You can see the difference.
Lungaggregate™ Reagent [Aggregated Albumin (Human)] has eight important advantages for pulmonary scintigraphy.

The first one is obvious:

1. Particles Presuspended in Solution.
   Lungaggregate Reagent is the only Tc 99m-labeled MAA agent containing albumin aggregate particles that are already suspended in an aqueous solution. There is less chance for radiation exposure to the user since no visual inspection is required after radioactive labeling.

   The uniform-size particles in Lungaggregate Reagent have a biological half-time of 4.77 hours.

3. Quick, Easy Preparation.
   No thawing, reconstitution of lyophilized particles, or ultrasonic agitation are required.

4. Conveniently Stable.
   Lungaggregate Reagent, labeled with Tc 99m, may be used up to 24 hours after preparation when stored as directed. A supply of Tc 99m-Lungaggregate Reagent is therefore available when emergency studies are required.

5. Multi-Dose Economy.
   Each vial can be used to give several patient doses since Lungaggregate Reagent contains a preservative.

   Tc 99m is the radionuclide of choice for scintigraphy. With a 4 mCi dose of Tc 99m-Lungaggregate Reagent, up to 500,000 counts can be obtained in two to three minutes on a gamma camera.

7. High Lung/Liver Activity Ratio.
   The ratio of lung to liver-and-spleen activity is over 10/1.

   No adverse reactions have been reported. See the brief summary section below.

For a monograph summarizing clinical experience with Lungaggregate Reagent, or for additional information, call Medi-Physics toll free: (800) 772-2446 in California or (800) 227-0483 outside California.

Brief Summary
(For full product information including method of preparation and administration procedure, see package insert.)

Description: Lungaggregate™ Reagent is a sterile, pyrogenic, buffered, preserved, aqueous preparation of aggregated albumin from human plasma.

Indications: For imaging regional pulmonary perfusion in the presence of clinically suspected regional ischemia.

Contraindications: This agent is contraindicated (1) in the presence of large right-to-left cardiovascular shunts which could allow direct entry of macroaggregates into systemic circulation; (2) in patients with cyanosis or evidence of severely restricted pulmonary blood flow, as in pulmonary hypertension; (3) in pregnant or lactating women and in patients under 18 years, unless expected benefits outweigh risks involved.

Warnings: Whenever protein-containing materials such as Tc 99m-labeled Lungaggregate Reagent are used in man, hypersensitivity reactions are possible. Have epinephrine, antihistamines, and corticosteroid agents available.

Precautions: Note—Follow aseptic techniques in preparing this agent to minimize the possibility of contamination with microorganisms. Take steps to minimize exposure to patient and attending personnel, including use of minimum dosage to achieve useful diagnostic data. Make injection slowly. Use an 18-21 gauge needle. After withdrawal from the vial the material should be administered promptly; also avoid aspirating blood and tissue fluids into the syringe.

Adverse reactions: None reported in over 4,000 patient studies.
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The radiopharmaceuticals you depend on must be predictable and consistently pure, as well as efficacious. But radiopharmaceuticals need not be expensive.

Many of our kits and ready-to-use radiopharmaceuticals actually cost less than products of comparable quality and consistency.

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  5mg Diphosphonate and 0.5mg Stannous Chloride
- 99m Tc Polyphosphate-Tin
  100mg Polyphosphate and 2mg Stannous Chloride
- 99m Tc DTPA-Tin
  5mg DTPA and 0.25mg Stannous Chloride

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  10 or 20 mCi/Vial
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Low radiation dose for 100 μC in liver, pancreas and kidneys Whole body dose: 0.3rd High radiochemical purity (96%) at calibration date Recommended dose: 300 μCi

Specification
L-Selenomethionine- (Se-75) Less than 5% D-Selenomethionine Concentration of activity: 0.2 mCi Se-75/ml Specific activity: 5-10 mCi Se-75/mg

Pack
L-Selenomethionine- (Se-75) in physiological saline for injection (12 ml beaded rim vial)

Order No.: SE-515
Calibration day: 1st of the month
Dispatch: daily from the 1st of the previous month on
Shelf life: 3 months from the day of first dispatch

Contraindications
Radioactive material should be handled with special care to insure minimum radiation exposure to personnel and patients. Unless strictly indicated, radiopharmaceuticals should not be administered to pregnant or nursing women or to juvenile patients.

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- MINITEC Generator is available in 50, 100, 200, 300, 400 and 500 mCi potencies. Delivery on Monday AM (precalibrated through Thursday) and Wednesday (precalibrated through Monday) provides maximum versatility to satisfy technetium requirements of your lab's work load.

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Minitec®
(Technetium 99m)
Generator

Minitec® (Technetium 99m) Generator provides a means of obtaining a sterile, non-pyrogenic supply of technetium 99m (99mTc) as sodium pertechnetate 99mTc.

Indications: Sodium pertechnetate 99mTc is indicated for brain imaging, thyroid imaging, salivary gland imaging, blood pool imaging, and placenta localization.

Contraindications: At present, there are no known contraindications to the use of sodium pertechnetate 99mTc.

Warnings: Radiopharmaceuticals should be used only by physicians who are qualified by specific training in the safe use and safe handling of radionuclides, produced by nuclear reactor or cyclotron, and whose experience and training have been approved by the appropriate federal or state agency authorized to license the use of radionuclides. This radiopharmaceutical should not be administered to women who are pregnant or who may become pregnant or during lactation unless the information to be obtained outweighs the possible potential risks from the radiation exposure involved. Ideally, examinations using radiopharmaceuticals, especially those elective in nature, of a woman of childbearing capability should be performed during the first few (approximately 10) days following the onset of menses.

Since radioactive pertechnetate is secreted in milk during lactation, formula-feedings should be substituted for breast-feedings.

Important: Since material obtained from the generator may be intended for intravenous administration, aseptic technique must be strictly observed in all handling. Only the eluent provided should be used to elute the generator. Do not administer material eluted from the generator if there is any evidence of foreign matter.

Precautions: As in the use of any other radioactive material, care should be taken to insure minimum radiation exposure to the patient consistent with proper patient management and to insure minimum radiation exposure to occupational workers.

At the time of administration, the solution should be crystal clear.

Adverse Reactions: At present, adverse reactions have not been reported following the use of sodium pertechnetate 99mTc.

For complete prescribing information, consult package insert.

How Supplied: Minitec (Technetium 99m) Generator is available in potencies of 50, 100, 200, 300, 400, and 500 mCi. Supplied with the generator are vials of eluent containing 5 ml of a sterile, non-pyrogenic solution of 0.9% sodium chloride in water for injection. Also supplied is suitable equipment for eluting, collecting, and assaying the technetium 99m.
PICTURES OF PEOPLE
Monochrome display: of multicycle grey scale with matrix blocks interpolated out.
Real labelled contours.
Line drawn isometrics with multiple perspective and far-side blanking.
Curves displayed as continuous lines with labelled axes positive and negative, linear or log scale.
Paper hardcopy: life size (or other scaling) of all except isometric display.
Formatted reports, including billing if required, may be generated cheaply.
Color display: for viewing of successive dynamic frames, etc.

