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A sequence of five evolving SPECT images: Note improvement of image quality, yielding final resolution of 7mm (tomographic brain phantom scan, courtesy of Dr. J. Abramovici, Ixelle, Belgium).

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1981—Elscint sets the trend for the 80’s by introducing the first digital gamma camera, the APEX.

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Decide on Helix, and you instantaneously become a member of the most advanced NM PACS in the industry – right from day one.

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Our appreciation to Dr. J. Braeckeveldt, Brussels, for his development of brain phantom JB.003 which was used in preparing the sequence of 5 evolving SPECT images.

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<td>Scientific Papers</td>
<td>October Issue <em>JNM</em> 1/6/93</td>
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<td>Registration Form</td>
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<tr>
<td>Housing Form</td>
<td>Contact SNM, Dept. of Meetings 5/14/93</td>
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Desktop Computing In Nuclear Medicine

**DATE:**
February 8–9, 1993

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Kai Lee, PhD

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- Functions and components of a computer system
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- Input and output devices
- Computer software
- Nuclear medicine image acquisition methods
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- Nuclear cardiology
- Quantitative data analysis
- Single-photon emission computed tomography
- Selecting a computer for nuclear medicine

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Please see reverse for brief summary of prescribing information.
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**Brief Summary**

**Cardiolite®**

**Kit for the preparation of Technetium Tc99m Sestamibi**

**FOR DIAGNOSTIC USE**

**DESCRIPTION:** Each 5 mL vial contains a sterile, non-pyrogenic, hypolized mixture of:
- Terazol (2-methoxy isobutyloispiran) Copper (I) tetrafluoroborate - 1.0 mg
- Sodium Citrate Dihydrate - 2.5 mg
- L-Cysteine Hydrochloride Monohydrate - 1.0 mg
- Mannitol - 20 mg
- Stannous Chloride, Dihydrate, maximum (SnCl2•2H2O) - 0.025 mg
- Stannous Chloride, Dihydrate, (SnCl2•2H2O) - 0.075 mg
- Tin Chloride (Stannous and Stannic) Dihydrate, maximum (as SnCl2•2H2O) - 0.066 mg

Prior to hypolysis the pH is 5.3 to 5.9. The contents of the vial are hemolyzed and stored under nitrogen.

Indications and Usage: Cardiolite® Kit for the preparation of Technetium Tc99m Sestamibi, is a monocarboxylic anion that is useful in distinguishing from abnormal myocardium, and in the localization of the abnormality, in patients with suspected myocardial infarction. It is also useful in the evaluation of myocardial function using the first-pass technique.

**CONTRAINdications:** None known.

**Warnings:** In studying patients in whom cardiac disease is known or suspected, take care to assure continuous monitoring and treatment in accordance with safe, accepted clinical procedures.

**Precautions:**

**General**

The contents of the vial are intended only for use in the preparation of Technetium Tc99m Sestamibi and are not to be administered directly to the patient without first undergoing the preparatory procedure (as outlined in the full prescribing information).

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

The contents of the kit are sterile and non-pyrogenic. It is essential to follow directions carefully and to follow specific procedures during preparation.

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

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

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

**Carcinogenesis, Mutagenesis, Impairment of Fertility**

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

The active intermediate, OxyMIBF, was evaluated for genotoxic potential in a battery of five tests. No genotoxic activity was observed in the Ames, CHO/HPRT and sister chromatid exchange tests (all in vitro). At cytotoxic concentrations (≥ 20 μg/mL), an increase in cells with chromosome aberrations was observed in the in vivo human lymphocyte assay. CuMIBF2F did not show genotoxic effects in the in vivo mouse micronucleus test, which is a test used in terms of bone marrow toxicity (9 mg/kg, > 600 x maximal dose).

**Pregnancy Category C**

Animal reproduction and teratogenicity studies have not been conducted with Technetium Tc99m Sestamibi. It is not known whether Technetium Tc99m Sestamibi can cause fetal harm when administered to a pregnant woman or can affect reproductive capacity. There have been no studies in pregnant women. Technetium Tc99m Sestamibi should be given to a pregnant woman only if clearly needed.

Ideally, examinations using radiopharmaceuticals, especially those elective in nature, of a woman of childbearing capacity, should be performed during the first few (approximately 10) days following the onset of menses.

**Nursing Mothers**

Technetium Tc99m Pertechnetate is excreted in human milk during lactation. It is not known whether Technetium Tc99m Sestamibi is excreted in human milk. Therefore, formula feedings should be substituted for breast feedings.

**Pediatric Use**

Safety and effectiveness in children below the age of 18 have not been established.

