical field. This person should possess a high level of PC computer knowledge, and enjoy working as part of a team.

Located at Capintec's Corporate headquarters in Ramsey, New Jersey, the successful candidate will enjoy working in a country setting at the base of the Catskill Mountains while at the same time having access to the excitement of New York City (less than 25 miles away).

This individual will report to the National Sales Manager and will be a vital part of the Sales and Marketing Team.

CAPINTEC, INC., 6 Arrow Rd., Ramsey, NJ 07446. (201)825-9500. EOE.

POSITION AVAILABLE

Vacancy exists for a Board eligible or certified nuclear medicine physician to join Clinical and Research Faculty in Division of Nuclear Medicine at St. Louis University. The position includes teaching, research and patient care responsibilities at both The University Hospital and the St. Louis VA Medical Center. Complete state of the art facilities exist with opportunities for participation in clinical and research MRI. A PET facility is planned for activation within 12 months. Will consider Assistant or Associate Professor level. *Contact: James W. Fletcher, MD, Director, Division of Nuclear Medicine, St. Louis University School of Medicine, 1335 S. Grand Blvd., St. Louis, MO 63104.*

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The University of Miami School of Medicine is seeking a RADIOLOGIST with a broad background in clinical nuclear medicine, administrative experience, proven research capabilities, and enthusiasm for teaching to assume the responsibilities of Director of the Division of Nuclear Medicine within the Department of Radiology. This individual must be certified by the American Board of Radiology and the American Board of Nuclear Medicine, possess or qualify for licensure by the State of Florida and possess the academic credentials to support the rank of Professor. He/she will assume the responsibility of running a busy Division servicing the 1300+-bed University of Miami/Jackson Memorial Medical Center. Innovation, imagination, and strong organizational skills are required. Address inquiries, including C.V., to: **Robert M. Quencer, MD, Chairman, Search Committee for Director, Division of Nuclear Medicine, Dept. of Radiology (R-308), Division of Magnetic Resonance Imaging, 1115 NW 14th St., Miami, FL 33136.**

The University of Miami is an equal opportunity/affirmative action employer.

NUCLEAR MEDICINE PHYSICIAN
Research Position

The Center for Molecular Medicine and Immunology (CMMI), located on the campus of the University of Medicine and Dentistry of New Jersey, is one of the nation's only specialized cancer research and treatment centers developing monoclonal antibody-based radiopharmaceuticals for the early and accurate detection and more specific therapy of cancer. We are expanding our clinical research group, and are seeking a NUCLEAR MEDICINE PHYSICIAN interested in an academic career involving antibody imaging and therapy. Candidates should be Board certified/eligible and with at least 1–2 years experience in radiology and nuclear medicine. Strong research background desired. Medical school joint appointment possible. CMMI offers an active research environment with excellent equipment and staff. Please send CV and list of three references, with a summary of career objectives and salary requirement, to: **David M. Goldenberg, ScD, MD, President, Center for Molecular Medicine and Immunology, 1 Bruce St., Newark, NJ 07103**

Equal Opportunity/Affirmative Action Employer

NUCLEAR MEDICINE TECHNOLOGIST

Immediate full-time opening for a Registered Nuclear Medicine Technologist or Board eligible on our day tour of duty. Applicant will work in a busy, progressive Imaging Department of a 400-bed hospital. All aspects of nuclear imaging and nuclear cardiology included. An excellent starting salary is augmented by an enriching fringe benefit package which includes: 15 days vacation, 11 paid holidays, life insurance, health insurance, company paid pension plan, sick days and 100% tuition refund program. Apply: **Personnel Department, Mercy Hospital, 746 Jefferson Avenue, Scranton, PA 18501.** ***Equal Opportunity Employer***

Nuclear Medicine Technologist

Gessler Clinic, PA, a 33 physician multi-specialty clinic, has an opening for a technologist in nuclear medicine.

