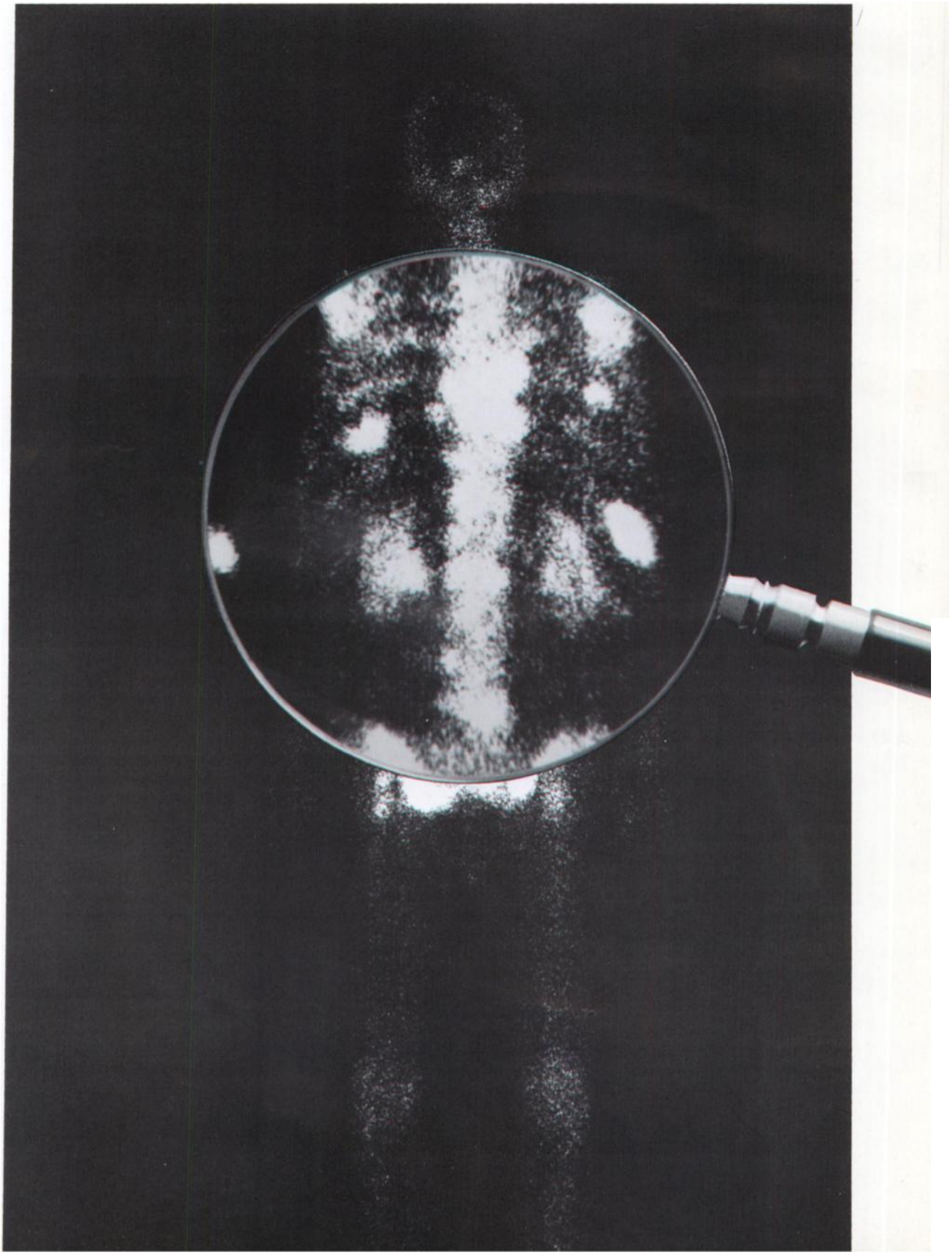
The Bone



Seeker

MPI STANNOUS DIPHOSPHONATE (TECHNETIUM Tc 99m ETIDRONATE KIT) CONSISTENTLY SEEKS BONE... AND BONE LESIONS.

MPI Stannous Diphosphonate targets areas of diagnostic significance. Its efficacy is magnified with:

Rapid Blood Clearance. The P-C-P bond of diphosphonate resists hydrolysis; clears the kidneys rapidly. Optimum imaging time is in two to four hours.

Increased Stability. Ascorbic acid within the reagent aids in maintaining technetium Tc ^{99m} in its reduced state. The technetium Tc ^{99m} stays where it belongs...tagged to the reagent.

Optimum Tin Levels. The Sn(II) level provides high labeling efficiency, with minimum interference with subsequent brain scans.

Investigate the economy of MPI Stannous Diphosphonate

You can use up to 8 ml of sodium pertechnetate Tc ^{99m} solution in each vial. The suggested dose is 5 to 15 mCi. The reagent is usable for six hours after labeling.

You also have no delivery charges when you order MPI Stannous Diphosphonate with any other MPI products.

Ask your Medi-Physics representative about our economical, reliable delivery procedures ....or call toll free:

(800) 227-0483—Outside California
(800) 772-2446—Inside California

medi+physics™

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

MPI Stannous Diphosphonate
Technetium Tc 99m Etidronate Kit-Diagnostic

DESCRIPTION: Each ampul contains a total of 1.54 mg of the sodium salt of etidronate, 0.42 mg stannous chloride, and 3.87 mg ascorbic acid in a 2.2-ml sterile, pyrogen-free aqueous solution. Hydrochloric acid and/or sodium hydroxide may have been added to adjust the pH to 2.5-5.0. The solution is under a nitrogen atmosphere. A complex is formed with the addition to the reagent of sterile, pyrogen-free sodium pertechnetate Tc 99m in isotonic saline.

INDICATIONS: Technetium Tc 99m etidronate is used as a bone imaging agent to delineate areas of altered osteogenesis.

CONTRAINDICATIONS: None known.

WARNINGS: This radiopharmaceutical should not be administered to children, pregnant women, or nursing mothers unless the expected benefit outweighs the potential risk. Radiopharmaceutical examinations of women of childbearing capability should be performed during the first few days following the onset of menses.

PRECAUTIONS: To minimize radiation dose to the bladder, the patient should be encouraged to drink fluids and void when the examination is completed and as often thereafter as possible for the next 4-6 hours. Where feasible, brain scans should precede bone imaging procedures. Technetium Tc 99m etidronate should be formulated, following aseptic procedures, within 6 hours prior to clinical use.

ADVERSE REACTIONS: Seven suspected reactions to technetium Tc 99m etidronate were reported in more than 22,500 clinical reports. There were two instances each of headaches and allergic reactions and one each of vomiting, rheumatoid arthritis flare-up, and skin rash.

DOSAGE AND ADMINISTRATION: The suggested adult dose is 5-15 mCi administered by slow I.V. injection. Do not administer more than 2.0 ml of unlabeled reagent per patient. Measure the patient dose with a suitable radioactivity calibration system immediately prior to administration. Scanning post-injection is optimal at 2-4 hours.

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

HOW SUPPLIED: Each kit package contains five sealed glass ampuls as described above, five sterile, pyrogen-free mixing vials, five each of mixing-vial and record labels and one package insert. Store at 5°-8°C; protect from light.

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Opticamera

image intensifier scintillation camera

the new generation in full operation

The awareness that image intensifiers would allow decisive improvements in the performance of scintillation cameras has been shared, for a long time, by most leading experts in the field.
Roughly fifteen years of constant technological advance have been needed to reach this long-sought goal. C.G.R. Médecine Nucléaire is proud to announce the first fully successfull device based upon this principle : the OPTICAMERA.
Ample proof of the OPTICAMERA achievement : fifteen instruments are actually installed, some for over one year, and are operating in day-to-day routine hospital work with the highest degree of performance and reliability presently to be available.

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SIMPLE PROCEDURE • SIMPLE PRINCIPLE

Makes measuring TBG binding capacity easier. Excellent sensitivity in both the hypo- and hyperthyroid ranges. No centrifugation or rotation procedures are required. Easily automated.

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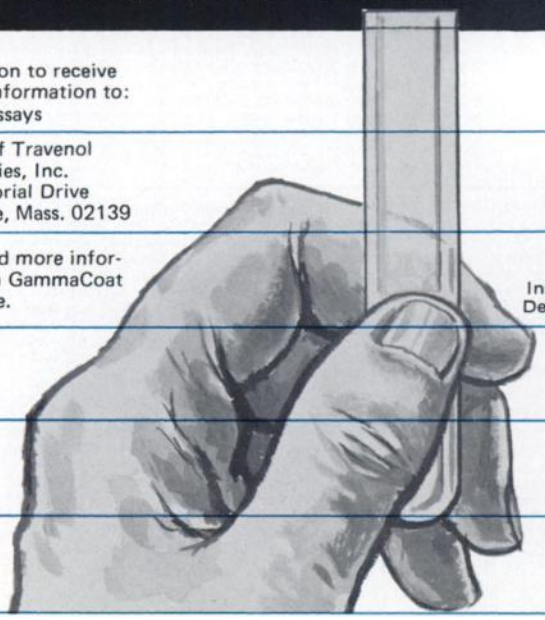
Directions for use are provided with each product. These directions should be read and understood before using. Particular attention should be paid to all warnings and precautions. Should you have any questions, contact your Clinical Assays representative.



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Division of Travenol Laboratories, Inc.
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You are entering a remarkable era of diagnostic advancement. Instead of being limited to a single imaging method, you will take advantage of many techniques, choosing them to meet your specific diagnostic criteria and the condition of your patient.

Searle is helping shape this era of advancement. Over the past decade, guided by your needs, we have developed sophisticated nuclear imaging instruments to a high degree of performance. Now, the knowledge gained during that time is being applied to the creation of instrumentation in the fields of ultrasound and CT scanning.

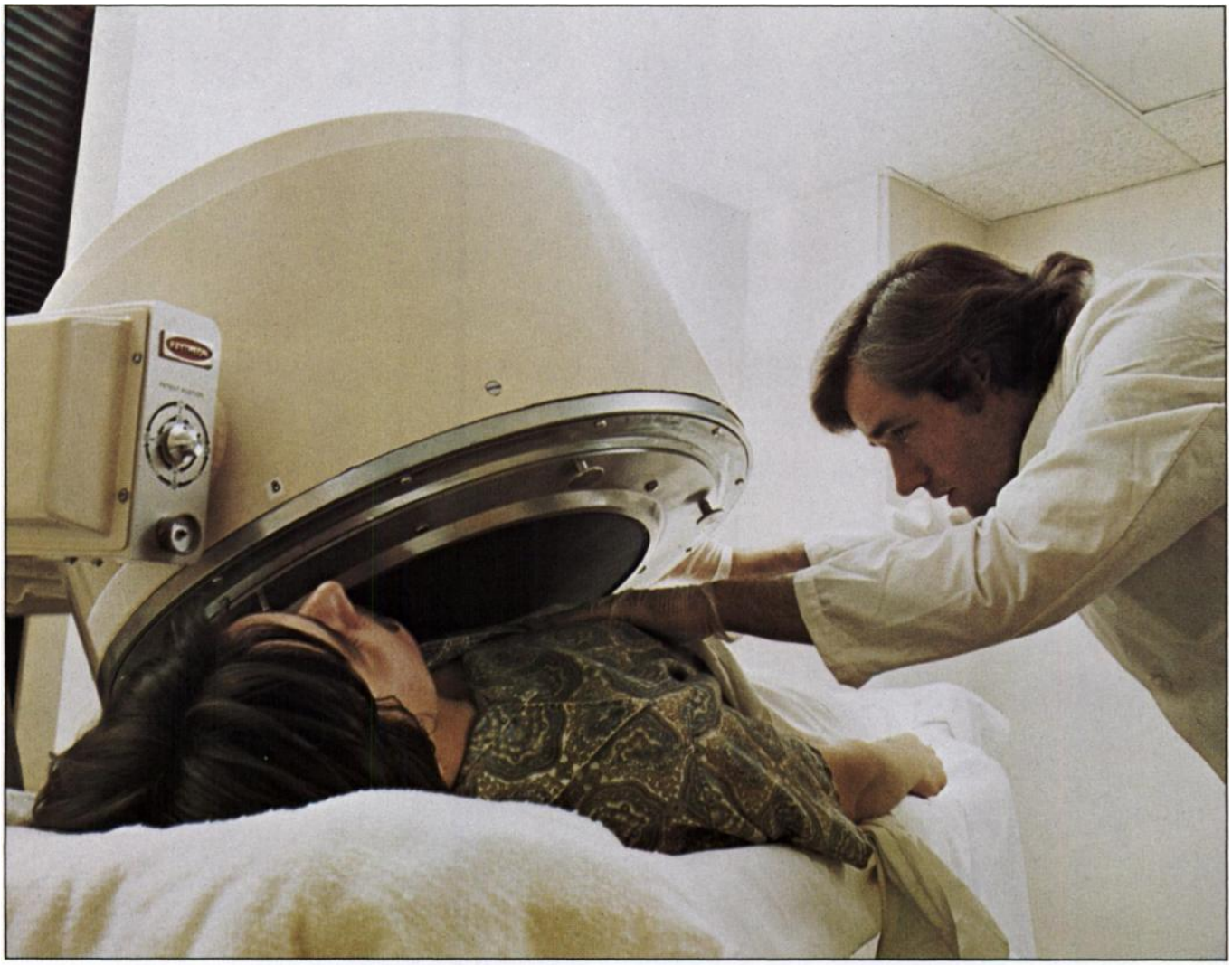
What Searle developed yesterday in nuclear imaging, the medical community relies on today. And *today* we are planning significant advances in ultrasonic, CT, and nuclear imaging. Tomorrow is in view.

SEARLE

Searle Radiographics Inc.
Subsidiary of G. D. Searle & Co.

SR-514

Northwestern Memorial Hospital has put a new 91-tube image maker to work.



The Raytheon Cameray XL-91.

Northwestern Memorial Hospital is a major midwestern teaching hospital associated with Northwestern University. The busy nuclear medicine section is using the Raytheon Cameray XL-91 gamma camera.

Cameray XL-91 was specifically designed to give superior quality images. In fact, the Cameray XL-91 may be the ultimate medical gamma camera. It gives the widest undistorted field of view available from any gamma camera. 16½ inches.

Image uniformity also is no longer a problem with Cameray XL-91. Its exclusive Autocomp circuitry provides ±2% uniformity . . . automatically. Autocomp comes with as many as four memories . . . allowing users to calibrate to four different isotopes or collimators.

At Northwestern Memorial, Cameray XL-91 is being used each working day for a variety of clinical studies and is producing clinically useful images very rapidly. Hospital authorities are particularly pleased with the speed at which Cameray XL-91 was placed on-line after delivery as well as how quickly technicians were able to master its operation.

Get more details on Cameray XL-91 by phoning or writing today. Raytheon Company, Medical Electronics, 70 Ryan Street, Stamford, Conn. 06907. Telephone 800-243-9058.

RAYTHEON

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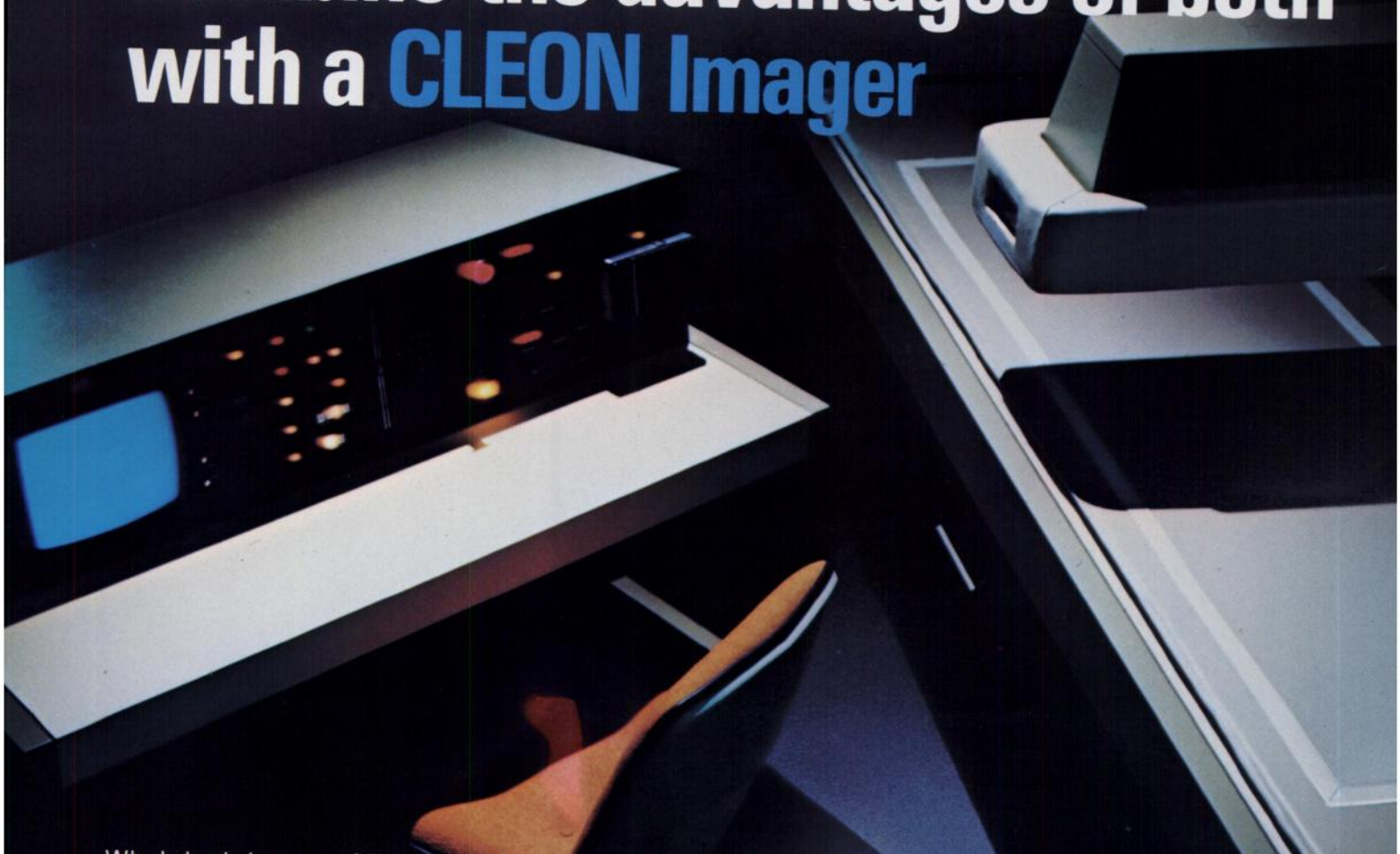
EUROPE: NEN Chemicals GmbH, D-6072 Dreieich, W. Germany, Daimlerstrasse 23, Postfach 401240, Telephone: (06103) 85034, Telex: 4-17993 NEN D

Rectilinear scanner or scanning gamma camera?

