Extended expiration—Expiry time is increased to 12 hours after time of calibration.

Better patient dosimetry—Improved radionuclidian purity reduces patient radiation exposure.
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® iodetamine 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 iodetamine HCl I 123 at calibration time, 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 and is packaged in single-dose vials. The radionuclidic composition at calibration time is not less than 96.9 percent I 123, not more than 1.9 percent I 125, and not more than 0.1 percent all others (I 125 and T 125). The radionuclidic composition at the 12-hour expiration time is not less than 96.3 percent I 123, not more than 1.5 percent I 125, and not more than 0.2 percent all others.

INDICATIONS AND USAGE: SPECTamine® iodetamine HCl I 123 injection) is recommended for use as a lipidsoluble brain-imaging agent. It has been shown to be useful in the evaluation of noncardiac stroke especially when used within 96 hours of onset of local 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® iodetamine 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 iodetamine I 123. Localization has not been studied in the isolated human eye although in vivo images suggest the concentration of iodetamine 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 (12 hours after calibration time) stated on the label. Potassium Iodide Oral Solution should be administered before the examination to minimize thyroid uptake of iodine I 123.

The prescribed iodetamine 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 increases 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® (iodetamine HCI 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 capacity, 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 neurologic deficit, e.g., 80.8 were female, 7 patients died within 2 to 56 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 iodetamine 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 iodetamine HCl I 123 at calibration time. It is available in individual vials containing 111 megabecquerels (3 mCi) of iodetamine HCl I 123 at calibration time in a volume of 3 ml.

Single use vials are packaged in individual lead shields with plastic outer container.

THIS PRODUCT INFORMATION ISSUED AUGUST 1988
Medi-Physics, Inc.
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Circle Reader Service No. 1
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Volume 30 • Number 3 • March 1989
EUROPEAN ASSOCIATION OF NUCLEAR MEDICINE CONGRESS 1989
AUGUST 28 – SEPTEMBER 1 STRASBOURG, FRANCE

SCIENTIFIC PROGRAM
Plenary sessions, with lectures given by invited speakers, will feature the following main topics: Oncology, Emission Tomography, Cardiology, Pediatrics, Neurology. Scientific Papers, Works-in-Progress, Technicians' Program, Scientific and Commercial Exhibition, and Pre- and Post-Congress Meetings are also included.

Topics related to nuclear medicine will be considered for inclusion in the scientific program as follows:

Clinical science applications: Cardiology and Circulation, Bone/Joint Diseases, Pulmonary Diseases, Neurology, Nephrology, Hematology, Endocrinology, Pediatrics, Gastroenterology, Oncology, Immunology, Infectious Diseases

Physical science—basic research: Computers and Data Analysis, NMR: Imaging and In Vivo Spectroscopy, Dosimetry, Radiobiology, Instrumentation

Laboratory science and in vitro applications: Radioassay, Tumor Markers, Cell Labeling, Genetic Engineering

Radiopharmaceutical: General, Halogens, Positrons, Proteins/Antibodies, Technetium

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

Registration and fees:
Non-Members of European Association of Nuclear Medicine: By June 15 the registration fee for non-members will be 1425 FF, VAT included. After June 15 the registration fee for non-members will be 1780 FF, VAT included.

Members of European Association of Nuclear Medicine: If EANM member fees are registered by April 1: no Congress fee. If EANM member fees are registered after April 1: full Congress fee must be paid minus 120 DM (membership fee), i.e.:
—925 FF, VAT included, by June 15, 1989
—1280 FF, VAT included, after June 15, 1989

Social Program
A comprehensive social program has been planned, including the Opening Ceremony with a concert and welcome cocktail (free of charge), a concert in the Cathedral of Strasbourg, a folkloric evening in the Alsatian vineyard (Riquewhir), a dinner dance in the Poutaules Castle near Strasbourg, and the Farewell Party in the Orangerie Gardens.

Accompanying persons' program: Numerous and attractive excursions and activities are planned.

PRESIDENT OF THE CONGRESS: Prof. Jacques Chambron

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Please see following page for full prescribing information.
INDICATIONS AND USAGE
Technetium Tc99m examezatime scintigraphy may be useful as an adjunct in the detection of altered regional cerebral perfusion in stroke.

CONTRAINDICATIONS
None known.

