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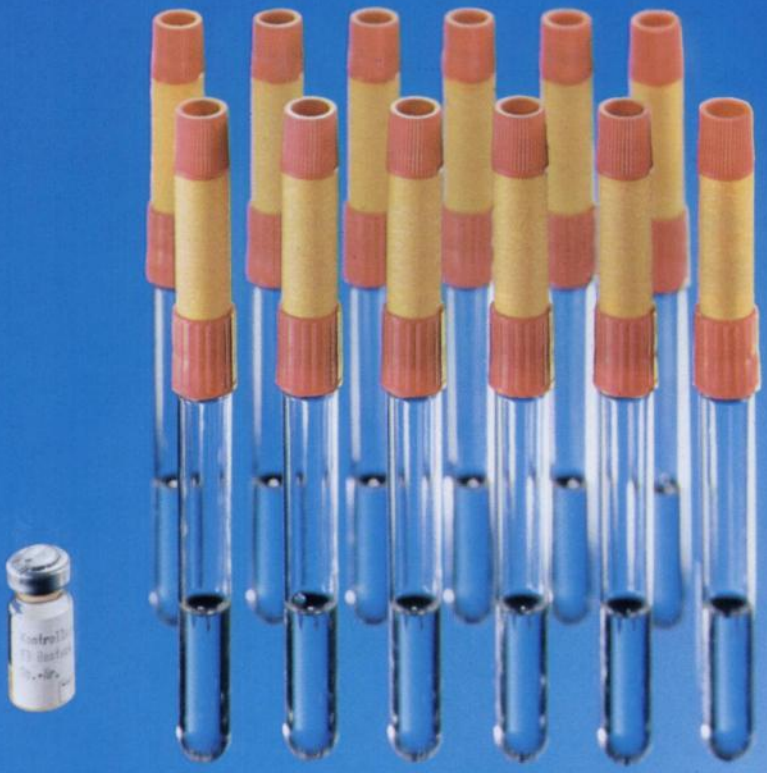

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ALBUMIN MICROSPHERES

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If you have a question, need technical assistance or would like to have a representative call, please dial our toll-free number. (800-328-1671)

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Because of our continued research and development, Microspheres can now be labeled with technetium in just six minutes — only a minute or two longer than kits called "instant".

Not only has the labeling time been cut, but the labeling efficiency has been raised. You now can expect about a 90% tag, and unbound activity is rinsed away in the process. You can't do that with other instant kits.

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Lung imaging may only be your first application for Microspheres. Investigators are now also exploring their use in radionuclide venography and perfusion imaging of the heart, the legs, and the bowel. What will be your next use for Microspheres?

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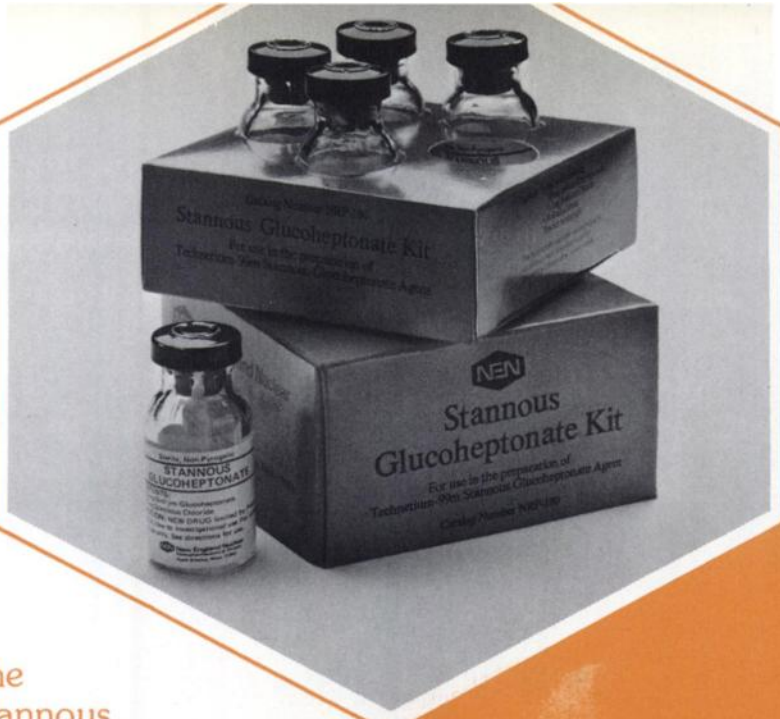

The NEN Stannous Glucoheptonate Kit provides lyophilized stannous glucoheptonate to be used in preparing technetium Tc 99m stannous glucoheptonate agent by the injection of technetium pertechnetate sodium Tc 99m. The resulting diagnostic agent, upon intravenous administration, is being studied for its usefulness for kidney and brain imaging and perfusion studies.

Kidney/Brain Imaging Agent

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Telephone (617) 667-9531

Canada: NEN Canada Ltd., Dorval, Quebec, H9P-1B3, Tel: (514) 636-4971, Telex: 05-821808
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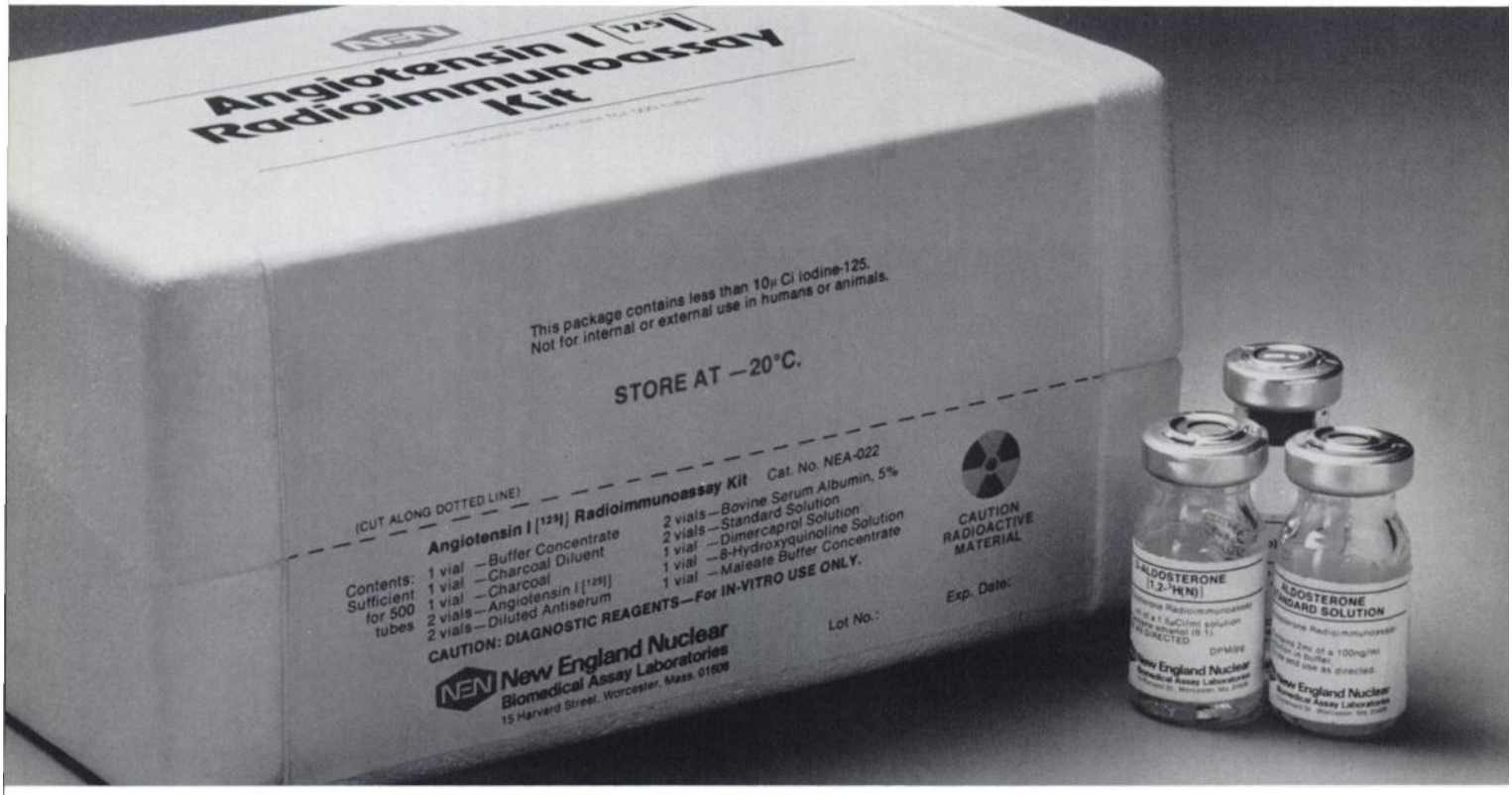

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Europe: NEN Chemicals GmbH, D6072 Dreieichenhain, W. Germany, Siemensstrasse 1. Tel: Langen (06103) 85035

Please send complete information:
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☐ Aldosterone RIA Pak
☐ Deoxycorticosterone RIA Pak