Combine the advantages of both with a CLEON Imager



Whole body images of 24" x 76" can be produced in less than 10 minutes — three to five times as fast as with a conventional rectilinear scanner and considerably faster than with a gamma camera.

The CLEON Imager will give clear, sharp simultaneous anterior and posterior images. Repeat small area scans are seldom necessary to confirm diagnoses.

For faster scans...more productivity...ease of operations...reduced patient anxiety and involvement...

The CLEON Imager...it's about time.

A brand-new fact-filled brochure is yours for the asking . . . including film samples of actual scans.

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333 Providence Highway
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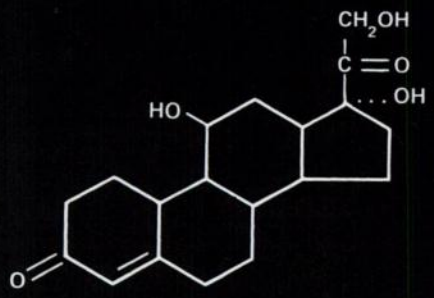
The next Generation of GammaCoat Cortisol RIA kits

. . . another major advance from the creators of Solid Phase Cortisol RIA Kits . . . and the leaders in the field today.



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This new development offers you these five important advantages.

1. Single, time-saving incubation.
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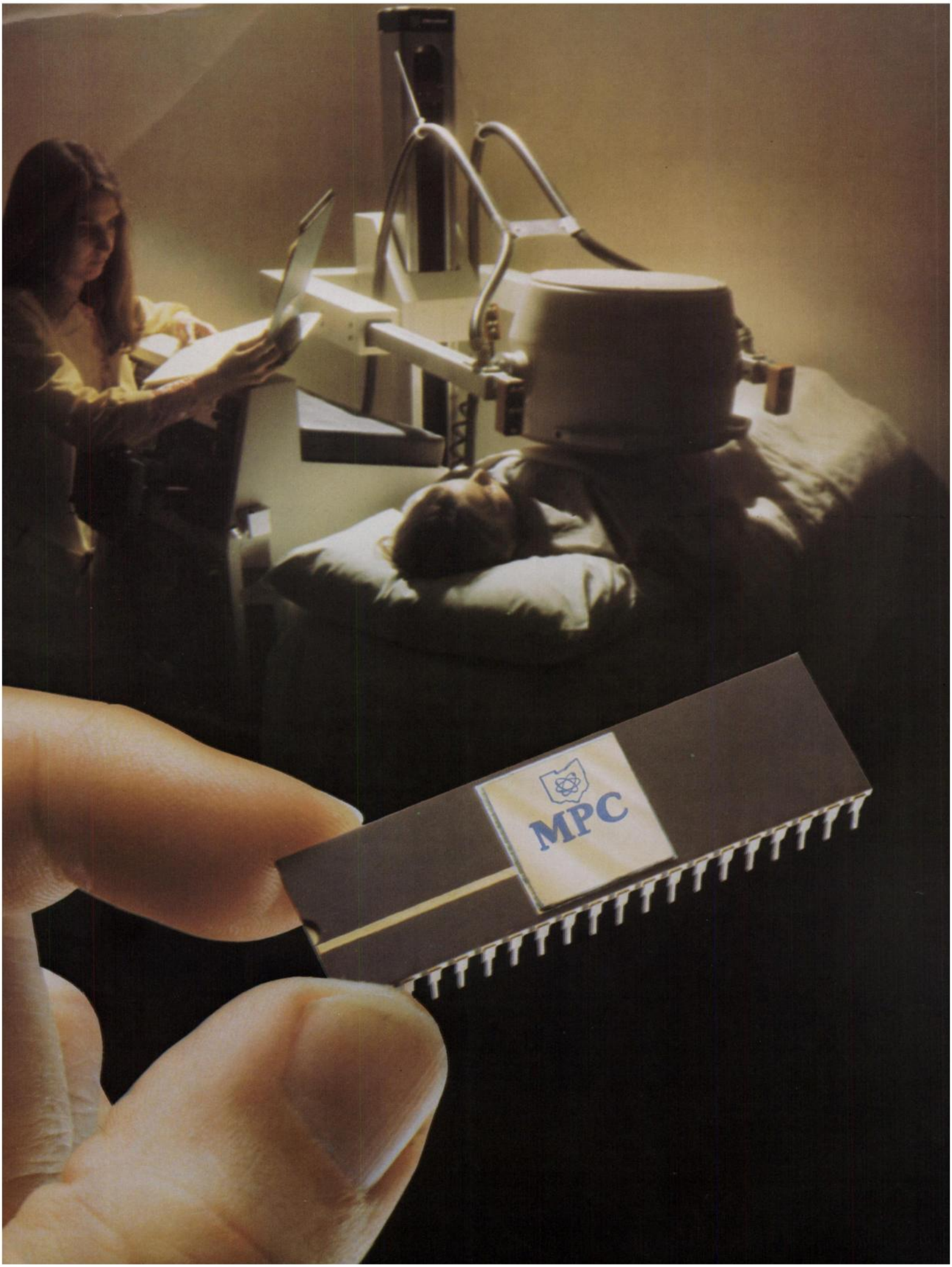
Most gamma cameras give you an image without thinking twice.

And that's the problem.

The solution: Smart cameras from Ohio-Nuclear.


MPC

Smart gamma cameras: a tiny electronic brain means greater clinical confidence.

Three scintillation cameras from Ohio-Nuclear are redefining the standard of excellence in image quality. A miniature computer-like brain and precise electronic balance give diagnostic teams a unique benefit: Guaranteed uniformity with high resolution.

A Sigma camera from Ohio-Nuclear does what no other gamma camera can do.

Prior to the start of a day's activities, a flood is loaded into the Dynamic Uniform Flood Correction (DUFC) memory. The Microprocessor Control (MPC) then analyzes the flood and determines the correction parameters necessary to assure ±5% uniformity.

These correction parameters are then applied to every study performed, assuring the physician that any abnormalities observed are anatomical rather than machine induced.

Advanced solid-state circuitry.

The microprocessor control, a feature of all Sigma cameras, incorporates arithmetic, logic and memory functions in one unit. Image uniformity and resolution are both optimized—with no trade-off. Result: Increased diagnostic confidence, faster patient throughput, and higher camera utilization.

Current owners of Ohio-Nuclear cameras can also realize Sigma benefits. All Series 100, 110 and 120 models can be retrofitted with MPC.

Sigma means smart.

A camera in the Sigma Series is not only smart electronically. It is an intelligent instrument for many other reasons.

Smart for physicians:

Fast analog, nonlinear circuitry provides consistently superior image quality and high count rate data collection. MPC data analysis permits better results from all peripheral equipment and photo options.

Smart for technologists:

A Sigma camera is pre-eminently stable. Because DUFC is continuously monitoring the flood, retuning is minimized.

Auto Peak Track (APT) automatically centers the primary photopeak in the desired window. It also makes the use of precalibrated pushbuttons for isotope selection practical.

The redesigned remote hand control contains a complete assortment of controls. In fact, the total Sigma design is function-oriented, simplifying patient positioning, camera operation and collimator changes.

The confident alternative.

Ohio-Nuclear recognizes that you constantly strive to perfect imaging techniques. Now you can enhance your efforts with the first intelligent camera system.

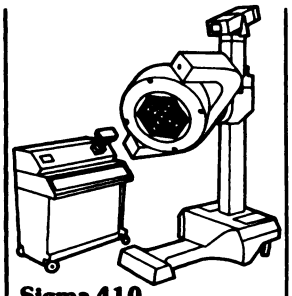
A Sigma camera is, simply stated, the only confident alternative.

Considering a gamma camera? Ask us to prove that a Sigma camera is your best investment. Call or write us.

Three Sigma cameras, each with microprocessor control. One will meet your precise imaging needs.

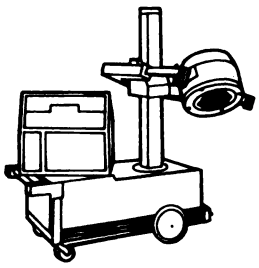
Sigma 400
Standard Field Camera

- Field of View: *24.8 cm minimum*
- Resolution: *4.5 mm FWHM (^{99m}Tc)*
- Count Rate: *200K cps*



Sigma 410
Wide Field Camera

- Field of View: *36.8 cm minimum*
- Resolution: *5.5 mm FWHM (^{99m}Tc)*
- Count Rate: *200K cps*



Sigma 420
Mobile Camera

- Field of View: *24.8 cm minimum*
- Transport: *Motor-driven, variable speed*
- Resolution: *4.5 mm FWHM (^{99m}Tc)*
- Count Rate: *200K cps*

• Fast, competent service worldwide. • Full range of collimators available.

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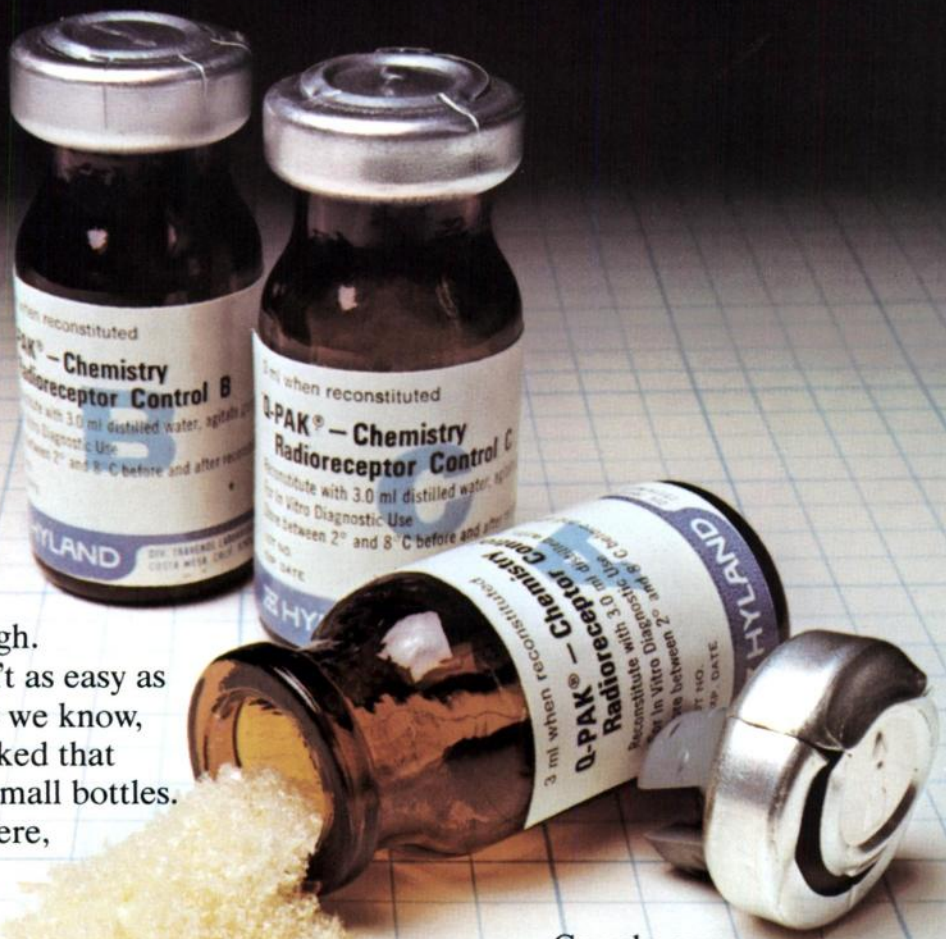
HYLAND SPILLS THE BEANS ON RADIORECEPTOR CONTROLS.



Hyland announces a new series of Radioreceptor Controls, in three clinically significant levels, with 12 constituents and a common protein base.

Sounds simple enough.

But apparently it isn't as easy as it sounds. Because as far as we know, no one but Hyland has packed that much potential into three small bottles.

Not everyone out there, for instance, has the three clinically significant levels Hyland has.

Not everyone out there has as many as 12 constituents. Twelve important constituents including Gastrin, CEA and Vitamin B_{12} (a truly deficient value found in our level A).

And no one, as far as we know, makes all three levels from the same serum pool. That's a very important distinction.

Because not only does a common protein base assure a virtually constant protein concentration, but it also significantly reduces concern over non-specific protein binding. And even if interference is exhibited, it's uniform over the entire control spectrum. Not just one particular assay result.

Couple our brand new Radioreceptor Controls with our already established 3-level Thyroid Function Controls, and you've got over 80% of your radioassay control needs covered.

And don't forget the other Hyland pluses. Convenience features like a waste-reducing 3ml vial size, a 30 month shelf/storage life, and a five-day reconstituted stability (with the exception of Vitamin B_{12}, Radioreceptor level A).

Hyland's new Radioreceptor Controls. We pack a lot more than powder into every bottle. It's as simple as that.

HYLAND DIAGNOSTICS
DIVISION TRAVENOL LABORATORIES, INC.
3300 Hyland Ave., Costa Mesa, Calif. 92626, U.S.A.

J&S Model 145A Portable Localization Monitor for I-125 Labeled Fibrinogen Scanning.

Early detection of deep vein thrombosis of the legs can be accomplished using I-125 labelled fibrinogen and the Model 145A. The leg is scanned after intravenous injection of the labelled fibrinogen. As a thrombosis develops, the radio-active fibrinogen is detected at predetermined points and measured directly as a percentage of the pre-cordial count.

Handily compact and portable, with standard D cell battery operation providing at least 100 hours of uncycled use, the 145A Localization Monitor offers unlimited isotope selection, stainless steel collimator, and solid state design.

Features

- Direct *Percentage* Analog Display
- Compact & Portable (6½ lbs including batteries & probe)
- Powered by 3 flashlight batteries (No A.C. Hazards)
- Unlimited Isotope Selection

Specifications

Range: Percent Scale — 0-120%
CPS Scale — 30, 100, 300, 1000, 3000 CPS

Meter Response: Fast — 2 seconds
Slow — 14 seconds

Dimensions: 4½" H × 5½" W × 8" L (exclusive of handle)

Recorder Output: 10 mv

Detector: NaI (Tl) crystal, 1" diam. × 1 mm thick, mounted on PMT with 7 mg/cm² aluminum window

And our service, when you need it, is courteous and quick. Write or call for complete information.

j&S

JASINS & SAYLES ASSOC.
908 Concord Street
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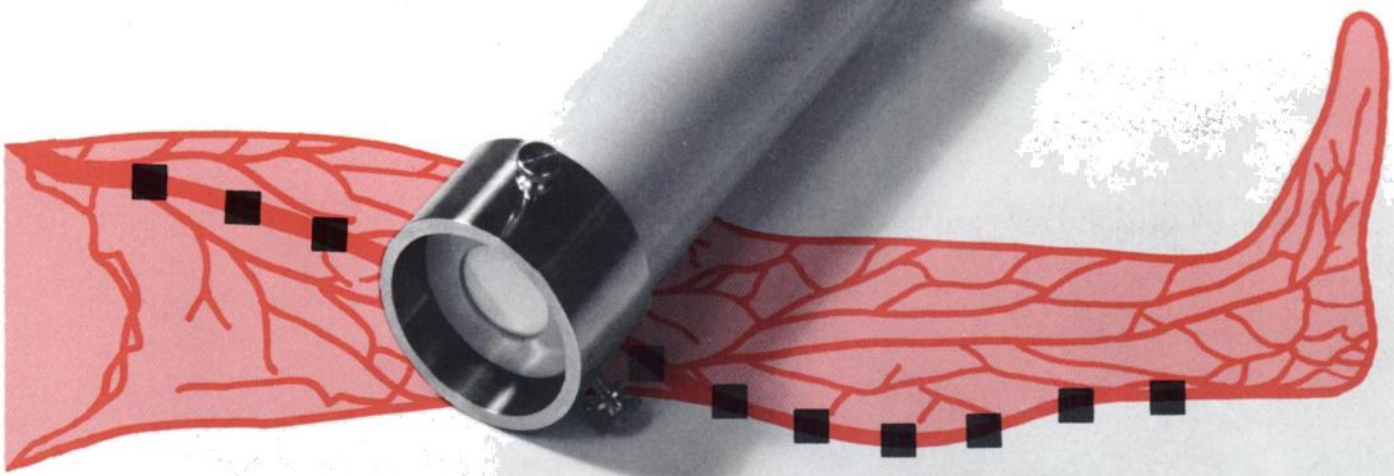
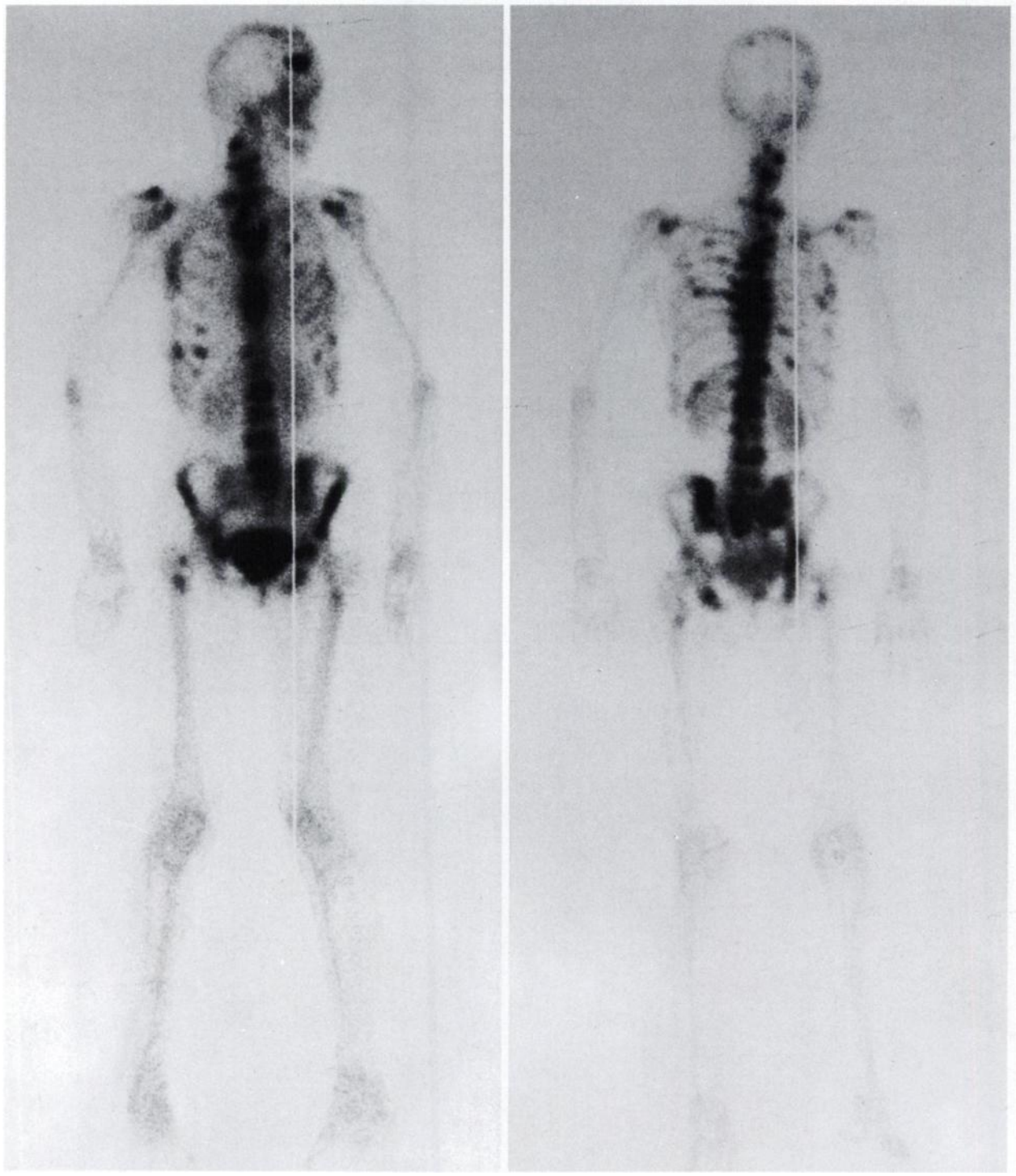