Gessler Clinic is located in Winter Haven, FL, home of Cypress Gardens and is 50 miles from Orlando and Tampa. Our work week is Monday–Friday, 8:00 AM–5:00 PM with good working conditions and benefits.

For more information contact:
Ms. Deborah Kerr, CNMT, RT(N)
635 Ist St., North
Winter Haven, FL 33881
(813)294-0670.

Call For Applicants

EDITOR

The Journal of Nuclear Medicine

For a Five-year Term Beginning September 1989

Application forms can be obtained from:

Richard L. Witcofski, PhD
Chair, Publications Committee
Department of Radiology
Bowman Gray School of Medicine
Winston-Salem, NC 27103

Completed application forms must be received by October 15, 1988.

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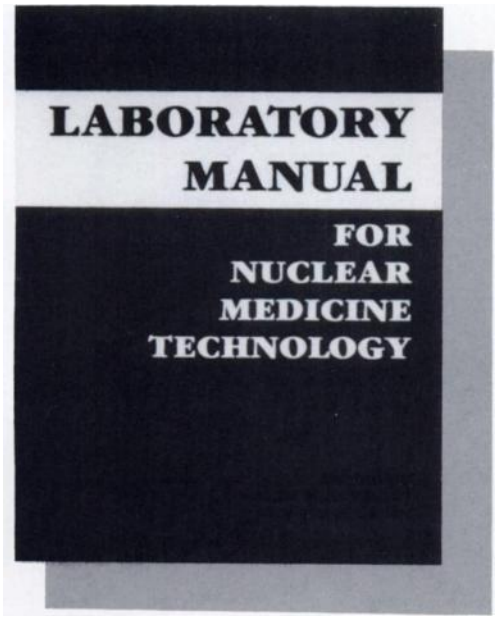

LABORATORY MANUAL for Nuclear Medicine Technology

Edited by Wanda M. Hibbard, CNMT, and Sue P. Lance, CNMT

In response to a need for standardizing the learning experiences of student technologists, the *Laboratory Manual for Nuclear Medicine Technology* has been prepared for nuclear medicine technology training programs. The exercises were written by educators with years of experience in their respective areas of expertise and were field tested by technologists in nuclear medicine schools—both instructors and students.

Individual exercises have been grouped into major subject areas. The purpose of each exercise is clearly defined in the rationale; and the objectives, materials to be used, step-by-step procedures, study questions, and selected references are included. Instructors may rearrange the format according to the facilities and requirements of their particular programs.

This manual will serve to enhance the student's knowledge of a standard curriculum and develop competency in clinical practice. It provides the most comprehensive training resource available to be used in a laboratory setting. In addition, this manual will aid residents in fulfilling the NRC requirements for licensure.

ABBREVIATED CONTENTS

CONTRIBUTORS

Charles T. Adams, Robert T. Anger, Nancy A. Clifton, Robert J. English, Casimir Eubig, Michael Freeman, Wanda M. Hibbard, Kenneth A. Holmes, Ronnie D. Jeffcoat, Judith E. Kosegi, Rebecca W. Lam, Sue P. Lance, Joan A. McKeown, Evelyn R. Merritt, Maria Nagel, James A. Ponto, John H. Powell, Raymond Wilemzick, James J. Wirrell

Softcover format, 8½ x 11", 163 pp. Publication date: July 1984

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THE SOCIETY OF NUCLEAR MEDICINE

Application for Membership

(see reverse side for instructions)

Last Name Dr, Mr, Mrs, Ms, Miss (CIRCLE ONE) **First Name** **Middle Initial**

Check Degree(s) Earned:

MD ___ PhD ___ MA ___ MS ___ BA ___ BS ___ AA ___ AS ___ Other _____

Indicate Board Certification(s): ☐ ABNM ☐ ABR ☐ ABP ☐ ABIM ☐ ABSNM ☐ ABHP ☐ NMTCB

☐ ASCP ☐ ARRT(N) ☐ ARRT(T) ☐ ARRT(R) ☐ Other _____

Please check ONE box for preferred mailing address, but complete both columns for our files:

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DEPARTMENT

INSTITUTION OR COMPANY

STREET ADDRESS

CITY STATE/PROVINCE/COUNTRY ZIP CODE

AREA CODE BUSINESS TELEPHONE NO. EXT.