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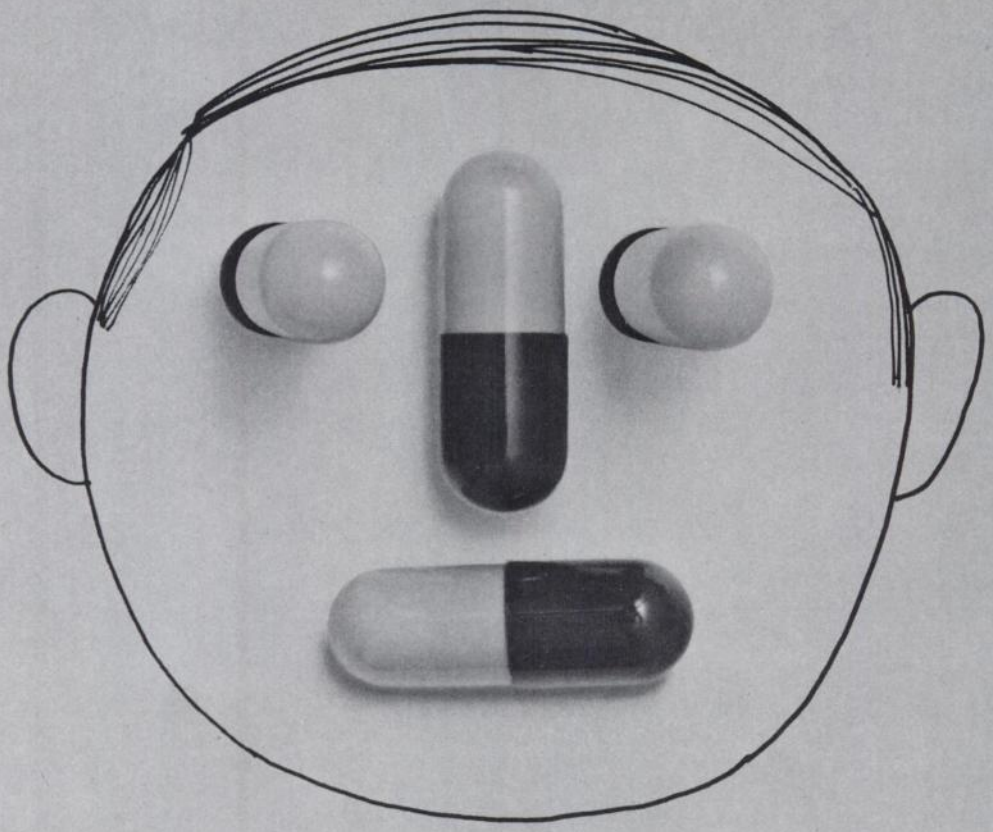

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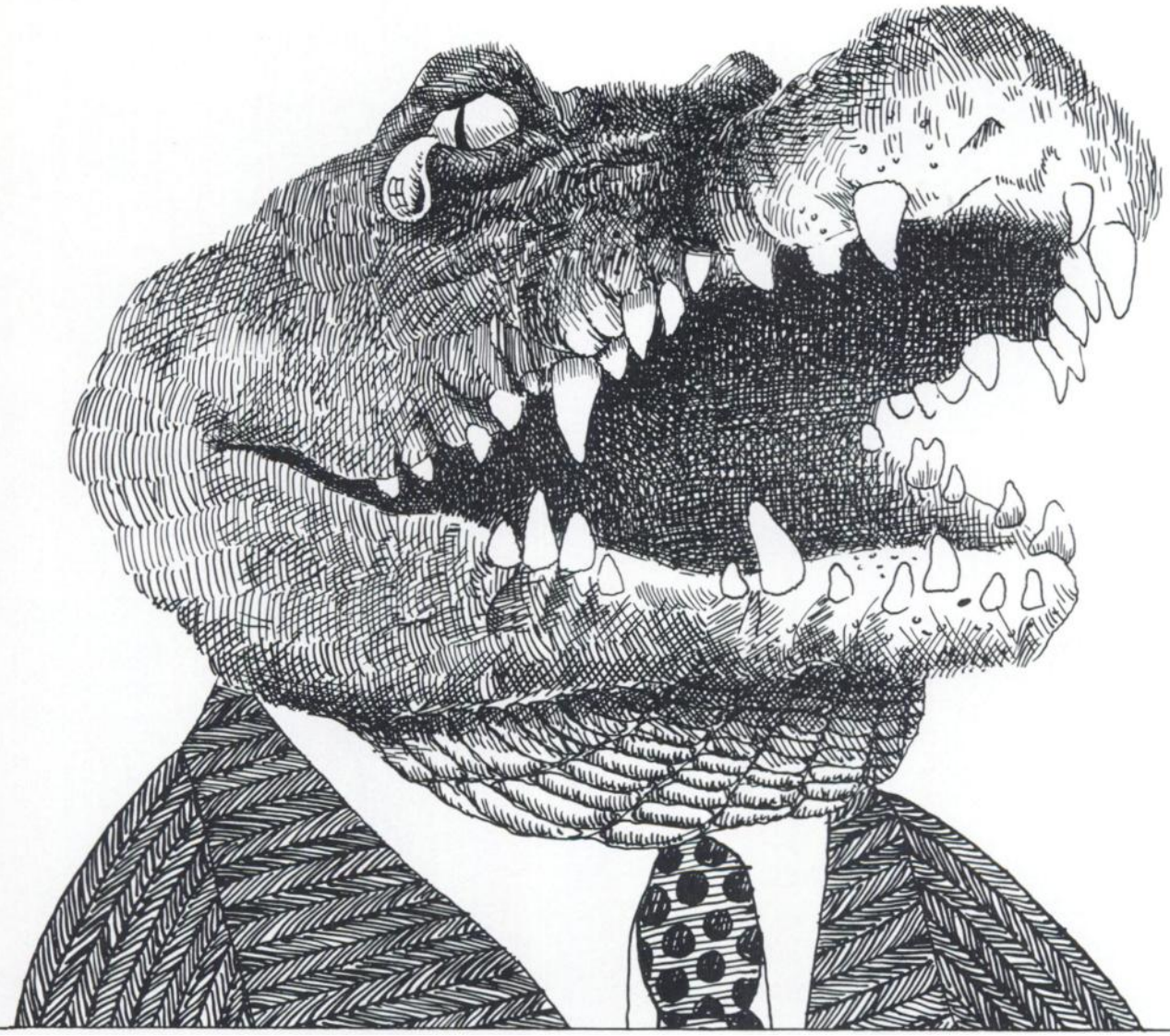
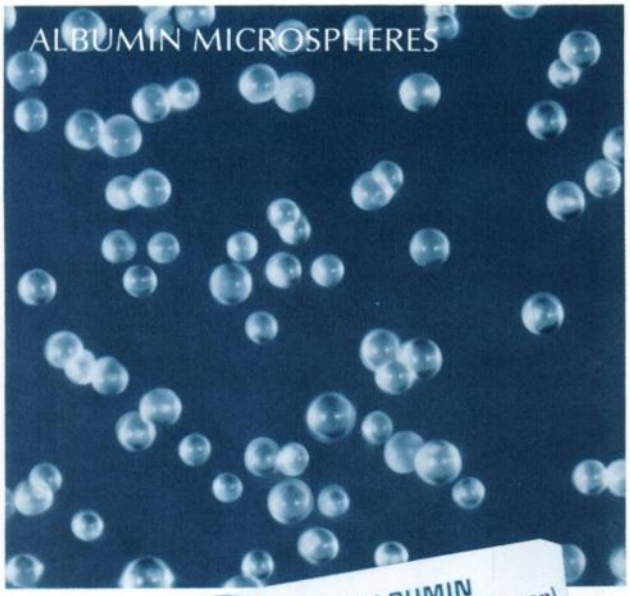


Send Crocodile Coupon to: Dunn Instruments Inc, 52 Colin P. Kelly Jr. Street, San Francisco, Ca. 94107 (415) 957-1600

Yes, I am requesting information (clinical reprints of lacrimal studies included) about the System 350 Micropinhole Collimator.

name address phone


ALBUMIN MICROSPHERES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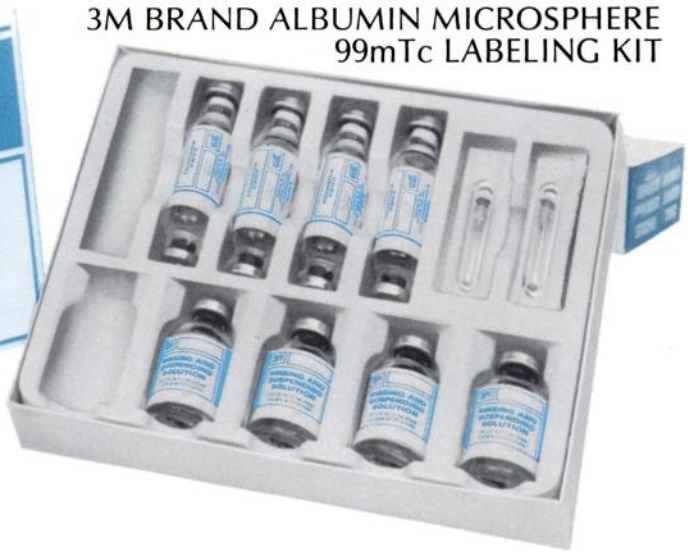
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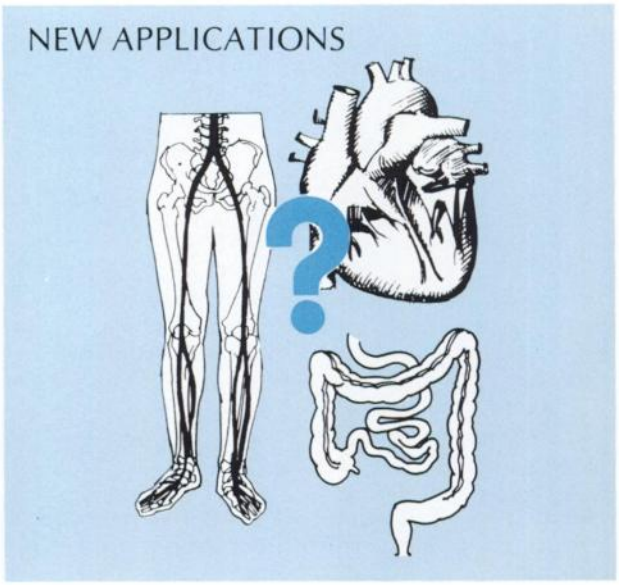

NEW APPLICATIONS
?