Early detection of Deep Vein Thrombosis

Dependable bone



Anterior
R. L.

Posterior
L. R.

lesion detection

PROCTER & GAMBLE

OSTEOSCAN®

(5.9 MG DISODIUM ETIDRONATE, 0.16 MG STANNOUS CHLORIDE)

SKELETAL IMAGING AGENT

Excellent in vitro stability

Greater than 98% labeling efficiency 8 hours after preparation. Osteoscan contains sodium ascorbate, an antioxidant that inhibits action of radiolysis by-products and oxidants capable of causing complex break-down and resultant soft tissue visualization.

Compatible with all types of technetium

Delivers consistently high-quality scans, using either instant or generator technetium.

Plus these other Osteoscan benefits

- very low tin level to minimize potential for liver visualization and for interference with subsequent brain scans
- rapid blood clearance
- high target-to-nontarget ratio
- diphosphonate's P-C-P bond for excellent in vivo stability

For further information about Osteoscan, please contact: Arnold Austin, Technical Manager, Professional Services Division, Procter & Gamble (513) 977-8547.

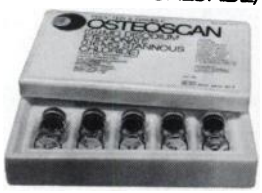
In Europe, contact: Philips-Duphar B.V., Cyclotron and Isotope Laboratories, Petten, Holland.

See following page for a brief summary of package insert.

PROCTER & GAMBLE

OSTEOSCAN®

(5.9 MG DISODIUM ETIDRONATE, 0.16 MG STANNOUS CHLORIDE)
SKELETAL IMAGING AGENT



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 ^{99m}Tc-pertechnetate, these ingredients combine with ^{99m}Tc to form a stable soluble complex.

ACTIONS (CLINICAL PHARMACOLOGY)

When injected intravenously, ^{99m}Tc-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 ^{99m}Tc-labeled OSTEOSCAN.

Three hours after intravenous injection of 1 ml ^{99m}Tc-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 ^{99m}Tc-labeled OSTEOSCAN excreted in the feces is below the level detectable by routine laboratory techniques.

INDICATIONS

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

CONTRAINDICATIONS

None.

WARNINGS

This radiopharmaceutical should not be administered to patients who are pregnant or lactating 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 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 ^{99m}Tc-generator should be tested routinely for molybdenum breakthrough and aluminum. If either is detected, the eluate should not be used.

PRECAUTIONS

Both prior to and following ^{99m}Tc-labeled OSTEOSCAN administration, patients should be encouraged to drink fluids. Patients should void as often as possible after the ^{99m}Tc-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.

ADVERSE REACTIONS

None.

DOSAGE AND ADMINISTRATION

The recommended adult dose of ^{99m}Tc-labeled OSTEOSCAN is 1 ml with a total activity range of 10-15 mCi. ^{99m}Tc-labeled OSTEOSCAN should be given intravenously by slow injection over a period of 30 seconds within eight (8) 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.

Aggregated Albumin (Human) Kit

DESCRIPTION - The kit contains 6 sterile vials containing 9-11 mg. of pyrogen-free aggregated albumin (human), 0.67 - 0.83 mg. stannous chloride, and 18 mg. sodium chloride. When sterile, pyrogen-free sodium pertechnetate Tc99m is added to the vial, technetium-labelled macroaggregated human serum albumin (Technetium MAA Tc 99m Technetium Macroaggregates) is formed. The particles of aggregated albumin in the kit are formed by the denaturation of Normal Serum Albumin (Human) USP through heat and pH adjustment. Sodium hydroxide of hydrochloric acid may be present in variable amounts. At least 95% of the macroaggregated particles are between 10 and 100 microns in size, the great bulk, (as seen on a microscope slide) being an average of 10 to 70 microns. None are larger than 150 microns. Vial counts indicate that each vial contains 6.8 ± 0.8 million particles per mg. The labelling efficiency is essentially quantitative and the bound Tc-MAA remains stable *in vitro* throughout the useful period after preparation.

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

ACTIONS - Following intravenous injection, Technetium MAA Tc 99m is rapidly transported by the blood stream to the lungs. The aggregates do not enter the tissues of the lungs, but remain in the pulmonary vasculature. When pulmonary blood flow is normal, the material is carried throughout the entire lung field; when pulmonary blood flow is diminished or obstructed by a disease process, the particles are correspondingly prevented in part of in whole from passage through the affected portion of the pulmonary vasculature.

Technetium Macroaggregates 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 longer half-life; particles ranging from 10 to 90 microns in diameter usually have a half-life of 2 to 8 hours. Apparently, the aggregates are temporarily trapped by the narrow pulmonary capillaries where the particles are broken down until they are small enough to pass. In rats 4.3% of the Tc 99m remains in the lungs after 24 hours.

Although the particles of macroaggregates 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 primarily by the Kupffer cells. There, the particles are phagocytized and rapidly metabolized.

INDICATIONS - Scintillation scanning of the lungs with Technetium Macroaggregates is indicated as an adjunct to other diagnostic procedures whenever information about pulmonary vasculature is desired. The most useful clinical applications of lung scanning have been outlined by one investigator: 1) The diagnosis of pulmonary embolism; 2) differentiation of focal conditions such as bullae or cysts from diffuse pulmonary disorders; 3) determination 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 uniquely able to demonstrate the existence of an embolism before radiological signs become apparent. Although an area of increased radiolucency on the chest film may suggest an embolism, X-ray findings do not usually 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 embolectomy, while subsequent scans provide information on the effectiveness of surgical or anticoagulant 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 areas, 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 evaluation of other pulmonary problems, such as pneumonia, atelectasis pleural effusion, pulmonary tuberculosis, parenchymal disease, emphysema and chronic asthmatic bronchitis.

CONTRAINDICATIONS - The presence of right to left shunts which would allow Technetium MAA Tc 99m injected in a systemic vein to reach a systemic artery is contraindication to the use of this material. Particulate material such as Technetium MAA Tc99m 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 MAA Tc99m should not be administered to patients who are pregnant, or during lactation 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.

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.

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 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 (3) have recorded the only immediate and fatal reaction following infusion of Tc 99m macroaggregates (technetium labelled macroaggregates). This was in 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 be rare and that it will probably be somewhat predictable on the basis of clinical and laboratory evidence of severe pulmonary hypertension. Such a patient might be scanned safely by strict control of macroaggregates dose, size range and mean particle size".

The literature has recorded two adverse reactions to lung scanning with I-131 labelled macroaggregates. Wagner et al (4) observed that urticaria developed in a young girl several hours after lung-scanning procedure with Iodine-131 macroaggregates where Lugol'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 (5, 6) reported "I-131-labelled macroaggregated albumin highly suspect as the causative agent" in the death of a woman who was scanned for the possibility of demonstrating pulmonary embolism. With a 2½-year history of adenocarcinoma of the breast she had severe and rapidly progressive edema. Prior to scanning, the nasal administration of oxygen was interrupted. "Within 1 or 2 minutes after injection of 300 uCi of I-131 labelled macroaggregates albumin (11 mg. of albumin or 0.219 mg. per kilogram of body weight) she complained of faintness and became cyanotic, diaphoretic, and agitated with distended neck veins. The initial pulse rate of 50 rose to 140 with a fall in blood pressure to 100/30. Oxygen therapy relieved the profound dyspnea and cyanosis. An electrocardiogram 40 minutes later was compatible with acute cor pulmonale. Within several hours she had returned to her pre-scan status, but on the next day the temperature rose, dyspnea increased and she died 26 hours after the lung scan. We have continued lung scanning but limit the albumin to 0.020 mg. per kilogram, reject lots 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 macroaggregated albumin (MAA) particles followed by death six hours later (while the patient was undergoing right-heart catheterization). Like those previously reported, it occurred 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 atheroma and thickening of all the pulmonary arteries but no macroscopic evidence of emboli. The right heart was hypertrouphied and dilated".

Transient neurological complications following intra-arterial injection of I-131 labelled macroaggregates have been reported (3).

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5. Dworkin, J. J., Smith, J. R. and Bull, F. E., *N. Engl. J. Med.* 275, 376 (1966).
6. Dworkin, J. J., Smith, J. R. and Bull, F. E., *Am. J. Roetgenol. Ther. Nucl. Med.* 98, 427-433 (1966).
7. Williams, J. O., *Brit. J. Radiol.* 47, 61-63 (1974).

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Contraindications: None known.

Warnings: Gallium Citrate Ga 67 should not be administered to children or to patients who are pregnant or to nursing mothers unless the information to be gained outweighs the potential hazards. Ideally, examinations using radiopharmaceutical drug products, especially those elective in nature of a woman of childbearing capability should be performed during the first few (approximately ten) days following the onset of menses.

Precautions:

General

A thorough knowledge of the normal distribution of intravenously administered Gallium Citrate Ga 67 is essential in order to accurately interpret pathologic studies.

The finding of an abnormal gallium concentration usually implies the existence of underlying pathology, but further diagnostic studies should be done to distinguish benign from malignant lesions. Gallium Citrate Ga 67 is intended for use as an adjunct in the diagnosis of certain neoplasms. Certain pathologic conditions may yield up to 40% false negative gallium studies. Therefore a negative study cannot be definitively interpreted as ruling out the presence of disease.

Lymphocytic lymphoma frequently does not accumulate Gallium Ga 67 sufficiently for unequivocal imaging; and the use of gallium with this histologic type of lymphoma is not recommended at this time.

Gallium Citrate Ga 67, as well as other radioactive drugs, must be handled with care and appropriate safety measures should be used to minimize external radiation exposure to clinical personnel. Also, care should be taken to minimize radiation exposure to patients consistent with proper patient management.

Carcinogenesis

No long term animal studies have been performed to evaluate carcinogenic potential.

Pregnancy Category C

Adequate reproduction studies have not been performed in animals to determine whether this drug affects fertility in males or females, has teratogenic potential, or has other adverse effects on the fetus. Gallium Citrate Ga 67 should be used in pregnant women only when clearly needed.

Nursing Mothers

Gallium Citrate Ga 67 has been found to accumulate in breast milk and should not be used in nursing mothers.

Pediatric Use

Safety and effectiveness in children have not been established.

Adverse Reactions: Severe itching, erythema and rash were observed in one patient of 300 studied.

Dosage and Administration: The recommended adult (70kg) dose of Gallium Citrate Ga 67 is 2-5mCi. Gallium Citrate Ga 67 is intended for intravenous administration only.

Approximately 10% of the administered dose is excreted in the feces during the first week after injection. Daily laxatives and/or enemas are recommended from the day of injection until the final images are obtained in order to cleanse the bowel of radioactive material and minimize the possibility of false positive studies.

Studies indicate the optimal tumor to background concentration of ratios are often obtained about 48 hours post-injection. However, considerable biological variability may occur in individuals, and acceptable images may be obtained as early as 6 hours and as late as 120 hours after injection.

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

Radiopharmaceuticals should be used by persons 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 agencies authorized to license the use of radionuclides.

How Supplied: Gallium Citrate Ga 67 is supplied sterile and non-pyrogenic for intravenous use. Each ml contains 2mCi of Gallium Ga 67 on the calibration date, as a complex formed from 9ng gallium chloride Ga 67, 2mg of sodium citrate, 6.8mg sodium chloride, and 0.9% benzyl alcohol w/v as preservative. The pH is adjusted to between 4.5-7.5 with hydrochloric acid and/or sodium hydroxide solution.

Vials are available from 3mCi to 18mCi in increments of 3mCi on calibration date.

The contents of the vial are radioactive and adequate shielding and handling precautions must be maintained.

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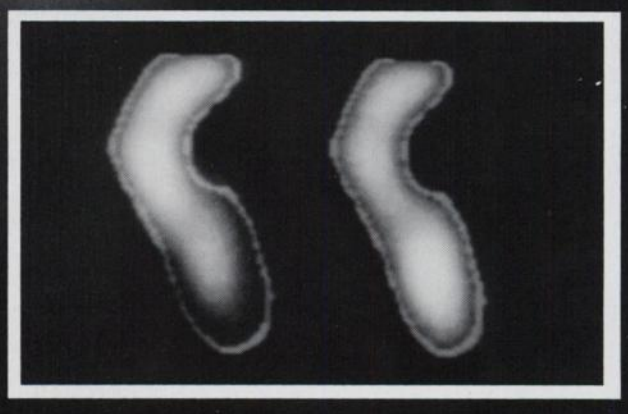

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Photo insert: Wall motion of the left ventricle, a typical example of the kind of selective imaging possible with System Seventy Seven's unique data processing capabilities. Zones of interest and histograms of selectively specific target areas can 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.

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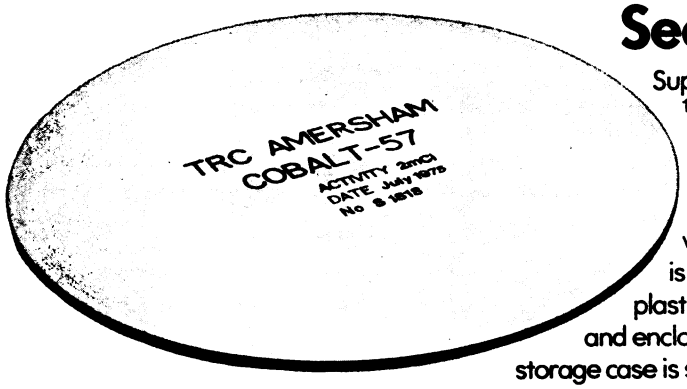

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Supplied as ^{57}Co (2 and 3mCi) and ^{133}Ba (0.5 and 1.0mCi) in two sizes, to check the uniformity and resolution of conventional and wide field-of-view gamma cameras, and for transmission imaging. The maximum acceptable variation in activity over the entire active area, is ±1% of the mean value. Each uniformly active plastic component is surrounded by inactive plastic and enclosed in an anodized aluminium casing. A shielded storage case is supplied with each source.

Anatomical marker sources

Spot sources are available as a 1mm bead of ^{57}Co or ^{133}Ba (10 and 100μCi). Features include a welded plastic capsule, point source geometry with a visible active bead, and colour coding for quick identification of nuclide and activity. They are packed in sets of three in shielded boxes; replacements are available separately.

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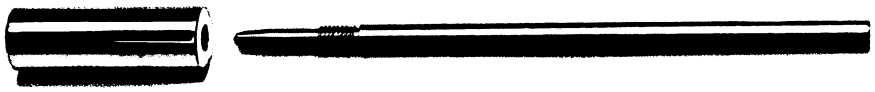
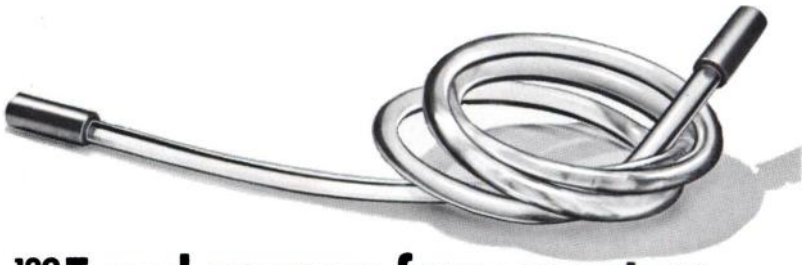


Flexible sources are 50cm x 4mm diameter; ^{57}Co (100μCi) is dispersed in an inner core of active plastic, sealed in an inactive PVC tube, and closed by aluminium caps.