PICTURES BY PEOPLE
Easy use: full plain text dialogue separated from display enables sophisticated use under people control without the usual secret code of computers.
Protocols: routine procedures may be chained into a protocol, with comment, for full automatic machine control.
Identification: it is impossible to have unidentified displays or to mix patient records in these systems.

PICTURES FOR PEOPLE
Dynamic: flexible visualization and quantification of physiological processes promotes positive diagnoses.
Static: finally available, static images significantly better than the raw camera output promote earlier more effective clinical diagnoses.

PICTURES FOR MORE PEOPLE
Dual Cameras: systems for two cameras with simultaneous dynamic capability without interference or record confusion.
Multi-tasking: the BETA executive automates the computer functions for clinical use, or permits the computer-orientated to access FORTRAN or ASSEMBLER and to multi-task up to 7 functions (memory size option permitting) simultaneously.
Multi-accessing: background tasks may be run such as radio immunoassay, E.K.G., radiotherapy planning, etc., simultaneously with gamma camera use (which has, of course, priority).
System Growth: a start may be made with a low-cost budget system. Large comprehensive systems may be built from standard modules.

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Aggregated Albumin (Human) Kit

DESCRIPTION - The kit contains 6 sterile vials containing 9-11 mg of pyrogen-free aggregated albumin (human), 8E7-8G3 mg sterile sodium chloride, and 18 mg sodium citrate. When sterile, pyrogen-free sodium phosphate/borate 0.1M is added to the vial, technetium-labeled macroglobulin-human serum albumin (Tc-99m Tc-macroaggregates) is formed. The particles of aggregated albumin in the kit are formed by the destruction of Normal Serum Albumin (HUMAN) (DSP through heat and pH adjustment). Sodium hydroxide may be present in amounts up to 0.5%. At least 90% of the macroglobulin particles are between 10 and 100 microns in size. The particle size on a microscope slide appears to average 10 to 70 microns. None is larger than 150 microns. Vials should be handled with caution since each vial contains 6.5 x 5.8 million particles per mg. The presence of these large particles may increase the risk of labeling efficiency is essentially quantitative and the bound Tc-MAA remains static in vivo through the useful period after preparation.

Application has been filed with the U.S. Nuclear Regulatory Commission for distribution of this material to persons licensed pursuant to 35.14 and 35.100, Group III of CFR Part 35, or under equivalent licenses of states; and is still pending.

ACTIONS - Following intravenous injection, Technetium Tc-99m is rapidly transported by the blood stream to the lungs. The aggregates do not enter the tissue of the lungs, but remain in the pulmonary vascular system. When pulmonary blood flow is normal, the material is carried through the entire lung field, when pulmonary blood flow is diminished or obstructed by a disease process, the particles are correspondingly prevented in part of the total flow through the affected portion of the pulmonary vascular bed. Technetium Macrogolaggregates remain in the lungs for variable amounts of time depending on particle size. The particles disappear from the lungs in exponential fashion with the larger sized aggregates having the longest half-life; particles ranging from 10.5 to 60 microns in diameter usually last a few hours to 24 hours. Apparently, the aggregates are temporarily trapped by the narrow pulmonary capillaries where the particles are broken down and then are small enough to pass. In rats 4.3% of the Tc-99m remains in the lungs after 24 hours.

Although the particles of macroglobulins remain for a time in the pulmonary capillaries, they do not appear to interfere even temporarily with pulmonary blood flow or ventilation in the dosage required for lung scanning. This is evidenced by the fact that these doses do not produce any respiratory distress nor any tachycardia, even in patients severely ill with pulmonary and/or cardiac disorders.

Once the albumin particles leave the lungs, they are carried to the liver, where they are removed from the blood stream probably by the Kuffer cells. Then, the particles are phagocytosed and rapidly metabolized.

INDICATIONS - Scintillation scanning of the lungs with Technetium Macrogolaggregates is indicated as an adjunct to other diagnostic procedures whenever information about pulmonary vascular status is desired. The most useful clinical applications of lung scanning have been outlined by one investigator. 1) The diagnosis of pulmonary embolism; 2) determination of local conditions such as lobe or cysts from diffuse pulmonary disorders; 3) detection of the degree of pulmonary vascular obliteration in parenchymal disease; and 4) evaluation of the patient's ability to withstand pulmonary surgery. Perhaps the most frequently useful indication for the lung scan has been the early detection of pulmonary emboli. The lung scan is unique in its ability to demonstrate the absence of an embolism before radiological signs become apparent. Although an area of increased radioactivity on the chest film may suggest an embolism, X-ray findings do not become apparent until the embolism has produced signs of ischemia or infarction. Once an embolism has been diagnosed, information obtained from the scan is of value in determining the desirability of surgical or non-surgical therapy, while subsequent scans provide information on the effectiveness of surgical or conservative therapy.

Lung scanning is similarly helpful in the diagnosis of various types of malignancies affecting the lungs. Again, scanning is of value in locating the affected area, in determining the need for and probable effectiveness of surgery or of radiation therapy, and in following up the benefits of treatment.

Useful information is also provided by the scan in the diagnosis or exclusion of other pulmonary problems, such as pneumonia, infections other than pulmonary, connective tissue diseases, and chronic asthmatic bronchitis.

CONTRAINDICATIONS - The presence of right to left shunts which would allow Technetium Tc-99m injected in a systemic vein to re-enter the pulmonary vascular bed is a contraindication to the use of this material. Particles of material such as Technetium Tc-99m should not be administered to patients with evidence of severe restriction to pulmonary blood flow such as may be present in pulmonary hypertension.

WARNINGS - Technetium Tc-99m should not be administered to patients who are pregnant, or during lactation unless the benefit to be gained outweighs the potential hazards.

 ideality. Scintillation scanning using radioactive microspheres, especially those electric in nature, of a woman of childbearing age should be performed during the first 6 months (approximate 10 days following the onset of menses). Radiochoanocrystals should be used only by physicians who are qualified by specific training in the safe use and handling of radioisotopes produced by nuclear reactor or particle accelerator and whose experience and training have been approved by the appropriate governmental agency authorized to license the use of radionuclides.

PRECAUTIONS - As in the use of any other radiologic material care should be taken to insure minimum radiation exposure to the patient, correlated with proper patient management, and to insure minimum radiation exposure to staff and occupational workers.

To insure the integrity of this product use needles in gauge sizes 18 to 21.

ADVERSE REACTIONS - No adverse reactions have been observed with this product. However, Vincent et al (12) have recorded the only immediate and late reaction following intravenous injection of 7.59 mg macroglobulins (technetium labeled macroglobulins). This was a seven-year-old child who had severe pulmonary vascular disease. The exact size of the particles used was not disclosed, and in the summary of the publication, "it is suggested that this type of reaction will continue to take place and that it will probably be in part predictable on the basis of laboratory evidence of severe pulmonary hypertension. Such a patient might be scanned safely by strict control of macroglobulin dose, size range and mean particle size.