PRECAUTIONS
The contents of the Ceretec vial are not radioactive. However, after the sodium pertechnetate Tc99m is added, adequate shielding of the final preparation must be maintained.

The contents of the Ceretec vial are not recommended only for use in the preparation of technetium Tc99m examezatime injection and are NOT to be administered directly to the patient.

A thorough understanding of intravenously administered technetium Tc99m examezatime injection is essential in order to interpret pathologic studies accurately.

The technetium Tc99m scintigraphy reaction involved in preparing technetium Tc99m examezatime injection depends on maintaining in the divalent (reduced) state. Any oxidant present in the sodium pertechnetate Tc99m may adversely affect the quality of the preparation. Sodium pertechnetate Tc99m containing an oxidant should not be used for the preparation of the labeled product. To meet the last requirement, a generator must be utilized to ensure obtaining any eluate for reconstitution with the Ceretec kit.

Sodium Chloride Injection, USP must be used as the diluent. Do not use bacteriostatic sodium chloride as a diluent for sodium pertechnetate Tc99m injection because it will increase the oxidation products and adversely affect the biological distribution of Ceretec.

GENERAL
The contents of the Ceretec vial are sterile and pyrogen free. The vial contains no preservative. It is essential that the user follow the directions carefully and adhere to strict aseptic procedures during the radiopharmaceutical administration.

The technetium Tc99m examezatime injection, like other radioactive drugs, must be handled with care and appropriate safety measures should be employed 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 or under the control of physicians who are qualified by training and experience in the safe use and handling of radiocides and who have experience and training who have been approved by the appropriate governmental agency authorized to license the use of radiocides.

To minimize radiation dose to the bladder, the patient should be encouraged to void or catheterized 1 to 2 hours after injection. Adequate hydration should be encouraged to permit frequent voiding.

Caricogeneus and/or Treatment of Fertility
No long term animal studies have been performed to evaluate carcinogenic potential or whether technetium Tc99m examezatime affects fertility in males or females. Studies in rats did not demonstrate mutagenic potential following intraperitoneal administration at doses of 70, 140 and 280 mg/kg.

Pregnancy Category C
Since adequate reproduction studies with technetium Tc99m examezatime have not been performed in animals to determine whether this drug affects fertility in males and females, has teratogenic potential or affects the fetus, this radiopharmaceutical preparation should not be administered to pregnant or nursing women unless it is considered that the benefits to the patient outweigh any potential hazard.

Ideally, examinations using radiopharmaceuticals, especially those which are elective in nature, in women of childbearing capability should be scheduled to occur during the first few (approximately 10) days following the onset of menses.

Nursing Mothers
Technetium Tc99m is excreted in human milk during lactation. It is not known whether examezatime is excreted in human milk. Therefore, formula feedings should be substituted for breast feeding.

Pediatric Use
Safety and effectiveness in children have not been established.

ADVERSE REACTIONS
Rash with generalized erythema, facial edema, and fever has been reported. A transient increase in blood pressure was seen in 8% of patients.

DOSEAGE AND ADMINISTRATION
The user should wear protective gloves and use shielding at all times when handling the vial and its contents.

The recommended dose range for i.v. administration, after reconstitution with sodium pertechnetate Tc99m, is to be used in the average adult (70 kg) is 370-740 MBq (10-20 mCi).

Do not use the final radiopharmaceutical preparation more than 30 minutes after time of reconstitution. Discard any unused material.

Dynamic imaging may be performed between 0 to 10 minutes following injection. Static imaging may be performed from 15 minutes up to 2 hours after injection. After 40% of the injected dose is excreted through the kidneys and urine over the 4 hours after injection resulting in a reduction in general muscle and soft tissue background.