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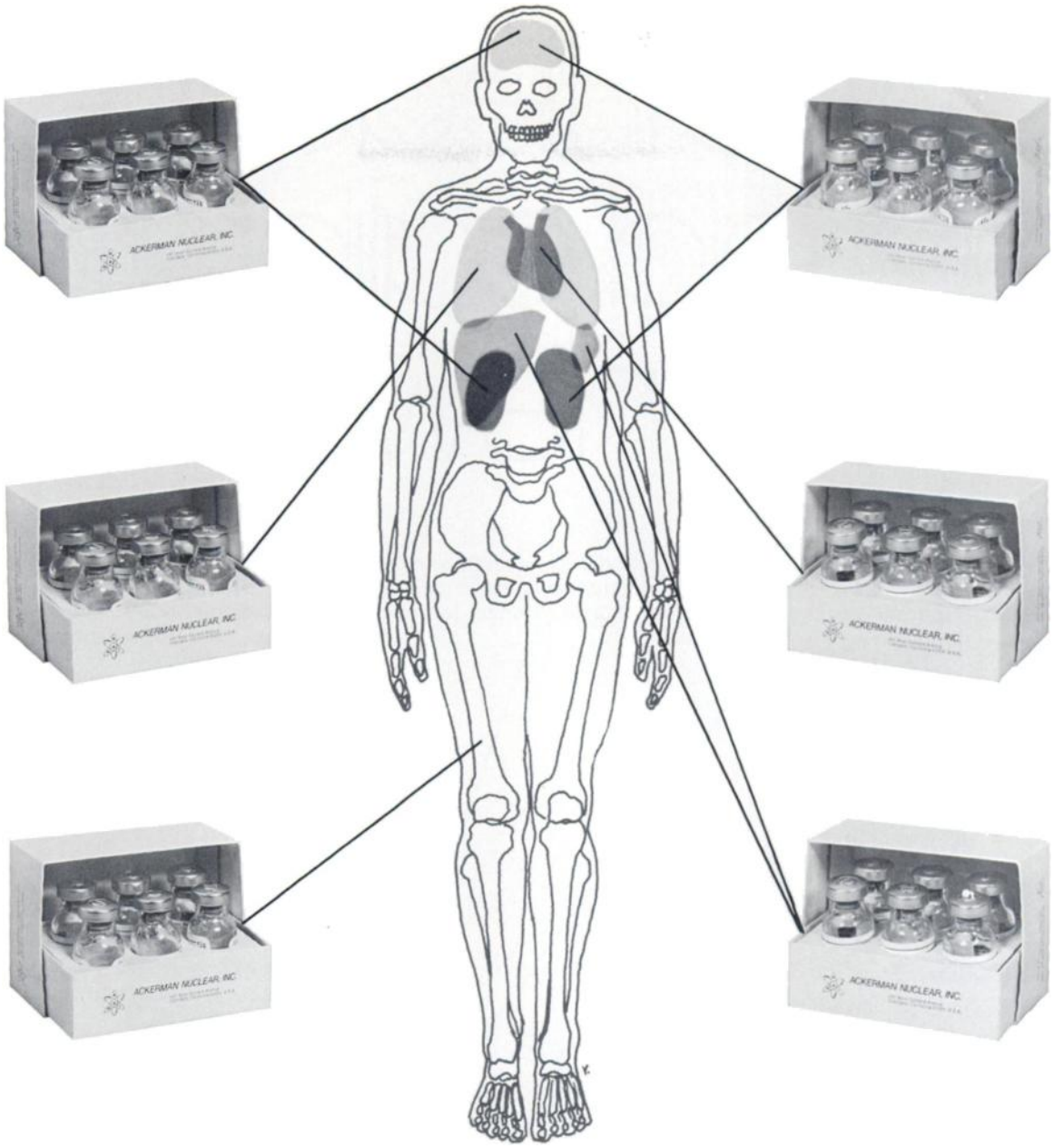

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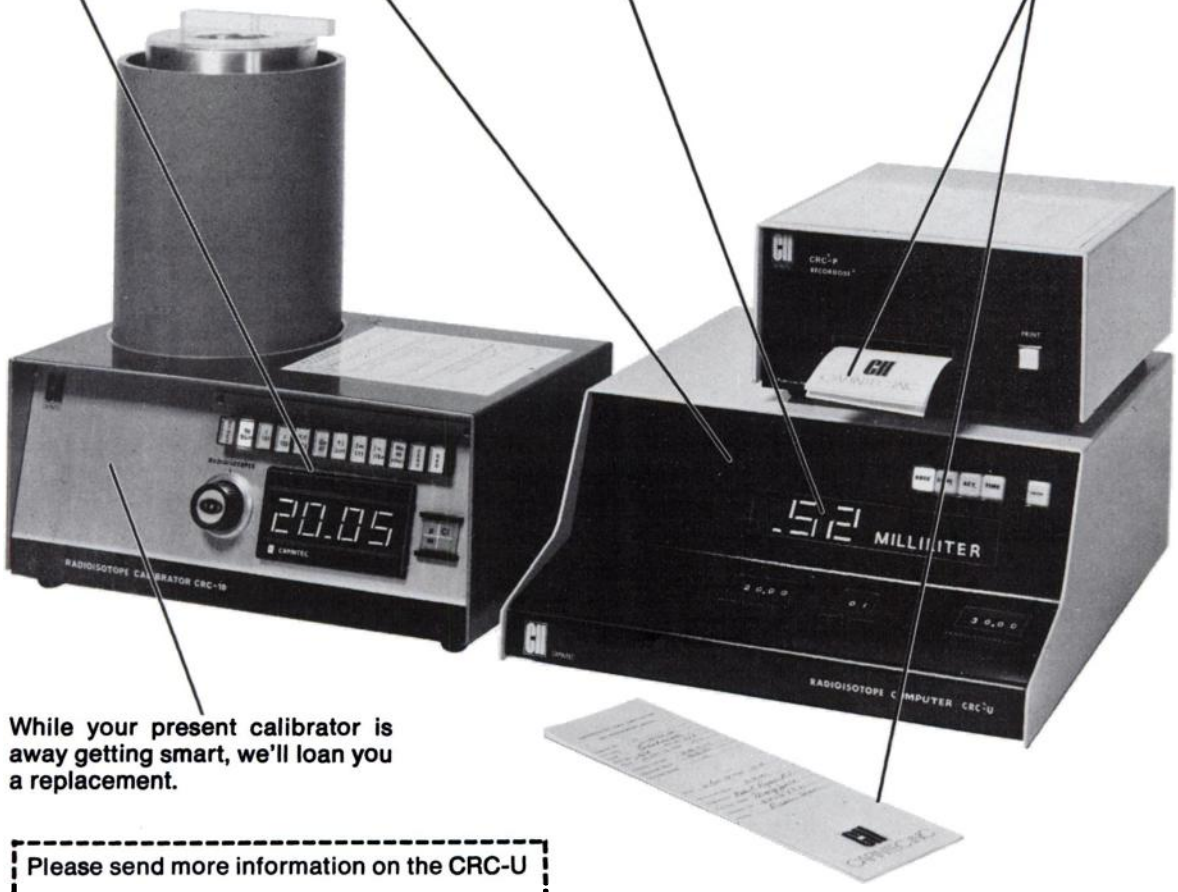

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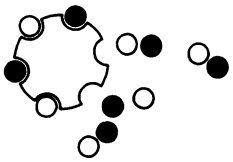

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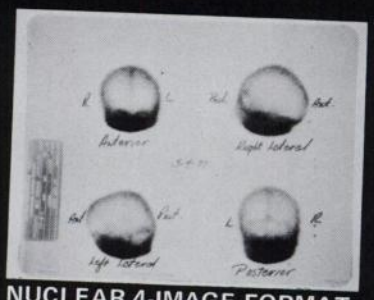

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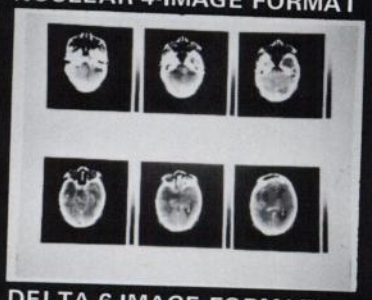

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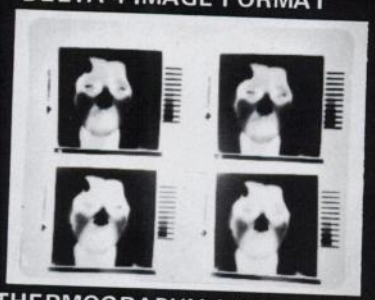

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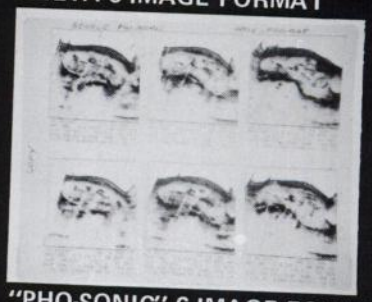

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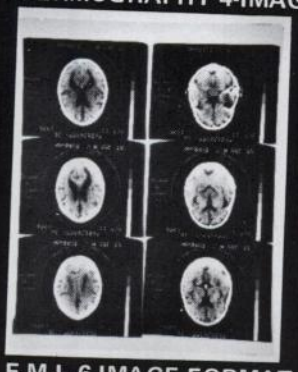

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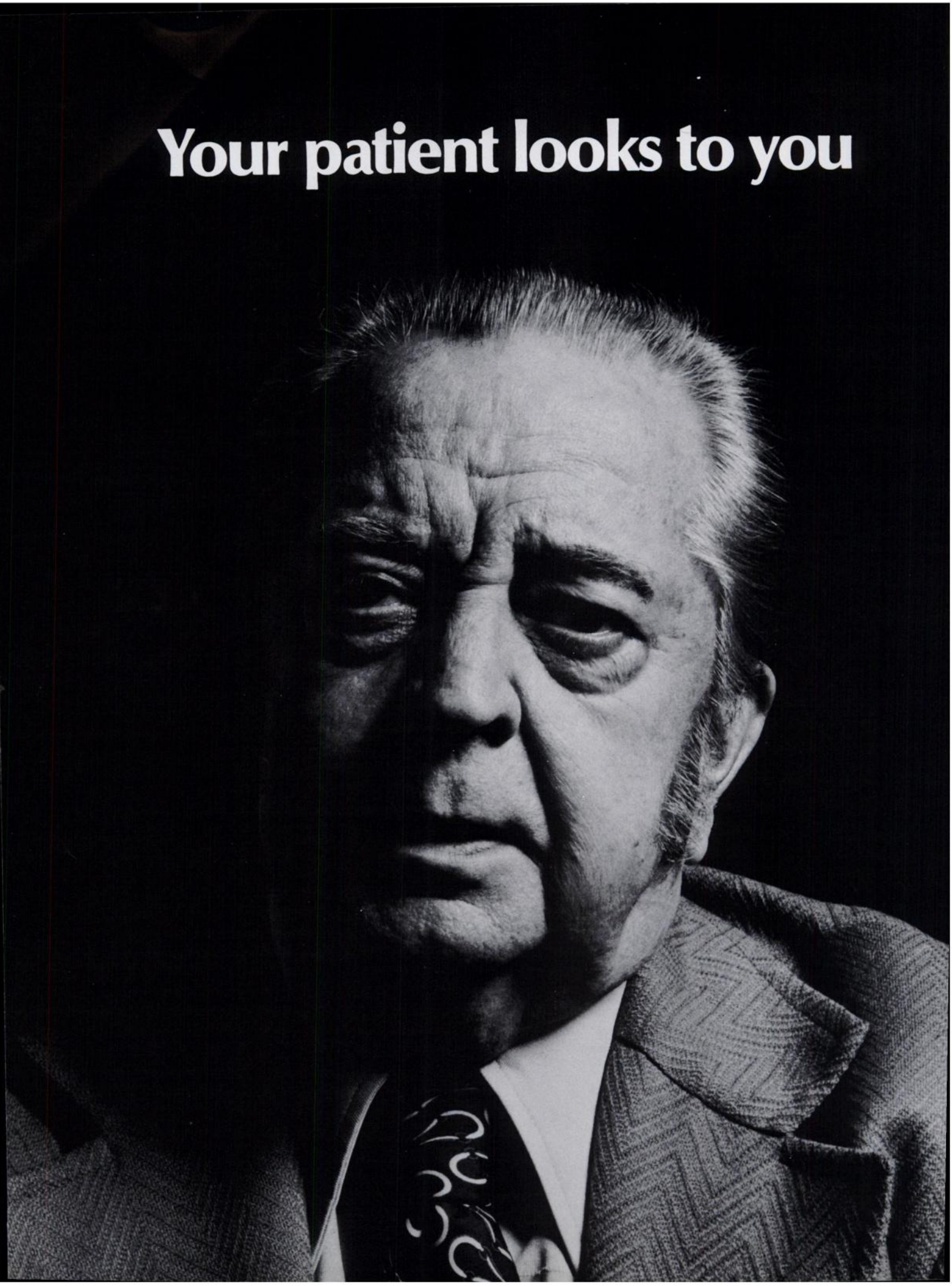

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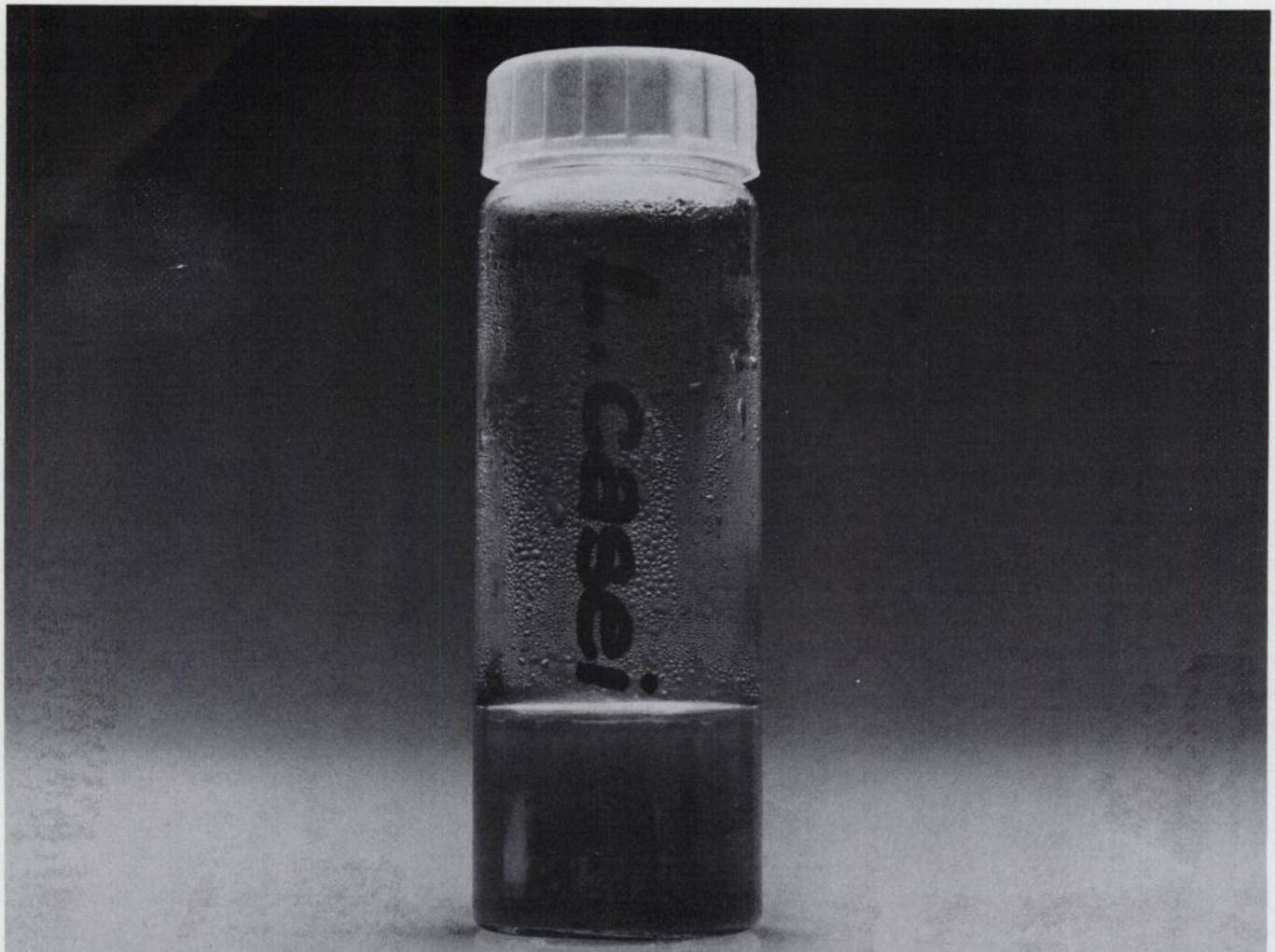

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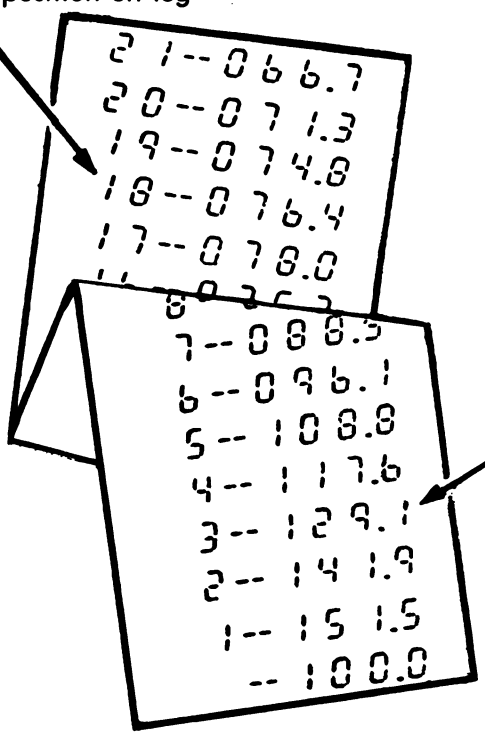