**Adverse Reactions:** During clinical trials, approximately 8% of patients experienced a transient metallic or bitter taste immediately after the injection of Technetium Tc99m Sestamibi. A few cases of transient headache, flushing and non-itching rash have also been attributed to the administration of the agent. One patient demonstrated asepsis and symptoms consistent with sepsis, 8 to 10 minutes after administration of the drug. No other adverse reactions specifically attributable to the use of Technetium Tc99m Sestamibi have been reported.

**Dosage and Administration:** The suggested dose range for I.V. administration to be employed in the average patient (70 kg) is:

- 370 to 110 MBq (10 to 30 mCi)

The dose administered should be the lowest required to provide an adequate study consistent with ALARA principles (See also PRECAUTIONS).

When used in the diagnosis of myocardial infarction, imaging should be completed within four hours after administration (see also CLINICAL PHARMACOLOGY section in full prescribing information).

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

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

Store at room temperature (15 to 30°C) before and after reconstitution.

**Radiation Dosimetry:** Table 4 shows the radiation doses to organs and tissues of an average patient (70 kg) per 110 MBq (30 mCi) of Technetium Tc99m Sestamibi injected intravenously.

<table>
<thead>
<tr>
<th>Organ</th>
<th>Activity Dose (mCi)</th>
<th>archives (mCi)</th>
<th>REST (mCi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0 hour void</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.8 hour void</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Organ</strong></td>
<td><strong>35.200</strong></td>
<td><strong>1110 MBq</strong></td>
<td><strong>35.200</strong></td>
</tr>
<tr>
<td>Breasts</td>
<td>0.2</td>
<td>2.0</td>
<td>0.2</td>
</tr>
<tr>
<td>Gallbladder Wall</td>
<td>2.0</td>
<td>20.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Small Intestine</td>
<td>3.0</td>
<td>30.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Upper Large Intestine</td>
<td>5.4</td>
<td>55.5</td>
<td>5.4</td>
</tr>
<tr>
<td>Lower Large Intestine</td>
<td>3.9</td>
<td>40.0</td>
<td>3.9</td>
</tr>
<tr>
<td>Heart Wall</td>
<td>0.6</td>
<td>6.1</td>
<td>0.6</td>
</tr>
<tr>
<td>Kidneys</td>
<td>0.5</td>
<td>5.1</td>
<td>0.5</td>
</tr>
<tr>
<td>Liver</td>
<td>2.0</td>
<td>20.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Lungs</td>
<td>0.6</td>
<td>5.8</td>
<td>0.6</td>
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<tr>
<td>Bone Surfaces</td>
<td>0.7</td>
<td>6.8</td>
<td>0.7</td>
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<tr>
<td>Thyroid</td>
<td>0.7</td>
<td>7.0</td>
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<td>Ovaries</td>
<td>1.5</td>
<td>15.5</td>
<td>1.5</td>
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<td>Testes</td>
<td>0.3</td>
<td>3.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Red Marrow</td>
<td>0.5</td>
<td>5.1</td>
<td>0.5</td>
</tr>
<tr>
<td>Urinary Bladder</td>
<td>2.0</td>
<td>20.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Total Body</td>
<td>0.5</td>
<td>4.8</td>
<td>0.5</td>
</tr>
</tbody>
</table>

| Stabin, M., July, 1990, Oak Ridge Associates University, P.O. Box 117, Oak Ridge, TN 37831 (615) 378-3649. |

**How Supplied:** Du Pont’s CARDIOLITE® Kit for the preparation of Technetium Tc99m Sestamibi is supplied as a 5 mL vial in kits of two, five (5) and thirty (30) vials, sterile and non-pyrogenic.

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

The U.S. Nuclear Regulatory Commission has approved this reagent kit for distribution to persons licensed to use byproduct material identified in 35.100 and 35.130 of 10 CFR Part 35, to persons who hold an equivalent license issued by an Agreement State, and, outside the United States, to persons authorized by the appropriate authority.

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Journal of Nuclear Medicine and ac-
cepted Technologist Section abstracts
will be published in June issue of the
Journal of Nuclear Medicine Tech-
ology. Original contributions on a
variety of topics related to nuclear
medicine will be considered, including:

- Instrumentation and Data Analysis
- Radiography
- Radiopharmaceutical Chemistry
- Dosimetry/Radiobiology
- Nuclear Magnetic Resonance Chemistry
- Clinical Science Applications:
  - Bone/Joint
  - Cardiovascular (clinical and basic)
  - Endocrine
  - Gastroenterology
  - Neurology (clinical and basic)
  - Immunochemistry (antibody)
  - Immunology (antibody)
  - Pediatrics
  - Pulmonary
  - Renal/Electrolyte/
  - Hypertension
  - Hematology/
  - Infectious Disease
  - Oncology (non-antibody)

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

Deadline for receipt of abstracts for
SCIENTIFIC PAPERS
is Wednesday, January 6, 1993.