☐ Home Address

STREET ADDRESS APT. NO.

CITY STATE/PROVINCE/COUNTRY ZIP CODE

AREA CODE TELEPHONE NO.

PRESENT POSITION (TITLE)

DATE OF BIRTH

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☐ YES ☐ NO

Projected Completion Date: _____ month/year

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CHAPTER _____ ☐ TM ☐ IT _____

ACCOUNT # _____ ☐ AF

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TECHNOLOGIST SECTION DESIGNEE (sign)

THE SOCIETY OF NUCLEAR MEDICINE

Instructions to Application for Membership

1. Please complete and sign the enclosed application form, either printing or typing the information. Make sure you have completed all information requested in order to avoid unnecessary delays in processing.
2. A membership category will be assigned to you in accordance with the Society's Bylaws based on the information supplied on your application form.
3. To be eligible for "**In-Training**" status, at least 90 days must be remaining in your formal training program. No application processing fee is required.
4. Upon acceptance by the Society, you will automatically become a member of the regional chapter that covers your area of residence. If you wish membership in some other chapter, you should submit your request with your application. If no regional chapter exists for the area of your residence, you will be assigned "Membership-at-Large."
5. **A $10.00 non-refundable processing fee must accompany the completed application form. Otherwise applications will not be processed.**
6. Receipt of your application will be acknowledged. Allow 4–6 weeks for processing and for receipt of the appropriate journals. DO NOT prepay your dues. An invoice will be sent to you upon approval of your application.

Guide to Membership Dues—1988

Membership Categories	Society	Technologist Section	Total
Full	$100.00	—	$100.00
Full-in-training	50.00	—	50.00
With Tech Section membership			
Doctoral degrees (MD, DO, PhD)	80.00	$33.00	113.00
Doctoral degrees-in-training	40.00	16.50	56.50
All other degrees	75.00	33.00	108.00
All other degrees-in-training	37.50	16.50	54.00
Associate	75.00	—	75.00
Associate-in-training	37.50	—	37.50
With Tech Section membership			
Doctoral degrees	50.00	33.00	83.00
Doctoral degrees-in-training	25.00	16.50	41.50
All other degrees	50.00	33.00	83.00
All other degrees-in-training	25.00	16.50	41.50
Technologist (must be Tech Section member)	35.00	33.00	68.00
Technologist-in-training	17.50	16.50	34.00
Doctoral degrees	80.00	33.00	113.00
Doctoral degrees-in-training	40.00	16.50	56.50
Affiliate	100.00	—	100.00
With Tech Section membership	50.00	33.00	83.00
Doctoral degrees	100.00	33.00	133.00

- Society and Technologist Section chapter dues are additional and vary by chapter. A chapter dues table is available upon request.
- Council dues are an additional $5.00 per Council.
- Dues for those applicants joining during the year are prorated to January 1st.

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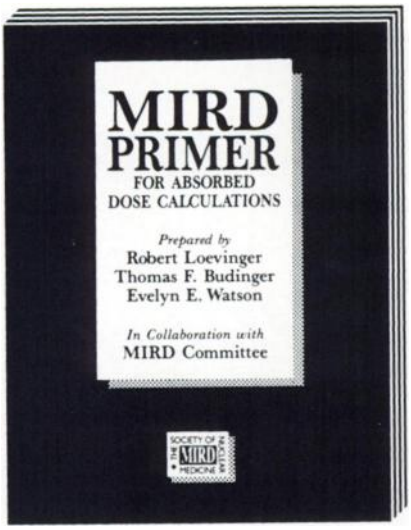
136 Madison Avenue—Dept. 588J
New York, NY 10016-6760



MIRD PRIMER

For Absorbed Dose Calculations

Prepared by

Robert Loevinger
Thomas F. Budinger
Evelyn E. Watson

In Collaboration with the MIRD Committee

The MIRD Primer for Absorbed Dose Calculations was prepared by the MIRD Committee to provide a fresh explanation of the MIRD schema with examples designed to illustrate applications.