The literature has recorded two adverse reactions to lung scanning with 1131-labeled macroglobulins. Wagner et al (4) observed that uric acid developed in a young girl several hours after lung scanning procedure with iodine-131 macroaggregates where Uroto's solution was administered to block the thyroid gland. The subject had a history of angio-edema. The reaction may have been caused by either material. Dworkin et al (6) reported "l-131 labeled macroaggregates albumin highly susceptible to the radioactive agent" in the death of a woman who was scanned for the possibility of demonstrating pulmonary embolism. With a 24-hour history of allergies the breast site had severe and rapidly progressive edema. Prior to scanning, the normal administration of oxygen was interrupted. Within 1 or 2 minutes after injection of 300 ml of 1131-labeled macroaggregates albumin (11 mg of albumin of 2.5 mg per kilogram of body weight) she complained of shortness and became cyanotic, diaphoretic, and agitated with dilated neck veins. The initial pulse rate of 60 rose to 140 with a fall in blood pressure to 70/60. Oxygen therapy resulted in profuse diaphoresis and cyanosis. An electrocardiogram 4 minutes later was completed with acute cor pulmonale. Within several hours she had returned to her pre-scan status, but on the next day the temperature rose, diaphoresis increased and she died 24 hours after the scan. We have continued lung scanning but limit the amount to the use of low kilogram, reject sites with more than 15 percent of particles over 40 microns and require two minutes for injection.

More recently, Williams (7) has reported a severe reaction immediately after injection of macroaggregates albumin (1131) albumin (11 mg of albumin of 2.5 mg per kilogram of body weight) in a patient with severe chronic pulmonary hypertension due to disease of the pulmonary vascular bed. The patient died in right heart failure. Post-mortem examination revealed "severe attherosclerosis and thickening of all the pulmonary arteries but no macroscopic evidence of emboli. The right heart was hypertrophied and dilated."

Transcranial macroaggregates complications following intra-arterial injection of 1131-labeled macroaggregates have been reported.

REFERENCES

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Telephone: (617) 275-7120; outside Massachusetts (800) 225-1145
TELEX 94-9465
**INDICATIONS:** Pertechnetate Sodium Tc 99m is used for brain imaging, thyroid imaging, salivary gland imaging, placental localization and blood pool imaging.

**CONTRAINdications:** To date, there are no contraindications to the use of Pertechnetate Sodium Tc 99m.

**WARNings:** This radiopharmaceutical should not be administered to pregnant or lactating women unless the information to be gained outweighs the potential hazards.

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

Radiopharmaceuticals should be used only by physicians who are qualified by specific training in the safe use and handling of radionuclides produced by nuclear reactor or particle accelerator, and whose experience and training have been approved by the appropriate governmental agency authorized to license the use of radionuclides.

**PREcautions:** As in the use of any other radioactive material, care should be taken to insure minimum radiation exposure to the patient consistent with proper patient management, and to insure minimum radiation exposure to occupational workers.

At the time of administration the solution should be crystal clear.

** важно:** Refer to Operating Instructions on the proper use of the New England Nuclear Generator. These instructions are enclosed with each generator.

**Adverse reactions:** To date, no adverse reactions based on the use of this agent have been reported.

**Dosage and Administration:** Pertechnetate Sodium Tc 99m is usually administered by intravenous injection but can be given orally. The dosage employed varies with each diagnostic procedure.

The suggested dose range employed for various diagnostic indications in the average patient (70 kg) is:

- Brain Imaging: 10-20mCi
- Thyroid Imaging: 1-10mCi
- Salivary Gland Imaging: 1-5mCi
- Placental Localization: 1-3mCi
- Blood Pool Imaging: 10-20mCi

Note: Up to 1 gram of reagent grade potassium perchlorate in a suitable base or capsule may be given orally prior to administration of Pertechnetate Sodium Tc 99m injection for brain imaging, placental localization and blood pool imaging.

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

Cardiac Gate is designed to synchronize the cardiac image exposure with predetermined phases of the cardiac cycle.

The Cardiac Gate has two modes of operation: manual and automatic. In the manual mode, delay and exposure time parameters are set manually, using the R wave of the electrocardiogram as a reference. In the automatic mode, microprocessor circuitry automatically tracks the cardiac cycle and computes the position of end-systole and end-diastole. In the automatic mode, end-systole and end-diastole exposures are made without any calibration settings.

The dual gating operation mode allows recording of both end-systole and end-diastole simultaneously in a split screen two image format.

The cardiac cycle can even be divided into nine equal time segments and the image corresponding to each displayed simultaneously in a nine image format.

The Cardiac Gate includes a complete electrocardiograph module. The built in heated stylus strip chart recorder records both the ECG trace and the gating intervals.

The Cardiac Gate provides both ECG and gating outputs for computer interface.

Opti Imager

Opti-Imager is designed to provide an organ image with effects due to respiratory motion minimized. Opti-Imager has two distinct modes of operation: continuous motion correction and respiratory gating. In the continuous motion correction mode, the motion of the organ is tracked and corrected electronically without the need to attach any sensors to the patient. The distribution of counts within the organ image is monitored and corrections are applied to continuously shift the image before it is displayed to compensate for organ motion. Correction is made for motion in both the X and Y direction. Thus, the gamma camera is not gated and all the counts provided by the detector are recorded. The time required to attain a statistically satisfactory image is the same for both a motion corrected and an uncorrected image. In the gating mode, inspiration plateau and expiration plateau images are recorded. The dual gating operation mode allows recording of both inspiration and expiration plateau images simultaneously in a split screen two frame format. Dual scalers record the number of counts in each image.

The Cardiac Gate and Opti-Imager can be synchronized to yield a combination of both cardiac and respiratory gating. Mail coupon to receive detailed information and sample clinical studies.

Matrix Instruments

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The Quiet Evolution of a Unique Gamma Camera
The New SYSTEM SEVENTY SEVEN from Baird-Atomic

For the past forty years, Baird-Atomic has set the pace in high-technology instrumentation for a wide variety of applications, and especially for nuclear medicine. The accent has always been on innovation — taking a fresh look at each problem and devising an original way to solve it. Our original scanning gamma camera, System Seventy, was an ideal example.

In the earliest stages of the system’s design we realized that existing mono-crystal systems had inherent disadvantages which would inhibit their use as clinical studies became more sophisticated and higher count rates became necessary for statistical accuracy and integrity. The answer was a multi-crystal detector. The decision to design and build it — a long, difficult, and expensive process — became the critical step in the evolution of a unique gamma camera system versatile enough to accommodate every future change in clinical procedures.

That was only the first step, however. So many refinements and improvements have since been made that we’ve given it a new name. System Seventy Seven.

Briefly noted, some of the new features: A fully comprehensive program of nuclear medicine software, eliminating the time consuming work of converting data to clinically useful formats. An image processing console that analyzes 200,000 observed counts per second, at any energy level, with a minicomputer as its storage and data manipulation base. Computer controlled bed motion, virtually eliminating collimator dead space and optimizing resolution for uniform, always reproducible imaging. A computer console with pushbutton simplicity, one that backlights only legitimate subsequent operations.