Deadline for receipt of abstracts for
SCIENTIFIC EXHIBITS
is Wednesday, January 6, 1993.

There are two abstract forms for the annual meeting.
The Scientific Paper abstract form can be obtained
in the October 1992 JNM. The Scientific Exhibits
abstract form is only available 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

SPECT BRAIN IMAGING
CLINICAL FELLOWSHIP

Department of Radiology
Section of Nuclear Medicine

BENEFIT:
This program is designed for nuclear medicine physicians,
radiologists, technologists and referring physicians. It is intended
to educate participants about the clinical utility of SPECT brain
imaging with agents such as SPECTamine® and Ceretec®.
Objectives include:
- Development of interpretation skills for brain images.
- Appreciation of clinical applications of SPECT brain
  imaging.
- Knowledge of image acquisition and reconstruction.
- Appreciation of factors that influence image quality.
- Knowledge of quality control techniques for SPECT.

SPONSORSHIP:
This program is sponsored by the Medical College of Wisconsin.

TUITION:
The tuition fee of $650 includes the course syllabus, handouts,
breaks, breakfasts, lunches, and other amenities involved in
making this a pleasant learning experience. Maximum
enrollments have been established. Cancellations prior to the
course will be refunded, less a $30 administrative fee.

CREDIT:
The Medical College of Wisconsin is accredited by the
Accreditation Council for Continuing Medical Education to
sponsor continuing medical education for physicians.
Accordingly, the Medical College of Wisconsin designates this
continuing medical education activity as meeting the criteria
for 13.00 hours in Category I toward the Physician’s Recognition
Award of the American Medical Association.
Nuclear Medicine Technologists who attend the SPECT Brain
Imaging Clinical Fellowship are eligible for 1.0 VOICE credit.

Register me for the following dates: (Please indicate a second choice)
☐ September 14–15, 1992 ☐ November 9–10, 1992

I will need hotel reservations for __________________ only Monday night.
I will need a __________________ single/ double room.
A check in the amount of $650 should accompany this registration form
and be made payable to the Medical College of Wisconsin. Telephone
registrations must be confirmed by check within 10 days.

Name ___________________________________________________________
Address _________________________________________________________
City/State/Zip ___________________________________________________
Office Phone (______) ______________________ work address
_________________________________ home address

Registrations and payment should be sent to:
LisaAnn Trombath
SPECT Brain Imaging Fellowship Coordinator
Nuclear Medicine Division
Medical College of Wisconsin
8700 W. Wisconsin Avenue
Milwaukee, WI 53226 (414) 257-7867

18
The Society of Nuclear Medicine Awards Committee announces that two grants for $25,000 each are available for July 1, 1993.

The objectives of these grants are to: (1) Encourage physicians to enter the field of Cardiovascular Nuclear Medicine, and (2) Support high quality nuclear cardiology clinical research.

Funds can be used to support the research and/or salary of the investigator. Preference will be given to young physicians, or those new to the field of Cardiovascular Nuclear Medicine. Awards will be announced at the Annual SNM Business Meeting, June, 1993.

Please send for more information and an application to:

The Society of Nuclear Medicine
SNM Awards Committee
136 Madison Avenue
New York, NY 10016

Mallinckrodt, Inc. has announced an Annual Fellowship of $30,000 for a physician fellow active in nuclear medicine research and/or development. The award is to further a research or development project, and applicants are asked to submit their curriculum vitae, a detailed account of their research project including prior accomplishments on the project, and future plans. Deadline for this year’s award is January 8, 1993. Requested information, along with at least two letters supporting the application, should be forwarded to: William J. MacIntyre, PhD, The Society of Nuclear Medicine, 136 Madison Ave., New York, NY 10016-6760. The recipient will be announced at the Annual Meeting of The Society of Nuclear Medicine.

The Society of Nuclear Medicine Awards Committee announces that a grant for $30,000 is available.

The funds will be used to support research for therapy by the investigator chosen.

To request more information and an application please contact:

The Society of Nuclear Medicine
SNM Awards Committee
136 Madison Avenue
New York, NY 10016
Policy — The Journal of Nuclear Medicine accepts classified advertisements from medical institutions, groups, suppliers, and qualified specialists in nuclear medicine. Acceptance is limited to Positions Open, Positions Wanted, and Equipment. We reserve the right to decline, withdraw, or modify advertisements.

Rates for Classified Listings — $40.00 per line or fraction of line (approx. 50 characters per line, including spaces). Please allow 22 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.

Rates for Display Ads — Agency commissions are offered on display ads only.

