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Iodohippurate Sodium I123 Injection

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CLINICAL TASK: Evaluate differential renal function in a patient with multiple bladder and ureteral surgeries, still having recurring urinary tract infections.¹



2-4 min.



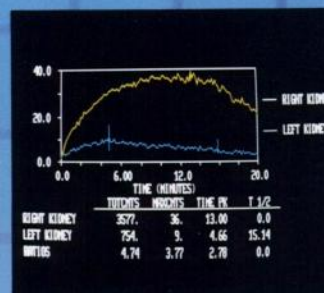
6-8 min.



10-12 min.



20-24 min.

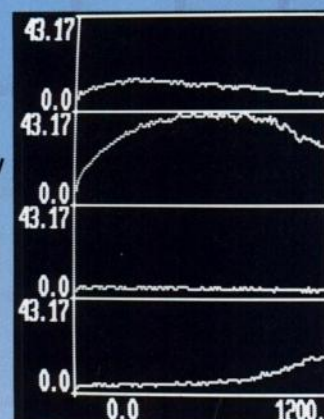


Left Kidney

Right Kidney

Background

Bladder



I123 Renogram

CONCLUSION: Right hydronephrosis in a somewhat chronically obstructive appearing pattern. Small, poorly functioning left kidney contributing approximately 14% to total renal function.

Better Data Density—Better Statistics—Higher Detector Efficiency

Nephroflow[®]

For the past 20 years you have used I131 Iodohippurate for your renal studies. Now I123 Iodohippurate is available for your use. Use Nephroflow – The physics are better, the statistics are better and the detection efficiency is better. Move into the future.

Comparison of I123 and I131

Characteristic	I123	I131
Mode of Decay	Electron capture	Beta ⁻
Half-Life	13.2 hours	193 hours
Principal Gamma Energy (keV)	159	364
Intensity	84%	82%
Half-Value layer, lead, cm	0.037	0.24
Detection Efficiency: ¼" NaI (TI) crystal	74.5%	22.5%



medi+physics[®]

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To order call (800) MEDI-123



NEPHROFLOW[®]
IODOHIPPURATE SODIUM I 123 INJECTION

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

DESCRIPTION: Nephroflow[®] is supplied as a sterile, apyrogenic, aqueous, isotonic sodium chloride solution for intravenous administration. Each milliliter of the solution contains 37 megabecquerels (1 millicurie) Iodohippurate Sodium I 123 at calibration time, 2 milligrams Iodohippurate Sodium, 1 percent benzyl alcohol (as a preservative), 9 milligrams sodium chloride for isotonicity, and up to 0.1 percent alcohol. The solution is buffered with 1.2 milligrams per milliliter sodium phosphate, monobasic and 0.05 milligrams per milliliter sodium phosphate, dibasic (at time of manufacture) and the pH is adjusted to 7.0–8.5 with sodium hydroxide or hydrochloric acid. 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, Na 24, Te 121). The radionuclidic composition at expiration time is not less than 85.5 percent I 123, not more than 12.9 percent I 124, and not more than 1.6 percent all others. The ratio of the concentration of I 123 to I 124 changes with time.

INDICATIONS AND USAGE: Nephroflow is a diagnostic aid in determining renal function, renal blood flow, and urinary tract obstruction, and as a renal imaging agent.

CONTRAINDICATIONS: None Known.

WARNINGS: None Known

PRECAUTIONS:

General

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 (24 hours after calibration time) stated on the label.

The prescribed Iodohippurate Sodium 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 as possible) in order to minimize the fraction of radiation exposure due to relative increase of radionuclidic contaminants with time.

The dose to the bladder wall will be reduced significantly if the patient is encouraged to void within 2 hours after the drug is administered. The dose to the other target organs will also be substantially reduced.

Iodohippurate Sodium I 123, as well as other radioactive drugs, must be handled with care and appropriate safety measures should be used to minimize radiation exposure to clinical

personnel. Care should also be taken to minimize radiation exposure to the patient consistent with proper patient management.

Radiopharmaceuticals should be used 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, mutagenic potential, or effects on fertility in male or female animals.

Pregnancy Category C

Animal reproduction studies have not been conducted with this drug. It is also not known whether Iodohippurate Sodium I 123 can cause fetal harm when administered to a pregnant woman, or can affect reproductive capacity. Iodohippurate Sodium I 123 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 37) days following the onset of menses.

Nursing Mothers

Since Iodine 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: As with all organic iodine containing compounds, the possibility of allergic reactions must be kept in mind. Nausea, vomiting, and fainting have been reported in conjunction with the administration of Iodohippurate Sodium I 123.

HOW SUPPLIED: Nephroflow 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 millicurie) of Iodohippurate Sodium I 123 at calibration time.

It is available, in individual vials, in the following sizes:

MPI Catalog No. 2041: 1 ml and 37 megabecquerels (1 mCi) per vial.

MPI Catalog No. 2042: 2 ml and 74 megabecquerels (2 mCi) per vial.

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

RADIOISOTOPE RECORD
 Date: Jul 16, 1984
 Time: 8:11 A.M.
 Isotope: Tc-99m
 Sample # 1
 Activity: 798. mCi
 Volume: 20.0 ml
 Conc: 39.9 mCi/ml
 99Mo: 27.8 uCi
 Mo/Tc: .034 uCi/mCi

RADIOISOTOPE RECORD
 Date: Jul 16, 1984
 Time: 8:12 A.M.
 Isotope: Tc-99m
 Sample # 1
 Dose: 5.00 mCi