There are more. And more details about these. They’re all described in our new brochure about the new System Seventy Seven. You can join the evolution simply by sending or calling for it.

International Sales and Service:


Photo insert: Wall motion of the left ventricle, a typical example of the kind of selective imaging possible with System Seventy Seven’s unique data processing capabilities. Zones of interest and histograms of selectively specific target areas can be routinely obtained, and as many as four can be simultaneously manipulated. The operator has total control in determining the shape and size of the region examined, as well as the time/count scale of the histogram. From 10 to 20 cycles of systole and diastole, recorded during the first passage of the radionuclide, may be reformatted into a single representative cardiac cycle of maximum retrievable depth, detail, and accuracy. Study courtesy of Dr. Robert H. Jones, Duke University.
The radioactive sources and phantom of the AECL Gamma Camera Calibration Kit provide an effective means of routinely checking the vital characteristics of your camera system.

Sources are safe, light and easy to carry in the attractive carrying case provided.

Sources are approved for licensing in U.S.A. and Canada.

**FLOOD FIELD SOURCE**
A rapid and convenient way of making the daily check of your camera response. It is a flat plastic disc 12 inches in diameter containing 3 mCi of Gadolinium-153 (100 KeV photopeak, 242 day half life) dispersed uniformly to give an output better than ±5% over the whole surface.

**BAR PHANTOM**
Used with a Flood Field Source to provide an efficient check of the inherent and system resolution of your camera system. It can also be used to check image size and linearity.

The Bar Phantom consists of four groups of lead bars embedded in a plastic holder 13.5 inches square and 0.37 inches thick. The bars are 0.125 inches thick and 0.500, 0.375, 0.250 and 0.187 inches wide respectively. The spacing between the bars is equal to the width of the bars for each group.

**RESOLUTION REFERENCE SOURCE**
A convenient way of checking the resolution of your gamma camera and scanner. The source contains a grid of radioactive lines which vary in spacing. Most cameras should be able to resolve the finest part of the grid. By adjusting the distance of the source from the collimator, the depth resolution of your camera can also be measured. Total activity of the source is 3 mCi of Gadolinium-153.
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...is the nation's number one killer. In 1972, it claimed 683,100 lives. An estimated 3,940,000 Americans have a history of heart attack and/or angina pectoris.¹

This year, approximately 350,000 myocardial infarct patients will die before they can reach medical help.

Cardiac catheterization, an invasive procedure with attendant morbidity and occasional mortality² does not fulfill all the diagnostic requirements of patients with heart disease. The cardiologist therefore requires aid in determining the status of patients both upon admission and during the course of therapy.

Cardionuclear Analysis serves as a cardiac catheterization screen to determine the probability of cardiac disease non-invasively. Additionally, it can provide indications of pre and post surgical cardiac function, and enhance hot and cold spot scanning of myocardial ischemia. Cardionuclear Analysis allows convenient review of study data as many times as desired.

10 analyses of cardiovascular functions can be determined from only one bolus injection. Because of sophisticated programming, the total time involved can be as little as ten minutes using simple keyboard commands.

And because of the mobility of the MODUMED PAD™, image processing can now take place in the ICU, CCU, Recovery Room, Cath Lab, ER or anywhere you take your scintillation camera.

The mobile MODUMED PAD™ provides immediate diagnostic support in the ICU, CCU, Recovery Room, ER, Cath Lab, and other special care facilities.

Medical Data Systems Corporation, a subsidiary of Warner-Lambert, has been developing diagnostic imaging products for several years. As the leading company in Digital Nuclear Medicine, our commitment is to support the growth of Nuclear Medicine as both an art and a science.

2. Hamilton, Glen, M.D.; Kennedy, J. Ward, M.D.: Assessment of Left Ventricular Function: Current Methods and Clinical Significance. Presented at the Symposium on Cardiovascular Investigation with Radionuclides at the University of Miami School of Medicine, Mt. Sinai Medical Center, Miami, March 12-16, 1975.
TEN DETERMINATIONS FROM ONE BOLUS:

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9. TRANSIT TIMES
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*EJECTION FRACTION can also be determined in dynamic studies.

Additionally, static studies of Myocardial Infarct can be evaluated through hot spot imaging with phosphates and cold spot imaging with thallium. The MODUMED™ System is used for image enhancement, area quantification, background suppression and wall definition.

Because radionuclide angiography will very likely become one of the most common Nuclear Medicine procedures, it would be to the practitioner's advantage to have data that is quantified in a variety of parameters, repeatable, and readily available.

Cine Display:
The complete flow of a radio-tracer can be dynamically reproduced on the system display scope in a cine display without flicker. Even the dynamics of an individual heartbeat can be analyzed in patients with dyskinesis, aneurysm, and shunt.

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Volume 16, Number 12
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• Reduces exposure $^{99m}$Tc by a factor exceeding 200.
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• Retracts for dose calibration.
• Virtually unbreakable.
• Accepts most disposable syringes.

FILM EXPOSURE AT THE SURFACE 29.2 mCi for $^{99m}$Tc in 1cc of a 3cc PLASTIC SYRINGE

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The Cleon Imager fills basic needs in the busy nuclear medicine department. In "WHOLE BODY MODE," it handles patient caseloads three to five times as rapidly as a conventional rectilinear scanner, providing dual anterior and posterior skeletal images of such clarity and sharpness that repeat small-area scans to confirm diagnoses rarely are needed. Yet it can provide, in "ORGAN MODE," small-area organ images with speed comparable to (and in-depth resolution better than) a gamma camera.

Large crystal area (109 square inches in each detector head) gives high information density with reproducible results for given scan times. Interchangeable focused collimators permit use with various nuclides for skeletal and organ imaging, as well as tumor-screening. (The Imager has proved successful in detecting abnormalities in soft tissue when used with Ga-labelled agents.)

The Imager's display and recording options, enhancement of photo-images, and the capability to playback stored data greatly increase its clinical usefulness. Reliability, rapidity of operation, and high patient turnover mean increased utilization and economy, along with improved diagnostic efficiency.
BRAIN IMAGE.
Imaging agent: 15 mCi Tc-99m Pertechnetate.
Time-to-scan (4 views): 13.7 minutes.
Image courtesy of Cedars of Lebanon Hospital, Los Angeles.

LUNG IMAGE SERIES.
Imaging agent: 1.5 mCi Tc-99m MAA.
Time-to-scan (8 views): 16 minutes.
Image courtesy of Leonard Morse Hospital, Natick, MA.

LIVER AND SPLEEN IMAGE OF PATIENT SHOWING SPLENOMEGALY AND CIRRHOTIC LIVER.
Imaging agent: 1.5 mCi TC-99m Sulfur Colloid.
Time-to-scan (4 views) 14 minutes.
Image courtesy of Cedars of Lebanon Hospital, Los Angeles.
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JOURNAL OF NUCLEAR MEDICINE
Ian Falvey found that doing our new Ab-TRAC* digoxin test was easy.

Getting his mom's permission was tough.

Ian is ten years old. His mom is a senior medical technologist who knows that tests like our new Ab-TRAC RIA [125I] kit for digoxin should only be performed by trained professional technologists.