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Part 2 amplifies this explanation with examples designed to illustrate applications beginning with relatively simple problems and working up to more complex ones.

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Part 4 contains three appendices: List of MIRD Pamphlets, A Revised Schema for Calculating the Absorbed Dose from Biologically Distributed Radionuclides, and Kinetic Models for Absorbed Dose Calculations.

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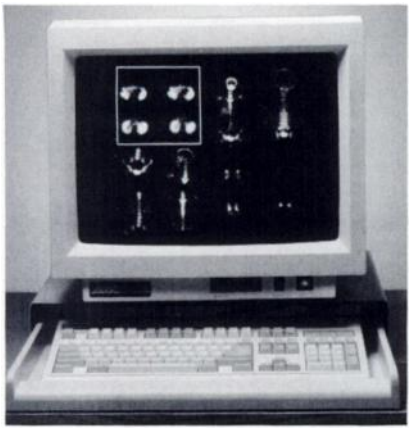
Display Workstation



ADAC Laboratories announces the high performance VIEWPOINT nuclear medicine display workstation. Typically used in conference rooms or physicians' offices, the VIEWPOINT provides the physician with immediate access to patient studies for reviewing and reporting. Independent and economical, VIEWPOINT display systems provide powerful image manipulation and come in 512-resolution and 1024-resolution configurations. VIEWPOINT interactive digital viewing sessions replace conventional film reading without impacting the clinical imaging systems. Digital viewing, which is displayed on a high resolution 13" color monitor, enables the physician to: compare and contrast multiple studies in a simultaneous high resolution 1280 × 1024 display; improve diagnostic image quality by normalizing images, resetting grey scale, and manipulating color windows; and reference special cases or research studies by quickly recalling them from any acquisition or processing station. The VIEWPOINT system is not hard to operate with a mouse-driven, pull down menus screen environment. Grey scale windowing is available from every menu with simple mouse interaction and each menu contains an on-line HELP feature to assist the operator. Other display functions include: brightness, contrast, and grey map manipulation controls for image enhancement; cut and paste features that allow for on-screen editing; real time magnifier allows inspection of critical detail; and motion picture display for visualization of dynamic studies. **ADAC Laboratories, 540 Alder Dr., Milpitas, CA 95035 Attn: Bruce Quill. (408)945-2990.**