Table 4. Estimated Absorbed Radiation Dose*

<table>
<thead>
<tr>
<th>Target organ</th>
<th>Absorbed radiation dose (aSv/mCi)</th>
<th>Tc99m ~70 MBq (2 mCi)</th>
<th>Tc99m ~140 MBq (5 mCi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lachrymal glands</td>
<td>69.4</td>
<td>0.258</td>
<td>0.516</td>
</tr>
<tr>
<td>Glandular wall</td>
<td>51.0</td>
<td>0.120</td>
<td>0.240</td>
</tr>
<tr>
<td>Kidney</td>
<td>35.0</td>
<td>0.13</td>
<td>2.60</td>
</tr>
<tr>
<td>Thymus</td>
<td>27.0</td>
<td>0.19</td>
<td>2.00</td>
</tr>
<tr>
<td>Upper large intestine wall</td>
<td>21.0</td>
<td>0.079</td>
<td>1.54</td>
</tr>
<tr>
<td>Liver</td>
<td>15.0</td>
<td>0.054</td>
<td>1.10</td>
</tr>
<tr>
<td>Small intestine wall</td>
<td>12.0</td>
<td>0.044</td>
<td>0.88</td>
</tr>
<tr>
<td>Lower large intestine wall</td>
<td>15.0</td>
<td>0.054</td>
<td>1.10</td>
</tr>
<tr>
<td>Bladder wall</td>
<td>13.0</td>
<td>0.047</td>
<td>0.92</td>
</tr>
<tr>
<td>Brain</td>
<td>6.9</td>
<td>0.026</td>
<td>0.51</td>
</tr>
<tr>
<td>Orans</td>
<td>0.6</td>
<td>0.003</td>
<td>0.46</td>
</tr>
<tr>
<td>Testes</td>
<td>1.8</td>
<td>0.007</td>
<td>0.13</td>
</tr>
<tr>
<td>Red bone marrow</td>
<td>3.6</td>
<td>0.018</td>
<td>0.09</td>
</tr>
<tr>
<td>Bone Surfaces</td>
<td>4.8</td>
<td>0.018</td>
<td>0.35</td>
</tr>
<tr>
<td>Skin</td>
<td>4.3</td>
<td>0.026</td>
<td>0.20</td>
</tr>
</tbody>
</table>

*Data supplied by Oak Ridge Associated Universities, Radiopharmaceutical Internal Dose Information Center.

ANIMAL TOXICITY SUMMARY
Animal studies were conducted in vivo or in vitro and intravenously administered Ceretec in male and female rats and rabbits. No adverse reactions or mortality were observed at a dose equivalent to the single injection of 1200 times the maximum humane equivalent dose. Fourteen day repeat-dose studies in rats and dogs at a cumulative dose of up to 14000 times the maximum human equivalent dose did not reveal adverse reactions, abnormalities, or mortality. At termination, thorax histology, hematology and blood chemistry revealed no abnormalities.

HOW SUPPLIED
The kit comprises five individual vials of sterile, non-pyrogenic, technetium Tc99m chloride mixture of mixed-exciton technetium chloride and stannous chloride, five radiation labels, five sterile and pyrogen-free injection syringes, five rubber stoppers and one package insert. The vial and contents are sealed under a nitrogen atmosphere with a rubber stopper.

PROCEDURE
For the Preparation of Technetium Tc99m Examezatime Injection

Use aseptic technique throughout.

1. Place one of the vials in a suitable shielding container and swab the rubber septum with the sterile swab provided.
2. Using a 10 ml syringe, inject into the shielded vial 5 ml of saline solution from a technetium Tc99m generator (see notes 1-4).
3. Before withdrawing the syringe from the vial withdraw 5 ml saline solution from the space above the air bubble and reinsert the needle into the vial to equilibrate the pressure in the vial. Shake the shielded vial for 10 seconds.
4. Withdraw the air bubble and reinsert the needle into the vial, add 5 ml saline solution and withdraw the 0.36 ml of eluate.
5. Complete the label provided and attach to the vial shield.
6. The technetium Tc99m examezatime injection is ready for quality control testing.
8. Do not use the preparation after the expiration time of formulation. Discard any unused material.
9. Visually inspect the reconstituted material at a safe distance behind leaded glass, and do not use if there is evidence of foreign matter.

Cautionary Notes
1. Use a 137-111 GBq (3.7-3.0 mCi) technetium Tc99m may be added to the vial.
2. If the generator eluate may be adjusted to the correct radioactive concentration (0.37-1.11 GBq [10-30 MBq]) in 5 ml by dilution with preservation-free non-pyrogenic saline solution for the first few (approximately 10) days following the onset of menses.
3. Generator eluate more than 2 hours old should not be used.
4. For the highest radiocidal purity reconstitute with freshly eluted technetium Tc99m generator eluate.
5. Generator which was previously eluted within 24 hours.
6. The pH of the prepared injection is in the range 9.0-9.8.