We agreed. But we also wanted to illustrate how easy the new Ab-TRAC solid phase digoxin [125I] kit was to use. Its solid phase design combines 3 steps into 1 (the color coded anti-body and tracer are contained within the Ab-TRAC tubes). New "wet" serum standards require no reconstitution and there is only one incubation. All designed for accuracy and reproducibility, resulting in time saving for the technologist.

Shelley Falvey MT (ASCP) finally consented. Providing she could supervise ("but no coaching, Mom").

How did Ian do? Just great. His chart was on a par with his mom's when she did the test. Here are Ian's comments: "It's easy. It turns colors so you know where to put the stuff."

And here's what Mrs. Falvey said: "This new kit is so easy, even my ten year old boy can do it."

The Falvey's conclusion? The new Schwarz/Mann RIA Ab-TRAC digoxin kit is going to make things a lot easier for technologists all over the country.

And they don't even have to get their mom's permission.

*Ab-TRAC stands for anti-body and tracer contained in tubes. This saves technologists time and eliminates a source of potential pipetting error.

Ab-TRAC, Schwarz/Mann and B-D are trademarks of Becton, Dickinson and Company

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□ Please send me further information on the new SCHWARZ/MANN Ab-TRAC Digoxin Solid Phase RIA Kit [125I]

□ Please have your representative call

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□ I am □ I am not currently doing RIA work

Schwarz/Mann
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**GE PortaCamera™** brings nuclear medicine to the bedridden patient. Detector and electronics, mounted on a mobile cart, weigh less than half that of other units. Counterbalanced design permits precise, motorless positioning by hand. Performs all Technetium 99m studies with high performance results.

**GE RadiCamera II™** conducts full range isotope studies with performance characteristics unmatched by larger, more costly units. Features counter-balanced motorless detector positioning. Operator console includes basic electronics, display and persistence oscilloscopes, Polaroid or 70 mm camera, anatomical marker and tomographic imaging. System is available on an integral mobile cart.

**GE MED STOR™** is a modestly-priced image storage and processing system which can be used with any scintillation camera. Provides computer controlled acquisition of static and dynamic function data, selection of up to 4 regions of interest and simultaneous generation of up to 4 time/activity histograms.
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Photo of Gamma-11 installation at The Miriam Hospital, Providence, R.I.
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JOURNAL OF NUCLEAR MEDICINE
### 125 I Folate

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<th>100 tube kit</th>
<th>200 tube kit</th>
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<td>$ 70.00</td>
<td>$100.00</td>
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First to introduce 125 I Folate procedure.
This procedure requires only 10μl of serum. Incubation Time: 45 minutes.

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<th>components for 200 tubes</th>
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### 125 I Digoxin Kit

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<td>$ 55.00</td>
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Sample Size: 50μl serum — Incubation Time: 30 minutes
Separation: Charcoal — Sensitivity: 50 pg

### T4—RIA KIT

<table>
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<th>100 tube kit</th>
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<td>$ 70.00</td>
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Specific T4 Antiserum — No Extraction/No Evaporation
Patient Sample: 5μl of serum — Incubation Time: 1 hour

### T3—UPTAKE KIT

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<th>100 tube kit</th>
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Patient Sample: 100μl — Incubation Time: 30 minutes

### T.S.H. KIT

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<th>RCA-4855</th>
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<tr>
<td>Pulse Height Resolution (with Fe55 — 5.9 KeV.)</td>
<td>47%</td>
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<td>Peak-to-valley ratio</td>
<td>30:1</td>
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<td>Dark Noise</td>
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<tr>
<td>32 pe</td>
<td>200 cps</td>
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<td>Σ 1/4 pe</td>
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<td>S I-1</td>
<td>S I-2</td>
<td>S I-3</td>
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<td>S I-5</td>
<td>S I-6</td>
<td>S I-7</td>
<td>S I-8</td>
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Study performed with Ohio-Nuclear Series 110 Wide Field Radioisotope Camera.

35 year old female: normal scan
Study was performed in supine position with posterior view taken from beneath the table
Collimator: medium resolution (Model 14W11013)
Centerline: 140 keV
Window: 20%
Isotope: 20mCi 99mTc Pyrophosphate
Time Begun: 4 hours post dose

Composite View
700,000 counts per view except legs were 100,000 counts per view
Total Scan Time: 30 minutes (included positioning)

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Cross-reactivity at 50% binding

<table>
<thead>
<tr>
<th>Compound</th>
<th>Cross-reactivity</th>
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<tbody>
<tr>
<td>Cortisol</td>
<td>1.000</td>
</tr>
<tr>
<td>Deoxycorticosterone</td>
<td>.0029</td>
</tr>
<tr>
<td>Corticosterone</td>
<td>.017</td>
</tr>
<tr>
<td>Cortisone</td>
<td>.0029</td>
</tr>
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</table>

And of course our Cortisol $^{125}$I reagents meet current government standards for both manual and automated procedures. For more information, please write to us or call (215) 674-8500.
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Important LFOV applications include functional and anatomical studies of the lungs using Xenon 133. The images are of such quality that the physician is able to define more anatomical detail than previously possible. Images obtained during breath holding intervals eliminate motion artifact and still can contain over 300K counts because of the unique design of the LFOV and its parallel hole collimators.

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Large diameter crystal cameras require well designed converging collimation in order to image the brain adequately... studies of the brain obtained with the LFOV provide a remarkable level of image quality as observed in over 2000 clinical comparative studies. The vascular structures are clearly seen, both spatially and temporally. Even in the lateral view, the deep veins leading to the jugular systems are readily seen.

Lateral Brain Study
400,000 counts • 19mCl • 99mTc • 185 seconds

The improved resolution with depth allows clear separation of the sagittal sinus from the lower activity in the skull, and the scalp activity which is somewhat greater than that within the skull. In addition, the sinus is defined in its entirety as it proceeds downward from the torcular through the sigmoid sinus into the jugular bulb. Other midline structures including the floor of the anterior and middle cranial fossa, as well as the region of the pituitary, are clearly demarcated. There is a zone of activity extending superiorly and posteriorly from the region of the pituitary in line with the sphenoid ridge which is more likely the inferior sagittal sinus.

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(5.9 mg disodium etidronate
0.16 mg stannous chloride)
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A 58-year-old male with a 41-year history of smoking displays extensive metastatic disease in ribs, vertebral bodies, pelvis, sternum and skull, secondary to known carcinoma of the lung.

Imaging Agent:
15 mCi
99mTc-OSTEOSCAN
Anterior Count per Time:
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Posterior Count per Time:
> 1,000,000/30 min
Instrument:
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Scanned:
3 hours postinjection

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Imaging Agent:
15 mCi
99mTc-OSTEOSCAN
Posterior Count per Time:
500,361/28 min
Anterior Count per Time:
508,462/27 min
Instrument:
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Scanned:
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OSTEOSCAN® consistently delivers:

• Clear, sharp images
• High-quality lesion detection

See following page for brief summary of package insert.
OSTEOSCAN... Clear, sharp images for high-quality lesion detection... consistently

BRief summary of Package Insert. Before using, please consult the full Package Insert included in each kit.