Introducing
the lung imaging agent
for pulmonary scintigraphy
that needs no introduction

Lungaggregate™ Reagent

Aggregated Albumin (Human)

For over two years Medi+Physics has been conducting clinical trials on Lungaggregate™ Reagent. The manufacturing process and the resulting product are time-tested and dependable.

Excellence of imaging quality has been confirmed by clinical studies in more than 4,000 patients. There were no reported adverse reactions. See the last page for full product information which lists all indications, contraindications, warnings, precautions, adverse reactions, dosage, and administration in the use of this material.

Lungaggregate™ Reagent tagging efficiency is consistent, and consistently high—over 90%. There is virtually no label loss for 24 hours.

As for uniformity of size, over 90% of the particles have a mean diameter of 10 to 90 microns; less than 1% have a mean diameter over 100 microns; and none have been observed greater than 150 microns.

Preparing Lungaggregate™ Reagent is simply and quickly done—it is an aqueous suspension.

One lung imaging agent offers all of these advantages:

Imaging excellence

Soft albumin particles with rapid lung clearance—4.77 hours biological half-time

High tagging efficiency—greater than 90%

Compatibility with most sources of oxidant-free Tc 99m sodium pertechnetate solutions

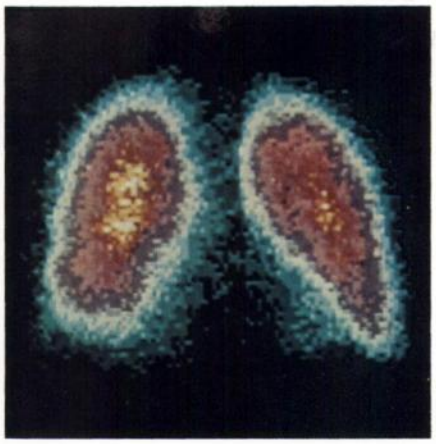
Controlled particle size—90% are within the 10 to 90-micron range

Clinical proof—over 4,000 patient studies

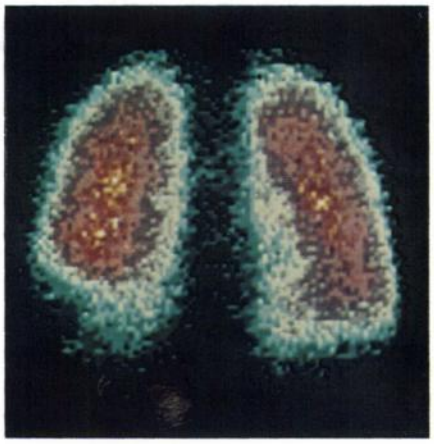
Simplicity and speed of preparation

Six-month shelf life

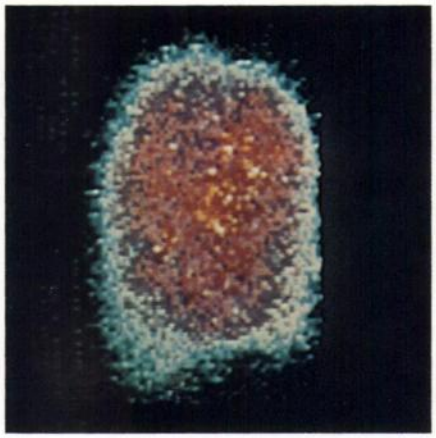
Available from nine Medi+Physics regional distribution centers



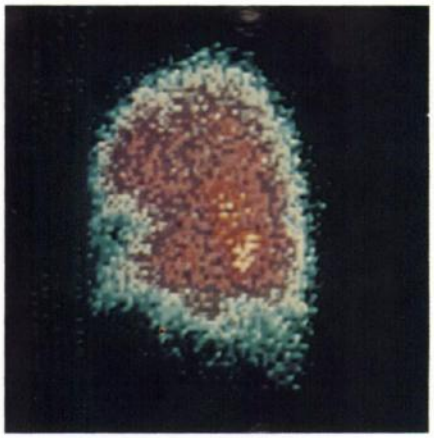
Anterior



Posterior



Right Lateral



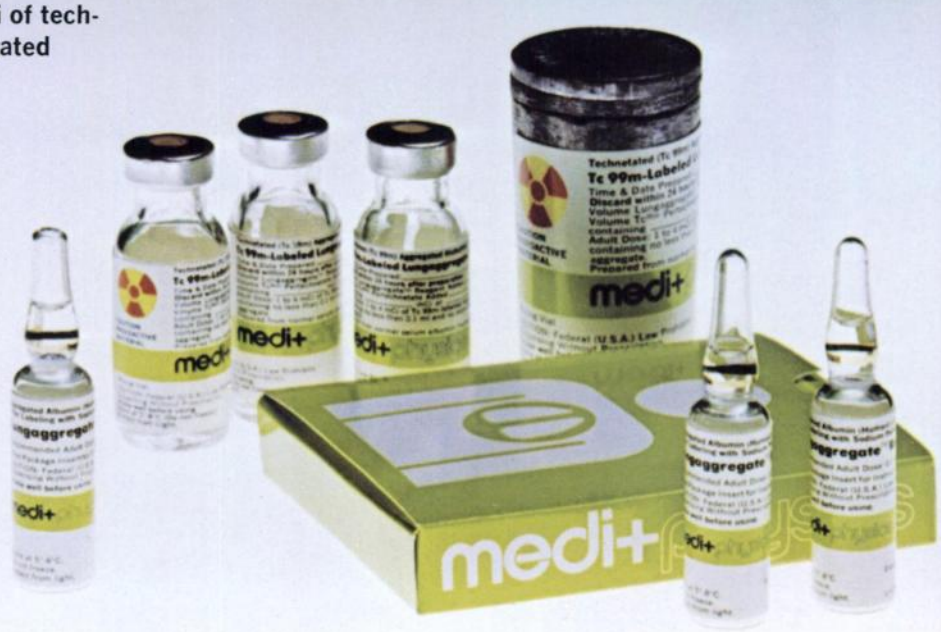
Left Lateral

Lung images demonstrating a perfusion defect after intravenous injection of 3.5 mCi of technetated (Tc 99m) aggregated albumin (human).

Counts collected—413,000 to 419,000 per view.

Lung imaging time—160 seconds on posterior and lateral views. 208 seconds on anterior view.

(Complete data are available on request from Medi+Physics)



Lungaggregate™ Reagent

Aggregated Albumin (Human)

1. Name:
Aggregated Albumin (Human) for Intravenous Injection after Labeling with Sodium Pertechnetate Tc 99m.
Lungaggregate™ Reagent.

2. Description and Ingredients:
Lungaggregate™ Reagent is prepared from albumin from human plasma nonreactive when tested for hepatitis associated (Australia) antigen (less than 1.0 mg of human serum albumin per ml), stannous chloride (less than 0.38 mg/ml) in phosphate buffered sodium chloride solution at pH 5.0 to 6.0, and 2% benzyl alcohol added as a preservative. Each lot of Lungaggregate™ Reagent meets the following specifications prior to release.
2.1 Size distribution—over 90% of the counted particles have a mean diameter of 10-90 μm, less than 1% have a mean diameter over 100 μm and no particles observed have a mean diameter greater than 150 μm.
2.2 Particle density—300,000 to 600,000/ml
2.3 Apyrogenic
2.4 Sterile
2.5 pH—5.0 to 6.0
2.6 Passes general safety test
2.7 Labeling and distribution: Labeled product meets the following criteria:
(a) Less than 10% of activity is free pertechnetate;
(b) Over 80% of injected activity is in lungs, and the lungs to liver and spleen activity ratio is greater than 10/1 at 3 to 5 minutes after intravenous administration in rats.

3. Method of Preparation:
(NOTE! Aseptic technique must be used in the following preparation to minimize the possibility of contamination with micro-organisms.)
3.1 Record on the mixing vial label, shield label, and record labels the time and date of preparation, the volume of Lungaggregate™ Reagent and Tc 99m volume, activity, and calibration time to be added to the mixing vial.
3.2 Shake the aggregate ampul vigorously to suspend particles.
3.3 Open the ampul.
3.4 Withdraw (very slowly) 1.5 to 2.0 ml of aggregate from the ampul using a syringe with an 18 to 21 gauge needle.
3.5 Inject (very slowly) the syringe contents into the mixing vial.
3.6 Wrap the mixing vial in an absorbent paper disc and place it in the lead shield. Place the completed shield label on the lead shield.
3.7 Add 0.5 to 2.0 ml of oxidant-free Tc 99m-pertechnetate in saline into the shielded mixing vial, shake vigorously for at least 30 seconds, and incubate contents at room temperature for 30 minutes. (The total amounts of Reagent and Tc 99m-pertechnetate solutions added **must be less than 3.5 ml since this is the maximum capacity of the mixing vial.** Moreover, the total Tc 99m activity used must be such that at the time of use of the product the patient dose consisting of 1 to 4 mCi activity must contain 0.1 to 1.5 ml of Reagent.) Use of Sodium Pertechnetate Tc 99m having a maximum specific concentration of 25 mCi/ml is recommended.
3.8 Retain record label as documentation for completed preparation procedure.