Isotope Decay Chart

8:30 A.M.
 38.5 mCi/ml
 .13 ml
 Mo: .036 uCi/mCi

9:00 A.M.
 36.3 mCi/ml
 .14 ml
 Mo: .038 uCi/mCi

9:30 A.M.
 34.3 mCi/ml
 .15 ml
 Mo: .040 uCi/mCi



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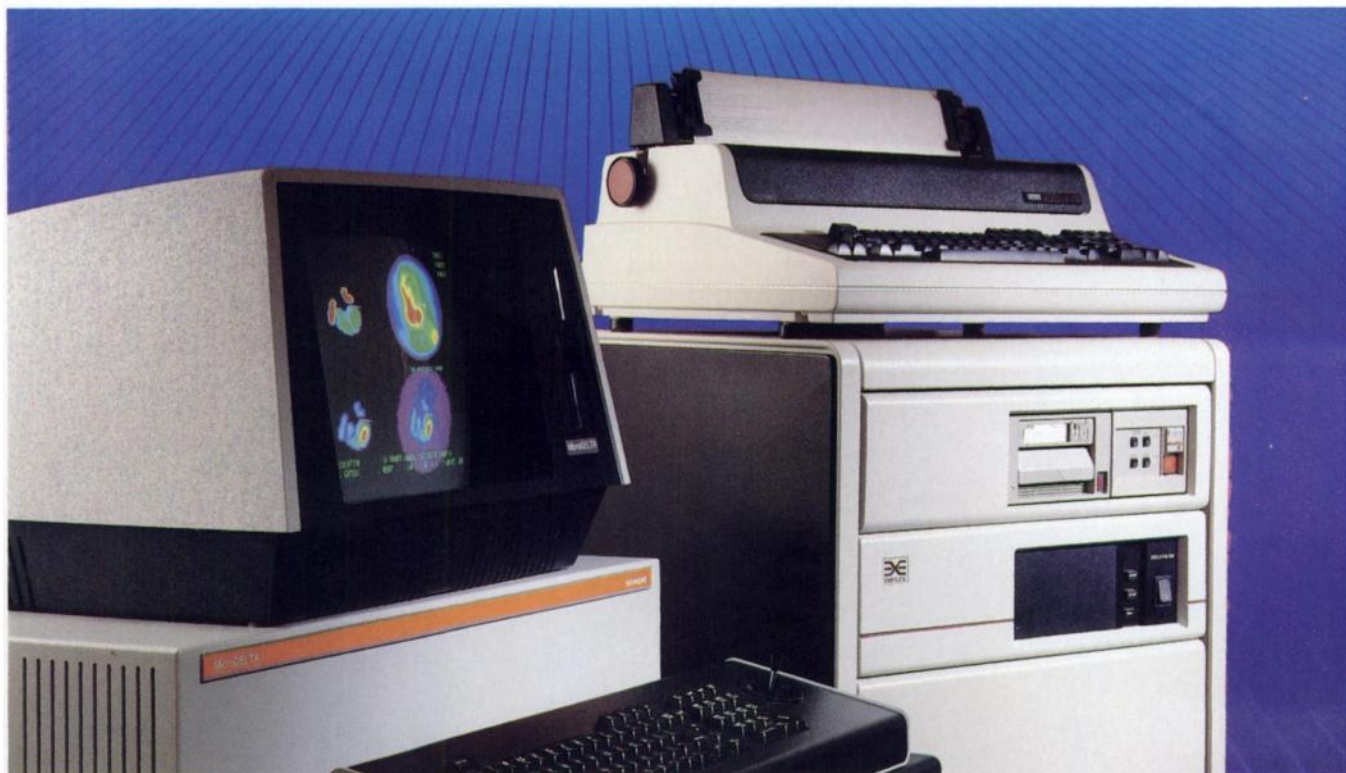
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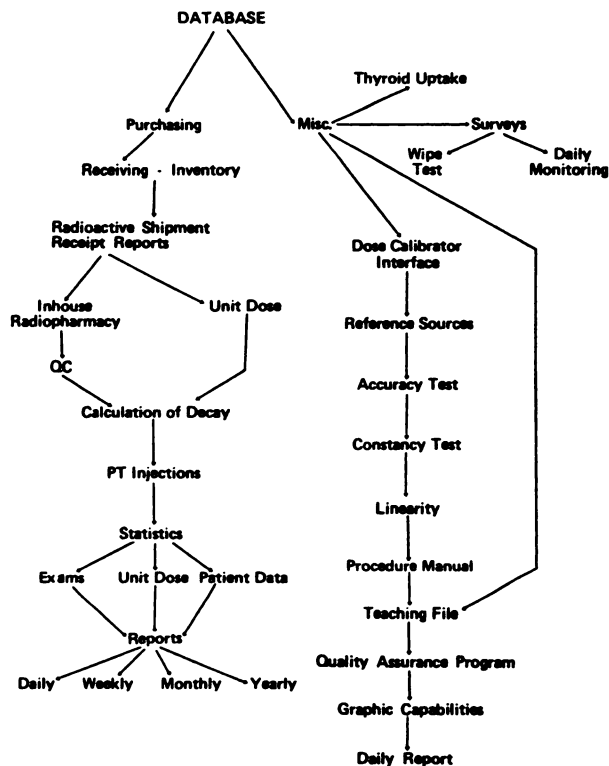
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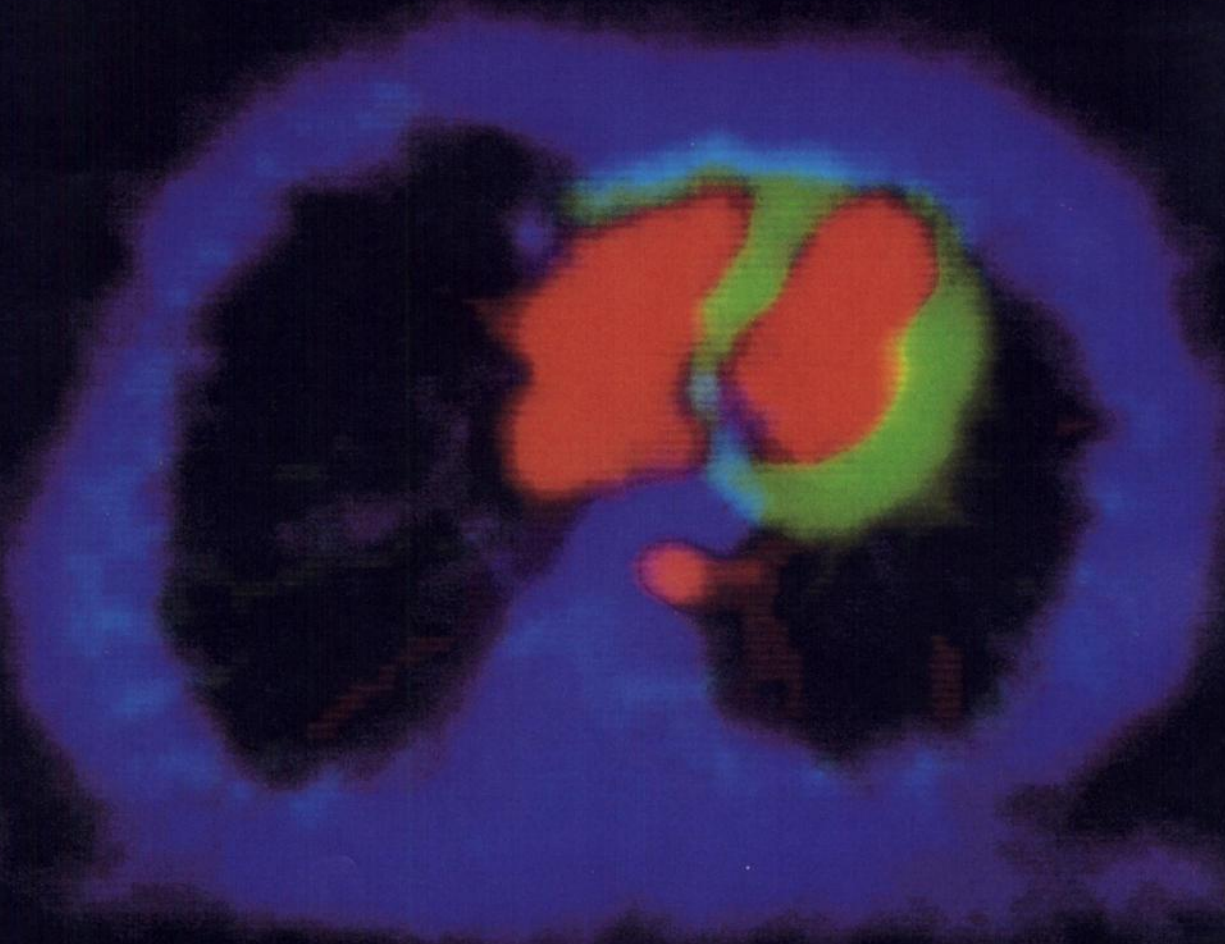