DESCRIPTION
Each vial of OSTEOSCAN contains 5.9 mg disodium etidronate and 0.16 mg stannous chloride as active ingredients. Upon addition of ADDITIVE-FREE 99mTc-pertechnetate, these ingredients combine with 99mTc to form a stable soluble complex.

ICATIONS (CLINICAL PHARMACOLOGY)
When injected intravenously, 99mTc-labeled OSTEOSCAN has a specific affinity for areas of altered osteogenesis. Areas of bone which are undergoing neoplastic invasion often have an unusually high turnover rate which may be imaged with 99mTc-labeled OSTEOSCAN.

three hours after intravenous injection of 1 ml 99mTc-labeled OSTEOSCAN, an estimated 40-50% of the injected dose has been taken up by the skeleton. At this time approximately 50% has been excreted in the urine and 6% remains in the blood. A small amount is retained by the soft tissue. The level of 99mTc-labeled OSTEOSCAN excreted in the feces is below the level detectable by routine laboratory techniques.

ICATIONS
OSTEOSCAN is a skeletal imaging agent used to demonstrate areas of altered osteogenesis.

ONTRAINIDICATIONS
None.

ARINGS
This radiopharmaceutical should not be administered to patients who are pregnant or lactating unless the information to be gained outweighs the potential hazards.

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

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

The 99mTc-generator should be tested routinely for molybdenum breakthrough and aluminum. If either is detected, the eluate should not be used.

RECAUTIONS
Both prior to and following 99mTc-labeled OSTEOSCAN administration, patients should be encouraged to drink fluids. Patients should void as often as possible after the 99mTc-labeled OSTEOSCAN injection to minimize background interference from accumulation in the bladder and unnecessary exposure to radiation.

As in the use of any other radioactive material, care should be taken to insure minimum radiation exposure to the patient, consistent with proper patient management, and to insure minimum radiation exposure to occupational workers.

VERSE REACTIONS
None.

OSAGE AND ADMINISTRATION
The recommended adult dose of 99mTc-labeled OSTEOSCAN is 1 ml with a total activity range of 10-15 mCi. 99mTc-labeled OSTEOSCAN should be given intravenously by slow injection over a period of 30 seconds within three (3) hours after its preparation. Optimum scanning time is 3-4 hours postinjection.

the patient dose should be measured by a suitable radioactivity calibration system immediately prior to administration.
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 Program Director
 or Monte Blos, Ph.D.
 Chairman
 Dept. of Nuclear Medicine
 66 Elm Street
 Buffalo, New York 14263

Additionally: NUCLEAR MEDICINE RESIDENCY.

- STANFORD UNIVERSITY—FULL-TIME position in Nuclear Medicine now available at Assistant Professor level. Board eligibility or certification in Nuclear Medicine is required. Candidates with demonstrated clinical, teaching, and research ability are requested. Reprints to G. W. Hamilton, M.D., Veterans Administration Hospital, 525 Stockton Street, San Francisco, Calif. 94158. 
- NUCLEAR MEDICINE RESIDENCY. Two-year position at University of California—Irvine, opening available July 76. Applicants for position should have completed training in nuclear medicine. For information contact: Mrs. Mary M. Shaw, Assistant Director, Methodist Hospital of Indiana, 1604 North Capitol Avenue, Indianapolis, Ind. 46202.

POSITION WANTED

NUCLEAR MEDICINE PHYSICIAN: ABNM. (Radiology background) well trained and experienced in all aspects of Nuclear Medicine, administrative experience, desires full-time position in clinical Nuclear Medicine, prefers Southwest or Pacific Coast, reply with job description and potential, available 7/1/76. Box 1204, Society of Nuclear Medicine, 475 Park Ave. South, New York, N.Y. 10016.

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1976
January 12-16, 1976
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JNM CLASSIFIED PLACEMENT SERVICE SECTION

This section in the Journal of Nuclear Medicine contains "Positions Open", "Positions Wanted", and "For Sale" listings. Nondisplay "Positions Wanted" ads by members of the Society are billed at 30¢ per word for each insertion with no minimum rate. Nondisplay "Positions Open" and "For Sale" ads by members and all nondisplay "Positions Open" and "For Sale" ads by members and nonmembers are charged at 65¢ per word, with a minimum of $15. Display advertisements are accepted at $50 for ¼ page, $90 for ½ page, $165 for ¾ page, and $295 for a full page. Closing date for each issue is the 15th of the second month preceding publication. Agency commissions and cash discounts are allowed on display ads only. Box numbers are available for those who wish them. All ads must be prepaid. Please note our new address.

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Send resumes to Box 1208, Society of Nuclear Medicine, 475 Park Ave. South, New York, N.Y. 10016.

Western Regional Registry Review and Continuing Education Meeting
Sponsored by
The Technologist Section of the Northern California Chapter, Society of Nuclear Medicine
Harrah's Convention Center Reno, Nevada February 19-21, 1976
The Western Regional Registry Review and Continuing Education Meeting will offer points of interest for those students who will be taking the registry examination, for the physician who will be taking the ABNM exam and a well rounded continuing education program for the technologist. Topics will include the Quality Assurance of Scintillation Camera Programs developed by William R. Hendee (Bureau of Radiological Health, Food and Drug Administration, DHEW); RIA Program, Radiopharmacology, Radiation Safety, Physiology and Anatomy, and Administration. Registration will open on Thursday evening Feb. 19th; exhibits will be open at that time and there will be a no-host cocktail party.

Contact: Jean Lynch, Exec. Secy., P.O. Box 40279, San Francisco, Calif. 94140

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INDICATIONS. Technetium Tc 99m MAA is indicated as a lung imaging agent to be used as an adjunct in the evaluation of pulmonary perfusion. Specifically, the distribution of the agent reflects regional pulmonary perfusion and may be helpful in the evaluation of such clinical conditions as pulmonary embolus, chronic obstructive lung disease, congenital anatomic abnormalities, and pulmonary abscess. It can also be used in conjunction with a suitable liver imaging agent for the performance of lung-liver scans to detect subphrenic abscesses.

CONTRAINdications. The safety of aggregated albumin in patients with right-to-left cardiac shunts has not been demonstrated, and its use in such patients is contraindicated. The use of Tc 99m macroaggregated albumin is contraindicated in persons with a history of hypersensitivity reactions to products containing human serum albumin.

WARNINGS. Although not reported to date, the possibility of allergic reactions should be considered in patients who receive multiple doses. This radiopharmaceutical preparation should not be administered to pregnant or lactating women, or persons under 18 years of age unless the benefits to be gained outweigh the potential hazards.

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

Theoretically, the intravenous administration of any colloidal material such as aggregated albumin imposes a temporary small mechanical impediment to blood flow. While this effect is probably physiologically insignificant in most patients, the administration of aggregated albumin is possibly hazardous in acute cor pulmonale and other states of severely impaired pulmonary blood flow. Although not reported with NEN's Tc 99m Aggregated Albumin, the literature contains four reports of deaths occurring after the administration of aggregated albumin to patients with pre-existing severe pulmonary hypertension.