Full page $1400 Quarter page $550
Half page 825 Eighth page 450

Publisher-Set Charges — Page $100; half page $75; quarter page $40; eighth page $25.

Terms — Payment must accompany order. Make checks payable, in U.S. dollars on U.S. banks only, to: The Society of Nuclear Medicine.

Deadline — First of the month preceding the publication date (January 1 for February issue). Please submit classified listings typed double spaced. No telephone orders are accepted.

Send Copy To:
Classified Advertising Department
The Society of Nuclear Medicine
136 Madison Avenue
New York, NY 10016-6760
(212) 889-0717
FAX: (212) 545-0221

Positions Available

Physician
LOCUM. To cover my hospital based NM practice. Well equipped department. Ideal for individual interested in periodic work. Send CV and compensation expectations to Dr. Cheng, 3118 Colyar Drive, Chattanooga, TN 37404.

Radiologist
DIAGNOSTIC RADIOLOGIST—NUCLEAR MEDICINE: 500-bed hospital midwest-based private practice Radiology group seeking applications for a BE/BC radiologist with Nuclear Medicine competency and interest. Successful applicant will devote 50% of their time to nuclear medicine and remain involved in diagnostic nuclear medicine. Nuclear Medicine Department utilizes state-of-the-art SPECT and planar equipment to support a wide range of imaging studies including nuclear cardiology. Equipment includes a majority of Siemens cameras and computers as well as a Tritonix Triad camera. Imaging studies available include new heart agents and monoclonal antibodies. Excellent salary, benefits, retirement and vacation. Interested candidates should send CV and references to: James E. Call, MD, Radiology Nuclear Medicine, Inc., 622 Doctors Building, 4239 Farnam Street, Omaha, Nebraska 68131.

NW Rocky Mountains: RADIOLOGIST—NUCLEAR MEDICINE Highly respected eighth person group with strong subspecialty interests seeks highly qualified individual. Fellowship or academic experience preferred. Nuclear Medicine boarded or ABR special expertise strongly desired. Position includes all aspects of nuclear medicine in a comprehensive advanced department. Practice is located in Boise, Idaho, which has many recreational and cultural amenities. Reply to Paul Trafton, MF or J. Tim Hall, MD, Department of Radiology, St. Alphonsus Regional Medical Center, 855 No. Curtis Rd., Boise, ID 83706, (208) 378-2161.

NUCLEAR RADIOLOGIST: Radiologist with Nuclear Medicine/Nuclear Radiology Board or eligibility, to join 14 member private practice radiology group in Seattle suburb. Send curriculum vitae to A. Azzone, MD, Nuclear Medicine Department, 400 South 43rd Street, Renton, WA 98055.

CHIEF, IMAGING SERVICE, TUSCON VA MEDICAL CENTER. The Imaging Service includes diagnostic radiology and nuclear medicine. The Chief will receive an academic appointment at the University of Arizona and will participate in the teaching programs of the University. Applicants should be certified by both the American Board of Radiology and the American Board of Nuclear Medicine (or ABR with Special Competence in Nuclear Radiology) and should have a record of academic and administrative achievement. Review of applications will begin 10/31/92 and will continue until the position is filled. Applicants should send a letter and curriculum vitae to: James M. Woollenden, M.D., Chair, Search Committee, Division of Nuclear Medicine, Arizona Health Sciences Center, Tucson, AZ 85724. EEO/AA Employer. Women and minorities are urged to apply.

Technologist
NUCLEAR MEDICINE TECHNOLOGIST. The Mulineckort Institute of Radiology at Washington University Medical Center, St. Louis, MO, has an immediate opening for a FT registered, BE/BC technologist. Progressive department with excellent benefit package. Interested applicants call Kathleen Johnson-Brudon at (314) 362-3880. Affirmative Action/Equal Opportunity Employer. M/F/H/V.

Wanted, PT NUCLEAR MEDICINE TECHNOLOGIST. Call (718) 439-5111.

Fellowships In Diagnostic Radiological Research.

The Diagnostic Radiology Research Program of the National Institutes of Health is accepting applications for two-year fellowship positions beginning in July 1992 and July 1993. This program provides an excellent opportunity for individuals who plan a research career in radiological sciences.

The fellowship training program emphasizes basic research in all aspects of imaging and image processing. Fellows will have no clinical responsibilities unless they are related to their project. The imaging laboratories of the Diagnostic Radiology Research Program include: state-of-the-art 0.5 and 1.5 Tesla MR units; a newly developed image analysis program with hardware support; ultrafast CT; and an experimental angiography suite. The facilities in the In Vito NMR Research Center, the PET and monoclonal antibody programs of the Nuclear Medicine Department, and other laboratories on the NIH campus will be made available to the fellow, providing an opportunity to develop expertise in areas related to imaging research. Basic research in functional or metabolic imaging, contrast agents, biochemistry, biology, chemistry, immunology, physics, and physiology will be encouraged. Laboratories are being developed which will include "hot" and "cold" wet labs and tissue culture facilities. Collaboration with other scientists on the NIH campus will be encouraged.