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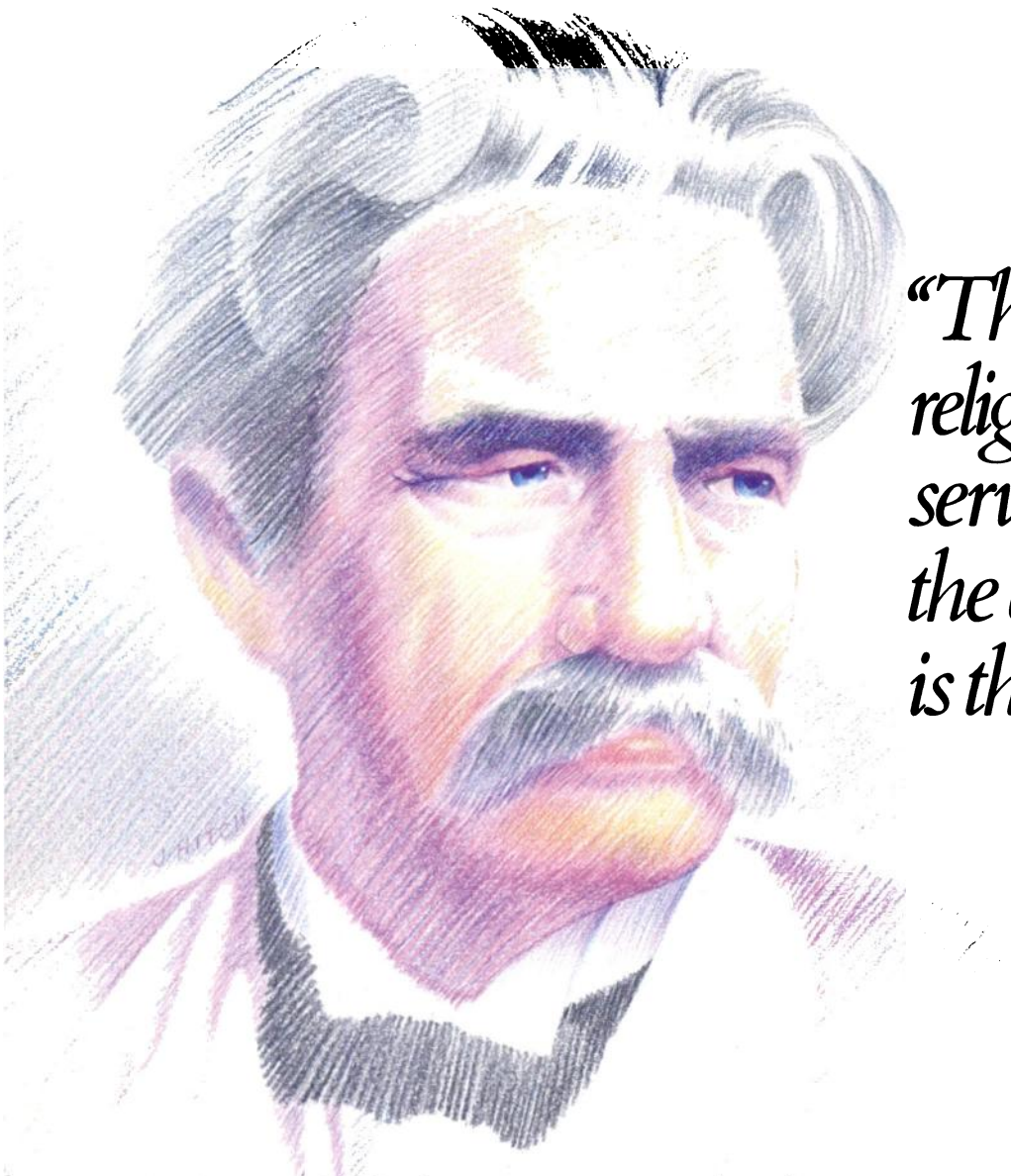
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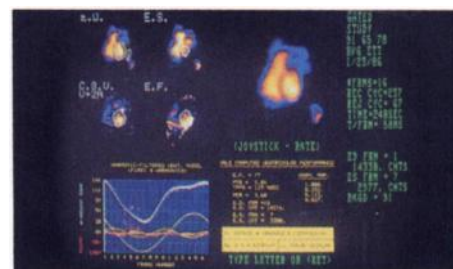
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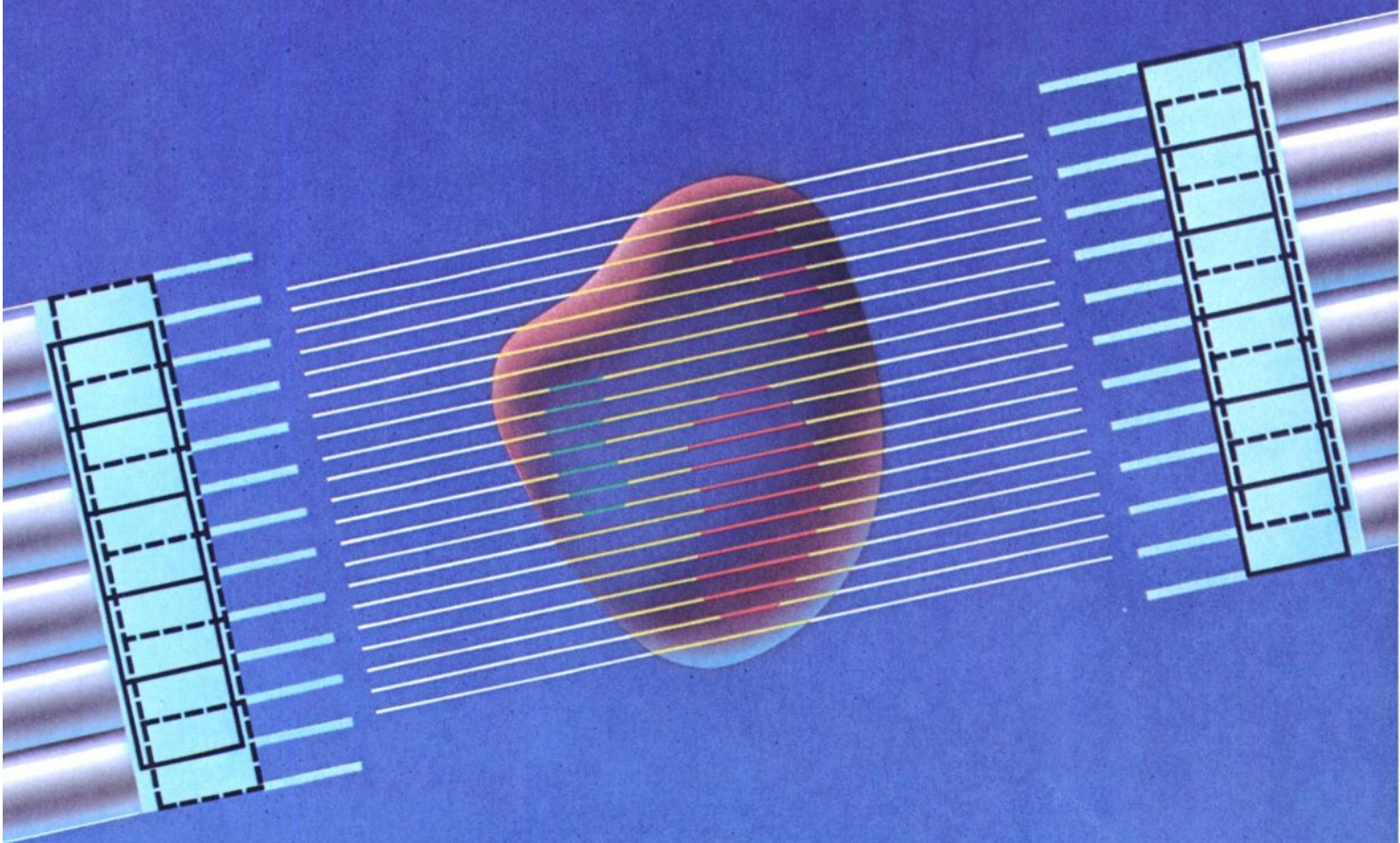
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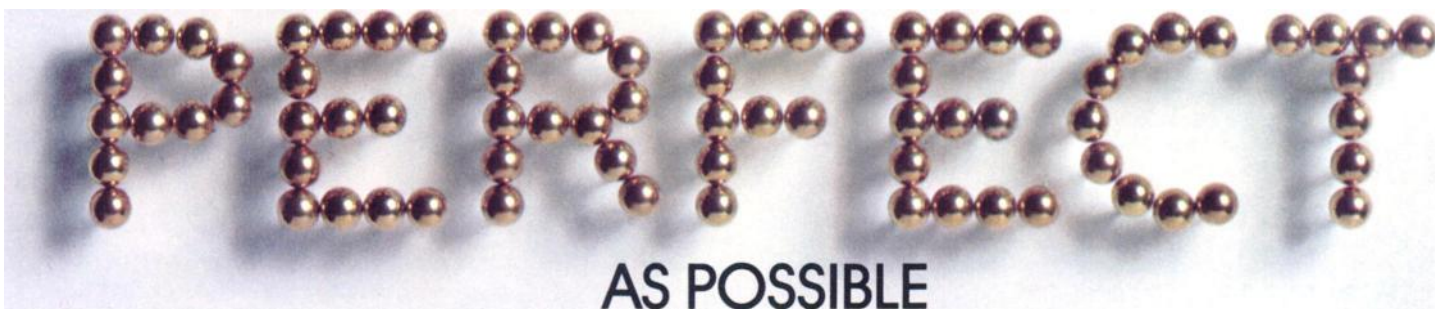
See article appearing
in December 1986 JNMT on page 206