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

Radiopharmaceuticals should be used only by physicians who are qualified by specific training in the safe use and handling of radionuclides produced by a nuclear reactor or particle accelerator and whose experience and training have been approved by the appropriate governmental agency authorized to license the use of radionuclides.

The labeling reactions involved in preparing the agent depend on maintaining the Tc in reduced state. Any oxidant present in the Pertechnetate Sodium Tc 99m supply may thus adversely affect the quality of the prepared agent. Hence, Pertechnetate Sodium Tc 99m containing oxidants, or other additives, should not be employed without first demonstrating that it is without adverse effect on the properties of the resulting agent.

PRECAUTIONS. The contents of the vial are sterile and non-pyrogenic. It is essential that the user follows the directions carefully and adheres to strict aseptic procedures during preparation of the product.

PULMOLITE Agent should be used within 8 hours after reconstitution with Pertechnetate Sodium Tc 99m. Refrigerate after reconstitution.

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

As in the use of any other radioactive material, care should be taken to minimize radiation exposure to the patient, consistent with proper management, and to ensure minimum radiation exposure to the occupational workers.

ADVERSE REACTIONS. Although no adverse reactions have been reported using NEN Technetium Tc 99m Aggregated Albumin, rare instances of hemodynamic or idiosyncratic reactions to other preparations of Tc 99m labeled macroaggregated albumin have been recorded.
Stat lung scan

Just add Tc 99m, shake, inject, and do your scan.

Convenient — No special storage conditions or equipment required

Flexible — You can reconstitute with 2-8ml containing 15-80mCi of TcO₄

Economical — Lyophilized preparation may be stored at room temperature for up to one year, allowing large quantity purchases at a savings

Labeling efficiency — Typical efficiency is over 95% to give you high quality imaging

Uniform particle size — Typically 90% of the aggregates are well within the range of 5-75µm, and none larger than 150µm

Contact your NEN Representative or Customer Service for further details

New England Nuclear
Radiopharmaceutical Division

Atomlight Place, North Billerica, Mass. 01862
Telephone 617-667-9531
Los Angeles: 213-321-3311 Miami: 305-592-0702

Canada: NEN Canada Ltd. Lachine, Quebec. Tel: 514-636-4971
Europe: NEN Chemicals GmbH, D6072 Dreieichenhain, W. Germany. Siemenstrasse 1. Tel: Langen 06103-85035
PHOSPHOTEC®
Technetium 99m-Stannous Pyrophosphate Kit

PHOSPHOTEC® Technetium 99m-Stannous Pyrophosphate Kit provides all the nonradioactive components required to prepare 99mTc-stannous pyrophosphate complex. Each vial contains a sterile, nonpyrogenic lyophilized powder prepared from 40 mg. tetrasodium pyrophosphate dehydrate (equivalent to 23.9 mg. tetrasodium pyrophosphate) and 1.0 mg. stannous fluoride; pH is adjusted with sodium hydroxide or hydrochloric acid. The product does not contain a preservative. At the time of manufacture, the air in the vials is replaced by nitrogen.

Reconstitution of Phosphotec with sterile sodium pertechnetate-99mTc results in an aqueous solution of Technetium 99m-Stannous Pyrophosphate Complex.

INDICATIONS: Technetium 99m-Stannous Pyrophosphate Complex is indicated for use as a bone imaging agent to define areas of altered blood flow in osseous tissues.

CONTRAINDICATIONS: At present, there are no known contraindications to the use of 99mTc-stannous pyrophosphate complex.

WARNINGS: The contents of the Phosphotec (Technetium 99m-Stannous Pyrophosphate Kit) vial are intended only for use in the preparation of 99mTc-stannous pyrophosphate complex and are NOT to be directly injected into a patient prior to labeling.

Phosphotec (Technetium 99m-Stannous Pyrophosphate Kit) is not radioactive. However, after 99mTc-sodium pertechnetate is added, adequate shielding of the resulting preparation must be maintained.

Radiopharmaceuticals should be used only by physicians who are qualified by specific training in the safe use and safe handling of radionuclides, produced by nuclear reactor of cyclotron, and whose experience and training have been approved by the appropriate federal or state agency authorized to license the use of radionuclides.

This radiopharmaceutical should not be administered to patients who are pregnant or during lactation unless the information to be gained outweighs the possible potential risks from the radiation exposure involved.

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

PRECAUTIONS: It is essential that the user follow the directions carefully and adhere to strict aseptic procedures during preparation of the product.

As in the use of any other radioactive material, care should be taken to insure minimum radiation exposure to the patient consistent with proper patient management, and to insure minimum radiation exposure to occupational workers.

To minimize visualization of the bladder, the patient should be encouraged to void immediately prior to the examination; prior hydration of the patient may be useful.

Use the preparation within 12 hours after labeling with 99mTc.

ADVERSE REACTIONS: At present, adverse reactions have not been reported following the administration of 99mTc-stannous pyrophosphate complex.

HOW SUPPLIED: Phosphotec (Technetium 99m-Stannous Pyrophosphate Kit) is supplied in a kit containing five vials.

SQUIBB® The Priceless Ingredient of every product is the honor and integrity of its maker.™
Now available for skeletal imaging

PHOSPHOTEC
Technetium 99m-Stannous Pyrophosphate Kit

20.5
(ratio of Pyrophosphate to Stannous Tin)

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with a buffered generation system

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utilizing an optimized pH for generation of Angiotensin I

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employing a mono-iodinated, highly immunoreactive, stabilized tracer

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Brain Study

Bone Study

Lung Study

For dynamite clinical results, rely on the DynaCamera 4 System, presently the only system with choice of three detector sizes: 10", 12" or 15". Contact your Picker representative or write: Picker Corporation, 12 Clintonville Road, Northford, CT 06472.

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nuclear endocrine laboratories...in house radioimmunoassay reference service specialists

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**PTH!!~PARATHYROID HORMONE and PROLACTIN!!**