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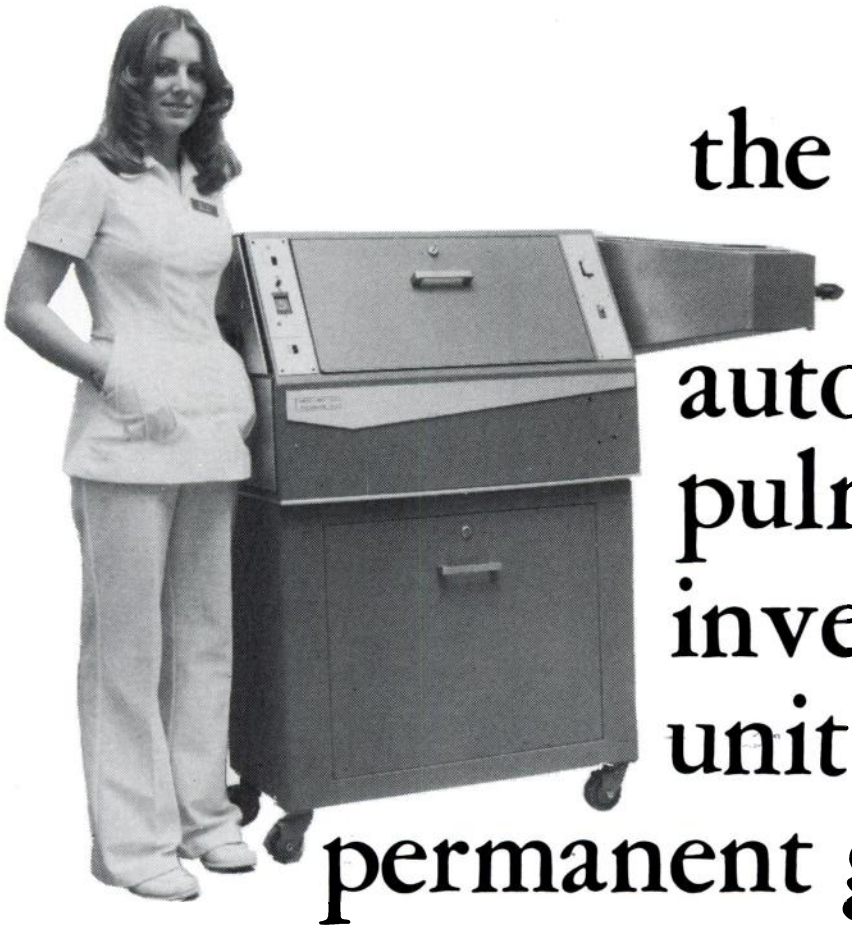

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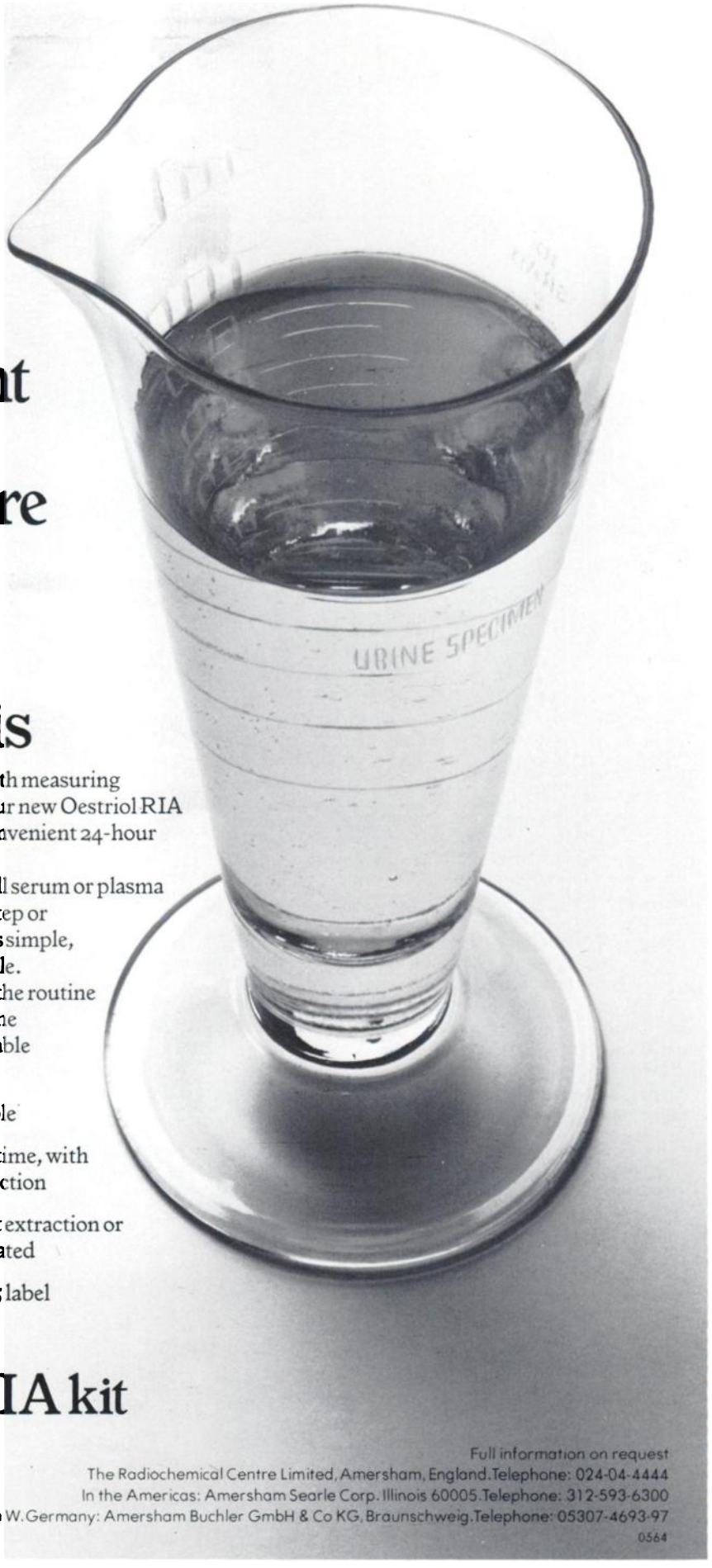

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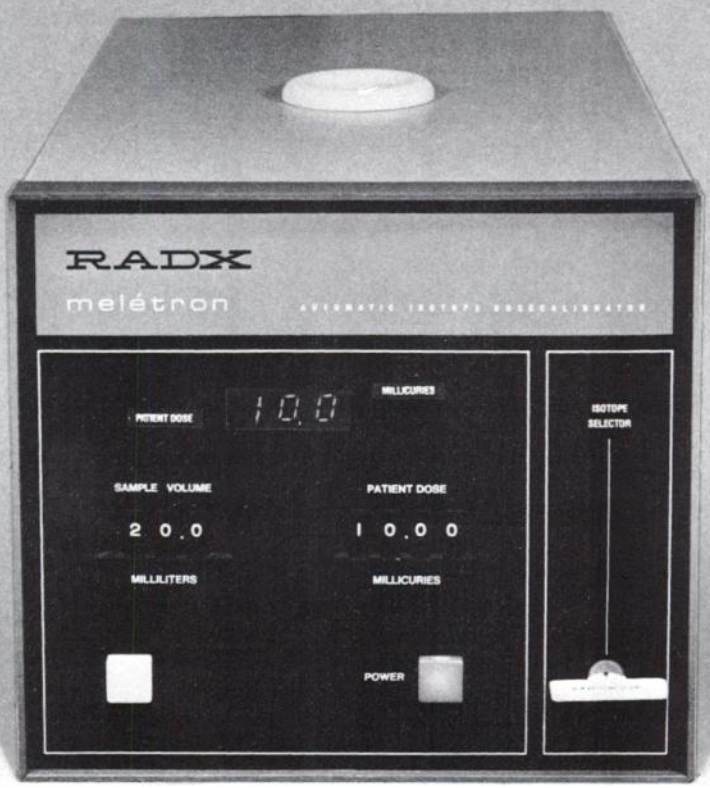

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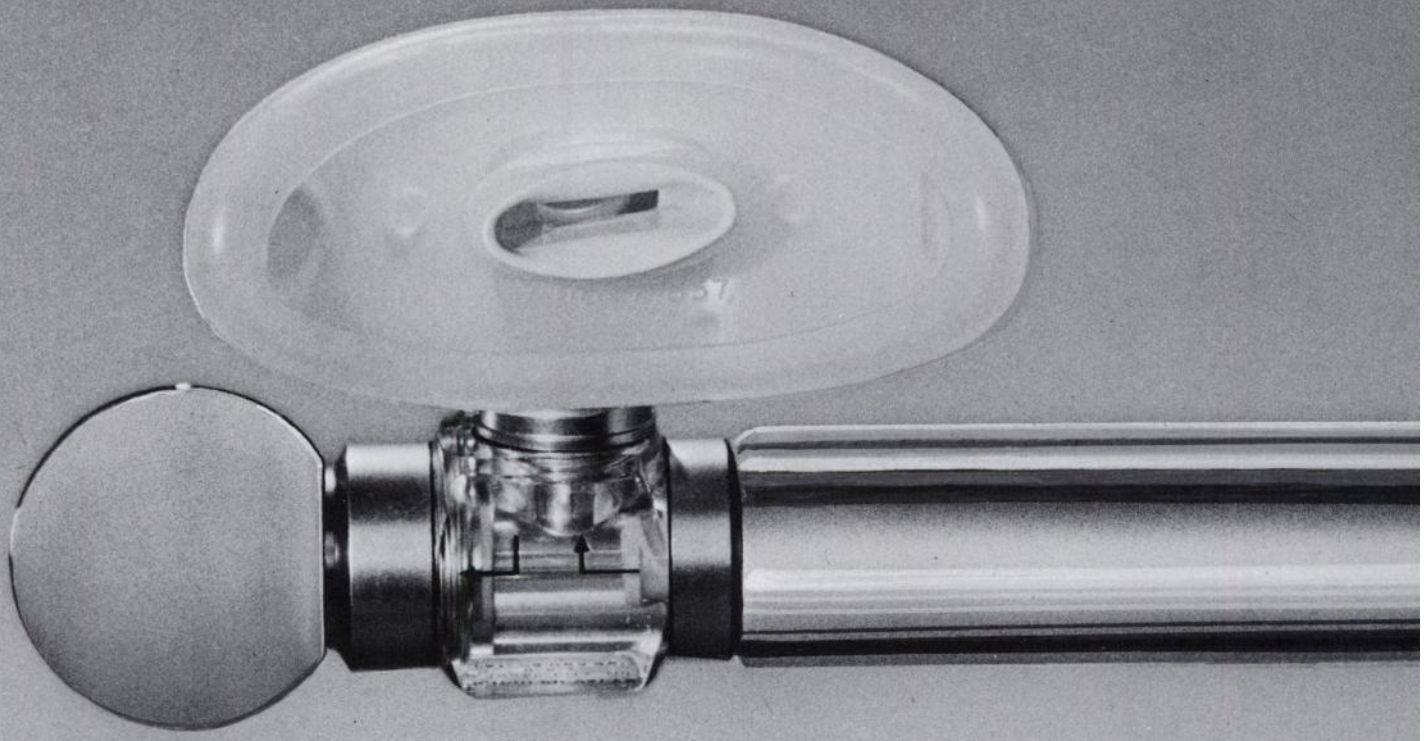

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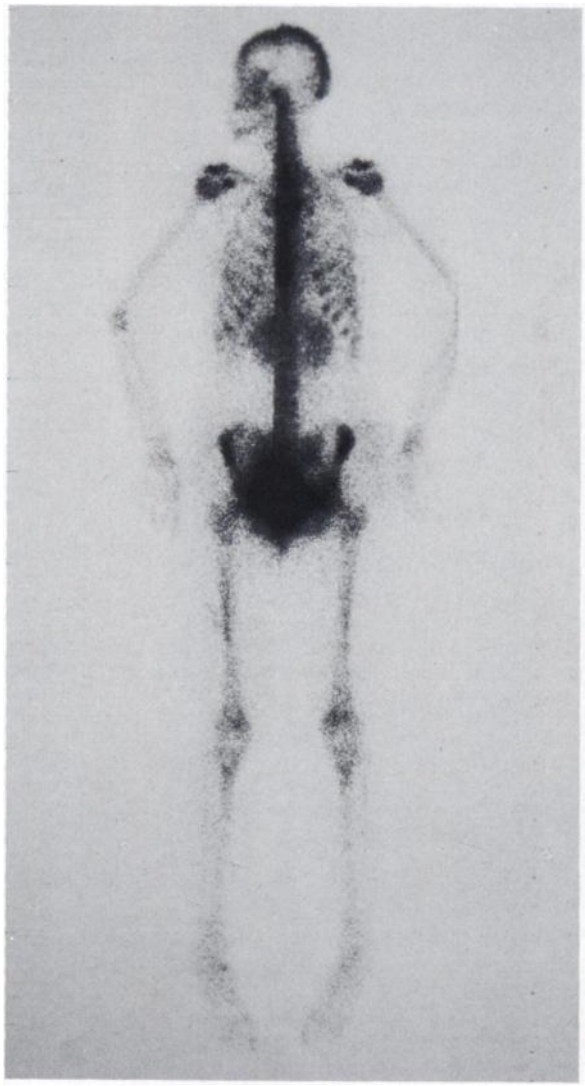

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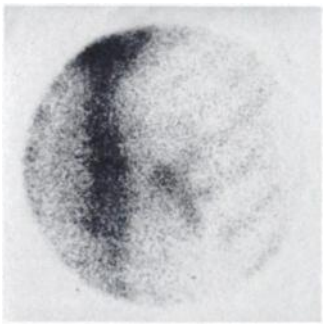
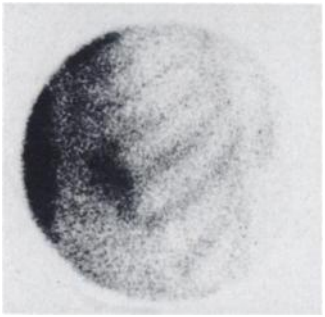
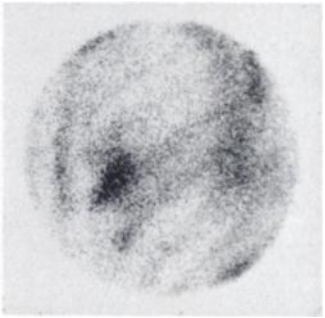


Anterior wall infarction, anterior view



Left anterior oblique



Left lateral

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One to two hours after intravenous injection of **TechneScan PYP Tc 99m,** an estimated 40 to 50 percent of the injected dose has been taken up by the skeleton, and approximately 0.01 to 0.02 percent per gram of acutely infarcted myocardium. Within a period of one hour, 10 to 11 percent remains in the vascular system, declining to approximately 2 to 3 percent twenty-four hours post injection. The average urinary excretion was observed to be about 40 percent of the administered dose after 24 hours.

INDICATIONS AND USAGE

TechneScan PYP Tc 99m is a skeletal imaging agent used to demonstrate areas of altered osteogenesis, and a cardiac imaging agent used as an adjunct in the diagnosis of acute myocardial infarction.

As an adjunct in the diagnosis of confirmed myocardial infarction (ECG and serum enzymes positive), the incidence of false negative images has been found to be 6 percent. False negative images can also occur if made too early in the evolutionary phase of the infarct or too late in the resolution phase. In a limited study involving 22 patients in whom the ECG was positive and serum enzymes questionable or negative, but in whom the final diagnosis of acute myocardial infarction was made, the incidence of false negative images was 23 percent. The incidence of false positive images has been found to be 7 to 9 percent. False positive images have also been reported following coronary by-pass graft surgery, in unstable angina pectoris, old myocardial infarcts and in cardiac contusions.

CONTRAINDICATIONS

None.

WARNINGS

This radiopharmaceutical should not be administered to patients who are pregnant or lactating 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 menses.

Warning: Preliminary reports indicate impairment of brain scans using Tc 99m pertechnetate which have been preceded by bone scan. The impairment may result in false positives or false negatives. It is recommended, where feasible, that brain scans precede bone imaging procedures.

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 **TechneScan PYP Kit** must be maintained at refrigerator temperature until use.

The contents of the **TechneScan PYP** reaction vial are intended only for use in the preparation of Technetium Tc 99m Stannous Pyrophosphate and are not to be directly administered to the patient.

Sodium pertechnetate Tc-99m solutions containing an oxidizing agent are *not* suitable for use with the **TechneScan PYP Kit.**

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

TechneScan PYP Tc 99m should not be used more than six hours after preparation.

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.

Bone Imaging

Both prior to and following **TechneScan PYP Tc 99m** administration, patients should be encouraged to drink fluids. Patients should void as often as possible after the **TechneScan PYP Tc 99m** injection to minimize background interference from accumulation in the bladder and unnecessary exposure to radiation.

Cardiac Imaging

Patient's cardiac condition should be stable before beginning the cardiac imaging procedure.

If not contraindicated by the cardiac status, patients should be encouraged to injest fluids and to void frequently in order to reduce unnecessary radiation exposure.

Interference from chest wall lesions such as breast tumors and healing rib fractures can be minimized by employing the three recommended projections.

ADVERSE REACTIONS

None.

DOSAGE AND ADMINISTRATION

The recommended adult dose of **TechneScan PYP** is:

1. Skeletal Imaging — 5 to 15 millicuries (1 to 14 milligrams stannous pyrophosphate).
2. Cardiac Imaging — 10 to 15 millicuries (4 to 7 milligrams of stannous pyrophosphate).

TechneScan PYP Tc 99m is injected intravenously over a 10- to 20-second period. For optimal results, bone imaging should be done 1 to 6 hours following administration. Cardiac imaging should be done 60 to 90 minutes following administration. The acute myocardial infarct can be visualized from 24 hours to 9 days following onset of symptoms, with maximum localization at 48 to 72 hours. Cardiac imaging should be done with a gamma scintillation camera. It is recommended that images be made of the anterior, left anterior oblique and left lateral projections.