In the evaluation of pulmonary perfusion

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Please see adjacent page for brief summary.

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Diagnostics

MACROTEC[®]

Technetium Tc 99m Albumin Aggregated Kit
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 ($\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$) and 0.19 mg total tin, maximum (as stannous chloride, $\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$), 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 1-8 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 (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. 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 (Technetium Tc 99m Albumin Aggregated Kit) are sterile and non-pyrogenic. 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, ade-

quate 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, 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 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 (Technetium Tc 99m Albumin Aggregated) is supplied as a kit containing 10 reaction vials (5 ml size).



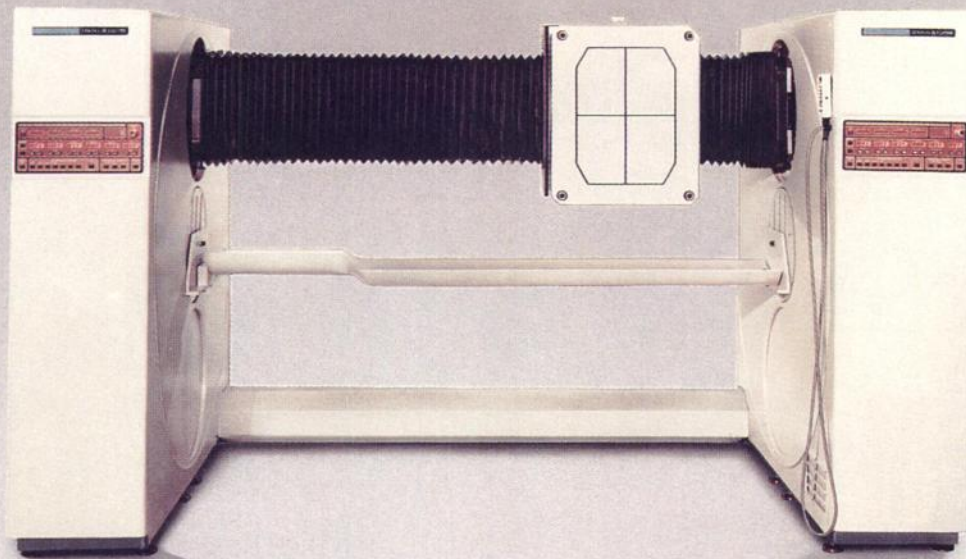
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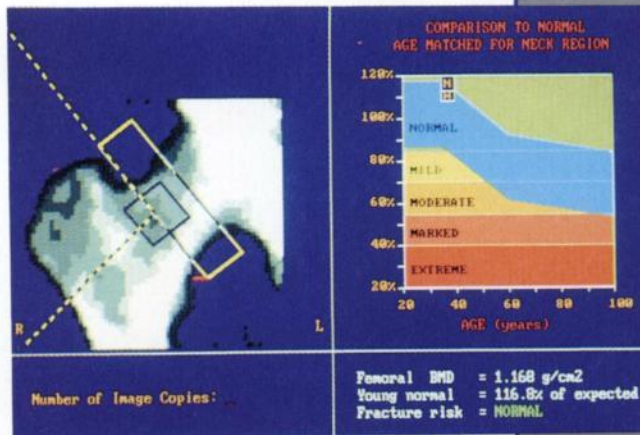
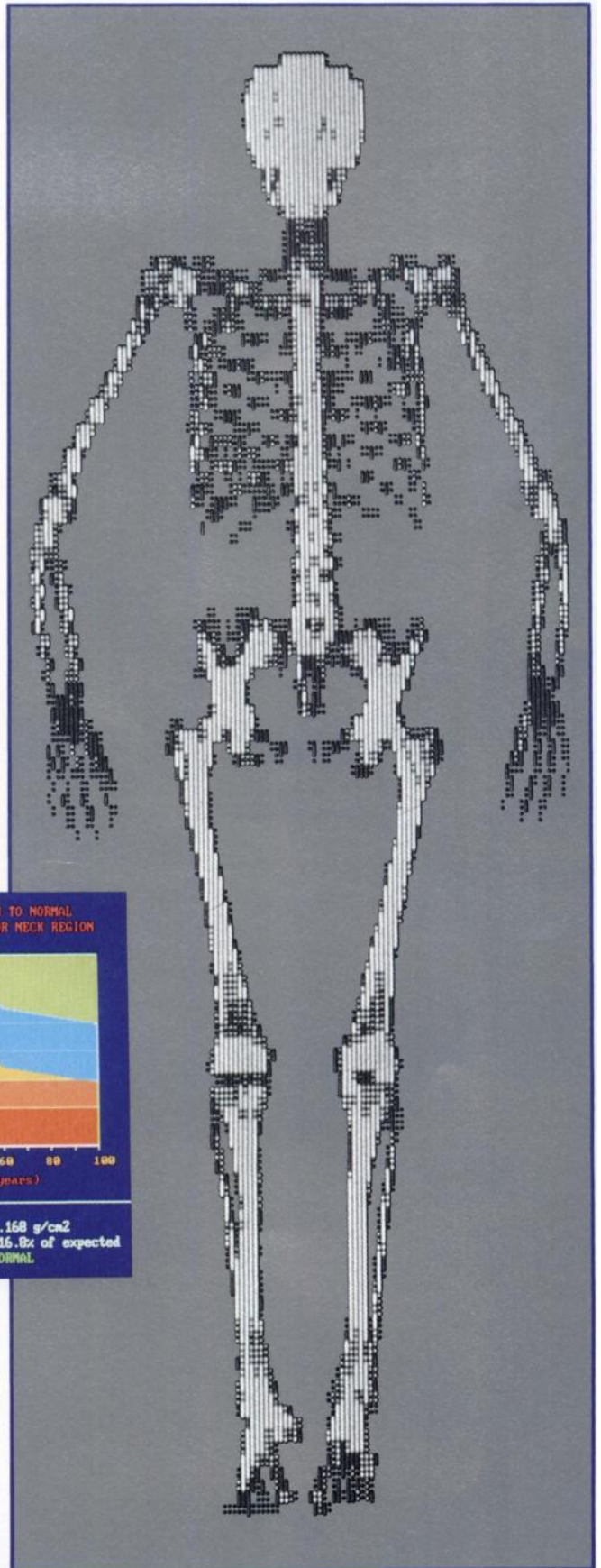
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Spine data (n = 908) and femur data (n = 632) for comparisons from a study of normal white females by Mazess, et al. (submitted). Normal comparisons and displays are user selectable. Total body data derived from a study of 390 normal white women by J. C. Gallagher, et al. (Creighton University)—submitted 1986.

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- How the Algorithms Work
- What is the influence of Attenuation and Uniformity Correction
- How to Position Patients and Set Up the Equipment
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A block of rooms has been set aside at the special rate of \$120 single or double occupancy at the Mark Hopkins Hotel, (415) 392-3434. Use any major credit card to make your reservation. Indicate that you are with the American College of Nuclear Physicians to be sure you receive the preferential rate.

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SPECT LUNCHEON

There will be a luncheon for symposium attendees on both days of the meeting to give everyone time to relax and meet with colleagues. If you would like to attend one or both of the luncheons, please check the appropriate box on the registration form.

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The Society of Nuclear Medicine

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Conjoint Winter Meeting

**Perfusion Imaging:
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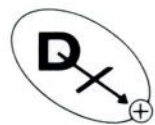
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The short half-life of Xenon 133 makes availability a problem, increases shipping costs, and we lose much of it through decay.

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THE SOLUTION:

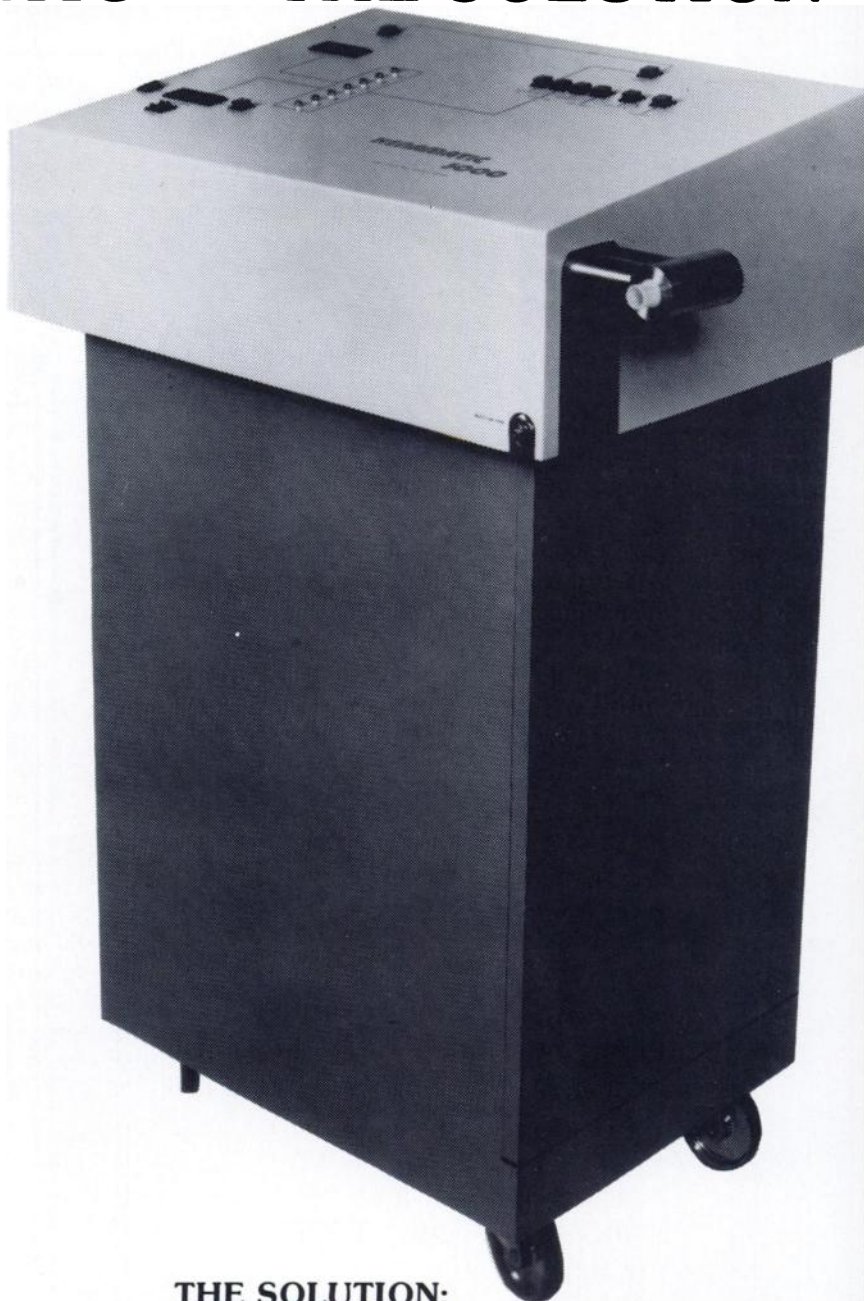
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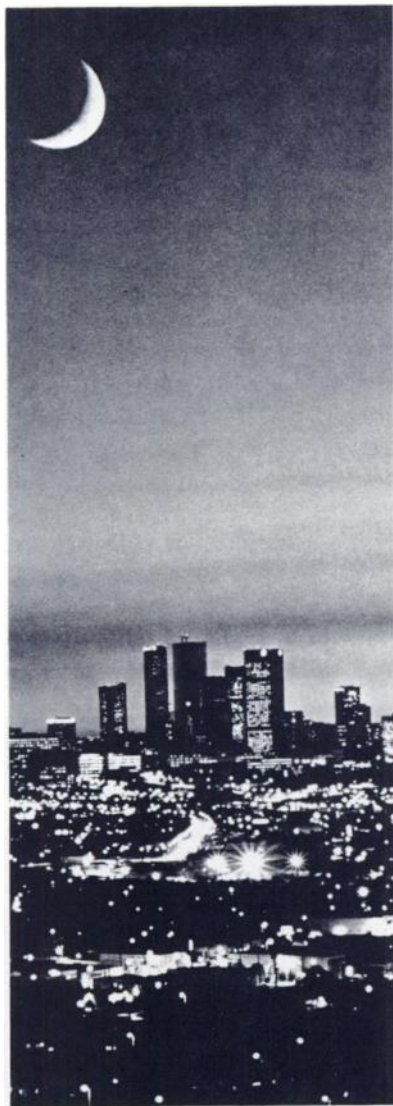
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EUROPEAN NUCLEAR MEDICINE CONGRESS 1987

Budapest, Hungary • August 24–28, 1987



The New Trends and New Possibilities in Nuclear Medicine

The Society of Nuclear Medicine—Europe • 25th Meeting
The European Nuclear Medicine Society • 10th Meeting
The Hungarian Nuclear Medicine Society • 5th Meeting

SCIENTIFIC PROGRAM

Plenary Sessions, Scientific Papers, "Works-in-Progress," Technicians (Technologist) Program, Scientific and Commercial Exhibition, Pre- and Post-Congress Meetings.