4. Actions (Clinical Pharmacology):
When macroaggregated human serum albumin (particle size greater than 10 μm) is injected intravascularly, it lodges in the first arteriolar-capillary bed it reaches, and the relative distribution of the macroaggregates is a measure of the relative blood flow to these vascular beds. If a particular vascular bed is occluded, as is seen in the lung following pulmonary embolization, then the tissue having a compromised blood supply fails to show accumulation of radioisotope in contrast to surrounding normally perfused tissue. Radioisotopically labeled macroaggregated albumin has thus proven useful in evaluating perfusion of the lungs and to a lesser extent other organs in which the aggregates may be introduced into their afferent blood supply.

5. Indications:
Imaging of regional pulmonary perfusion in the presence of clinically suspected regional pulmonary ischemia, such as is seen with pulmonary emboli, neoplasms and obstructive lung disease.

6. Contraindications:
The presence of large right to left cardiovascular shunts which could allow intravenously administered macroaggregates to directly enter the systemic circulation is a contraindication for the use of macroaggregates. Particulate material such as macroaggregated albumin should not be administered to patients with cyanosis or with evidence of severe restriction to pulmonary blood flow such as may be present in pulmonary hypertension of various etiologies. This agent should not be administered to pregnant or lactating women, or to patients under eighteen years of age unless the expected benefits to be gained from the study are critically judged to outweigh the risks involved.

7. Warnings:
Whenever protein-containing materials such as Tc 99m labeled Lungaggregate™ are administered to man, especially when administered repeatedly, there is a possibility that hypersensitivity reactions may occur. Epinephrine, antihistamines and corticosteroid drugs should be readily available whenever this product is administered.

8. Precautions:
The precautions associated with the use of Tc 99m labeled Lungaggregate™ are thought to be the same as those associated with the use of radioactive material with similar physical and chemical properties. Appropriate procedures should be used to minimize exposure to the patient and all attending personnel. Thus, the dose of the Tc 99m labeled Lungaggregate™ used in a given patient should be the minimum necessary to achieve useful information for the clinically indicated study and for the kind of radiation detection devices employed. To insure the integrity of the labeled soft macroaggregate of this agent, it is emphasized that needles of 18 to 21 gauge should be used for preparing or administering this diagnostic agent. The injection should be made slowly to prevent disruption of the aggregates. In any case, once the preparation is withdrawn from the vial it should be administered promptly to avoid settling and clumping of the aggregate particles. One should also avoid aspirating blood and tissue fluids into the syringe in a manner which could promote the formation of small clots. Some users have successfully circumvented this latter situation by infusing a small amount of sterile saline intravenously and then giving the Tc 99m-Lungaggregate™ preparation through the patent I.V. needle. On the other hand, one should not use an ongoing intravenous infusion as a portal for administering this agent because of the well known tendency of fibrin accumulations in and about such intravascularly placed devices. Only authorized physicians and personnel who have adequate training in the proper use and safe handling and disposal of radiopharmaceuticals should use this product.

9. Adverse Reactions:
Although no adverse reactions attributable to the reagent were reported in approximately 4,000 reported patient studies using Tc 99m labeled Lungaggregate™ Reagent (see Section 12 Clinical Studies), and while no adverse reactions are anticipated relative to its use, one cannot completely discount the possibility of such an occurrence. Hypersensitivity to the agent and intolerance to any degree of particle-induced pulmonary capillary blockade may possibly result in adverse reactions. Fatal reactions have been reported following administration of other preparations of macroaggregated human serum albumins [1, 2, 3].

10. Dosage and Administration Procedure:
10.1 Administer 1 to 4 mCi of Tc 99m labeled macroaggregated albumin in a volume containing no less than 0.1 ml and no more than 1.5 ml of the Lungaggregate™ Reagent to a patient in a single study.
10.2 Prepare patient for the study and for intravenous injection before withdrawing dose from the mixing vial.
10.3 Shake contents of the mixing vial vigorously just before removing aliquot intended for patient use.
10.4 Withdraw (very slowly) the calculated dosage and volume from vial into a syringe using an 18 to 21 gauge needle.
10.5 Inject dose intravenously promptly after withdrawal from vial. Avoid drawing blood or tissue fluids into syringe in a manner which would enhance clotting.
10.6 Image immediately after I.V. injection.
10.7 Store remainder of preparation in the mixing vial under refrigeration (Do Not Freeze), protected from light. It may be used up to 24 hours after time of preparation. Discard after 24 hours from time of preparation.
10.8 Disposal methods must comply with prevailing drug and radioactive waste disposal regulations.

11. Radiation Dosimetry:
Based on human whole body in vivo distribution kinetics of intravenously administered Tc 99m labeled Lungaggregate™ described in Section 12, Dr. E. M. Smith* calculated the radiation dose to various organs of a standard 70 Kg man using the absorbed fraction method. The results of these calculations follow.

Absorbed Dose in Rads

Organ	1 mCi Tc 99m Administered	4 mCi Tc 99m Administered
Liver	0.080	0.320
Lung	0.190	0.760
Spleen	0.060	0.240
Total Body	0.011	0.044
Ovaries	0.007	0.018
Red Marrow	0.011	0.044
Testes	0.004	0.016

*Edward M. Smith, ScD., Miami, Florida

12. Clinical Studies:
Evaluation of in vivo distribution kinetics of Tc 99m activity following intravenous administration of Tc 99m labeled Lungaggregate™ to normal human subjects was performed by a quantitative evaluation of whole body scintillation scanning. The data was consistent with a kinetics model which identified 90% of the administered activity as initially localized in the lungs with a subsequent biological clearance half-time of 286 minutes or 4.77 hours; as activity cleared from the lungs, 30% of the administered activity eventually concentrated in the liver and spleen; all remaining activity had a whole body distribution pattern similar to that of pertechnetate ion. Mathematically stated, the model identifies the fractional distribution pattern of activity as follows: Lung = $0.90e^{-0.1452t}$, Liver and Spleen = $0.30\ (1\text{-}e^{-0.1452t})$, Whole Body distribution similar to pertechnetate ion = $0.10 + 0.60\ (1\text{-}e^{-0.1452t})$ (where t = time in hours after administration of activity).
Clinical evaluation of Tc 99m labeled Lungaggregate™ Reagent in approximately 4,000 reported patients indicated that when prepared and used as directed, satisfactory imagings of pulmonary perfusion resulted. No adverse reactions have been observed that could be causally related to the administration of this agent.

13. Licensing:
Tc 99m labeled Lungaggregate™ Reagent may be used only by physicians licensed for such use. Such licensing should be obtained from the U.S. Atomic Energy Commission in AEC Regulated States and Federal medical facilities and from delegated state authorities in all other states.

Footnote:

[1] Wagner, H. N., Jr., Radiology, 91:1235, 1968.
[2] Dworkin, H. J., Smith, J. R., Bull, F. E., New England Journal of Medicine, 275:376, 1966.
[3] Vincent, William R., et al, Goldberg, S. J., Desilets, D., Radiology, 91:1181-1180, 1968.

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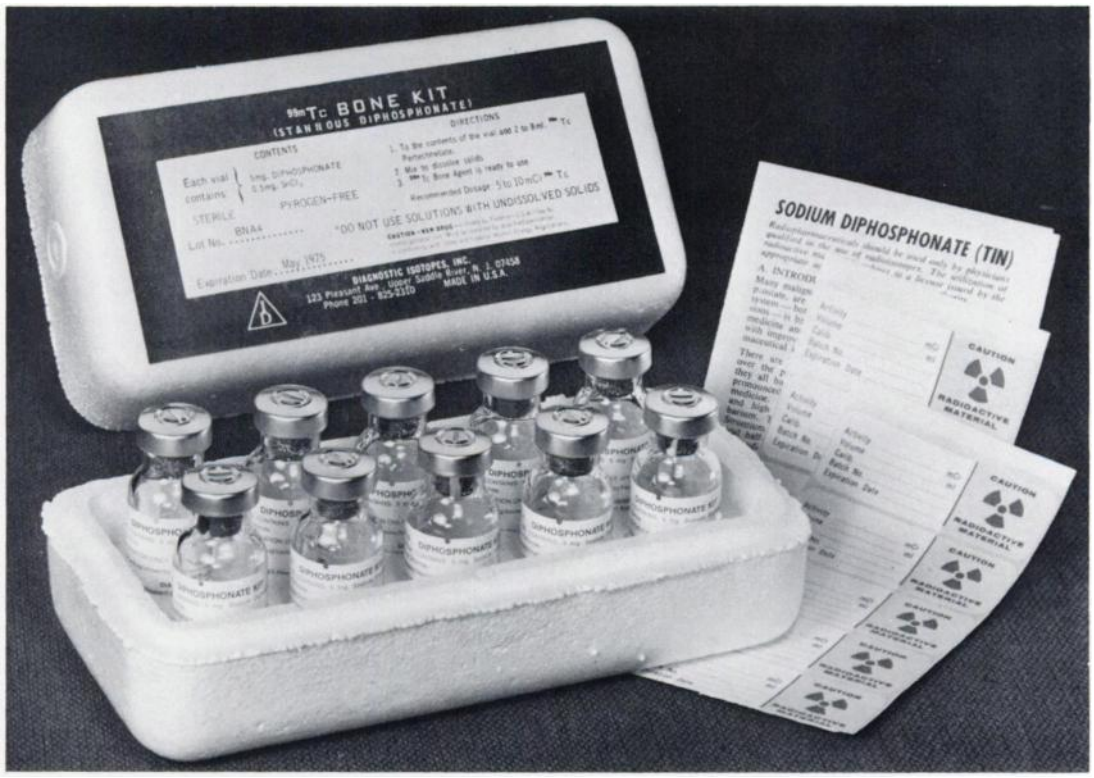