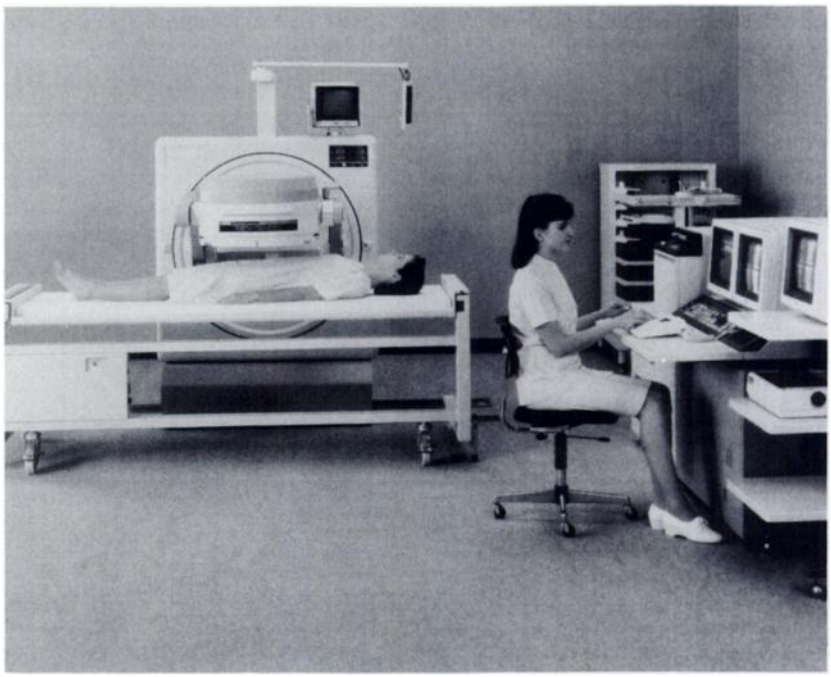
Circle Reader Service No. 101

Radiation Shielding Material

Now handling, disposing, and storing low-level radioactive waste has been made easy with the development of a new radiation shielding material called maXmRAY manufactured by The Branford Companies. maXmRAY is currently being used by the company to manufacture a radioactive waste containment system called RAD BAG. Dielectrically sealed, RAD BAG is fabricated to specific thickness in order to capture energy levels from Alpha, Beta, and Gamma emitters. Produced in sizes accommodating 55 and 30 gallon drums or 5 gallon pails, each RAD BAG comes with an easily positioned cover. In tests conducted by Teledyne Isotopes, average net count of isotope gamma emitted radiation when RAD BAG was not used was 249 ± 10, however, when RAD BAG was used this dropped dramatically to 13 ± 7. The attenuation factor was 0.9478 for energy levels of 0.136 to 0.170 MeV. Branford engineers state they are able to offer RAD BAG in a variety of sizes and shapes from tool kit bags to overbags for drums and tanks. Various closures are offered. **The Branford Companies, Box 713, Shelton, CT 06484 (203)735-6415, FAX (203)736-9102.**

Circle Reader Service No. 102

Five-Function Nuclear Medicine System



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DIAGNOSTIC – FOR INTRAVENOUS USE

DESCRIPTION: The kit consists of 10 multidose reaction vials which contain the sterile, non-pyrogenic, non-radioactive ingredients necessary to produce Technetium Tc 99m Albumin Aggregated Injection for diagnostic use by intravenous injection.

Each 10 mL reaction vial contains 2.5 mg of Albumin Aggregated, 5.0 mg of Albumin Human, 0.06 mg (minimum) stannous chloride (maximum stannous and stannic chloride 0.11 mg) and 1.2 mg of sodium chloride; the contents are in a lyophilized form under an atmosphere of nitrogen. Sodium hydroxide or hydrochloric acid has been used for pH adjustment. No bacteriostatic preservative is present.

The Albumin Human was non-reactive when tested for hepatitis B surface antigen (HB_SAg) by radioimmunoassay. The aggregated particles are formed by denaturation of Albumin Human in a heating and aggregation process. Each vial contains 4 to 8 million particles. By light microscopy, more than 90% of the particles are between 10 and 70 micrometers, while the typical average size is 20 to 40 micrometers; none is greater than 150 micrometers.

Technetium Tc 99m Albumin Aggregated Injection for intravenous use is in its final dosage form when sterile isotonic sodium pertechnetate solution is added to each vial. No less than 90% of the pertechnetate Tc 99m added to a reaction vial is bound to aggregate at preparation time and remains bound throughout the 6 hour lifetime of the preparation.

INDICATIONS AND USAGE: Technetium Tc 99m Albumin Aggregated Injection is a lung imaging agent which may be used as an adjunct in the evaluation of pulmonary perfusion in adults and children.

CONTRAINDICATIONS: Technetium Tc 99m Albumin Aggregated Injection should not be administered to patients with severe pulmonary hypertension.

The use of Technetium Tc 99m Albumin Aggregated Injection is contraindicated in persons with a history of hypersensitivity reactions to products containing human serum albumin.

WARNINGS: Although adverse reactions specifically attributable to Technetium Tc 99m Albumin Aggregated have not been noted, the literature contains reports of deaths occurring after the administration of Albumin Aggregated to patients with pre-existing severe pulmonary hypertension. Instances of hemodynamic or idiosyncratic reactions to preparations of Technetium Tc 99m Albumin Aggregated have been reported.