Applicants should hold the MD or PhD degree and should have completed clinical training in diagnostic radiology or nuclear medicine. Applications from individuals currently in US residency programs may also be considered for research fellowship positions. US citizenship or permanent residency is required for this fellowship appointment.

Candidates should submit a Curriculum Vitae, at least two letters of reference and a preliminary statement concerning their area of research interest to Dr. Joseph A. Frank, Acting Director.
Nuclear Medicine Physician

The DIVISION OF NUCLEAR MEDICINE at Lutheran General Hospital is seeking a physician boarded in nuclear medicine with internal medicine background. The hospital has 750 beds and is a teaching affiliate of the University of Chicago. The Division of Nuclear Medicine is very active with over 8,000 patient procedures done per year in a wide variety of studies. There are two full-time internal medicine and nuclear medicine boarded physicians and a part-time physician. The division has 7 cameras, four of which are SPECT, and is totally digitally integrated with a complete Ethernet. We have Radiology residency training and Cardiology fellowship training in our division. The applicant should be less than 3-5 years post training. Teaching and research will comprise a large portion of his/her duties in addition to clinical work. Please send CV and cover letter directly to Charles J. Martines, M.D., Director, Division of Nuclear Medicine, Lutheran General Hospital, 1775 Dempster Street, Park Ridge, IL 60068. We are an equal opportunity employer.

Lutheran General Hospital

In Vivo Imaging

Hybritech Incorporated, a San Diego division of Fortune 100 Eli Lilly and Company, is a recognized leader in the field of human healthcare. We are currently involved with the development of in vivo imaging products.

REGIONAL SALES MANAGERS and SALES REPRESENTATIVES

We seek experienced Regional Sales Managers and Sales Representatives to sell our imaging products. Regional Manager candidates must have 3-5 years of sales management experience, preferably in Nuclear Medicine/Radiology or hospital pharmaceutical sales. Representative candidates must have 3-5 years of direct sales experience in Nuclear Medicine/Radiology or hospital pharmaceutical sales. Ideal candidates will possess a Bachelor’s degree (Master’s a plus) and related field experience. The focus of selling activities will be directed toward Nuclear Medicine Departments and referring physicians, with emphasis on product launch and introduction.

MARKETING MANAGERS/PRODUCT MANAGERS

We seek experienced Marketing and Product Managers to support our Imaging Division. These managers will develop/implement marketing programs to support our in vivo products, including sales forecasting/training, advertisement/promotional program development, market research, competitive analysis and strategic planning.

Our ideal candidates will possess a Bachelor’s degree (Master’s a plus) and a minimum of 2 years’ experience in product marketing in a related field. Work experience (including sales) in Radiology or Nuclear Medicine is a definite advantage.

APPLICATIONS SPECIALISTS

NUCLEAR MEDICINE TECHNOLOGY

We seek Applications Specialists to be responsible for technical support of our in vivo product line, including customer and sales training programs, in-field education, technical support troubleshooting, and clinical marketing program support.

The candidates must be registered Nuclear Medicine Technologists with 2+ years of practical, hospital-based experience, with the ideal candidate possessing a Bachelor’s degree. Advanced technical capabilities in Nuclear Medicine and recent work experience in a field support position in Nuclear Medicine or Radiology, or specific Applications Specialist experience, is ideal. Overnight travel is required.

We offer exceptional career opportunities, a stimulating environment, competitive salaries, and an excellent benefits package. For confidential consideration, please send your resume to: HYBRITeCH INCORPORATED, Human Resources, MD/JNM/SEP792/ID, P.O. Box 269006, San Diego, CA 92196-9006. Equal Opportunity Employer.

Radiopharmacist

Radiological Associates of Sacramento (RAS) has been serving Northern California with a full range of diagnostic and therapeutic services for more than 70 years. We are currently expanding our capabilities to include the manufacture of short-lived cyclotron produced radionuclides and radiopharmaceuticals.

To assist in the implementation and operation of our new P.E.T. radiopharmacy, we have a ground floor opportunity for a Certified Radiopharmacist (CRPH). The selected candidate will be responsible for the practice of pharmacy as applied to radiopharmaceuticals, especially P.E.T. radiopharmaceuticals. Minimum qualifications include graduation from a pharmacy program accredited by the American Council of Pharmaceutical Education, a license to practice in California, and 0-3 years of relevant work experience. Although we’re willing to train the right individual, experience in the areas of radiochemistry and the manufacture of radiopharmaceuticals is preferred.