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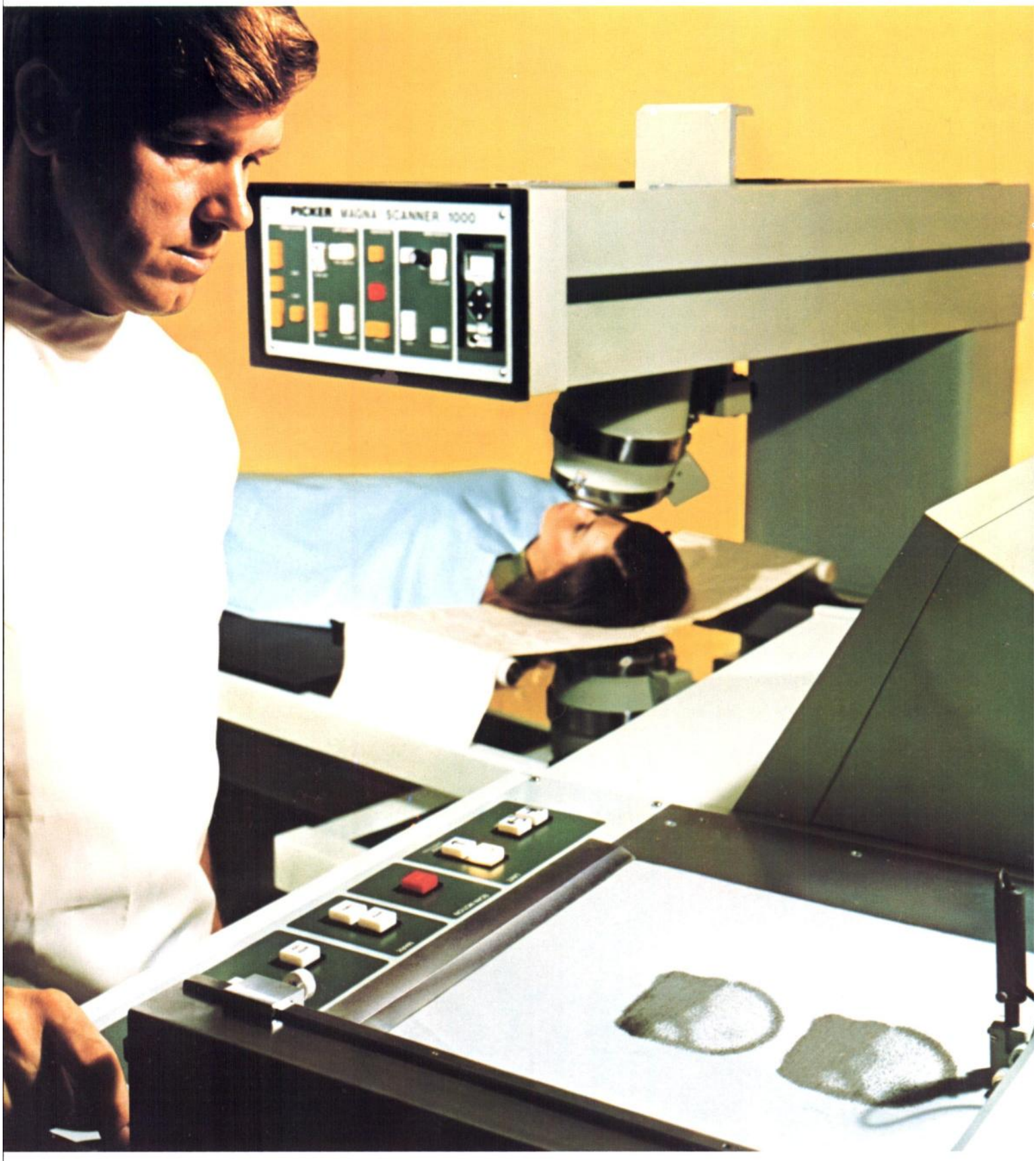

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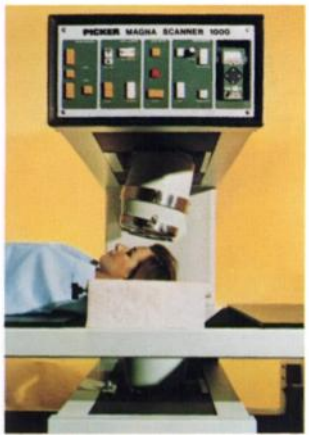
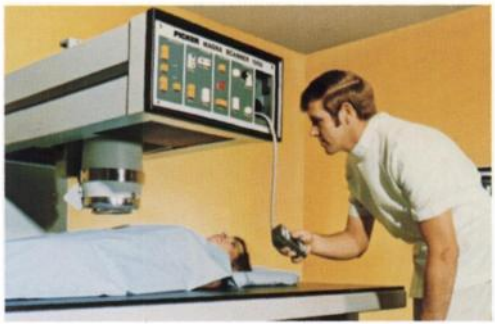


All these advantages (and a few more) are brought together in the new Magna Scanner 1000. Picker's creative engineering team designed Magna Scanner 1000 right from the ground up. No effort was spared to make it the most advanced scanner available to the medical profession.

Many standard features are exclusive to Magna Scanner 1000. Fastest scanning speed (to 1000 cm/min)… widest choice of minifications (1:1 up to 1:10) for whole-body or single-organ procedures…automatic hotspot locator that finds (and remembers) hotspot location…a sliding-average computer (statistically smoothes out image input data)…and collimation specifically designed for 99mTc labeled phosphate compounds for skeletal imaging.



Other advantages you've come to expect from the scanner leader are present in great abundance in Picker's Magna Scanner 1000. Large (24 x 75") field, big enough for 97½% of all skeletal surveys…pushbutton control of scan parameters unique to each organ…push-button calibration that assures constant film density (patient-to-patient, week-to-week).

Magna Scanner 1000 is the total performance whole-body scanner. And it's backed for maximum in-use availability by Picker's worldwide technical service organization. Picker Corporation, 595 Miner Road, Cleveland, Ohio 44143.

Another reason to buy from...

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ONE OF THE 3M COMPANIES

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If your **hospital** or **private practice** requires . . .

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Maximum clinical capability per dollar–
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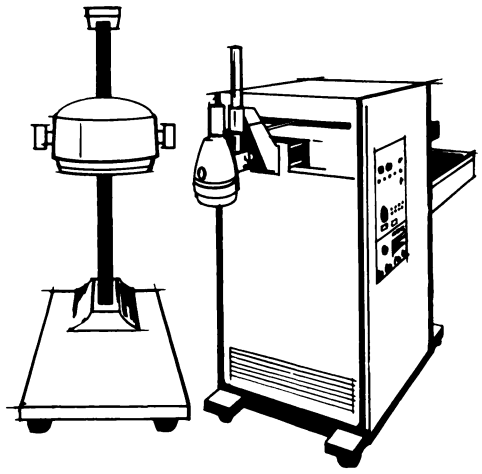
. . . then **Medx** can help!



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CAMX-1

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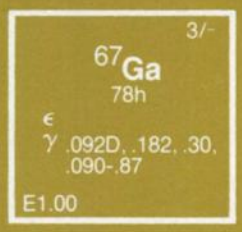
Gallium Ga 67

Gallium Ga 67 is produced on a regular basis on NEN's own Cyclotron, by the proton irradiation of enriched Zinc Oxide. It is made into a dosage form of Gallium citrate Ga 67, and contains a preservative. It is now under clinical evaluation for such disease states as bronchogenic carcinoma, lymphomas, and Hodgkin's disease.



Send for additional information

Name_____

Affiliation_____

Address_____

_____ Zip_____

New England Nuclear
Radiopharmaceutical Division
Atomlight Place, North Billerica, Mass. 01862
Telephone (617) 667-9531

Canada: NEN Canada Ltd., Dorval, Quebec, H9P-1B3, Tel: (514) 636-4971, Telex: 05-821808
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ALBUMIN (HUMAN) KIT
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CAUTION: FROZEN MATERIAL
Store in Freezer Immediately
at −10° C (14° F) or Less
Do Not Allow Contents of Kit to Thaw
COLD

Introducing TechneScan® MAA
(Aggregated Albumin [Human])
Lung Scan Kit
with features only a frozen product can give

Tagging Efficiency...

The tagging efficiency experienced with the **TechneScan MAA** Kit is remarkably consistent, always at or near 100% conversion of pertechnetate to labeled MAA, with little or no loss of the label for up to 24 hours.

Particle Size Range...

Specifications require that not less than 90% of the particles are 10 to 90 microns in size with not more than 10% below 10 microns, and none greater than 150 microns.