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

HOW SUPPLIED

Catalog Number—*094* **TechneScan PYP Kit**

Kit Contains:

5—Stannous Pyrophosphate Reaction Vials (Lyophilized) for the preparation of Technetium Tc 99m Stannous Pyrophosphate.

Reaction Vial Contains:

15.4 mg Sterile Stannous Pyrophosphate (Lyophilized). Hydrochloric acid is added for pH adjustment prior to lyophilization.

5—Pressure-sensitive "Caution—Radioactive Material" labels.

5—Radioassay Information String Tags.

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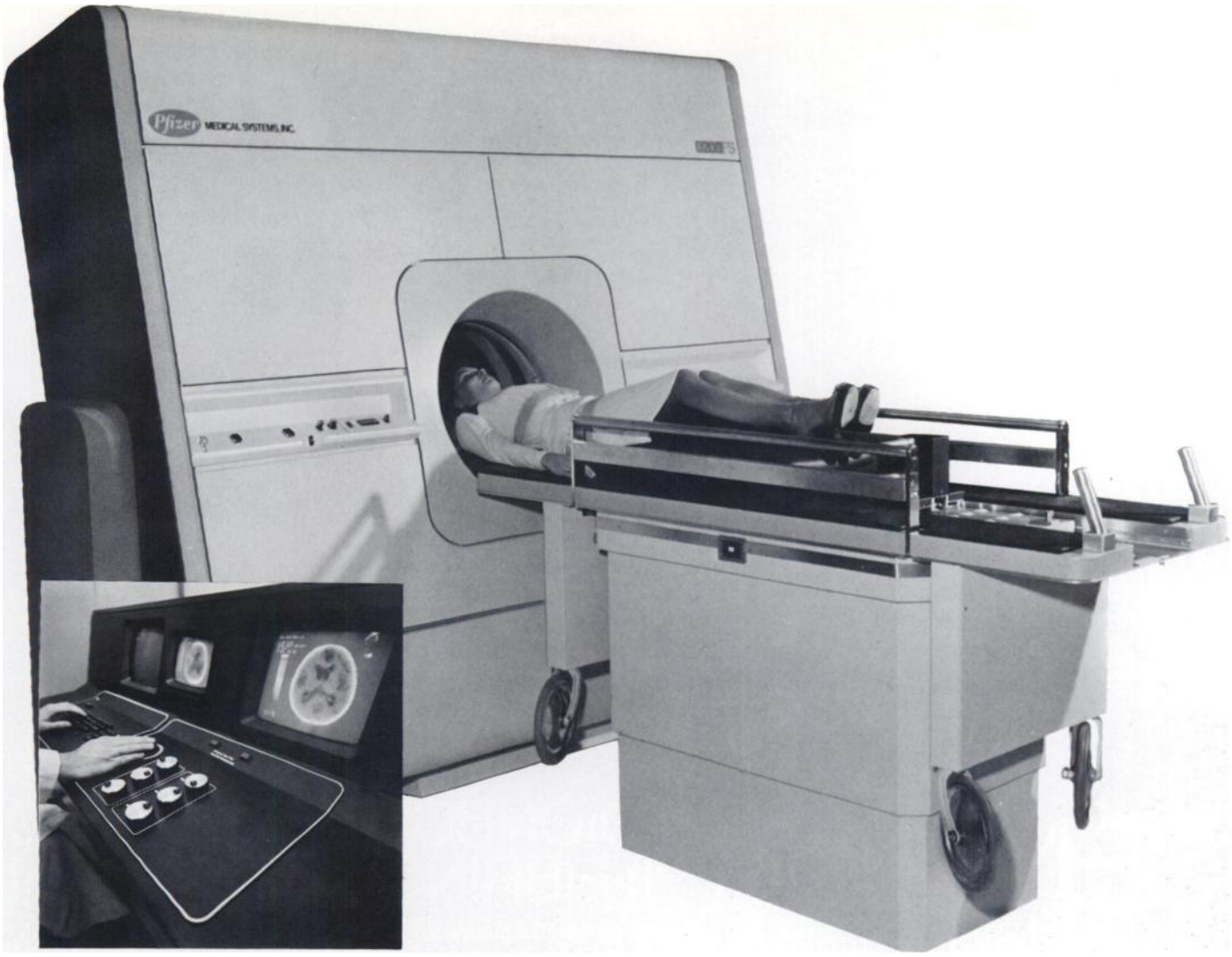

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The 0200FS standard software offers advanced capabilities in image manipulation. The trackball cursor may be used to delineate regions of interest for measurement, magnification and statistical analyses. These features, coupled with multiplanar reconstructions, computer printouts, and area histograms, make the 0200FS the system which offers the most advanced image manipulation capability available.

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Sensor can detect
Deep Venous Thrombosis
when it starts–
and provide daily
monitoring capability

SENSOR® RADIONUCLIDE-LABELED (^{125}I) FIBRINOGEN (HUMAN)

Only from Abbott Diagnostics

Goes to the trouble spot

SENSOR
RADIONUCLIDE-LABELED (^{125}I) FIBRINOGEN (HUMAN)

can detect *early* deep venous thrombosis... even in the absence of clinical signs and symptoms

SENSOR test results correlate (73%) with venographic findings.*

SENSOR injections of Radionuclide-labeled (^{125}I) Fibrinogen (Human) every 7 to 10 days provide monitoring capability for as long as the physician deems advisable.

SENSOR in vivo technique presents little or no risk to the patient; minimal trauma or discomfort.

SENSOR procedure requires little patient movement and manipulation; suitable for use with the critically ill or comatose patient.

SENSOR is the only product of its kind licensed for use in the United States.

Assists prompt diagnosis

Deep vein thrombosis can be a serious complication of many medical problems including hip fracture, myocardial infarction, cerebrovascular accident and malignancy, as well as surgical and orthopedic procedures. The SENSOR test, therefore, may be useful for the detection of thrombus formation in:

- patients undergoing major orthopedic or surgical procedures;
- patients with medical conditions known to predispose to thromboembolism;
- patients presenting with signs and symptoms suggestive of deep vein thrombosis, with or without accompanying pulmonary embolism;
- patients presenting with pulmonary embolism, with or without peripheral deep vein thrombosis.

*Data on file at Abbott Laboratories

10 day monitoring capability

Injected intravenously at the patient's bedside, SENSOR circulates in the bloodstream and is incorporated into forming thrombi along with endogenous fibrinogen. These sites of fibrin deposit can be detected as "hot spots" one or more hours after injection, by scanning each leg with a portable gamma scintillation counter.

Repeat scanning every one to three days lets you monitor the patient's clinical course for up to 10 days following a single injection. This distinguishes the technique as a valuable research tool in assessing both preventive and therapeutic methods of dealing with thromboembolic disease.

Yours for the asking...

A variety of additional material is available from Abbott Diagnostics Division for your use and review, including a slide/tape presentation which describes the ^{125}I-fibrinogen test rationale and the SENSOR step-by-step procedure. For more information, please contact your Abbott Diagnostics representative or call toll-free: (800) 323-9100

Health Care World Wide

Abbott Laboratories
Diagnostics Division
North Chicago, IL 60064
800/323-9100

SENSOR® RADIONUCLIDE-LABELED (^{125}I) FIBRINOGEN (HUMAN)

Goes to the trouble spot to detect Deep Venous Thrombosis when it starts

Indications and Usage

SENSOR [radionuclide-labeled (^{125}I) fibrinogen (human)] is indicated as an aid in the diagnosis of deep-vein thrombosis of the legs.

A. The SENSOR [radionuclide-labeled (^{125}I) fibrinogen (human)] test may be useful for the detection of thrombi formation in patients undergoing major orthopedic or other surgical procedures, and in patients with myocardial infarction, pulmonary disease, malignant disease and other medical conditions known to predispose to thromboembolism.

B. The SENSOR [radionuclide-labeled (^{125}I) fibrinogen (human)] test is indicated in patients with signs and/or symptoms suggestive of deep-vein thrombosis with or without associated pulmonary embolism or in patients with pulmonary embolism, with or without evidence of peripheral deep-vein thrombosis. In patients with established, old or "inactive" thrombi, the test may not be positive if radionuclide-labeled fibrin deposition does not occur in sufficient quantity to allow detection. Its use is not contraindicated in a patient on an anticoagulant regimen.

Contraindications

The iodides given to block the uptake of ^{125}I by the thyroid gland are contraindicated in patients with a known sensitivity to iodides.

Warnings

This radiopharmaceutical drug product should not be administered to children, to patients who are pregnant or to nursing mothers unless the expected benefits to be gained outweigh the potential risk.

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.

Extraordinary precautions have been taken in the preparation of SENSOR [radionuclide-labeled (^{125}I) fibrinogen (human)] to eliminate the possible transmission of hepatitis. Nevertheless, the remote risk of hepatitis associated with the administration of radionuclide-labeled (^{125}I) fibrinogen (human) cannot be entirely eliminated. The finding of viral hepatitis in any patient up to six months after the administration of SENSOR should be reported to Abbott Laboratories.

Precautions

Care should be taken to insure minimum radiation exposure by using the recommended dose. With blockade of thyroidal uptake of the radioactive iodine, however, repeat injections may be performed in patients remaining at high risk of venous thrombosis.

There are a number of clinical circumstances requiring care in the interpretation of the test results (see Interpretation of the Results).

Adequate reproduction studies have not been performed in animals to determine whether this drug affects fertility in males or females, has teratogenic potential, or has other adverse effects on the fetus. ^{125}I-fibrinogen (human) should be used in pregnant women only when clearly needed.

It is not known whether this drug is excreted in human milk. As a general rule, nursing should not be undertaken while a patient is on a drug since many drugs are excreted in human milk.

Safety and effectiveness in children have not been established.

^{125}I-fibrinogen (human), as well as other radioactive drugs, must be handled with care and appropriate safety measures should be used to minimize external radiation exposure to clinical personnel. Also, care should be taken to minimize radiation exposure to patients consistent with proper patient management.

Adverse Reactions

Side effects have not been reported following the administration of SENSOR.

Dosage and Administration

If material is received thawed, DO NOT USE.

Allow vial and contents to come to room temperature without agitation. This process takes approximately 20 minutes.

Thawed material should be a clear, colorless solution; if material appears clotted or precipitated, DO NOT USE.

Recommended Dose: Approximately 100 microcuries should be administered intravenously for an average adult (70 kg) patient.

The expiration of radionuclide-labeled (^{125}I) fibrinogen is 45 days after iodination is completed.

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

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.

Interpretation of the Results

Conditions of the legs such as active arthritis, inflammation, hematoma, phlebitis, surgical or other trauma, may cause incorporation of radionuclide-labeled fibrinogen and result in a positive test. These conditions do not preclude the use of the fibrinogen test to detect thrombi in areas not affected by such local lesions or trauma, or in the opposite unaffected leg and to give additional diagnostic information over the involved area.

Other Methods Used in the Detection of Thrombi

It is generally agreed that, of all the tests for deep-vein thrombosis, venography yields the most definitive results. Accordingly, when confirmation of the diagnosis of thrombosis is sought, venography is most commonly used.

It is emphasized that venography is reliable in detecting thrombi in the veins of the upper thigh (at the inguinal ligament). The high levels of background radiation emanating from the great vessels of the thigh and lower abdomen, and from the urinary bladder may obscure SENSOR test results.

How Supplied

No. 6104, SENSOR [radionuclide-labeled (^{125}I) fibrinogen (human)] is supplied in a single dose vial. Each dose (1 ml) contains radionuclide-labeled human fibrinogen at a concentration not to exceed 2.0 mg of clottable protein.

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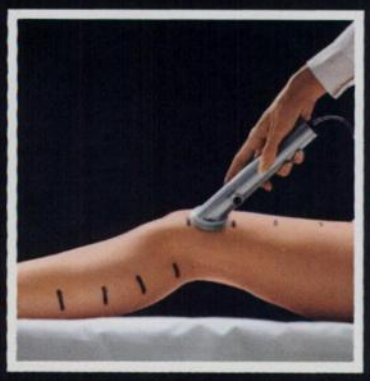

THE IBRINITOR

The IBRINITOR is a dramatic breakthrough in DVT detection and monitoring. It is ideally suited for use with Radionuclide I-125 labeled fibrinogen in monitoring patients for deep-vein thrombosis. It is designed to assure accumulation of procedurally and statistically valid data. The IBRINITOR features a design that insures that monitoring be performed in the correct sequence, while accumulating statistically valid counting data plus eliminating most procedural errors, before displaying and printing results. Visual and audio warning systems indicate operator error or procedural error.

OPERATION

The IBRINITOR is engineered to be fail-safe. The instrument provides both a digital readout and a printout for ease and accuracy of data collection. An analog circuit ratemeter electronically controls data collection and assures statistical accuracy of the counts collected. Push button controls on the detector probe are provided for operator convenience and speed.

OPERATOR CONVENIENCE

The IBRINITOR is the only portable radioisotope monitoring instrument with a built-in printout. This eliminates need for the operator to record data during testing, thus reducing transcription time and chance of error. The IBRINITOR requires short set-up time and is stable and accurate. The probe's unique body design prevents it from rolling off a table or counter top. In addition, the angled head facilitates positioning for maximum operator convenience and patient comfort. Rechargeable Nickel Cadmium (NiCd) batteries provide stable current allowing for approximately 12 hours of use on a full charge. A source is provided for calibration convenience. The total instrument weighs less than eight pounds.

The IBRINITOR System of DVT detection is certain, safe, simple and involves minimum patient discomfort.

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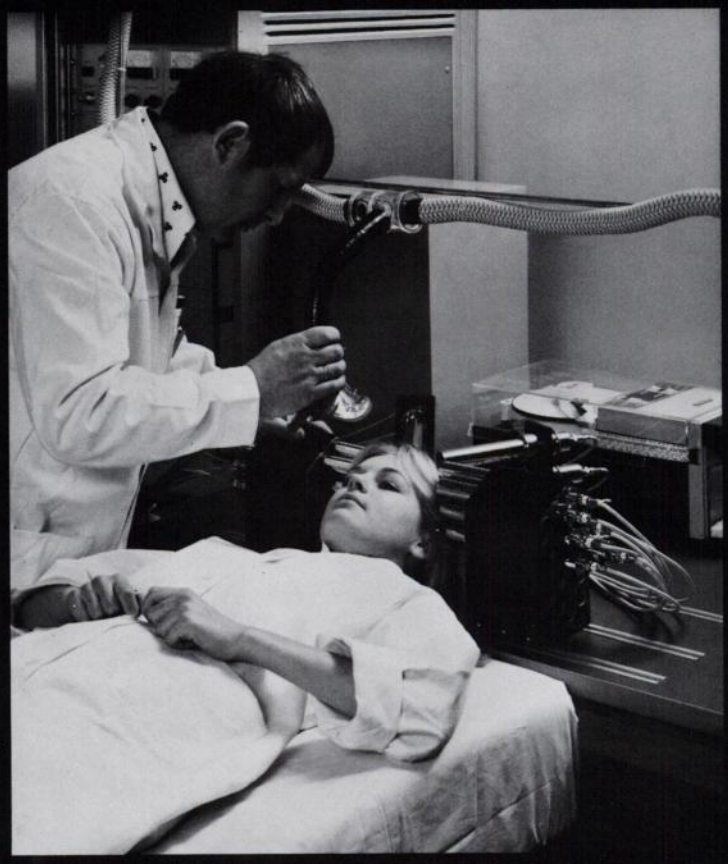
MEDITRONIC has been manufacturing multidetector rCBF-equipment for over 10 years, with numerous installations all over the world. This extensive experience along with the recent development and clinical verification of appropriate computer programs has made possible the development of the MEDITRONIC INHALATION CEREBROGRAPH.



This is a complete system, including the Xenon administration system, a digital data collection system with 8, 16, 24 or 32 brain detectors, an air curve scintillation detector with associated electronics and a computer interface with punched paper tape or casette tape output. The modular design allows easy system expansion in the field. Off-line calculation and presentation of rCBF-values can be performed on any computer able to process the Fortram programs developed by OBRIST et al (1975) and RISBERG et al (1975). The digital output of the MEDITRONIC INHALATION CEREBROGRAPH can also be interfaced to other peripheral devices or on-line connected to a computer.

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The TASC-5 Computerized rCBF Analyzer is routinely supplied with a computer program—based on the xenon inhalation technique developed by Obrist, et al.* Since the TASC-5 computer controls measurement and analysis functions, minimum operator training is required.

Where existing computer facilities are available, a basic TASC-5 can be interfaced with any RS-232C compatible input. In the event a computer terminal is not available, a tape recorder provides for data storage.

THE HELMET

The Helmet is Harshaw's unique new probe holder for the advanced TASC-5 Computerized rCBF Analysis System. The clear acrylic helmet provides good visibility when adjusting the probes and eliminates the problem of probe placement duplication for serial studies.

WHAT CAN THE TASC-5 DO FOR YOU?

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44139. (216) 248-7400.

HARSHAW

*Walter D. Obrist, et al. STROKE, Vol. 6, May-June, 1975, pp. 245-256.

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Isotope	Activity in Vial	Exposure at Surface of Vial Shield	Attenuation Factor
99 mTc	116 mCi	10 mR/HR	8,000
	NRC (1) 450 mCi NCRP (2) 578 mCi		
67 Ga	0.94 mCi	10 mR/HR	100
	NRC (1) 3.5 mCi NCRP (2) 4.7 mCi		
131 I	0.25 mCi	10 mR/HR	50
	NRC (1) 1.0 mCi NCRP (2) 1.2 mCi		

$225 ea., F.O.B. Seattle.

Isotope	Activity in Vial	Exposure at Surface of Vial Shield	Attenuation Factor
99 mTc	14 Ci	10 mR/HR	1 Million
	NRC (1) 56 Ci NCRP (2) 72 Ci		
67 Ga	2.8 mCi	10 mR/HR	300
	NRC (1) 11.0 mCi NCRP (2) 14.2 mCi		
131 I	0.49 mCi	10 mR/HR	100
	NRC (1) 1.9 mCi NCRP (2) 2.5 mCi		

$275 ea., F.O.B. Seattle.

(1) NRC max permissable dose—hands—18.75 rems/quarter.
(2) NCRP Report No. 39 Max permissable dose—hands— 25 rems/quarter
Both above converted to 8 hours/day & 60 days per quarter.