Storage
The vials are stable at 2-8°C in a refrigerator.

The formulated drink at room temperature (15-25°C) using appropriate radiation shielding.

The Illinois Department of Nuclear Safety has approved this reagent for distribution to persons licensed under the $30,000 license of 10 CFR Part 35 and to persons who hold a license issued by an Agreement State.

Manufactured by: Amer sham International plc
Amersham England

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

Fundamentals of Nuclear Medicine, 2nd Edition, provides physicians, physicians-in-training, scientists, and technologists with a comprehensive introduction to the basic principles of nuclear medicine, including the most recent advances in this fast-changing field.

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Fundamentals of Nuclear Medicine fills the need for a current basic text to acquaint practitioners and students with the possibilities and limitations of nuclear medicine in detecting and evaluating common disorders. It is essential to all those who want an understanding of this rapidly evolving technology as it emerges from the investigative to the clinical stage.

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This year's presentation of over 900 scientific papers and posters includes a distillation of the latest advancements and finest work achieved by outstanding scientists and physicians in the field of nuclear medicine. These papers, presented by the original authors, with over 30 subjects to choose from, will provide a unique opportunity for enhancing your knowledge or exploring new avenues in correlative areas of nuclear medicine. Ample time is allotted at these presentations for questions and discussions.

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Refresher and state-of-the-art continuing education courses in chemistry, physics, quality assurance, cardiovascular nuclear medicine, PET, SPECT, and NMR will supply up-to-the-minute approaches and procedures for all clinical settings.

TECHNOLoGIST PROGRAM
The ever-increasing importance of the role of the nuclear medicine technologist will be explored in our Technologist Program, and over 70 hours of clinical updates will provide chief and staff technologists with the latest in basic, intermediate, and advanced studies. This program will broaden expertise and enhance the technologist's contributions to nuclear medicine.

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Networking opportunities and job referral boards are available at special locations throughout the meeting as well as membership information at our membership booth.

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Providing a wealth of current information on the validation and quality assurance of nuclear medicine imaging hardware and software, this volume gives insights into a wide range of timely advances. Twenty-eight papers report progress in such areas as imaging hardware acceptance testing and quality control, planar imaging, SPECT, PET, NMRI, dual photon bone densitometry, and computer hardware and software; software accuracy and efficiency, strategies for development and validation of clinical software, legal aspects of clinical software development, and FDA policy regarding regulation of computer software products. Also discussed is a comparison of programming languages, the formation of a nuclear medicine computer system, the three-dimensional display of tomographic images, and a useful introduction to artificial intelligence.

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■ SPECT: A Primer, by Robert J. English, CNMT, and Susan E. Brown, CNMT.
Now in its fourth printing, the Primer serves technologists' fundamental introduction to SPECT, as both an extension of any patient record system and an extension of any nuclear medicine technologists operating manual. It is regarded by many as one of the the two handbooks on SPECT. 1986. 148 pp. Paper. $15 members; $17 non-members.

Designed as a basic text to acquaint practitioners and students with the possibilities and limitations of nuclear medicine in detecting and evaluating common disorders, this completely revised and updated edition is essential to all those who want an understanding of this rapidly evolving technology. 1988. 256 pp. Paper. $15; accredited instructors may purchase a minimum of 10 copies at $4 each.

■ The Scintillation Camera, edited by Guy Simmons, PhD.
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The University of Wisconsin nuclear medicine residency program in Madison, Wisconsin, has an opening for a first year resident in nuclear medicine starting July 1, 1989. The two-year program at the University of Wisconsin Hospital and Clinics and the Middleton Veterans Hospital is accredited by the ACGME and satisfies the requirements of the American Board of Nuclear Medicine. The clinical department serves over 900 beds at the two hospitals, currently performs over 6,000 examinations yearly and is expanding. Nuclear medicine is a section of a clinically and academically strong radiology department and includes a very active and innovative nuclear cardiology division. In June 1989 the nuclear medicine department will move into a new wing of the University Hospital and will contain all new equipment including a state-of-the-art three-headed SPECT system, as well as other SPECT and planar gamma camera imaging systems. Furthermore, a state-of-the-art PET scanner is present. Residents are encouraged to participate in ongoing projects or develop new projects. Madison is a beautiful city with four lakes and plenty of outdoor recreation, and has frequently been listed as one of the top ten cities to live in multiple national surveys. The University Hospital has an excellent location, and is within one mile of the University of Wisconsin college campus and the state capital. Interested applicants should contact: Scott B. Perlman, MD, MS, Nuclear Medicine Service, University of Wisconsin Hospital, 600 Highland Avenue, Madison, WI 53792. (608)262-7014. An Equal Opportunity/Affirmative Action Employer.