Original contributions on a variety of topics related to nuclear medicine will be considered for inclusion in the scientific program. They are:

- **Basic Research:** Physical science; Emission computed tomography, (SPECT and PET); Nuclear magnetic resonance; Instrumentation; Image processing—artificial intelligence; Personal computers—computer networks; Quality control.
- **Pharmacology:** Radiopharmaceutical chemistry; New radiopharmaceuticals; New radioimmunoassays; Quality control in radiopharmacology; Dosimetry, Radiation risks.
- **Clinical Application:** Bone/joint diseases; Circulation; Endocrinology; Gastroenterology; Hematology; Cardiology; Immunoscintigraphy; Nephrology; Neurology; Pediatrics; Pulmonary diseases; Therapy; Thyroid diseases.

Call for Abstracts: Official Abstract Forms may be obtained by writing to: Prof. L. Csernay, Institute of Nuclear Medicine, University Medical School, H-6720 Szeged, Korányi fasor 8, Pf. 469, Hungary. Telephone: 00-36-62-11170. **The Deadline for the Receipt of Abstracts is March 10, 1987.**

EXHIBITION

A comprehensive exhibition of equipment and radiopharmaceutical manufacturers will be on display.

SOCIAL PROGRAM

An elaborate social program has been planned including: a concert in the Congress Palace of Budapest, wine-and-cheese welcoming party; evening in the Castle of Buda, featuring renowned opera singers, organ music, and a reception in the National Gallery; banquet and dance; farewell luncheon; and the *first* European Nuclear Medicine Tennis Championship.

Registration: Members of the Society of Nuclear Medicine—Europe (SNME), of the European Nuclear Medicine Society (ENMS), and of the Hungarian Nuclear Medicine Society (HNMS) will be admitted free of charge. Registration fee for all others is: 210 Swiss francs by June 20, 1987, and 300 Swiss francs after June 20, 1987.

Travel Arrangements: Garber Travel, the officially appointed U.S. agent for the SNM in the coordination of travel arrangements to the European Nuclear Medicine Congress, will offer the lowest possible fare and hotel accommodations in Budapest. Garber has agreed to receive Congress Registrations in U.S. dollars for all registrants who are booking both air and land arrangements. Call **Toll-Free** from outside Massachusetts 1-800-225-4750 or (617)787-0600. Ask for Nuclear Medicine Congress Desk. For detailed information contact: GARBER TRAVEL, P.O. Box 404—Dept. 91-7023, Brookline, MA 02146.

Mailing address for payment and further information: Prof. L. Csernay, Institute of Nuclear Medicine, H-6720 Szeged, Korányi fasor 8, Pf. 469, Hungary. Telephone: 00-36-62-11170.

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SNMCOUNCILS

To satisfy the needs of those individual disciplines within nuclear medicine, The Society of Nuclear Medicine has established special interest Councils that function autonomously within the Society and are open to all interested members.

Academic Council

The **ACADEMIC COUNCIL** is composed of faculty members of nuclear medicine departments, divisions, or sections in accredited nuclear medicine schools, or in those in AMA approved nuclear medicine residency programs in the U.S. or Canada.

The objectives of the Council are: (1) to promote medical education, research, and patient care related to nuclear medicine; (2) to develop better methods of undergraduate and graduate teaching of nuclear medicine; and (3) to provide a forum for discussion of problems of mutual interest and concern, as well as an informal exchange of ideas and programs. Within the Council there is a subgroup of directors of nuclear medicine residency training programs who confer at least annually with the ABNM on areas of mutual interest.

Cardiovascular Council

The **CARDIOVASCULAR COUNCIL** consists of Society members interested in the performance and application of cardiovascular nuclear medicine procedures. It seeks to provide a forum for discussion and development of cardiac scintigraphic methods in an effort to realize the most beneficial applications. The Council actively seeks individuals who share this goal.

Instrumentation Council

The **INSTRUMENTATION COUNCIL** promotes the advancement and dissemination of knowledge of instrumentation utilized in nuclear medicine and serves as a resource center in instrumentation for the Society.

Computer Council

The **COMPUTER COUNCIL** is made up of Society members who have an interest in computers and their application in the diagnostic, therapeutic, and investigative areas of nuclear medicine. It provides a source of information relating to computer science to the Society membership through its meetings and publications.

Correlative Imaging Council

The **CORRELATIVE IMAGING COUNCIL** provides a structure in which clinicians and scientists can develop and disseminate information on the medical and physiological applications of various imaging modalities as they correlate to nuclear medicine.

Radioassay Council

The **RADIOASSAY COUNCIL** maintains the scientific, economic, and historic elements of the radioassay discipline within the Society.

Radiopharmaceutical Science Council

The **RADIOPHARMACEUTICAL SCIENCE COUNCIL** provides a forum for discussion and dissemination of information relating to the radiopharmaceutical sciences and promotes and encourages basic radiopharmaceutical research and development within the Society. It publishes a newsletter and holds periodic meetings on special subjects.

If you are interested in joining any or all of the Councils, please contact the Membership Department. The cost for 1986 Council membership is only \$5.00 per council.

The Society of Nuclear Medicine

Membership Department 136 Madison Avenue, New York, NY 10016-6760, (212)889-0717

We're Poised For Further Breakthroughs In Monoclonal Antibody Research.

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A commitment to innovative research and new product development has long been a hallmark of Johnson & Johnson, the world's most diversified healthcare company. Recognizing the tremendous potential of the biotechnology market, we're expanding our staff of top scientists to further explore the development of conjugated monoclonal antibodies for use as imaging agents and therapeutics.

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Instrumentation Project Coordinator

You will be responsible for the instrumentation aspects of nuclear medicine imaging agent projects including instrument modifications, software, radiation physics, dosimetry and data analysis. Will provide support for collaborators' research and clinical trials. In addition, you will design and run experiments to test instrument modifications and software.

To qualify, you should have a BS (MS preferred) in Physics, Bio-Physics, Electronics engineering or Computer Science with 3-5 years' experience in imaging instrumentation and software support. You must be familiar with imaging facilities in hospitals and have experience in clinical applications or research projects for gamma cameras or magnetic resonance units. This position requires 20-40% travel.

Manager Clinical Development

You will be responsible for the preparation of clinical protocols for multi-center Phase I, II and III trials involving monoclonal antibody based imaging agents and therapeutics. You'll also manage all aspects of trial initiation and execution.

To qualify you should possess a BS in the sciences or medically allied field. An advanced degree in Immunology, Bio-Physics or Pharmacology is highly desirable. In addition, you should have 5-7 years' experience in designing or conducting immunological, oncolytic, radiodiagnostic or cardiovascular related clinical trials. This position requires 30-50% travel.

Associate Director Development

In this key position, you will direct a team of scientists in the development of conjugated monoclonal antibody agents for use in vivo imaging and therapeutic uses. You will also coordinate extensive outside collaborations with academic centers biotechnology partners and evaluate potential acquisitions.

You should possess a PhD and 10+ years of industrial experience in immunochemistry, protein chemistry or pharmaceutical development of biologicals or radiopharmaceuticals. Excellent management skills and knowledge of pre-clinical regulatory requirements are essential.

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Rates for Classified Listings—\$12.50 per line or fraction of line (approx. 50 characters per line, including spaces). Please allow 28 characters for the first line which will appear in capital letters. Special rates for *SNM members* on Positions Wanted: \$10.00 per line. *Note: Box numbers are available for the cost of the 2 lines required.*

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 New York, NY 10016-6760
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Positions Open

Physician

DIRECTOR OF NUCLEAR MEDICINE. University Hospital of Jacksonville as an affiliate of the University of Florida/Jacksonville Programs is seeking candidates for a position in nuclear medicine. Responsibilities will require management skills and a teaching commitment necessary to direct a clinical nuclear medicine division associated with diagnostic radiology resident training program. ABR certification required plus ABNM or special competence. An academic appointment will be at the assistant professor or associate professor level depending on qualifications. Application deadline is February 1, 1987 with an anticipated starting date of July 1, 1987. Direct inquiries to H. Martin Northup, MD, Department of Radiology, University Hospital, 655 West 8th St., Jacksonville, FL 32209. Equal Opportunity/Affirmative Action Employer.