<table>
<thead>
<tr>
<th>I. ENDOCRINOLOGY</th>
<th>Turn-Around Time (Days)</th>
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<tbody>
<tr>
<td>Assay</td>
<td></td>
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<tr>
<td>PTH</td>
<td>1</td>
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<td>TSH</td>
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<td>PBI</td>
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<tr>
<td>T3, T4</td>
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<tr>
<td>Free Thyroxine+++</td>
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<tr>
<td>7. E.I.R. (Effective Thyroxine Ratio)</td>
<td>3</td>
</tr>
<tr>
<td>T. Radioimmunoassay</td>
<td>4</td>
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<td>T. Radioimmunoassay</td>
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<tr>
<th>II. CARDIOVASCULAR</th>
<th>Turn-Around Time (Days)</th>
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<tr>
<td>Assay</td>
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<tr>
<td>29. Digoxin</td>
<td>2</td>
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<tr>
<td>30. Digibind</td>
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<tr>
<td>31. Angiotensin 1 (Plasma Renin Activity)</td>
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<tr>
<th>III. HEMATOPOIETIC</th>
<th>Turn-Around Time (Days)</th>
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<tr>
<td>Assay</td>
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<tr>
<td>32. Vitamin B12</td>
<td>5</td>
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<tr>
<td>33. Follic Acid</td>
<td>5</td>
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<tr>
<td>34. Serum Iron (Total &amp; Unreacted Binding Capacity)</td>
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<tr>
<th>IV. IMMUNE</th>
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<td>35. H.A.A. (Hepatitis Associated Antigens)</td>
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<tr>
<td>36. IgE</td>
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<td>37. Carcinembryonic Antigens</td>
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<th>V. MISCELLANEOUS</th>
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<tr>
<td>Assay</td>
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<tr>
<td>38. Morphine</td>
<td>3</td>
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<td>39. Cyclic AMP</td>
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<tr>
<td>40. Gastrin</td>
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<tr>
<td>41. T.B.S. (Thyroid Binding Globulin)</td>
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<tr>
<th>VI. SPECIAL PACKAGES</th>
<th>Turn-Around Time (Days)</th>
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<tr>
<td>Assay</td>
<td></td>
</tr>
<tr>
<td>42. Allergy Assays (AST)*</td>
<td>Over Fifty (50) Different Allergens —</td>
</tr>
<tr>
<td>43. OB and SYH Complete Package</td>
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<tr>
<td>44. Thyroid Package</td>
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**SHORT TURN-AROUND TIME • FREE MAILERS & PICK-UP SERVICE • CALL 1-216-231-5400 or MAIL REPLY CARD.**

Gentlemen:
Yes, I'm interested in your specialized diagnostic services.
___Send more information and price list now.
___Send requisition form and mailing containers.
___Place my name on your mailing list.
Other:

<table>
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<th>NAME</th>
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your key to accurate
dosecalibration
and error-free records

Programmed sequenced instruction eliminates operator errors. All you do to assay a radionuclide is insert the proper key — from the 33 isotope keys now available, with others to come as they are needed — your insurance against instrument obsolescence.

The melétron calculates the volume to administer (in 0.1 ml increments from 0.1 to 99.9) for all patient doses (in 10 uCi increments from 10 uCi to 99.99 mCi.) Accuracy is ± 5%, with calibrations traceable to the National Bureau of Standards.

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Melécord prints permanent copies of all functions — the vital part of your record keeping system.


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Reproducible  5-7% coefficient of variation.
Specific  minimal T4 cross-reactivity.
Versatile  use T3RIA with Thyopac-3 (binding capacity test), with Thyopac-4 (T4 CPB), or with Thyopac-5 (T4 CPB+NTR).
Reliable  every batch of kits is tested to the highest standards of quality control before despatch.
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Multi-Imager 1

Multi-Imager 1 employs the CRT of the gamma camera to record static, dynamic, and whole body imaging procedures on transparency format. The highly versatile Multi-Imager 1 offers film size formats of 5x7 and 8x10, yielding superior quality transparency scintiphotos recorded on a wide range of x-ray film processor compatible films. Up to 30 images can be recorded on a single sheet of film in ten different formats. In addition to the usual 1, 4, and 16 image formats, Multi-Imager 1 offers seven further choices to yield the exact diagnostic format required. For example, Multi-Imager 1 offers a 6 image format to allow recording of static studies that require a fifth and sixth view, and a 30 image format for dynamic studies that require more than sixteen frames. For whole body imaging, the 2 image format records side by side AP and PA views on the same sheet of film. Static, dynamic, and different size images can be mixed on the same sheet of film.

Multi-Imager 4

Multi-Imager 4 yields unmatched performance in gamma camera hard copy recording. A built in high resolution CRT, state of the art microprocessor technology, and electronically synchronized multiple lens optics provide a very small dot size on 8x10 format without increasing the pulse pair resolution dead time of the gamma camera system. The fast lens system of Multi-Imager 4 is compatible with both conventional x-ray film and the slower single emulsion radiographic films that provide the best image quality. Up to 64 images can be recorded in ten different formats. The dual intensity recording mode allows simultaneous acquisition of whole body or static views at two different intensity levels. Positive patient identification is achieved through a nine digit keyboard LED system.

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FEATURES:
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- Model No. 57 — For enlarged, single whole body studies or 2 normal size views (4 to 6 when minified)
- Model No. 810 — For 4 or 6 images (8 to 10 when minified)
- Model No. 1114 — For your “special” requirements (3 "Y" positions)
- Double-sided Cassette can be inserted from either side (left or right)
- No modification necessary, fits directly into existing Polaroid filmback holder (specify!)
- Will never need any service
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*Patent Applied For

Further information available upon request.
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*As shown at the 22nd Annual Meeting of the S.N.M. in Philadelphia, PA.
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No knobs, no meters, no errors

The spartan panel above tells the second-best part of our story. If you want to photograph peak systole, press the SYSTOLE button. If, say, you want systole only at full expiration, press the EXPIRATION button as well. If only breathing is relevant, don't press the heart button.

The Brattle is connected to the patient and to your gamma (or x-ray or ultrasonic) camera. Whenever the patient is in the selected phase, both the scope and the scaler on your gamma camera are gated ON, and film is exposed. Otherwise, they are OFF.

Brattles lock onto patients—and stay locked on

It doesn't matter if the patient's heart rate and breathing depth change while he's under the collimator because we stay right with him. Brattles contain an ECG to track heart, a plethysmograph to track respiration, and a tiny computer to deduce systole and diastole times from the heart signal. And because it's all built in, your operator need not be a physiologist.

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The panel lights flash whenever the patient reaches the selected phases; and pushing the RECORDER-ON button gets you an ECG tracing marked with breathing and camera-on times. You can verify function before, during and after exposure.

A single pair of auxiliary electrodes captures both heart and breath

It's easy. And we supply disposable, pre-filled electrodes.

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More than half of our instruments are in community hospitals, and the list is growing rapidly. Upon request, we'll supply names of happy users in your area.

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Get in touch

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when diagnosis is in doubt
PHO/CON™ CONFIRMS

PHO/CON — the first of a new generation of multi-plane imaging devices — gives you significant new dimensions, whether you are imaging the brain, whole-body organs, individual organs, or bone. It can quickly confirm lesions masked by normal anatomical structures and provide definitive visualizations when other methods fail.

Your facility gets up to six anterior and six posterior tomographic images from one PHO/CON scan, each readout being sharply focused on a different plane in the subject. Lesions can be dramatically visualized with near-constant resolution regardless of depth or the organ being imaged.

PHO/CON utilizes two detector heads for simultaneous anterior-posterior imaging. It has a 28" x 70" scan field, suitable for any size study. Each detector head produces six simultaneous 2" x 2" tomographic images on 5" x 7" film, or three simultaneous 2" x 5½" whole body images on 8" x 10" film.

PHO/CON's tomographic capability provides significantly more data than is available from conventional dual-headed scanners. In addition, PHO/CON has 3 times the crystal area of a dual 5" scanner, with scanning speed up to 1000 cm/min. A full range of collimators is available.

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