C-3-Professor for Radiopharmacy

At the Department of Nuclear Medicine of the Radiological Clinic of the Medical Faculty of the Eberhard-Karls-University in Tübingen there is an opening for a position of

The candidate is to lead the new section of radiopharmacy. He/she must have advanced academic degrees (equivalent to promotion and habilitation) or comparable highly qualified experiences in the field of radiopharmacy. He/she must have the license to produce radiopharmaceuticals for nuclear medical application (Section 15 AMG-Arzneimittelgesetz i.e. regulation of the food and drug administration of Federal Republic of Germany). The candidate is to cooperate with the pharmaceutical institute of the University of Tübingen. The university initiates to set up a PET and cyclotron unit. The University of Tübingen favors to increase the ratio of women in research and teaching and encourages qualified female scientists for application. Inquiries with necessary documentations must be received not later than four weeks after publication of this announcement.

Prof. Dr. K. Voigt, Dean of Medical Faculty (Clinical Medicine) University of Tübingen Medical School Geisssweg 5 7400 Tübingen West Germany

NUCLEAR MEDICINE TECHNOLOGIST

Bishop Clarkson Memorial Hospital, Nebraska's First Hospital, is currently accepting applications for a Staff Nuclear Medicine Technologist. Clarkson Hospital is a 550 bed hospital located in Omaha, Neb., and serves a wide region of the three state area with the finest in health care. Our large and spacious department is equipped with current state-of-the-art cameras, a 6-LFOV cameras (3-SPECT), 2-mobile cameras, a BMA unit and a thyroid probe which allows a wide variety of imaging to be accomplished. Emphasis on cardiology and oncology with a strong referral base leads to a stimulating work atmosphere. Unit dose radiopharmaceutical delivery is only five blocks away. This progressive community hospital and Nuclear Medicine Department has a board certified Nuclear Medicine physician, 6 Staff Technologists, 2 secretaries and immediate plans for further expansion to provide and maintain the high quality of services associated with Clarkson. Situated in the Midwest, Omaha offers a wide variety of pleasing opportunities for recreation and is in close proximity to other areas of recreational facilities. Clarkson is located in central Omaha, is easily accessible and offers a competitive salary with a flexible benefits program. Quality living at a reasonable price defines the living atmosphere of Eastern Nebraska/Western Iowa. Applicants must be registered or registry eligible by the NMTCB or ARRT. Please contact Ann Steward, Employment Coordinator, Bishop Clarkson Memorial Hospital, 44th and Dewey Ave., Omaha, NE 68105 or call (402) 559-2024. An Equal Opportunity Employer.
NUCLEAR MEDICINE TECHNOLOGISTS

The State of California is now implementing the nuclear medicine technology regulations. State certification will be required to practice nuclear medicine technology in California beginning in 1990. If you are interested in becoming certified in California please contact:

Radiologic Health Branch
Certification Unit-NMT
Attention: David Wheeler
1232 Q Street
Sacramento, CA 95814

NUCLEAR MEDICAL PROFESSIONALS

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Several positions are open for individuals with Experience, Ability, and Motivation who wish to expand their career and skills. The applicants must have experience in Nuclear Medicine and the ability to communicate with administrators, technologists and physicians. Send your resume to:

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Department of Nuclear Medicine

The Nuclear Medicine Department requires 5 experienced Nuclear Medicine Technologists commencing between September and December, 1989 to replace Canadian and American staff currently employed on 12 month working visas.

The Department caters for the needs of a 500 bed teaching hospital, Cardiac Transplant patients from the South Pacific area, as well as privately and publicly referred outpatients, and offers a comprehensive range of Nuclear Medicine techniques including: cardiovascular scanning, digital analysis, in vivo tracer studies, RBC and WBC blood labelling and bone mineral densitometry.