NUCLEAR PHYSICIAN. University Hospitals of Cleveland is seeking a Board certified radiologist for an assistant professor position in nuclear medicine. The position entails work in both conventional nuclear medicine and in the PET facility. Teaching experience and demonstrated interest in research are desirable. Salary commensurate with experience. University Hospitals of Cleveland is a 900-bed hospital associated with Case Western Reserve University. Interested candidates should forward their curriculum vitae and approximate date of availability to: Floro Miraldi, MD, Director, Division of Nuclear Radiology, University Hospitals of Cleveland, 2074 Abington Road, Cleveland, OH 44106. EOE/AEE.

NUCLEAR MEDICINE PHYSICIAN. The Veterans Administration Medical Center, Seattle, Washington and the University of Washington School of Medicine are seeking a board certified or board eligible nuclear medicine physician at the assistant professor level. Strong interest and experience in research and teaching are essential, and computer aptitude and experience are desirable. The hospital is in a new facility with state-of-the-art imaging and computer systems and the professional staff includes a medical imaging physicist and computer programmer. Starts July 1, 1987. Contact: John Harley, MD,

Chairman, Search Committee, VA Medical Center, 1660 S. Columbian Way, Seattle, WA 98108. EOE.

NUCLEAR MEDICINE PHYSICIAN to join nuclear medicine private practice group. Require ABIM and ABNM certification. Endocrinology certification desirable. Send CV and references to: Dr. Malcolm R. Powell, MD, Suite 908, 350 Parnassus Ave., San Francisco, CA 94117.

NUCLEAR MEDICINE PHYSICIAN. The University of Miami/Jackson Memorial Medical Center is seeking a nuclear medicine physician, ABNM certified or eligible, with clinical, teaching and research experience. Rank and salary will depend on qualifications and experience. Send CV to: Aldo N. Serafini, MD, Director, Nuclear Medicine Division, University of Miami School of Medicine (D-57), P.O. Box 016960, Miami, FL 33101. An Equal Opportunity/Affirmative Action Employer.

Scientist

FACULTY POSITION. Assistant or Associate Professor. We are seeking candidates with interest in application of radiochemical and radiopharmaceutical sciences to areas such as ligand-receptor interactions, enzyme-substrate interactions, metabolism, monoclonal antibodies and technetium chemistry, and the development and application of magnetic resonance imaging. A PhD is required and postdoctoral experience is desirable. Candidates should provide a vita, three letters of recommendation, and a description of research interests by January 31, 1987 to: Dr. S.R. Byrn, Chair, Search Committee, Department of Medicinal Chemistry and Pharmacognosy, School of Pharmacy and Pharmaceutical Sciences, Purdue University, West Lafayette, IN 47907. Purdue University is an Equal Opportunity/Affirmative Action Employer.

Technologist

NUCLEAR MEDICINE TECHNOLOGIST. A full-time position is available for a self-motivated person interested in overseeing a nuclear medicine department. Tuality Community Hospital is a JCAH accredited acute care facility located 20 miles west of Portland, OR. Excellent salary and benefits. Requires ARRT (N) registry and prefers experience in ECT scanning. Send resume to: Laboratory Manager, Tuality Community Hospital, 335 S.E. Eighth Ave., Hillsboro, OR 97123. EOE.

NUCLEAR MEDICINE TECHNOLOGIST. Outstanding opportunity for fully trained nuclear medicine technologist to develop new nuclear medicine outpatient department. Available in progressive multispecialty clinic in pleasant, growth-oriented midwestern city. Excellent hours, salary, and benefits. Interested candidates should call or send resume to: T. A. Schultz, MD or Joanne Lundborg, Personnel Director, Central Plains Clinic, Ltd., 2727 S. Kiwanis Ave., Sioux Falls, SD 57105; (605) 335-2727. EOE M/F.

CERTIFIED NUCLEAR MEDICINE TECHNOLOGIST. Excellent full-time opportunity for this opening. BS preferred. Perform cardiac, SPECT, and routine imaging with rotation through RIA. Excellent salary and benefits available. For confidential consideration, send your resume to: Michael Moore, Employment and Benefits Manager, The Williamsport Hospital & Medical Center, 777 Rural Ave. Williamsport, PA 17701.

NUCLEAR MED. TECH. McKennan Hospital. Full-time position available for the experienced nuclear/radiology technologist. Excellent salary and benefits. For more information, please contact: Personnel Department, McKennan Hospital, 800 East 21st St., PO Box 5045, Sioux Falls, SD 57117-5045. An Equal Opportunity Employer M/F.

NUCLEAR MEDICINE TECHNOLOGIST. Our 350 bed teaching hospital is seeking a Registered or Registry eligible Nuclear Medicine Technologist to work in modern, well equipped lab including 5 cameras and 2 computers. Excellent experience and opportunity for continued learning. Salary commensurate with experience and excellent fringe benefits. Send resumes to: Charles E. Duxbury, RT, Division

of Nuclear Medicine, SUNY Health Science Center, 750 E. Adams St., Syracuse, New York 13210. Affirmative Action/Equal Opportunity Employer.

NUCLEAR MEDICAL TECHNOLOGIST. Long established practice is expanding to include nuclear medicine. Excellent growth opportunity for individual who enjoys the private practice atmosphere and opportunity to live at the Jersey shore. Call: Lisa Devaney, (201)747-4400.

Positions Wanted

Physician

NUCLEAR MEDICINE PHYSICIAN. Board eligible NM physician seeks a position starting July 1, 1987. Currently chief resident in a major university program with excellent credentials. Extensive clinical experience with training in all modalities including MRI, nuclear cardiology, bone densitometry, and SPECT. Reply to: Box 101, The Society of Nuclear Medicine, 136 Madison Ave., New York, NY 10016-6760 or call (716)691-8747.

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14th TRAINING COURSE ON HORMONAL ASSAY TECHNIQUES OF THE ENDOCRINE SOCIETY

March 23-27, 1987 • Holiday Inn • Bethesda, Maryland

This course will be organized and directed by Bruce D. Weintraub, MD, Chief, Molecular, Cellular, and Nutritional Endocrinology Branch, NIDDK. The faculty will be comprised of leading scientists from the National Institutes of Health.

The course will consist of morning lectures on fundamentals and theoretical background, and afternoon workshops and laboratory demonstrations. Topics will include radioimmunoassay, radio-receptor assay, non-isotopic immunoassay, in vitro bioassay, measurement of polypeptide messenger RNA, high performance liquid chromatography, and hybridoma and cell fusion techniques.

For applications and information: The Endocrine Society, 9650 Rockville Pike, Bethesda, MD 20814; (301)530-9660.

THE DEPARTMENT OF RADIOLOGY AT THE UNIVERSITY OF MINNESOTA HAS A one-year, full-time temporary, non-tenured, position in the division of nuclear medicine available at the rank of Instructor beginning July 1, 1987. Minimum requirements include Board certification in radiology by beginning date of appointment, and an accredited radiology residency. Responsibilities will include graduate and undergraduate medical instruction, and assisting with related department research projects. Responsibilities will also include providing both inpatient and outpatient clinical services. Equipment is state-of-the-art within new 500-bed medical center providing 6,000 inpatient and 3,000 outpatient nuclear medicine exams per year. Salary is negotiable and competitive, and is dependent upon past scholarly productivity and post-MD experience. Successful candidates must be licensed or able to obtain license to practice medicine in the State of Minnesota prior to appointment date. Applications will be accepted through May 15, 1987. Send letters and resumes to: Dr. Robert Boudreau, Division of Nuclear Medicine, Department of Radiology, Box 382 UMHC, University of Minnesota Hospital, 420 Delaware Street S.E., Minneapolis, Minnesota, 55455. The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.



ATTENTION SNM MEMBERS

2

new clubs are seeking active members to join in the petition for Council status.

Brain Imaging Council—the proposed council will offer specialists the opportunity to have a forum for discussion and rapid dissemination of information pertaining to brain imaging. It hopes to establish international educational scientific programs to examine current investigations.

Commercial Services Council—the proposed council will be opened to all *individual* members to provide a forum for those individuals who wish to share information and experience about the commercial aspects of nuclear medicine. It hopes to create an educational arena to assist others entering into business, whether it be industry or private practice.

To receive a copy of either petition, please write indicating council of choice to:
Membership Department, The Society of Nuclear Medicine, 136 Madison Avenue, Dept. 187JC, New York, NY 10016-6760, (212)889-0717.

RADIOPHARMACEUTICALS AND IN VITRO DIAGNOSTICS MONOCLONAL ANTIBODIES

Leading independent monoclonal health care products company located in suburban Philadelphia has excellent opportunities available for qualified individuals to actively participate in the evaluation and development of biopharmaceutical products. Positions provide significant potential for professional career growth and supervisory level responsibilities. Excellent opportunities for qualified and innovative scientists to work as key members of Centocor's multidisciplinary investigational team exploring the use of murine and human monoclonal antibodies as in vivo and in vitro diagnostic, as well as therapeutic products.