RAS offers an exciting and challenging career opportunity, a competitive salary based upon experience and a comprehensive benefits package. Our Northern California location features affordable housing and a wide range of recreational activities, plus close proximity to San Francisco, Lake Tahoe and Yosemite. For consideration, please forward a resume to: RAS, Dept. JNM-9, 1800 "I" Street, Sacramento, CA 95814. EOE.

Radiological Associates of Sacramento

TEAM

Hybritech Incorporated
**NUCLEAR MEDICINE TECHNOLOGIST**

Covenant Medical Center, a 366-bed Medical/Surgical Center is Northeast Iowa is currently seeking a full-time Nuclear Medicine Tech.

Our Nuclear Medicine team is a progressive and expanding group of professionals in our new Radiology department. We offer the opportunity to work in a 3-camera department, one of which will be a new Picker system.

Our community is a part of the Cedar Valley area, consisting generally of Waterloo, Cedar Falls, and smaller surrounding communities along the Cedar River. Cedar Falls is home to the University of Northern Iowa and the UNI-Dome. This offers a variety of educational, sports, cultural, and musical opportunities.

Qualified candidates will need to be AART-N and/or CNMT certified, registry eligible, and have SPECT knowledge.

Covenant Medical Center can offer:
- Continuing Education Benefits
- Health, Dental, and Prescription Insurance
- Pre-Tax Options
- Generous Paid Time Off

*Please send resume to:
Julia A. Marcuzzo, PHR
Covenant Medical Center
3421 West 9th Street
Waterloo, Iowa 50702
E.O.E.
Drug Screen Required*

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**VA Medical Center, Miami, Florida**

**Nuclear Medicine Technologist (NMTCB or ARRT)**

Salary Range: $29,477 to $37,514

**Ultrasound Technician (ARDMS desirable)**

Salary Range: $24,262 to $31,543

VA benefits include health and life insurance, Federal retirement plan, Thrift Savings Plan (matching funds, tax exempt savings plan), and more. Contact Personnel Service (05C3), 1201 NW 16 Street, Miami, FL 33125, (305) 324-4455, Ext. 4122. Florida has no state income tax. VA is an EOE.
Reducing stress in pharmacologic stress testing

Patient safety and tolerability: the stress factors
Consider the pharmacologic stress population. Old patients. Frail patients. Submaximally stressed patients. The obese. In these often vulnerable or compromised patient types, safety and tolerability are particularly important. The more certain an agent’s safety and tolerability record, the more potential for patient comfort and physician confidence. Use of an agent with a proven tolerability and safety record can reduce the overall stress to the patient, while easing the emotional stress to the physician.

A safety record that spans more than a decade
I.V. Persantine® (dipyridamole USP) has a safety profile established in over a decade of clinical testing.1-7 And, based on information from over 250,000 patient studies, I.V. Persantine is generally well tolerated.1 Such an established record in pharmacologic stress creates a standard by which to compare other agents.

Generally well-tolerated stress begins with smooth, gradual onset of effect
Pharmacologic stress with I.V. Persantine takes effect smoothly with a 4-minute infusion, followed within 5 minutes with the appropriate thallium dose. This allows the patient to become accustomed to the “stressing” process more gradually: there is no “sudden impact.” Additionally, the time is short enough to allow an expedient, relatively uncomplicated imaging procedure.

Convenient, easy-to-follow protocol minimizes procedural frustrations
The procedural logistics of pharmacologic stress can be another source of emotional stress to the physician or staff. With I.V. Persantine, there’s a flexible, easy-to-follow protocol. No infusion pump needed. No need for site-specific injection. And no extra I.V. line for the imaging agent.

When you stress more assured, you can rest more assured
Based on its proven safety profile and generally well-tolerated effect, I.V. Persantine sets a solid foundation to help reduce the stress that can sometimes be associated with pharmacologic stress.

Stress the facts in pharmacologic stress...call the Du Pont Radiopharmaceuticals Nuclear Cardiology Hotline at 1-800-343-7851 for further information and discussion about the proven safety profile of I.V. Persantine.

1Severe adverse events have occurred infrequently (<0.3%) in a study of 3,911 patients. Patients with a history of unstable angina may be at a greater risk for severe myocardial ischemia. Patients with a history of asthma may be at a greater risk for bronchospasm.
In the same study, the most frequent adverse events (>2%) were chest pain/angina pectoris, electrocardiographic changes (most commonly, ST-T changes), headache, and dizziness.
I.V. Persantine (dipyridamole USP) Injection 5mg/ml

**Brief Summary of Prescribing Information**

**CONTRAINDICATIONS**
Hypersensitivity to dipyridamole.

**WARNINGS**
Serious adverse reactions associated with the administration of intravenous Persantine® (dipyridamole USP) have included fatal and non-fatal myocardial infarction, ventricular fibrillation, symptomatic ventricular tachycardia, transient cerebral ischemia, and bronchospasm.