Equipment includes a GE400 ACT, Toshiba GCA 402 and two mobile cameras, a Searle LEM and a GE 300M Starcam. Computer systems are DEC PDP 11/34 and two 11/73’s. Bone mineral studies are carried out on Lunar Radiation Corp. SP2, DP3 and DPX densitometers.

Applicants should have experience in a wide range of nuclear medicine procedures and the use of computers. The successful applicants would be responsible to the Director of Nuclear Medicine and the Chief Technologist.

The position is available for a 12 month or 2 year working holiday or on a permanent basis if desired. The hospital will assist as far as possible with application for work visa or immigration.

Working conditions include payment for on-call, Government Financed Health Insurance, 10 days paid sick leave if required, 6½ weeks leave plus 9 Public Holidays.

Written applications should be directed to the Employee Services Manager, St. Vincent’s Hospital, Victoria Street, Darlinghurst 1989, Sydney, Australia. Further information may be obtained from the Chief Nuclear Medicine Technologist, Mrs. J. Wilks on ISD (61) (2) 361 2753

ST. VINCENT’S HOSPITAL, VICTORIA STREET, DARLINGHURST NSW 1989
NUCLEAR MEDICINE TECHNOLOGIST

Our 297-bed teaching hospital, located in Chicago's historic Hyde Park district, is seeking a Staff Technologist to perform RIA, quality control and scanning procedures.

You must be a graduate from an approved school of Nuclear Medicine or possess equivalent qualifications. Certification in Nuclear Medicine Technology or eligibility is mandatory.

We offer a competitive salary and comprehensive benefits. Send resume, apply in person or call: Employment Manager, (312) 947-4595, Human Resources, Chicago Osteopathic Medical Center, 5200 S. Ellis, Chicago, IL 60615. Equal Opportunity Employer M/F.

CHICAGO OSTEOPATHIC MEDICAL CENTER

NUCLEAR MEDICINE TECHNOLOGIST
POSITION AVAILABLE

Large expanding university hospital has full-time nuclear medicine technologist staff position available. Candidate must be A.R.R.T. registered or C.N.M.T. certified or exam eligible. Experience in all phases of nuclear medicine, including computers & SPECT imaging, are especially helpful.

For further information, please contact:
Veronica Valentine, C.N.M.T.
Chief Administrative Technologist
Division of Nuclear Medicine
Hahnemann University Hospital
Broad & Vine Streets—M.S. #309
Philadelphia, PA 19102
(215)448-7676/7674.

NUCLEAR MEDICINE PHYSICIAN

The Division of Nuclear Medicine at The Children's Hospital is seeking a full-time staff nuclear medicine physician. Candidate should be Board certified or Board eligible in nuclear medicine or nuclear radiology. Position is available on or before May 1, 1989. Experience in pediatric nuclear medicine not required. The Children's Hospital is affiliated with Harvard Medical School and its medical staff hold appointments at the medical school. Academic rank and salary will depend on candidate's background, experience, and qualifications. The Children's Hospital has a distinguished history and a worldwide reputation for excellent clinical care, teaching, and research in pediatrics. It has 340 inpatient beds and a large outpatient service. The Division is equipped with two Siemens Orbiter systems (SPECT), one Siemens LFOV system, and two Siemens LEM systems. There are five dedicated computer systems linked in a network served by a VAX 750 system. Images and diagnostic reports are in an integrated data base. Excellent opportunities in clinical investigation and teaching. The Division supports a well equipped research laboratory including facilities for radiopharmaceutical research and imaging. Applicants should forward their curriculum vitae to: ST Treves, MD, Director, Division of Nuclear Medicine, The Children's Hospital, 900 Longwood Ave., Boston, MA 02115. EOE.