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Unique opportunity to participate in all aspects of new product research and development, including the design, initiation, and monitoring of clinical trials involving labeled monoclonal antibodies. Work closely with leading nuclear medicine departments in the implementation of clinical programs. Participate in market development and training of key sites in U.S. and Europe. At least three years experience in clinical research and/or senior applications support desired. Experience in nuclear cardiology, oncologic nuclear medicine, and/or monoclonal antibody research highly desirable. Willingness to travel and work independently are important characteristics. Opportunities for European assignments.

Apply with curriculum vitae to: **Harvey J. Berger, M.D., Senior Vice President, Medical Affairs, Centocor, Inc., 244 Great Valley Parkway, Malvern, PA 19355.** An equal opportunity employer.




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City Hospital Center at Elmhurst, a 750 bed teaching hospital affiliated with the Mount Sinai School of Medicine, is seeking a Nuclear Medicine Physicist.

Will be responsible for Nuclear Medicine Instrumentation, Radiation Safety and Protection as well as Quality Assurance aspects of nuclear medicine practice. In addition, will be appointed as Radiation Protection Officer for the institution.

Research interest is encouraged. Knowledge of computer science and SPECT image processing is desirable. PhD in either Physics or Computer Science or closely related field preferred but not essential. We offer an excellent salary and benefits package. Please submit Curriculum Vitae with salary history and requirements to: Human Resources Department.

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As a member of our renowned staff, you'll perform imaging procedures and operate scintillation cameras, computers and related accessories.

If you have graduated from an approved school of nuclear medicine technology, have your CNMT or ARRT certification, or are eligible to receive it, we offer an excellent salary, attractive benefits including 100% tuition reimbursement and real growth potential with a prominent health care leader.

To put your future in focus, send your resume to M. Tedeschi, Personnel Department, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, NY 10021. Equal opportunity employer m/f/h/v.



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NUCLEAR MEDICINE INSTRUMENTATION SPECIALIST

The Division of the International Agency invites nuclear medicine



Life Sciences of Atomic Energy applications for a instrumentation

specialist. The post involves selection, use, quality control and maintenance of nuclear medicine and related instruments.

The candidate should have an advanced degree in physics, medical physics or electronic engineering. Knowledge and experience with problems of maintenance of equipment in developing countries is considered desirable. Fluency in English, French, Russian, or Spanish is essential.

Initial contract 3 years with a possibility of extension for another 2 years. Duty station: Vienna, Austria. Total annual emoluments approximately US\$ 38,900.00. Additional allowances if married. Travel and removal expenses paid. Installation and repatriation grants. Six weeks annual leave.

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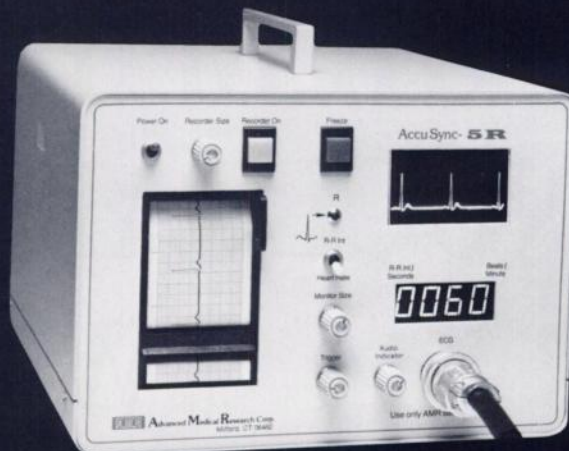
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July 27 - August 2

National Nuclear Medicine Week will be celebrated by nuclear medicine professionals across the country during the week of July 27-August 2, 1987. Sponsored by The Society of Nuclear Medicine and Technologist Section, National Nuclear Medicine Week has been developed to heighten public awareness of the progress nuclear medicine has made in the diagnosis and treatment of disease.

YOUR SUPPORT IS NEEDED in promoting National Nuclear Medicine Week. The Society has prepared a set of guidelines for promoting the Week in your local area. We will also have posters, buttons and stickers available for your hospital to purchase. Price lists for these items will be available shortly.

If you are interested in obtaining a set of guidelines and/or purchasing any promotional materials, please contact:

Lori S. Carlin
The Society of Nuclear Medicine
136 Madison Avenue, Dept. 187J
New York, NY 10016-6760
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SNM Offers Important Up-to-Date Information on Low-Level Radiation

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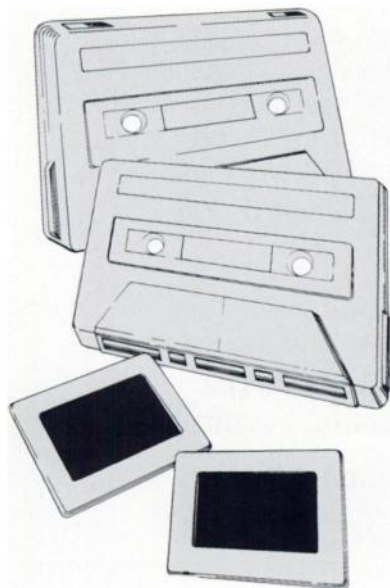
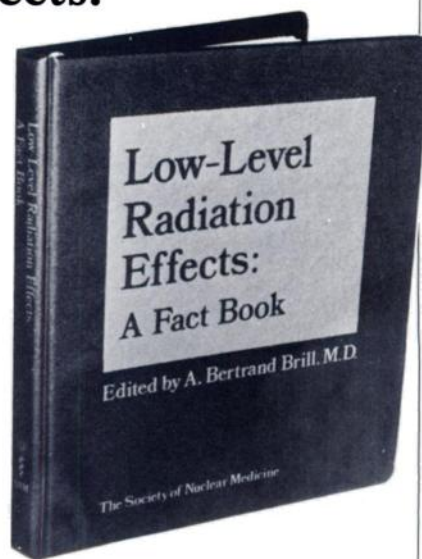
Low-Level Radiation Effects: A Fact Book

Edited by A. Bertrand Brill, M.D., Ph.D.

This book represents a conscientious attempt to provide an unbiased, up-to-date source of knowledge regarding the potential long- and short-term effects of radiation exposure to humans. Important new sources of information provided the stimulus for publishing the 1985 updates, which can be included with the original document. New reports issued by UNSCEAR, ICRP, and NCRP and references to recent publications of findings among Japanese A-bomb survivors have been added. Prepared in 8½ × 11" looseleaf format to facilitate periodic additions, this fact book contains a concise reference list for readers wishing to obtain additional, or more detailed information.

Cost: \$32.00 for original document (156 pages, including binder) plus 1985 update package (80 pages).

\$10.00 for updates purchased separately (80 pages without binder). Postage is included in prices.



Biological Effects of Low-Level Radiation (an audiovisual)

Richard L. Witcofski, Ph.D.

Illustrates up-to-date information about the effects on humans of low-level radiation and the difficulties of detection. The various sources of radiation exposure to the population are provided. Three potential biological effects of low-level exposure (cancer induction, genetic effects, and effects on the embryo) are each discussed in detail, particularly in light of the studies on exposed humans. And, finally, the risks of exposure to low levels of radiation are compared to other risks of life. *Approved for Category 1 credit and .1 CEU (VOICE) credit.* 80 slides; 59-min audio.

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Educate your patients with SNM Patient Information Pamphlets

A Patient's Guide to Nuclear Medicine

Well illustrated, this 16-page pamphlet explains what nuclear medicine is, how the procedures are performed, and how they can help in the early detection of disease.

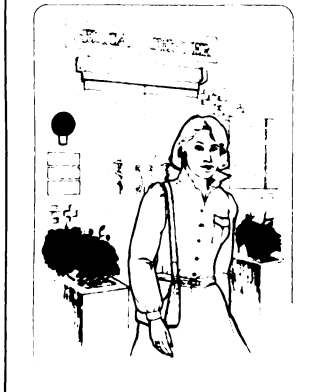
Divided into 3 sections, the guide opens with a general overview of nuclear medicine. A question-and-answer section follows, addressing such topics as safety, the benefits of nuclear medicine procedures, pre- and post-instructions, and testing of pregnant women and children.

The third section explains some of the more commonly performed procedures such as bone, liver, lung, heart, and thyroid uptake scans.

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Guidelines for Patients Receiving Radioiodine Treatment



Guidelines for Patients Receiving Radioiodine Treatment

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Easy-to-read language outlines important precautions patients can follow to help reduce radiation exposure to others. It also contains a checklist that physicians can review with their patients to determine which guidelines are appropriate for them and how they should be followed.

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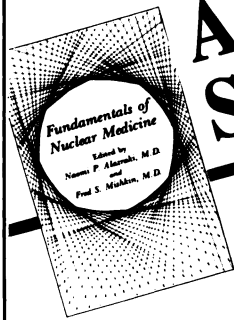
Healthcare professionals in private practice, hospitals, and clinics will find that these pamphlets provide a brief, attractive, and inexpensive way to educate patients and their families about the importance of proper health care.

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A Very Special Offer!