Nuclear Pacific, Inc.

For additional information, contact: Nuclear Pacific, Inc. 6701 Sixth Avenue So. Seattle, Wa. 98108 (206) 763-2170

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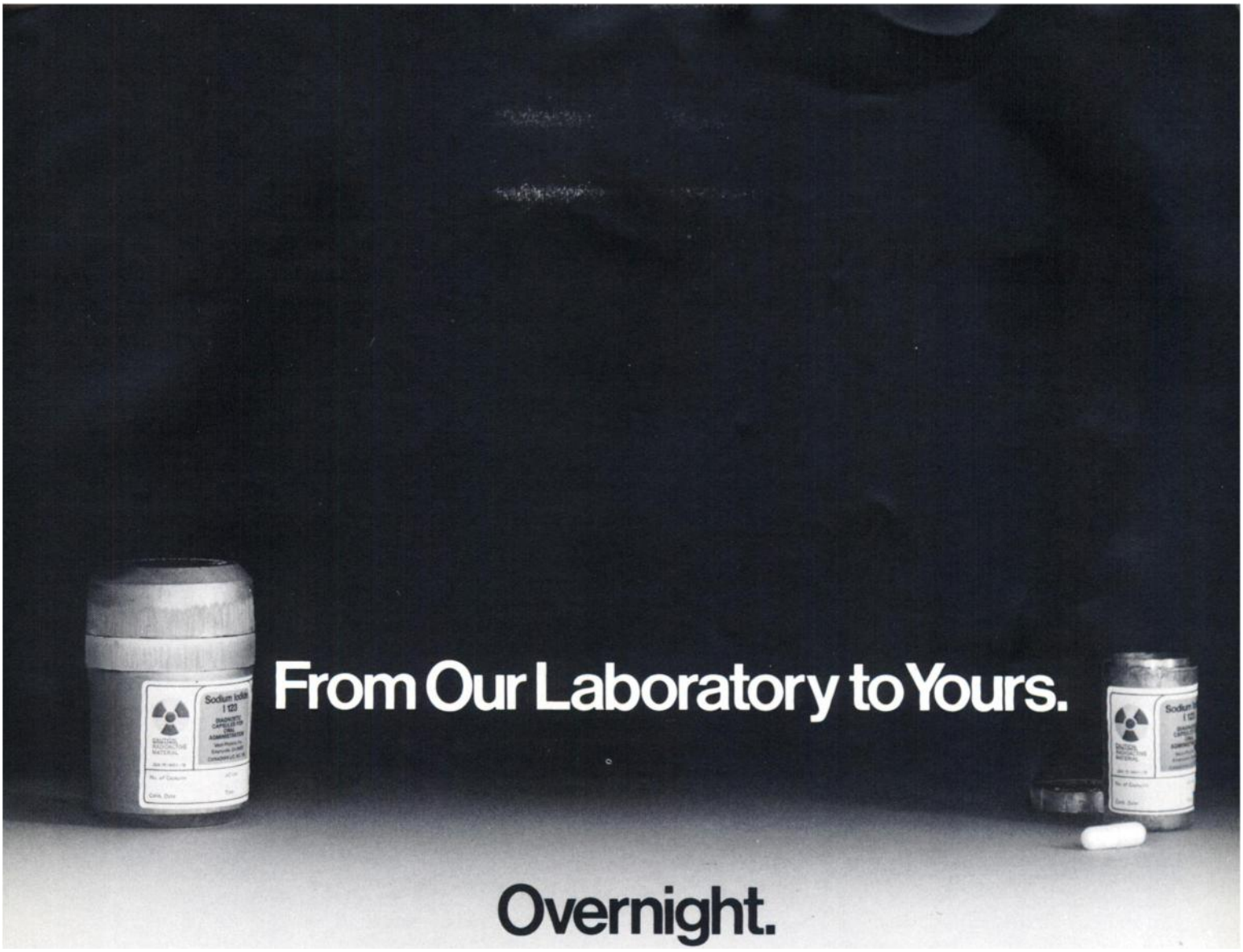

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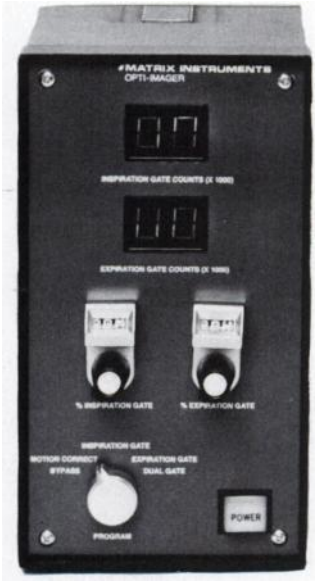
The dual gating operation mode allows recording of both end-systole and end-diastole simultaneously in a split screen two image format.

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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Matrix Instruments, Inc., 1 Ruckman Rd., Closter, N.J. 07624
Please send Cardiac Gate and Opti-Imager literature and samples studies

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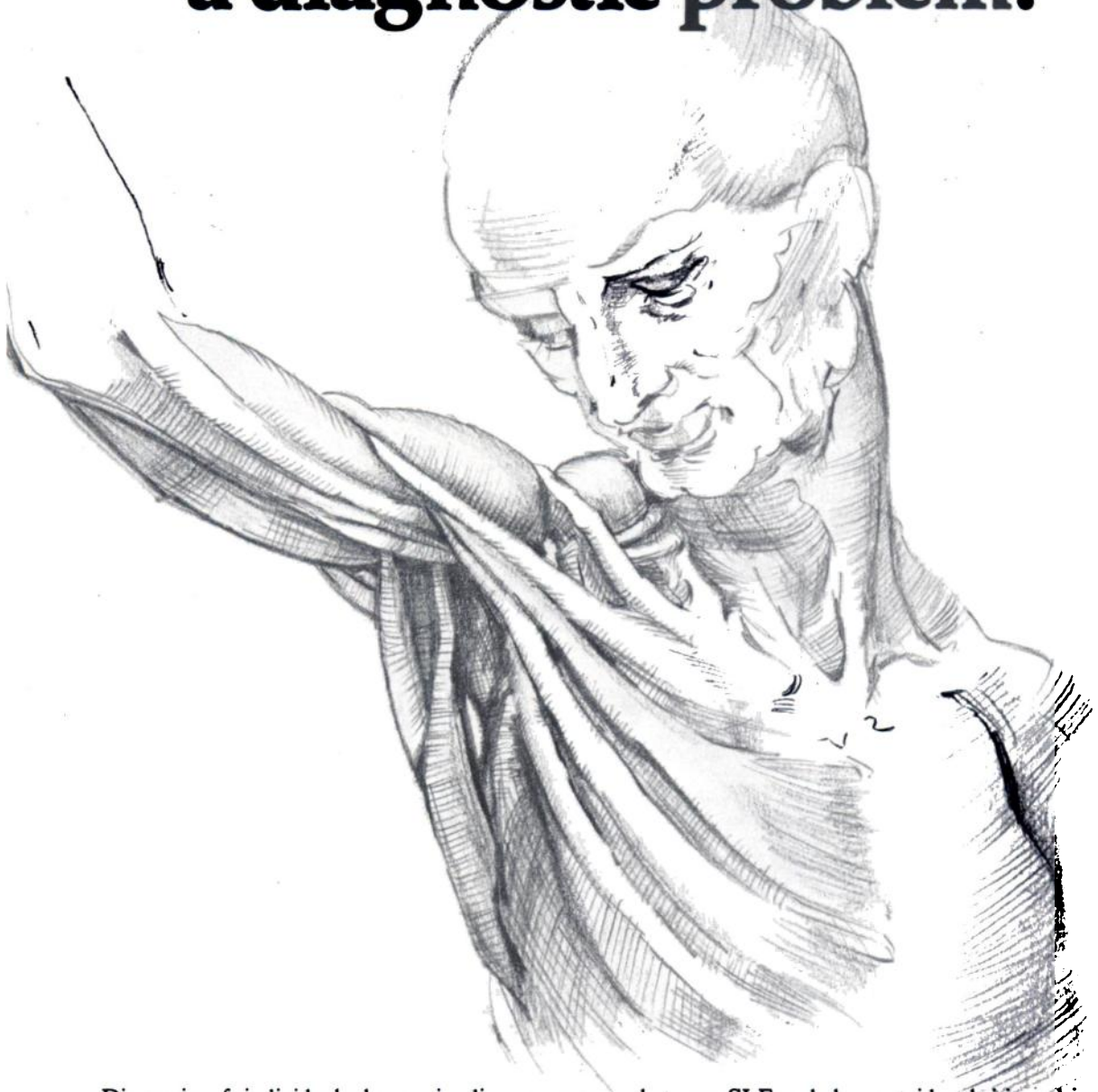
Rheumatic diseases: a diagnostic problem?



Diagnosis of individual rheumatic diseases can present problems. Our simple test, the anti-DNA Kit, can give vital information to aid that diagnosis.

The kit provides the first standardized assay to consistently and reliably measure anti-DNA antibodies. High circulating levels of these antibodies are closely linked with systemic lupus erythematosus (SLE). In doubtful cases, the kit offers excellent discrimination between SLE and rheumatoid arthritis and is particularly valuable as a follow-up to ANF tests. Results show that the kit is also useful as a means of monitoring disease activity, providing the physician with guidance on drug therapy.

The kit is a simple radioassay – a matter of routine for any clinical laboratory with a gamma counter. Please write or 'phone for further information.

Anti-DNA kit

The Radiochemical Centre Amersham

The Radiochemical Centre Limited, Amersham, England. Tel: 024-04 444.
In the Americas: Amersham/Searle Corp. Illinois 60005. Tel: 312-593-6300.
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FER-IRON™, the first commercially available test kit for determination of serum ferritin, can provide more quantitative information about iron stores than a bone marrow. The FER-IRON test is particularly suitable for pediatric patients as it uses only 50 microliters of serum. Requiring a little more than four hours to perform, FER-IRON's procedure can effectively circumvent a bone marrow when differentiating between iron deficiency and other forms of anemia.

For more information, write or call:
Chang Y. Kim
Marketing Manager
Ramco Laboratories, Inc.
3701 Kirby Drive #490
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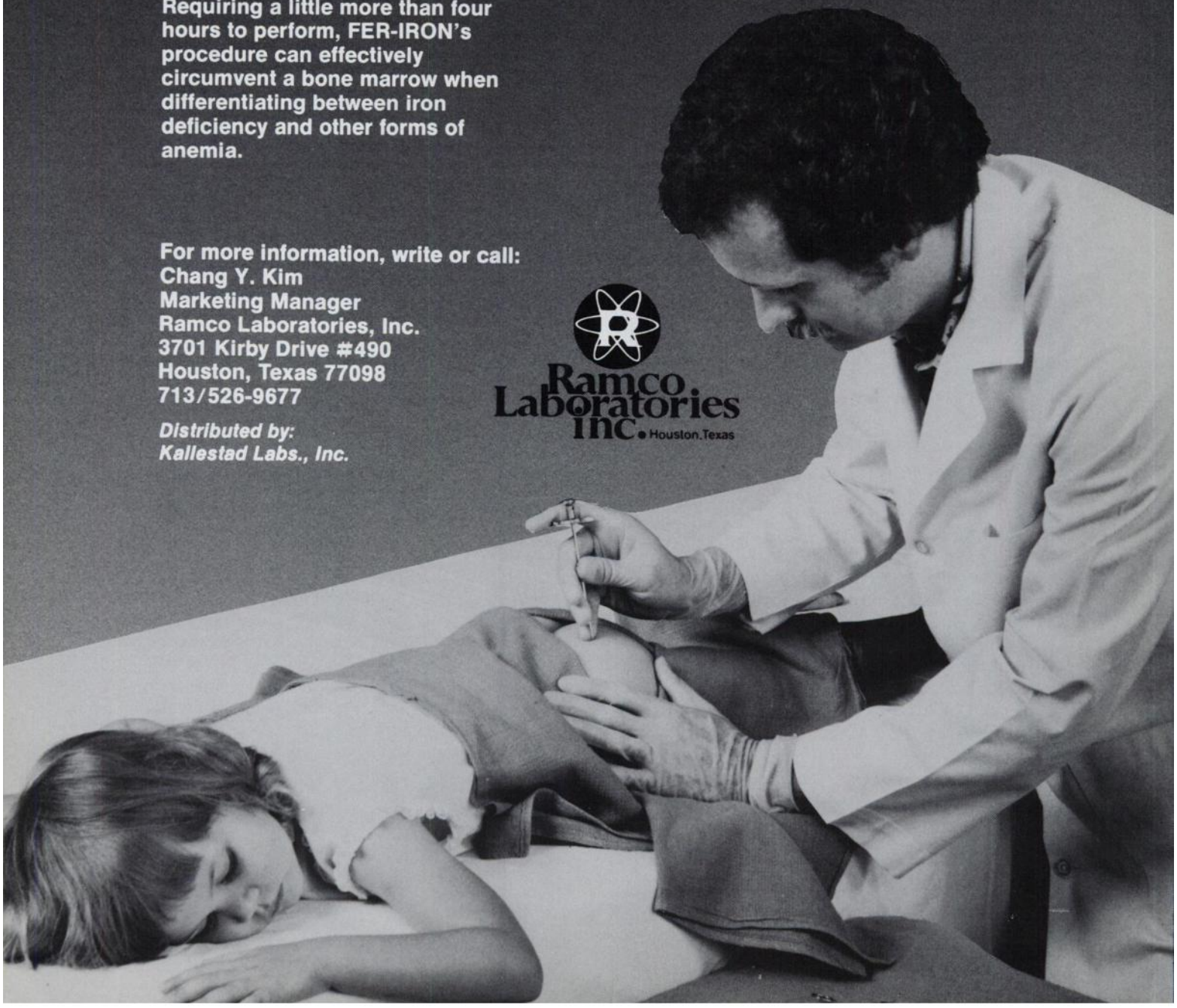

WHERE WOULD THE COMPUTER HAVE BEEN, WITHOUT A COLLEGE EDUCATION?

Still an abacus. Probably.

After all, man's first computer was good enough for several thousand years. Till a bunch of college men started experimenting with a new concept called cybernetics.

And suddenly, you have a computer. A billion-dollar business and still counting.

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All products of colleges and college-trained minds.

You don't want the flow of college-bred new ideas, improvements, inventions to stop. Ever. Not if you're a *good* businessman.

So perhaps you'd better take a good hard look at how much *your* company is giving to higher education. Because inflation has hit colleges and universities even harder than most.

Freedom to experiment is the first casualty of tight budgets.

For the sake of the future, "Give to the college of your choice. Now." Who knows what new billion-dollar business of tomorrow is germinating on some college campus today.