NUCLEAR MEDICINE TECHNOLOGIST

Northern Virginia Doctors Hospital a progressive 267-bed facility located in Northern Virginia has an immediate opening for a Nuclear Medical Technologist. Procedures include routine, SPECT, and Iofetamine examinations. New camera and computer expected soon to enhance department capabilities. Salary commensurate with experience and excellent benefits package. Applications or inquiries should be directed to:

Human Resources
Northern Virginia Doctors Hospital
601 S. Carlin Springs Road
Arlington, VA 22204-1096
(703)576-2045
EOE

NUCLEAR MEDICINE TECHNOLOGIST

Shhhh... HCA Gulf Coast Hospital, a 176-bed acute care facility, is nestled among the palms in a locale that ranks as one of Florida's best kept secrets. If you seek an exciting professional environment within a warm, friendly community, join us in Panama City. To qualify, you must hold a Florida license in Nuclear Medicine Technology and be registered with the American Registry of Radiologic Technologists or the Nuclear Medicine Technology Certification Board. In addition to our many lifestyle advantages, we offer an attractive salary/benefits package. Contact us before the word is out. Direct your resume to: Human Resources Dept., 449 W. 23rd St., Panama City, FL 32406 or call (904)769-8341 ext. 487. An Equal Opportunity Employer.

PARTICIPATE
NUCLEAR MEDICINE WEEK

July 30—August 5, 1989
NUCLEAR MEDICINE TECHNOLOGISTS

Cape Fear Valley Medical Center, a 506-bed regional medical center, has immediate full-time positions for Nuclear Medicine Technologists in their expanding radiology department.

Located in a newly remodeled, spacious suite, Nuclear Medicine offers a full range of diagnostic and therapeutic procedures including planar imaging, SPECT, nuclear cardiology, and radiopharmacy blood labeling examinations. Utilized to execute these procedures are three large and one small field camera, and two computers. Interfacing new equipment and procedures, as they are developed, enhances this modality and the quality of patient care.

CFVMC is JCAHO accredited. Applicants must be registered or board eligible. Competitive salary and benefits. Interview travel and lodging will be arranged. Enjoy this excellent recreational city located between the Atlantic ocean and the Blue Ridge mountains. Contact:

Lib Wellington
Personnel Department
Cape Fear Valley Medical Center
P.O. Box 2202
Fayetteville, NC 28302
(910) 323-8948

Competitive salary and benefits. Interview travel and lodging will be arranged. Enjoy this excellent recreational city located between the Atlantic ocean and the Blue Ridge mountains. Contact:

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Personnel Department
Cape Fear Valley Medical Center
P.O. Box 2202
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Call for Abstracts for Technologist Program
Call for Works-in-Progress

The 1989 Scientific and Teaching Sessions Committee 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 the June issue of the Journal of Nuclear Medicine Technology. Works-in-progress will be published in the September issue of the Journal of Nuclear Medicine Technology. 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
- CLINICAL SCIENCE APPLICATIONS
  - Bone/Joint
  - Cardiovascular
  - Endocrine
  - Gastroenterology
  - Infectious Disease
  - Renal/Hypertension
  - Neurology
  - Oncology/Hematology
  - Pediatrics
  - Pulmonary
  - Immunology

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

The official abstract form for Scientific Papers and Works-in-Progress 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
FAX: (212)545-0221

Deadline for receipt of abstracts is Thursday, January 12, 1989.
Deadline for receipt of works-in-progress is Friday, April 7, 1989.

At the 1989 Annual Meeting, cash awards will be given to the three best papers.
First prize is $200, second prize $150, and third prize $100.

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Single-Photon Emission Computed Tomography
2nd Edition

The second edition of the widely successful Primer continues to answer the nuclear medicine technologist's fundamental questions about SPECT, as both a textbook and as an extension of any manufacturer's operating manual. Designed as a study guide for SPECT technology and SPECT applications, the Primer has been revised to include useful and informative protocols for various SPECT studies. These protocols have been developed to provide both the novice and the more experienced technologist with step-by-step examples of SPECT procedures. After reading the second edition, you too will be able to successfully create and use your own SPECT protocols.

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A PRIMER
2nd Edition
Robert J. English, CNMT
and Susan E. Brown, CNMT

Approximately 220 pages
Publication Date: June 1989
New Products

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

Electronic Pipette

MLA has introduced a microprocessor-controlled electronic pipette which allows an operator to easily perform a series of different pipetting steps automatically. More than an automatic pipette, Metron Electronic Pipette can be programmed to aspirate, to dispense, to titrate, and/or dilute any volume from 10 μl to 1000 μl in a preselected order of steps. To do this, simply enter the information into an easy-to-use control box. These steps are memorized and stored even when power has been turned off. Variability in test results can be minimized and precision improved by having an electronically controlled device do the pipetting. Metron maximizes liquid handling productivity by performing complete test procedures by simply pressing one button. Metron is available with a choice of nozzles: 50 μl, 200 μl, and 1000 μl, to satisfy most of today’s pipetting needs. Medical Laboratories Automation, Inc., 270 Marble Ave., Pleasantville, NY 10570-2982. Attn. Edward Kozel. (914)747-3028.