Our investigations indicate that 95% of the **TechneScan MAA** particles are in the 10 to 60 micron range, with 5% less than 10 microns, 0.1% between 60 and 150 microns and none greater than 150 microns. This controlled particle size range, plus the fact that there is no tendency to agglomerate, results in good images of lung perfusion.

Simplicity...

Preparation of **TechneScan MAA** Tc 99m is extremely simple, requiring only aseptic addition of a pertechnetate solution to the vial. There is no heating, sonication, centrifugation, clean-up or transfer required. The total preparation time is less than 20 minutes.

Stability...

The expiration date of each **TechneScan MAA** Kit is 6 months after date of manufacture. This 6-month shelf-life permits large inventories to be maintained, reducing the likelihood of depleted supplies.

Safety...

TechneScan MAA is extremely well tolerated. It may be used with reliance on its proven safety, shown by clinical studies. Lung clearance half-time is approximately 6 hours . . . virtually complete urinary excretion occurs in about 24 to 48 hours. And there is to date no evidence of antibody formation.

Economy...

Up to 6 adult patients can be scintigraphed from the preparation of a single **TechneScan MAA** Vial, helping reduce procedure cost per patient.

If tagging efficiency, particle size range, safety, reliability and convenience are factors in your laboratory, consider the **TechneScan MAA** Kit. It's a step forward in lung scanning. For further information contact your Mallinckrodt representative.

CONTRAINDICATIONS: The safety of **TechneScan MAA** Tc 99m in patients with a known right-to-left cardiac shunt has not been established and its use in such patients is contraindicated.

WARNINGS: In acute cor pulmonale the administration of aggregated albumin is theoretically hazardous due to the temporary small additional mechanical impediment to pulmonary blood flow. Although not reported with **TechneScan MAA** Tc 99m there are two reports in the literature of deaths occurring after the administration of radioiodinated aggregated albumin as a result of pre-existing primary pulmonary hypertension.[1,2]

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

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.

This radiopharmaceutical preparation 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, expecially those elective in nature, of a woman of childbearing capacity should be performed during the first few (approximately 10) days following the onset of menses.

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 minimal radiation exposure to the patient, consistent with proper patient management, and to insure minimum radiation exposure to occupational workers.

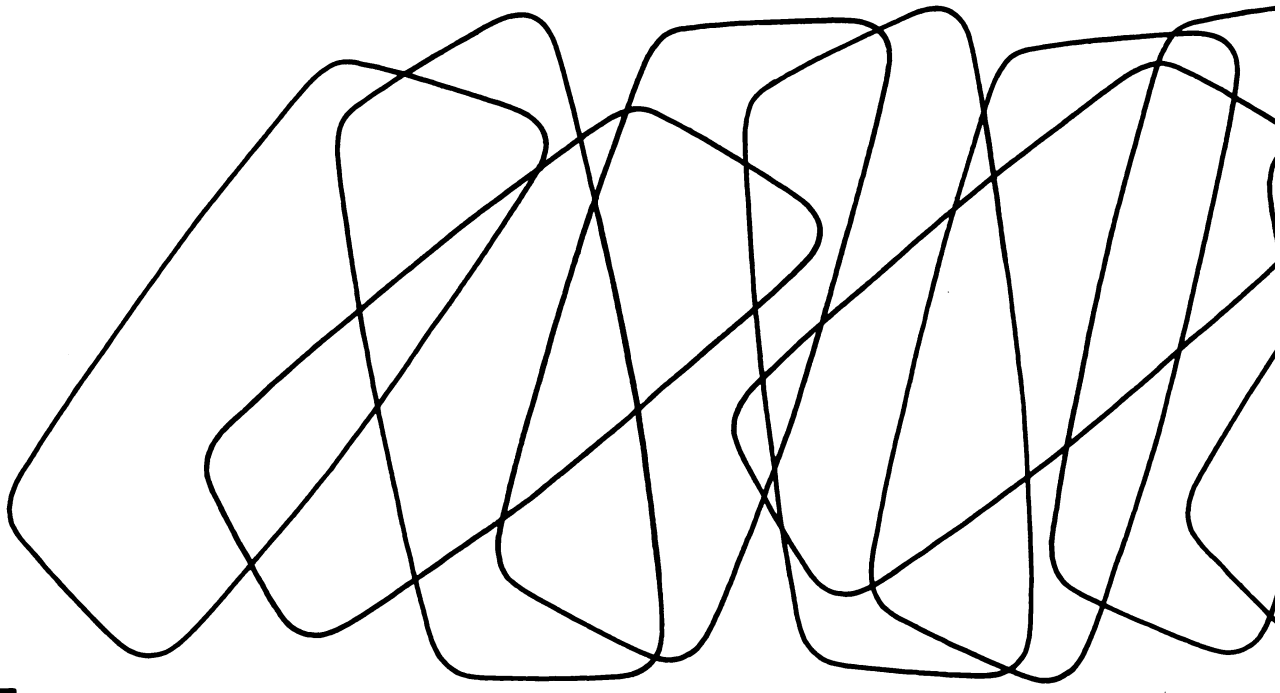
ADVERSE REACTIONS: Although no anaphylactoid reactions have been reported in patients following the administration of **TechneScan MAA** Tc 99m, the possibility should be considered that hypersensitivity reactions may occur rarely in patients who, after the initial administration, receive additional doses a number of weeks after the initial dose.

Mallinckrodt®
NUCLEAR

Mallinckrodt, Inc.
675 Brown Road
Hazelwood, Missouri 63042

[1]Dworkin, H. J.; Smith, J. R. and Bull, F. E.: Reaction after Administration of Macroaggregated Albumin for a Lung Scan. **New England J. Med., 275**:376, August 18, 1966.
[2]Roberts, H. J.: Fatal hemoptysis in pulmonary embolism probably precipitated by pulmonary scanning—Report of a case and suggested precautions. **Angiology, 21**:270, 1970.

Elscint's new superfast gamma camera



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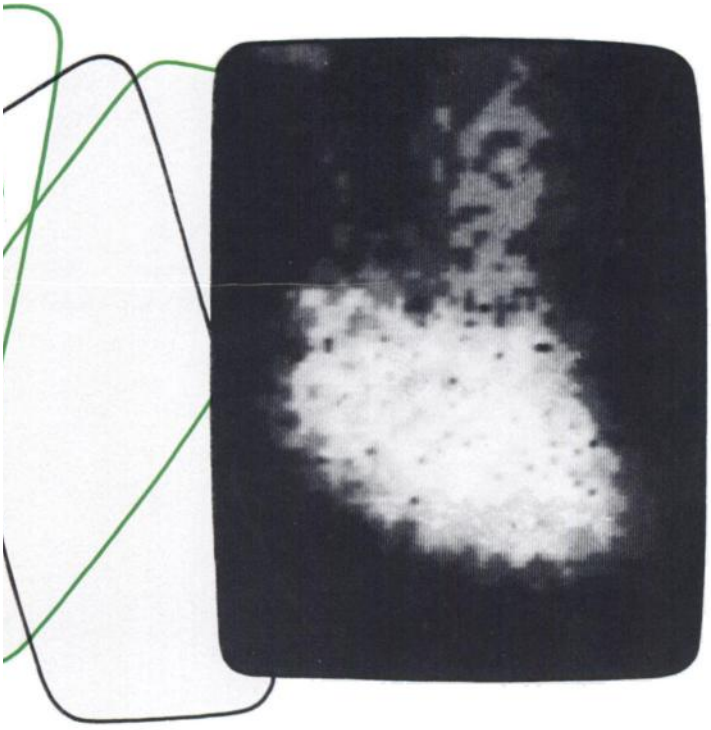
. . . even when you're using the fastest decay isotopes, you'll get sharp precise images.

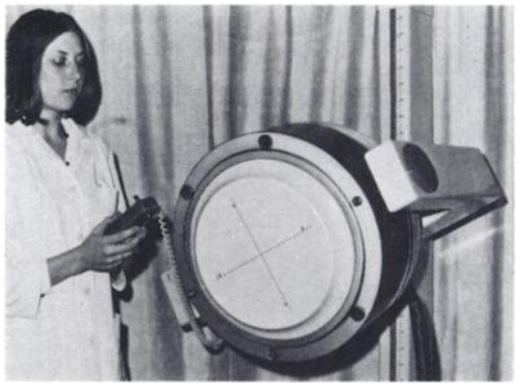
The new Elscint CE-1 Gamma Camera gives you the fastest route to improved dynamic studies. Its short dead time enables you to obtain high densities of information even with extremely short frame times.

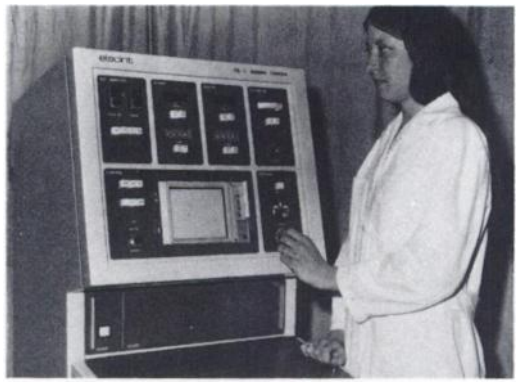
Of course, Elscint provides the full spectrum of features required for state-of-the-art performance: excellent uniformity, linearity and resolution, and a maximum count rate of more than 200,000 cps. Included are a wide range amplifier and isotope selector and a 7-decade scaler-timer with preset time and count selection. Built-in A/D converters speed recording and computer processing of output data.