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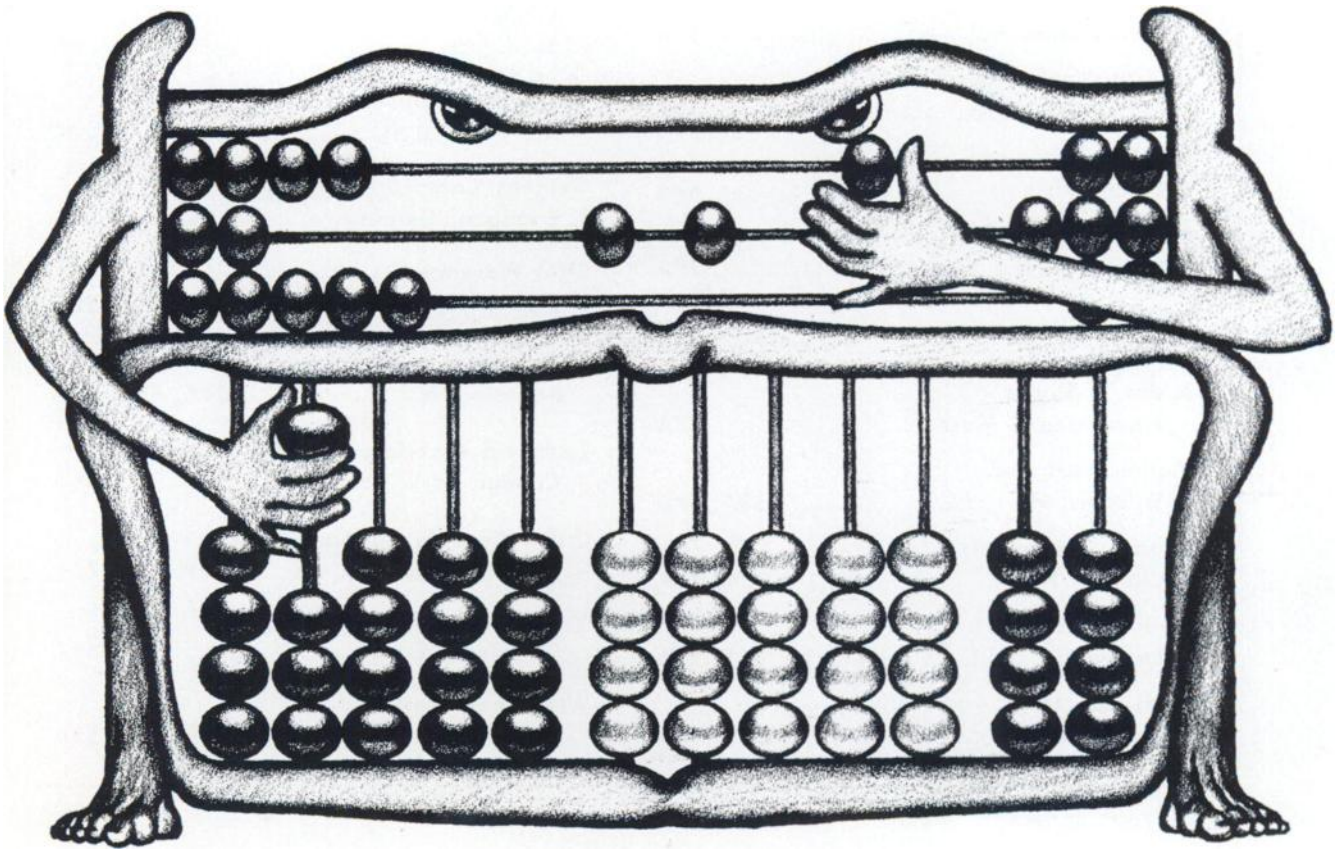
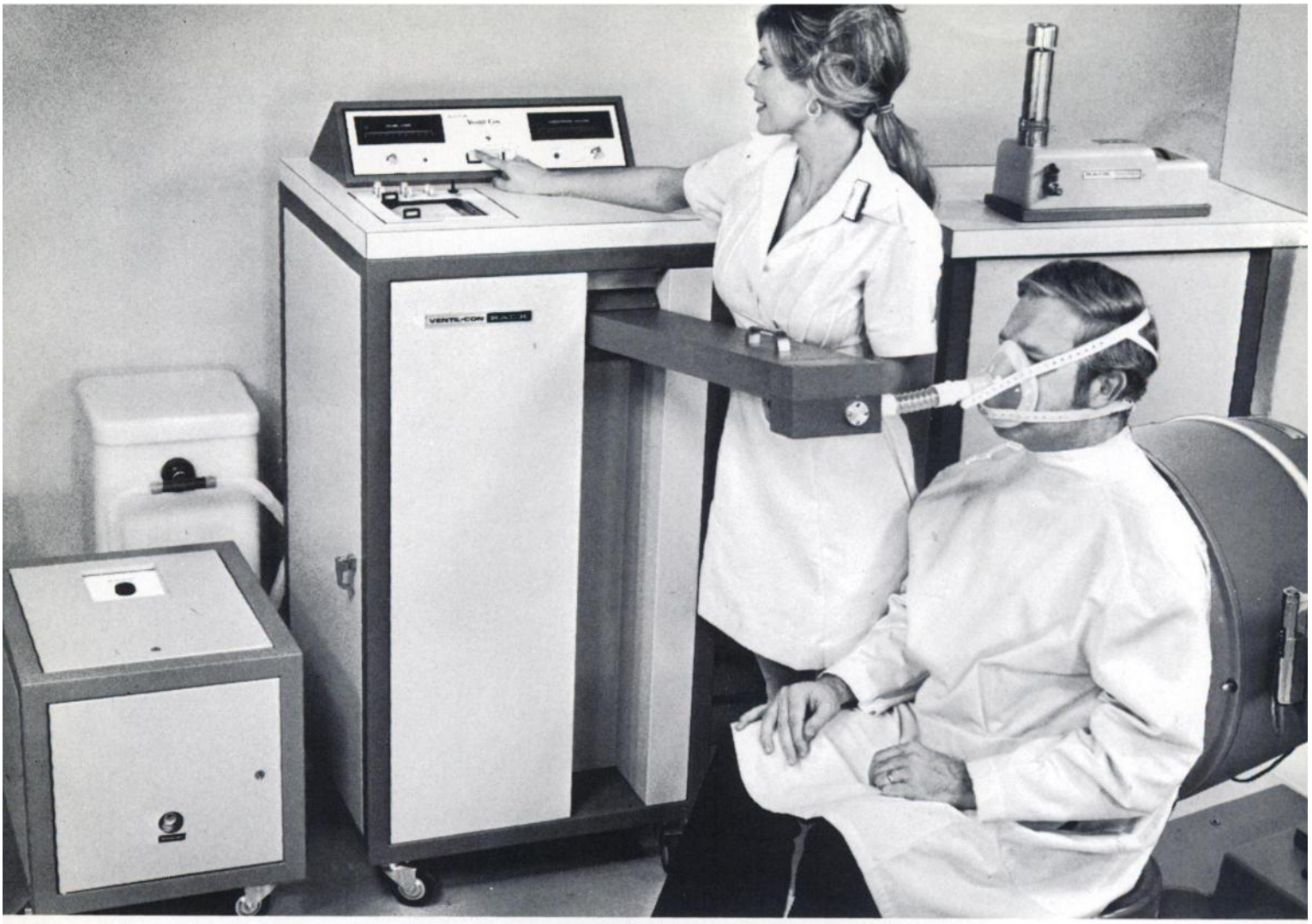
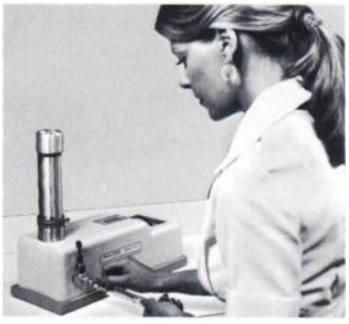




A Complete ^{133}Xe Gas Control System from RADX

The Complete System for Lung Ventilation Studies

Now you can dispense, administer and dispose of ^{133}Xe safely and economically under controlled conditions with a complete system from Radx. The system is designed to protect the user as well as the environment. Patient comfort, safety and ease of breathing are primary concerns.



The START Xenon-Kow II

^{133}Xe is most economically obtained in curie quantity glass ampules. The Xenon-Kow II was designed to safely and conveniently crush the ampule and dispense ^{133}Xe in smaller doses. The dynamic volume storage chamber provides for constant concentrations (decay excepted), and transfer efficiencies exceed 98%. The economies realized will pay for the entire system, usually in the first year.

The HEART of the System Ventil-Con

The Ventil-Con controlled gas delivery system is used for patient administration of ^{133}Xe. You may administer the ^{133}Xe as a bolus or homogenous mixture with air and oxygen to perform the single breath, equilibrium and washout phases of lung ventilation studies.

The FINISH Xenon Trap

The Radx Xenon Trap is the only activated charcoal trap with a built-in ^{133}Xe saturation detector/alarm. When the charcoal reaches its saturation point, an audio/visual alarm is activated indicating it's time to replace the 6-cylinder cartridge pack. Other features are a large desiccant jar for moisture removal, a "flame isolated" pumping system and an optional expandable interface (pictured).

Call Radx, let us analyze and compare your current cost with our cost.

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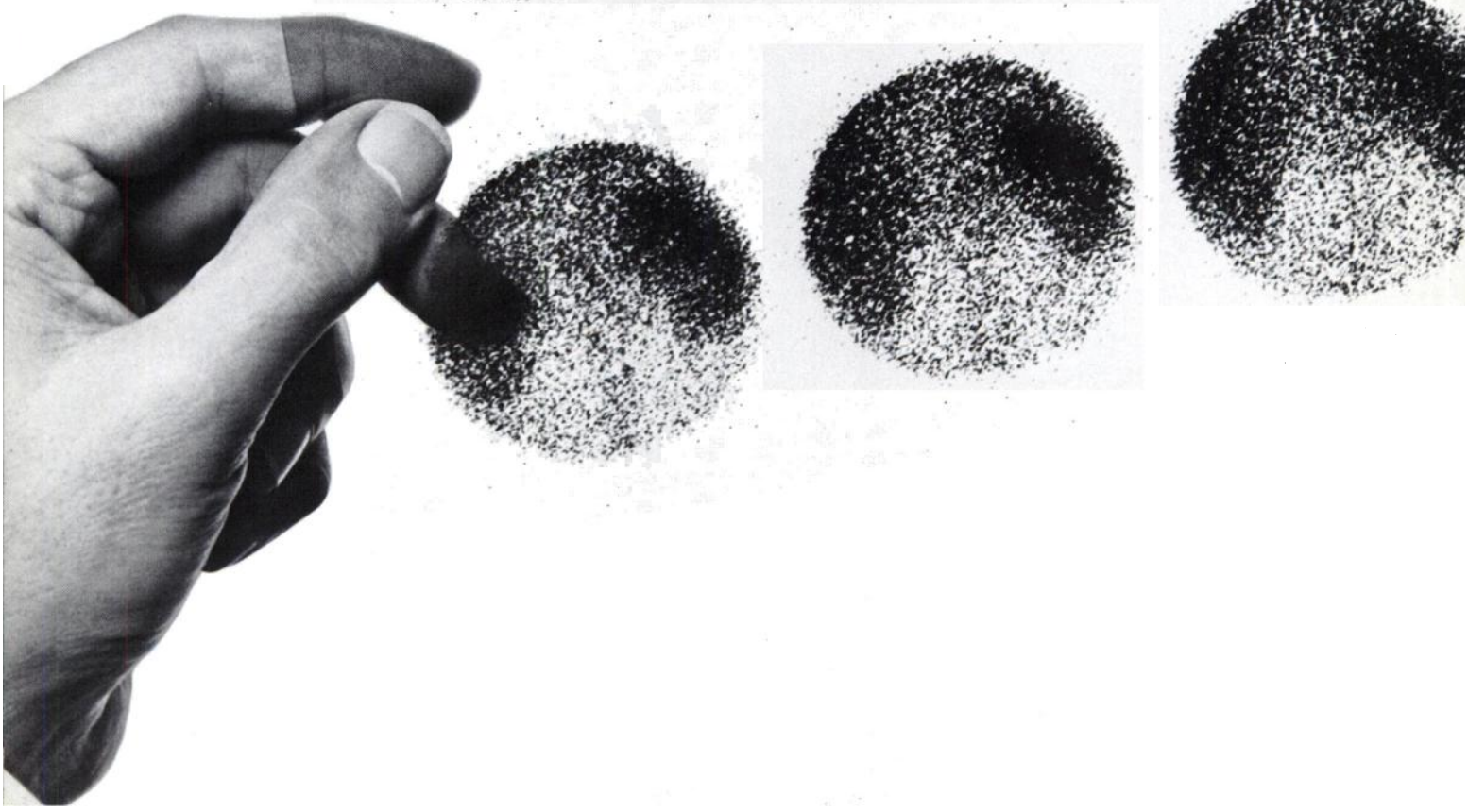

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Full information is available on request.
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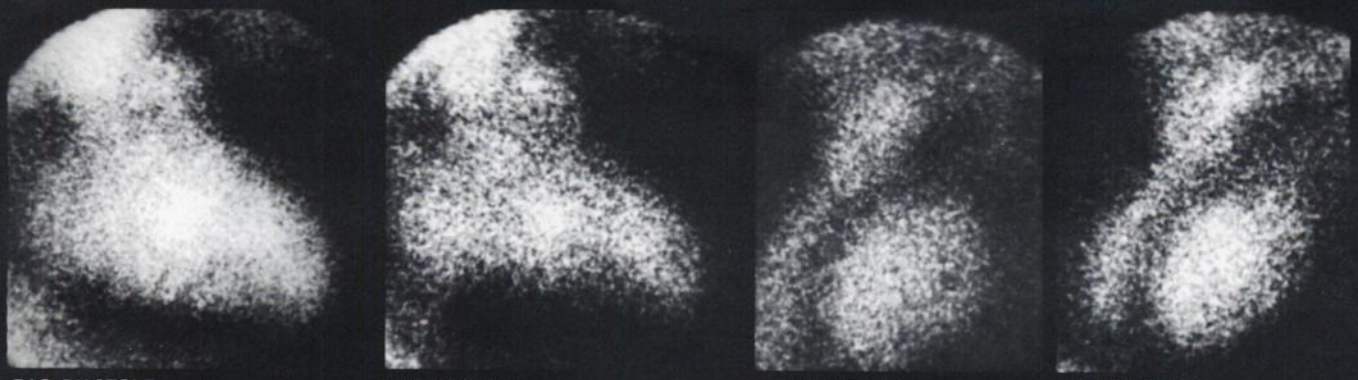
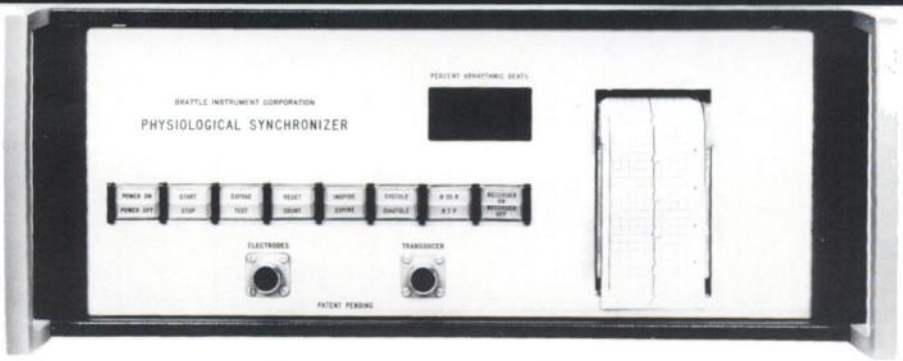
Help your cardiologist study heart kinetics non-invasively with Brattle-gated scintiphotos.



RAO, DIASTOLE | RAO, SYSTOLE | LAO, DIASTOLE | LAO, SYSTOLE

The RAO view shows akinesis of the lower antero-lateral wall and apex; and contraction of the inferior wall and high up the antero-lateral wall. The LAO view shows good contraction posteriorly and akinesis of the septal aspect of the chamber. Patient was injected IV with 20mCi of ^{99m}Tc-labelled Human Serum Albumin. The agent was prepared using the New England Nuclear Electrolysis Kit for labelling HSA. Write or call for a portfolio of Brattle-gated lung, liver and heart studies.



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.

We don't cover our tracks—we print them
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 axillary electrodes captures both heart and breath
It's easy. And we supply disposable, pre-filled electrodes.

Some Brattles have been in clinical use for over three years—in community and major hospitals
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.

What's the next step? Get in touch
Ask your NEN man about Brattles and HSA Kits. He can show you a portfolio of clinical pictures and arrange to have one of our people give you a demo. Or write or call us direct. We'll send you brochures on this and other models, and will give you your own set of clinical pictures and a bibliography on gated scintigraphy. If you wish, we'll even make you a Brattle owner. (This is the best part of our story.)

Brattle Instrument Corporation

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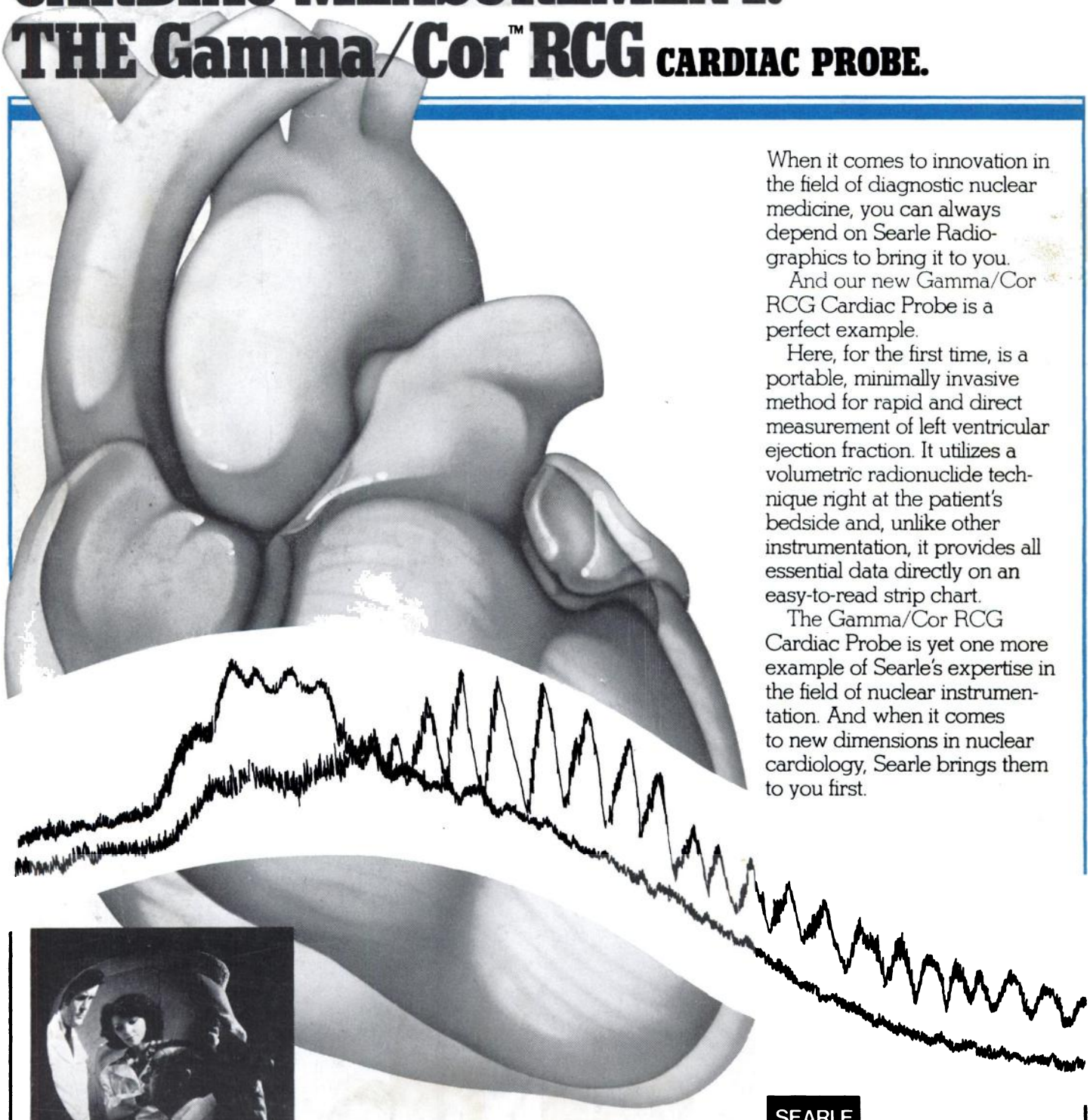
A NEW DIMENSION IN DYNAMIC CARDIAC MEASUREMENT. THE Gamma/Cor™ RCG CARDIAC PROBE.



When it comes to innovation in the field of diagnostic nuclear medicine, you can always depend on Searle Radiographics to bring it to you.

And our new Gamma/Cor RCG Cardiac Probe is a perfect example.

Here, for the first time, is a portable, minimally invasive method for rapid and direct measurement of left ventricular ejection fraction. It utilizes a volumetric radionuclide technique right at the patient's bedside and, unlike other instrumentation, it provides all essential data directly on an easy-to-read strip chart.

The Gamma/Cor RCG Cardiac Probe is yet one more example of Searle's expertise in the field of nuclear instrumentation. And when it comes to new dimensions in nuclear cardiology, Searle brings them to you first.

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