PRECAUTIONS:

General

The contents of the kit before preparation are not radioactive. However, after the sodium pertechnetate Tc 99m is added, adequate shielding of the final preparation must be maintained.

In patients with right to left heart shunts, additional risk may exist due to the rapid entry of Albumin Aggregated into the systemic circulation. The safety of this agent in such patients has not been established.

Hypersensitivity reactions are possible whenever protein-containing materials such as pertechnetate labeled Albumin Aggregated are used in man. Epinephrine, antihistamines, and corticosteroids should be available for immediate use.

The intravenous administration of any particulate materials such as Albumin Aggregated imposes a temporary small mechanical impediment to blood flow. While this effect is probably physiologically insignificant in most patients, the administration of Albumin Aggregated is possibly hazardous in acute cor pulmonale and other states of severely impaired pulmonary blood flow.

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.

Contents of the vials are intended only for use in the preparation of Technetium Tc 99m Albumin Aggregated Injection and are *NOT* to be administered directly to the patient.

The Technetium Tc 99m labeling reactions involved depend on maintaining the stannous ion in the reduced state. Hence, sodium pertechnetate Tc 99m containing oxidants should not be employed.

The preparation contains no bacteriostatic preservative. Technetium Tc 99m Albumin Aggregated Injection should be stored at 2-8°C and discarded 6 hours after reconstitution.

Technetium Tc 99m Albumin Aggregated Injection is physically unstable and consequently the particles settle with time. Failure to agitate the vial adequately before use may result in non-uniform distribution of radioactive particles.

If blood is drawn into the syringe, unnecessary delay prior to injection may result in clot formation *in situ*.

Do not use if clumping of the contents is observed.

Technetium Tc 99m Albumin Aggregated, as well as other radioactive drugs must be handled with care. Once sodium pertechnetate Tc 99m is added to the vial, appropriate safety measures must be used to minimize radiation exposure to clinical personnel. Care must also be taken to minimize the radiation exposure to patients in a manner consistent with proper patient management.

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 animal studies have been performed to evaluate carcinogenic potential or whether Technetium Tc 99m Albumin Aggregated Injection affects fertility in males or females.

Pregnancy Category C

Animal reproduction and teratogenicity studies have not been conducted with Technetium Tc 99m Albumin Aggregated Injection. It is also not known whether Technetium Tc 99m Albumin Aggregated Injection can cause fetal harm when administered to a pregnant woman or can affect reproductive capacity. There have been no studies in pregnant women. Technetium Tc 99m Albumin Aggregated Injection 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 Tc 99m is excreted in human milk during lactation. Therefore, formula feedings should be substituted for breast feedings.

Pediatric Use

The lowest possible number of particles should be used in right-to-left shunting, in neonates, and in severe pulmonary disease.

ADVERSE REACTIONS: The literature contains reports of deaths occurring after the administration of Albumin Aggregated to patients with pre-existing severe pulmonary hypertension. Instances of hemodynamic or idiosyncratic reactions to preparations of Technetium Tc 99m Albumin Aggregated have been reported (see Warnings).

HOW SUPPLIED:

MPI MAA Kit
Kit for the Preparation of Technetium Tc 99m Albumin Aggregated Injection
Product No. 4432.

Each kit contains 10 reaction vials, each vial containing in lyophilized form, sterile and non-pyrogenic:

Albumin Aggregated	2.5 mg
Albumin Human	5.0 mg
Stannous Chloride (minimum)	0.06 mg
(Maximum stannous and stannic chloride	0.11 mg)
Sodium chloride	1.2 mg

HCl or NaOH has been used for pH adjustment. The vials are sealed under an atmosphere of nitrogen.

Twenty labels with radiation warning symbols and a package insert are supplied in each carton.

Circle Reader Service No. 30