Circle Reader Service No. 101

Flood Source Cases

Du Pont has introduced storage cases for two of its flood sources that increase safety and convenience in the nuclear medicine department. Flood sources are used to calibrate gamma cameras and other instrumentation. Storage cases for the 18-in and 24-in flood sources have more shielding, which results in lower radiation readings on case surfaces to reduce exposure to users. In addition the larger case has support legs and castors. The castors permit the case to be rolled, rather than carried, to the area of use, and the support legs allow the case to stand upright, permitting the source to be removed without having to lift the case onto a horizontal surface. Du Pont Company, External Affairs Dept., Wilmington, DE 19898. Attn. Michelle Gauthier. (302)671-8007.

Circle Reader Service No. 102

MRI or CT Information with PET Data

Scanditronix, Inc., has introduced the first computer software program which combines the anatomical information from magnetic resonance imaging or computed tomography with positron emission tomography data. This program is a major advance for physicians and researchers using PET. It adds more reliability to the analysis of PET studies. The program stores data for anatomical regions of interest, which the user combines with MRI or CT data for each patient. The combination produces anatomical templates which can be overlaid on each PET slice to indicate precise anatomy. The user can make global adjustments to scale, orientation, and position in order to obtain an initial match. Individual regions of interest may then be moved, deleted, or redrawn as needed. Scanditronix, Inc., 106 Western Ave., Essex, MA 01929. Attn. Steven Kendall. (508)768-6994.

Circle Reader Service No. 103

New MRI System

Shimadzu Medical Systems has introduced a new magnetic resonance imaging system. The SMT-50A is a superconducting 0.5 Telsa unit. Focal points include the stability and homogeneity of the 0.5 magnet. A superconducting shim coil, along with the main coil, provides 0.1 parts per million (ppm)/hour stability and assures ideal homogeneity of the 10 ppm/35 diameter spherical volume (DVS). Use of the system is beneficial in diagnosing many tumors and vascular conditions such as aneurysms. MRI also provides excellent visualization of the posterior fossa, which can be difficult to see under other diagnostic methods without contrast agents. The SMT-50A also features a 1024 × 1024 matrix display for enhanced image quality, plus some of the most sophisticated software available for MR imaging, as well as a 2.4 giga-byte optical disk that permits increased patient image archive capacity. Up to 19,000 images can be stored per disk, compared to just 100 on the standard floppy disk format. The system is available in both stationary and mobile models. Shimadzu Medical Systems, 100 W. Walnut St., Gardena, CA 90248-3130. Attn. Andrea Menke. (714)755-0400.

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MPI MAA Kit

Kit for the Preparation of Technetium Tc 99m Albumin Aggregated Injection

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

DIAGNOSTIC - FOR INTRAVENTOUS USE

DESCRIPTION: The kit consists of 10 multilose 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 are used for pH adjustment. No other preservative is present.

The Albumin Human was non-reactive when tested for hepatitis B surface antigen (HBsAg) 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 25 to 40 micrometers, none is greater than 100 micrometers.

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

INDICATIONS AND USAGE: Technetium Tc 99m Albumin Aggregated Injection is a long 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.

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

PRECAUTIONS: The contents of the kit before preparation are not radioactive. However, after the sodium percarbonate 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 rapidity 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 percarbonate 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 impedance 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 percarbonate Tc 99m containing solutions should be kept airtight.

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 radiactive 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 percarbonate 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.

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

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.

Immunological examinations using radioimmunoassays, especially those reactive in nature, of a woman of childbearing capacity, should be performed during the first few (approximately 10) days following the onset of menstruation.

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 Human to patients with pre-existing severe pulmonary hypertension. Instances of hemodynamic or ischemic reactions to preparations of Technetium Tc 99m Albumin Aggregated have been reported (see Warnings).

HOW SUPPLIED: MPI MAA Kit for the Preparation of Technetium Tc 99m Albumin Aggregated Injection Product No. 4422.

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

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

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

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

Circle Reader Service No. 30

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