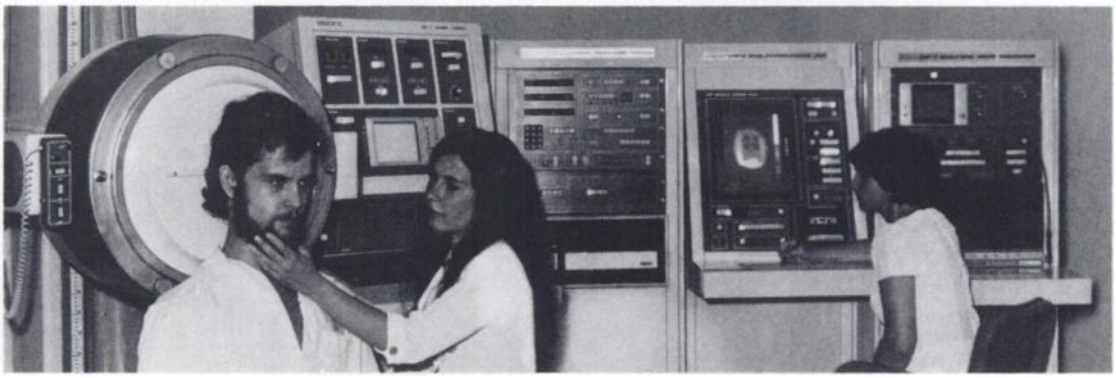
For enhanced image display and processing Elscint offers a full line of videodisplay processors. Their modular design brings their capabilities into your facility for a small investment. As your needs grow, modules can be easily added to simplify and expand your studies.

For the complete picture on the fastest and most advanced Camera and Image Processing System available today, call or write your nearest Elscint Sales Office.









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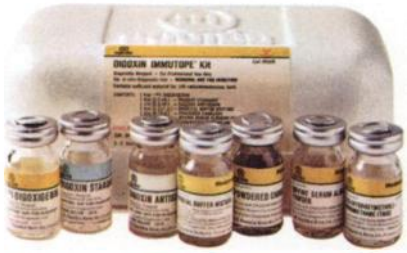
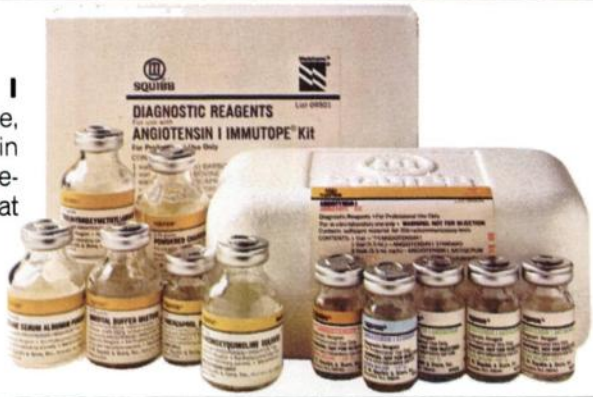
WHAT'S NOW SQUIBB?

A broad line of quality diagnostics including the **Digoxin IMMUTOPE® Kit** with quality reagents to help assure reliable results.

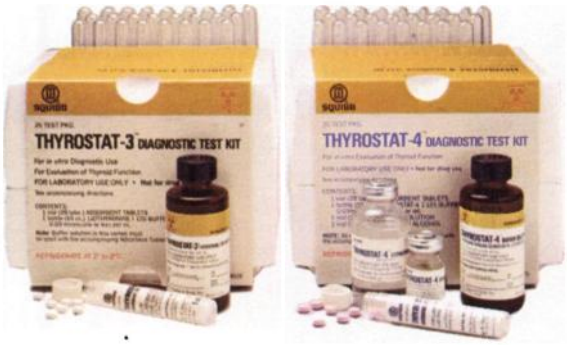


The first commercially available gastrin RIA kit in the U.S.A.—the **Gastrin IMMUTOPE® Kit** reduces to *hours* a test which once took days.

And there's the **Angiotensin I IMMUTOPE® Kit** for the simple, accurate estimate of plasma renin activity. Premeasured, matched reagents make daily mixing and repeat reagent blanks unnecessary.



Fast binding, *fast* adsorption and *fast* results are yours with **THYROSTAT®-3** and **THYROSTAT®-4**—our diagnostic combination for evaluating thyroid function. And it's the THYROSTAT tablet from Squibb that makes the difference.



QUALITY IN VITRO PRODUCTS developed *and* manufactured by Squibb Research Personnel

WHAT'S NEW SQUIBB?

MINITEC™ (Technetium 99m) Generator—The Technetium 99m Generator using fission product molybdenum to produce technetium 99m.

The new Minitec Generator from Squibb is unlike any generator you've ever used—made small to make sense.

Designed for easy handling

- MINITEC has its own handle for easy lifting, easy carrying and reduced hand exposure
- Weighs only 24½ lbs., less than 5″ in diameter, under 8½″ high

Designed for easy elution

- Sets up in seconds
- Elutes in only 3 minutes after eluent vial has emptied

Designed for safety

- No exposed tubing when eluting
- 1⅝″ lead surrounds the MINITEC column *and*... ...*another* 1½″ lead protection from MAXI-SHIELD

That means 3⅛″ of lead reduces radiation from the column by *99.98%*.

MAXI-SHIELD™ is 137 pounds of interlocking lead half rings for easy assembly, easy use, but *no* direct line of radiation.

Just remove the cap for elution, replace for constant shielding when not in use. The new MINITEC Generator is available in 50, 100, 200, and 300 mCi potencies. And MAXI-SHIELD you get free with your first MINITEC Generator purchase.

See following page for brief summary.

For illustration purposes only.

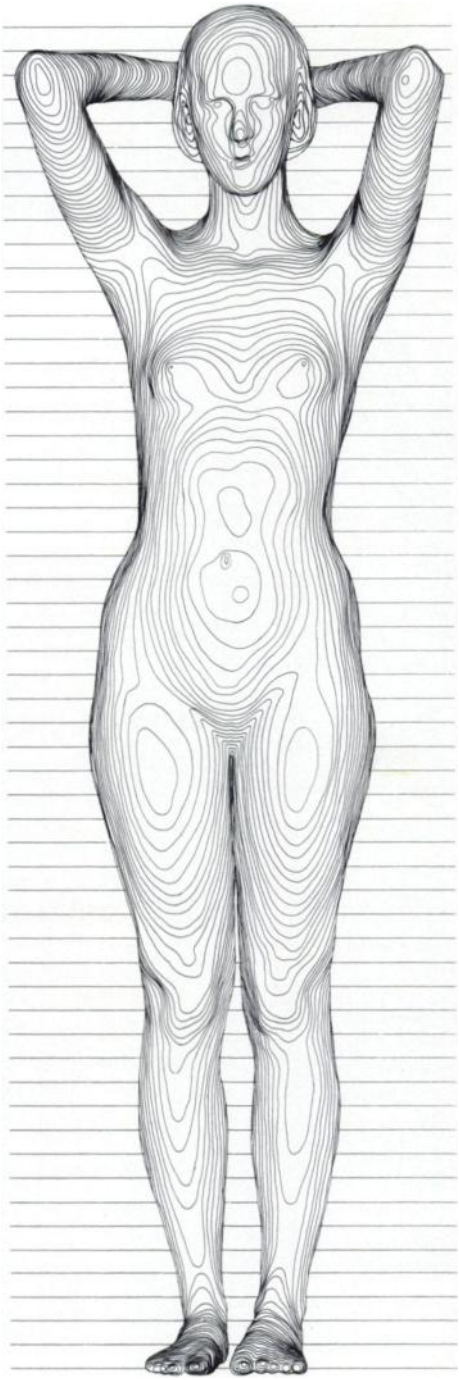
In Vitro Products not for scanning.

See following page for Technetium 99m indications.

Medotopes®

SQUIBB®

Minitec™
(Technetium 99m)
Generator



Minitec™ (Technetium 99m) Generator provides a means of obtaining a sterile, non-pyrogenic supply of technetium 99m (^{99m}Tc) as sodium pertechnetate ^{99m}Tc.

Indications: Sodium pertechnetate ^{99m}Tc 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 ^{99m}Tc.

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 ^{99m}Tc.

For complete prescribing information, consult package insert.

How Supplied: Minitec (Technetium 99m) Generator is available in potencies of 50, 100, 200, and 300 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.