In a study of 391 patients given intravenous Persantine as an adjunct to thallium myocardial perfusion imaging, two types of serious adverse events were reported: 1) four cases of myocardial infarction (0.1%), two fatal (0.05%), and two non-fatal (0.05%); and 2) six cases of severe bronchospasm (0.2%). Although the incidence of these serious adverse events was small (0.5%, 10 of 2011), the potential clinical information can be gained through use of intravenous Persantine thallium imaging must be weighed against the risk to the patient. Patients with a history of unstable angina may be at a greater risk for severe myocardial ischemia. Patients with a history of asthma may be at a greater risk for bronchospasm during IV Persantine use.

When thallium myocardial perfusion imaging is performed with intravenous Persantine, parenteral amrinonil should be readily available for relieving adverse events such as bronchospasm or chest pain. Vital signs should be monitored during, and for 10-15 minutes following, the intravenous administration of Persantine and an electrocardiographic tracing should be obtained using at least one chest lead. Should severe chest pain or bronchospasm occur, parenteral amrinonil may be administered by slow intravenous injection (50-100 mg over 30-60 seconds) in doses ranging from 50 to 250 mg. If the case of severe hypotension, the patient should be placed in a supine position with the head tilted down if necessary, before administration of parenteral amrinonil. If 250 mg of amrinonil does not relieve chest pain symptoms within a few minutes, sublingual nitroglycerin may be administered. If chest pain continues despite use of amrinonil and nitroglycerin, the possibility of myocardial infarction should be considered. If the clinical condition of a patient with an adverse event permits a one-minute delay in the administration of parenteral amrinonil, thallium-201 may be injected and allowed to circulate for one minute before the injection of amrinonil. This will allow initial thallium perfusion imaging to be performed before reversal of the pharmacologic effects of Persantine on the coronary circulation.

**PRECAUTIONS**
See WARNINGS.

**Drug Interactions**
Oral maintenance theophylline may abolish the coronary vasodilation induced by Intravenous Persantine® (dipyridamole USP) administration. This could lead to a false negative thallium imaging result.

**Carcinogenesis, Mutagenesis, Impairment of Fertility**
In studies in which dipyridamole was administered in the feed at doses of up to 75 mg/kg/day (9.4 times the maximum recommended daily human oral dose) in mice (up to 128 weeks in males and up to 142 weeks in females) and rats (up to 111 weeks in males and females), there was no evidence of drug-related carcinogenesis. Mutagenicity tests of dipyridamole with bacterial and mammalian cell systems were negative. There was no evidence of impaired fertility when dipyridamole was administered to male and female rats at oral doses up to 500 mg/kg/day (63 times the maximum recommended daily human oral dose) in mice (up to 2 years) and rats (up to 2 years). The maximum recommended daily human oral dose of dipyridamole with consequent reduction in implantations and live fetuses was, however, observed at 1250 mg/kg/day.

*Calculation based on assumed body weight of 50 kg.

**Pregnancy Category B**
Reproduction studies performed in mice and rats at daily oral doses of up to 125 mg/kg (15.6 times the maximum recommended daily human oral dose) and in rabbits at daily oral doses of up to 20 mg/kg (2.5 times the maximum recommended daily human oral dose) have revealed no evidence of impaired embryonic development due to dipyridamole. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human responses, this drug should be used during pregnancy only if clearly needed.

*Calculation based on assumed body weight of 50 kg.

**Nursing Mothers**
Dipyridamole is excreted in human milk.

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

**ADVERSE REACTIONS**
Adverse reaction information concerning intravenous Persantine® (dipyridamole USP) is derived from a study of 391 patients in which intravenous Persantine was used as an adjunct to thallium myocardial perfusion imaging and from spontaneous reports of adverse reactions and the published literature.