Fundamentals of Nuclear Medicine

EDUCATIONAL SERIES

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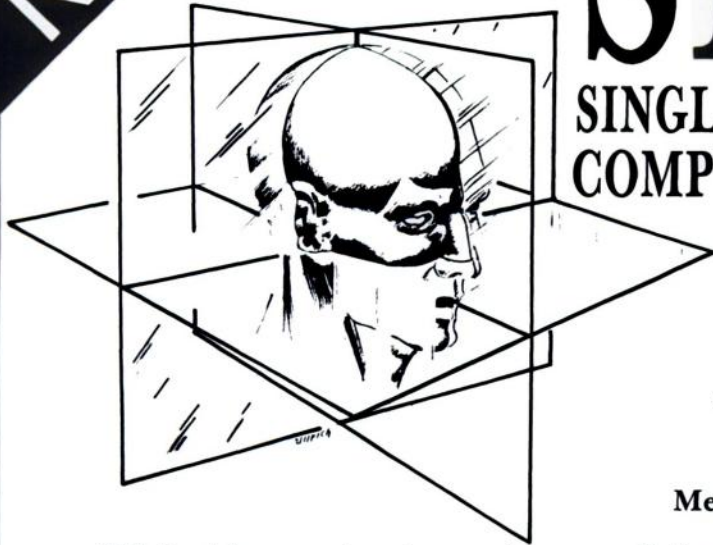
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—A Practical Guide

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.

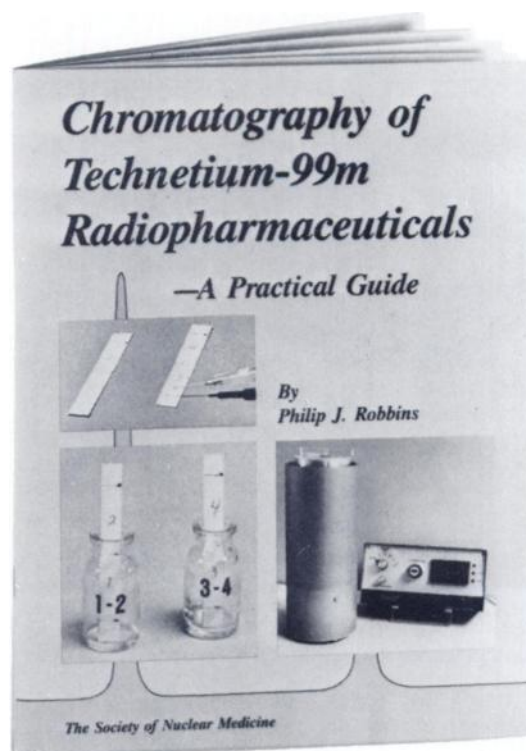
Topics covered include the nature and source of impurities, principles and classic techniques of chromatography, methods for counting miniature chromatographic strips, and pitfalls of miniature methods and how to avoid them. Also contained herein is a listing of each radiopharmaceutical with the USP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



ADAC Laboratories has announced that it will release four new optional Mars II software modules for the company's Mars II system, which is designed to provide management the support required to operate a diagnostic imaging department. The system now comes equipped with eight standard software programs which provide the following functions: patient registration; patient scheduling; film library management; diagnostic reporting; word processing; management statistics; charge capture; and quality assurance.

The new optional modules are: Full Automated Conflict Scheduling, designed to eliminate the manual scheduling logs and to print the room schedules for any day up to one year in advance. The program is designed to allow the department to better utilize the existing resources and automatically be alerted to any conflicts or constraints that may exist. The scheduling function is designed to be performed by non-technical department staff, reducing the burden on technical personnel.

The Smart Terminal Option is designed to offer imaging department managers access to statistical management information in a user-definable format. The Mars II system will allow access to the raw data by down-loading the information to the Smart Terminal. Users will then be able to use word processing, spreadsheet, graphics, etc., to produce the management reports in a site-specific format.

The Teaching File function is designed to reduce the amount of time required to maintain the individual files used for teaching and research purposes.

The Case Retrieval function is designed to allow departments to automatically search the entire database on the following selection criteria: sex, age, zip code, exam name, exam date, keyword, ACR code, statistics code, radiologist, referring physician, and race. Imaging departments will now have access to management information that will help direct their marketing, purchasing,

medical and legal efforts without placing an additional burden on the staff, according to the company. **ADAC Laboratories, 540 Alder Drive, Milpitas, CA 95035.**

Circle Reader Service No. 101

Ferritin RIA Kit

ICN Micromedic Systems, Inc., has introduced the Micromedic® Ferritin RIA kit which features room-temperature incubations and a single protocol requiring only two pipetting steps for all samples, according to the company.



The Ferritin kit now contains 100 tests per kit, is color-coded, and also provides low-end discrimination with good sensitivity and accuracy over the entire curve. The lowest standard is 2.5 ng/mL, and the need for multiple protocols is eliminated, said the company.

Using semi-log or log-logit plots, data reduction can be performed manually or on any automatic data reduction system. **ICN Micromedic Systems, 102 Witmer Rd., Horsham, PA 19044.**

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Proportional Counters

TGM Detectors, Inc. has introduced a complete line of Helium-3 (He-3) proportional counters for neutron detection. The He-3 gas filling is superior to the commonly used, hazardous gas BF₃, according to the company. Applications of these detectors involve sensitive low-level neutron detection and neutron energy discrimination, such as in spectroscopy and time-of-flight measurements. TGM has He-3 proportional counters in various active lengths, cathode diameters, gas filling pressures, and terminations. TGM Detectors, Inc. also offers a "short form" catalog. **TGM Detectors, Inc., 160 Bear Hill Road, Waltham, MA 02154.**

Circle Reader Service No. 103

Multi-Format Imager

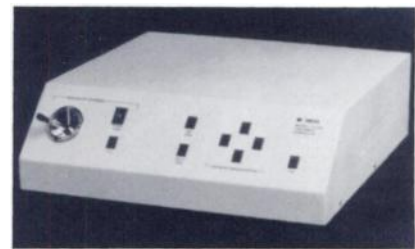
Medx, Incorporated has introduced a multi-format imager which produces high-resolution analog and/or video images on a single sheet of film. Four standard multi-format imager systems are available for single- or dual-camera analog inputs and single- or dual-analog/video inputs. Basic models can be upgraded in the field to accommodate increasingly complex input systems.

The Medx multi-format imager provides hard-copy images, and a single lens combines with automatic vignetting correction for sharp, uniform exposure. All events are recorded with virtually no data loss, according to the company, even at count rates as high as 200,000 per second.

The user-friendly, menu-driven console provides step-by-step visual indication of exactly what's happening during image acquisition. It also has a built-in automatic double-exposure lockout feature. A four-page brochure is also available on the features of the multi-format imager, announced the company. **Medx, Incorporated, 1500 Hicks Road, Rolling Meadows, IL 60008.**

Circle Reader Service No. 104

Uniformity Corrector



Medx, Incorporated has introduced the model 1010A uniformity corrector, which may be interfaced to most gamma cameras and corrects uniformity to better than $\pm 3\%$ (per NEMA measurement) with no loss of spatial resolution, according to the company.

The corrector provides a means of upgrading existing imaging equipment and does not require any internal modifications to the camera, said Medx.

Integrated into the uniformity corrector is image magnification variable up to 2 to 1, and a variable region-of-interest joystick facilitates the centering of images in the field of view. Automatic IRIS eliminates edge packing. **Medx, 1500 Hicks Road, Rolling Meadows, IL 60008.**

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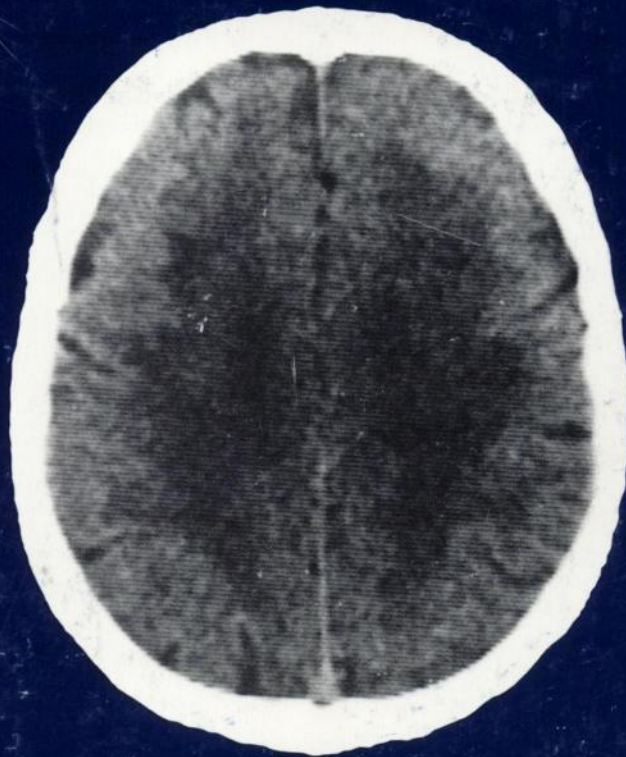


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