Serious adverse events (fatal and non-fatal myocardial infarction, severe ventricular arrhythmias, and various CNS abnormalities) are described previously (see WARNINGS). In the study of 391 patients, the most frequent adverse reactions were: chest pain/anginal pectoris (17.9%), electrocardiographic changes (most commonly ST-T changes) (15.9%), headache (12.2%), and dizziness (11.8%). Adverse reactions occurring in greater than 1% of the patients in the study are shown in the following table:

<table>
<thead>
<tr>
<th>Incidence (%) of Drug-Related Adverse Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest Pain/Angina Pectoris</td>
</tr>
<tr>
<td>Headache</td>
</tr>
<tr>
<td>Dizziness</td>
</tr>
<tr>
<td>Electrocardiographic Abnormalities/ST-T Changes</td>
</tr>
<tr>
<td>Electrocardiographic Abnormalities/Extrasystoles</td>
</tr>
<tr>
<td>Hypertension</td>
</tr>
<tr>
<td>Nausea</td>
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<tr>
<td>Flushing</td>
</tr>
<tr>
<td>Electrocardiographic Abnormalities/Tachycardia</td>
</tr>
<tr>
<td>Dypsnea</td>
</tr>
<tr>
<td>Pain Unspecified</td>
</tr>
<tr>
<td>Blood Pressure Lability</td>
</tr>
<tr>
<td>Hypertension</td>
</tr>
<tr>
<td>Paresthesia</td>
</tr>
<tr>
<td>Fatigue</td>
</tr>
</tbody>
</table>

Less common adverse reactions occurring in 1% or less of the patients within the study included:

Cardiovascular System: Electrocardiographic abnormalities unspecified (0.8%), arrhythmia unspecified (0.6%), palpitation (0.3%), ventricular tachycardia (0.2%) (see WARNINGS), bradycardia (0.2%), myocardial infarction (0.1%) (see WARNINGS), AV block (0.1%), syncope (0.1%), bradycardia (0.1%), atrial fibrillation (0.1%), supraventricular tachycardia (0.1%), ventricular arrhythmia unspecified (0.03%) (see WARNINGS), heart block unspecified (0.03%), cardiac myopathy (0.03%), edema (0.03%).

CNS System: Hypothalamia (0.5%), hyporexia (0.3%), nausea/vomiting (0.2%), tremor (0.1%), abnormal coordination (0.03%), somnolence (0.03%), dysphoria (0.03%), migraine (0.03%), vertigo (0.03%).

Gastrointestinal System: Dyspepsia (1.0%), dry mouth (0.8%), abdominal pain (0.7%), flatulence (0.5%), vomiting (0.4%), eructation (0.1%), dysphagia (0.03%), tenesmus (0.03%), apple increased (0.03%).

Respiratory System: Pharyngitis (0.3%), bronchospasm (0.2%) (see WARNINGS), hyperventilation (0.1%), rhinitis (0.1%), coughing (0.03%), pleural pain (0.03%).

Other: Myalgia (0.9%), back pain (0.6%), injection site reaction unspecified (0.4%), diaphoresis (0.4%), asthma (0.3%), malaise (0.3%), arthralgia (0.3%), injection site pain (0.1%), rigor (0.1%), earache (0.1%), tinnitus (0.1%), vision abnormalities unspecified (0.1%), dysuria (0.1%), thirst (0.03%), dehydration (0.03%), eye pain (0.03%), renal pain (0.03%), perineal pain (0.03%), breast pain (0.03%), intermittent claudication (0.03%), leg cramping (0.03%).

**OVERDOSE**
No cases of overdose in humans have been reported. It would be expected that an overdose will occur because of the nature of use (i.e., single intravenous administration in controlled settings). See WARNINGS.

**Caution**
Federal law prohibits dispensing without prescription.
The PENN-PET System...conceived, designed, and developed to provide the full spectrum of clinical PET applications. Emphasis is placed on image quality, ease of use, reliability, and serviceability. The camera is based on large-area position-sensitive detectors utilizing NaI(Tl) crystals. This design has resulted in a camera with an exceptionally large field of view, either 12.8cm or 23cm, high sensitivity through fully 3D septa-less data collection, user-friendly clinical software, and unequaled economy.
It has twice the resolution of any printer in its class.

No one makes it clearer.

Toshiba's new HC-1600A ImageMaster™ Video Printer gives you brilliant, striking color images. Even when screen images are composed of many intermediate colors, this third-generation dye sublimation thermal printer reproduces them with every shade—finely gradated and lifelike.

With a remarkable resolution of 8 dots/mm (1280 dots horizontal x 1024 dots vertical) and a thermal head which can display 256 gradations of color for each 8-bit dot (yielding a palette of more than 16.7 million total colors), the ImageMaster gives you extremely high realism with any medical imaging system.

Because the ImageMaster has more input/output capabilities than any other printer in its class (and more than some costing quite a bit more), you can choose from almost any video input. You can even download the screen memory directly to your laptop's hard drive and transmit it anywhere in the world, via modem. And for all its capabilities, the ImageMaster presents you with only four buttons to operate: the technician keys in all other information.

You could pay three times as much for a printer which parallels, but does not surpass, the ImageMaster's resolution and I/O capabilities. But one thing's not clear: why would you?

For a free brochure and more technical detail call 1-800-253-5429, then press 6131.