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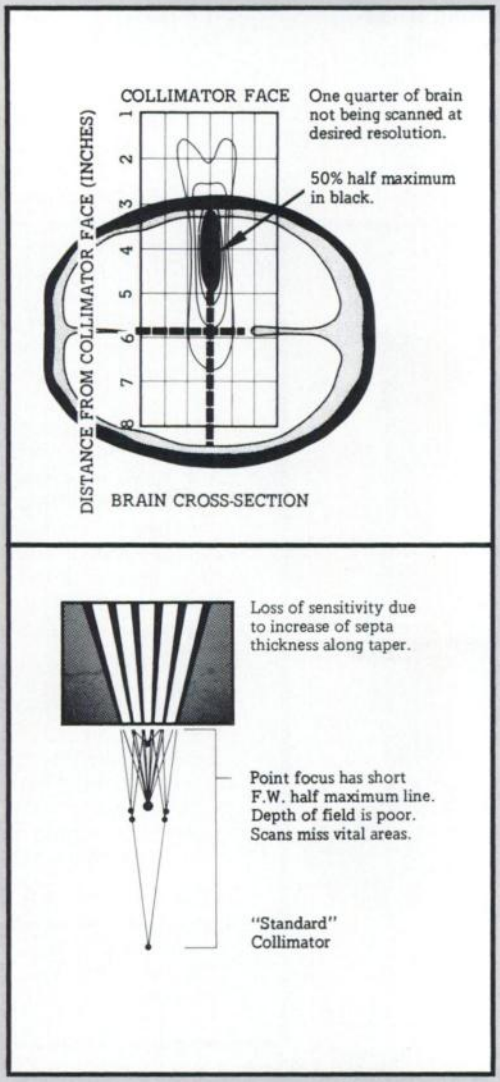
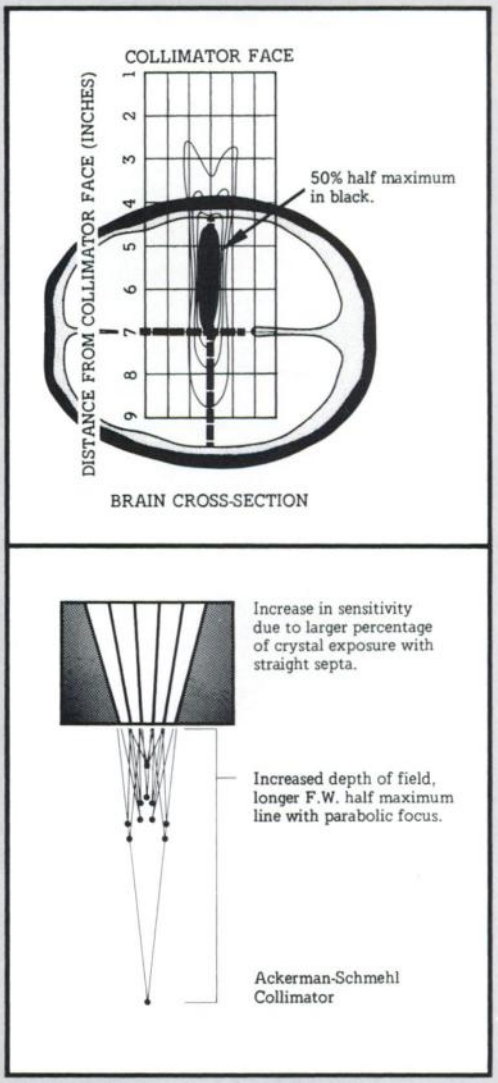
SQUIBB HOSPITAL DIVISION
E. R. Squibb & Sons, Inc.
Princeton, N.J. 08540

H604-009 R

Parabolic Focus Collimators.



Point Focus



Parabolic Focus

Parabolic focus produces the best combination of resolution, sensitivity, and focal depth. Add to that a new parameter: Depth of Field, which is defined as "The length visualized in any organ at the same resolution".

It is not of significant length on point focus collimators to be considered an important parameter. All other collimators in the world except Ackerman-Schmehl are point focus.

Many physicists tell us that depth of field is just as important on a rectilinear scanner as it is with a scintillation camera. Resolution and sensitivity are insignificant unless you are scanning the organ. Ackerman-Schmehl offers six low energy collimators to suit different scanning needs at $750 each.

Call collect for further information.
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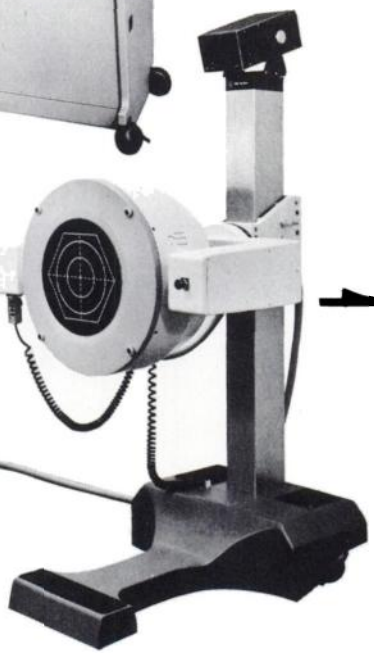
there's more to our image

Series 100 Camera.

Ohio-Nuclear today offers the professionals of diagnostic nuclear medicine a complete line of imaging and data processing equipment. The line is our only business, and is the result of fifteen years of continual development and improvement.

Series 110 Camera.



Series 84 Scanner.

Area Scan.

Imaging

Series 84 Scanner. The proven (700 installations) whole body scanner, single and dual probe, full line of options, all singles upgradable to dual. Scan minification 2:1 and 5:1.

Series 100 Camera. The Superior Radioisotope Camera. Best available resolution ($^1/_{10}$" [2.5mm] using ^{99m}Tc); speeds up to 100,000 counts/sec.; ease of operation — studies conducted from hand control, two speed operation, pushbutton isotope selection, and photomultiplier tube gain balancing by your technologist; and a complete selection of options.

Series 110 Camera. Our new 14½" (36.8cm) field of view camera, offering a resolution of $^5/_{32}$" (4.0mm) lead bars using ^{99m}Tc; eliminating the need for a diverging collimator (fewer collimator changes) and the same speed, ease of operation, and options available with the Series 100.

Area Scan. May be added to any Series 100 or Series 110 Ohio-Nuclear Camera. Moves the detector instead of the patient. Requires minimal space (fits in a 10' x 10' [3.05m x 3.05m] room). Excellent for whole body scans or scans of large areas.

ECG Gate Permits cardiac blood pool imaging at end-systole and end-diastole. Uses isolated ECG pre-amp for maximum patient protection.

than better resolution

Processing

Series 160 DataSystem. A complete digital imaging system offering non-flickering interactive video display; fact dynamic studies (up to 50 frames/sec. with no data loss); optional variable persistance viewing; high resolution (up to 16K-128 x 120 matrix-depending on selected mode of operation); CRT viewing of isometric displays, profile histograms and uptake studies; 8, 16, or continuous color video presentation; computer compatible (uses 9 track 800 B.P.I. tape); up to 16 rectangular and/or 6 irregular regions of interest; contrast enhancement; alpha numeric display; field uniformity correction; and statistical smoothing.

Series 75 DataSystem. An economical storage and retrieval system that will record and playback studies, playback, in compressed time, and which offers histograms, 2 regions of interest, and variable framing rate on playback for recording dynamic studies on film.

Series 160 List Mode. Allows collection of dynamic study data in real time, and playback at variable framing rates of up to 50 frames/sec. at 16K resolution.

Hewlett Packard 9830. A programmable calculator which, when interfaced with a Series 160 or Series 75 DataSystem, permits automatic calculation of significant pre-selected parameters such as ejection fraction, washout half-times, etc.

Ultimat. A variable format recording camera which permits storing up to 42 frames of a dynamic study on a single film. Will also store a combination of images and a whole body image, or two whole body images with separate controllable intensities. Utilizes either 5" x 7" or 8" x 10" film.

Yes. We offer better resolution, and much more. We offer total systems, designed to improve diagnostic nuclear medicine. We'd like to talk to you.

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Three essentials in the practice of Radiology and Nuclear Medicine

With the growing complexities of radiology and nuclear medicine...with the development of new and modified equipment and instrumentation...and with an ever-increasing number of pharmacologic agents...an up-to-date, informational compendium can be an essential to daily practice in these specialties.

And at the risk of sounding immodest, we think the current Physicians' Desk Reference for Radiology and Nuclear Medicine is just such a compendium.

Like the regular PDR it provides categorized, cross-indexed product usage information—accurate, complete and easy to refer to. More than 300 radiopharmaceutical contrast agents and related products are described in detail.

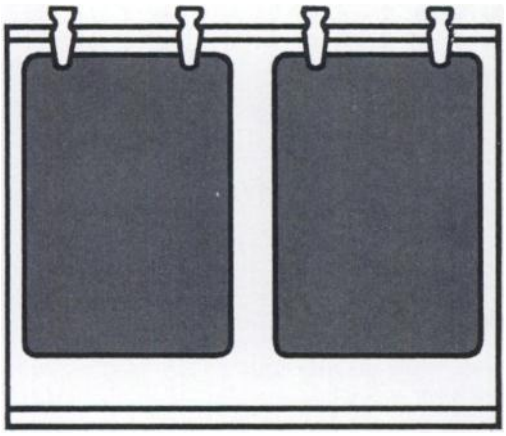
In addition, PDR for Radiology and Nuclear Medicine focuses specifically on equipment and instrumentation pertinent to radiology and nuclear medicine—presenting detailed product descriptions.

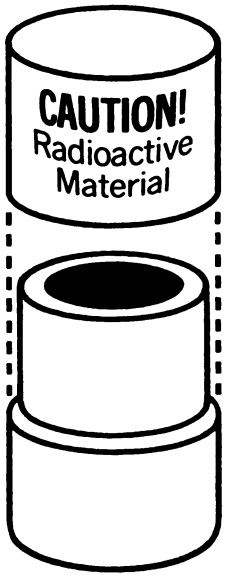
PDR for Radiology and Nuclear Medicine also contains a valuable section on available postgraduate educational materials. And it presents an important editorial review of current techniques in nuclear medicine by M. Donald Blaufox, M.D., Phd. and Leonard M. Freeman, M.D....along with a discussion of the clinical application of radiopharmaceuticals and *in vitro* test kits found in the product information section.

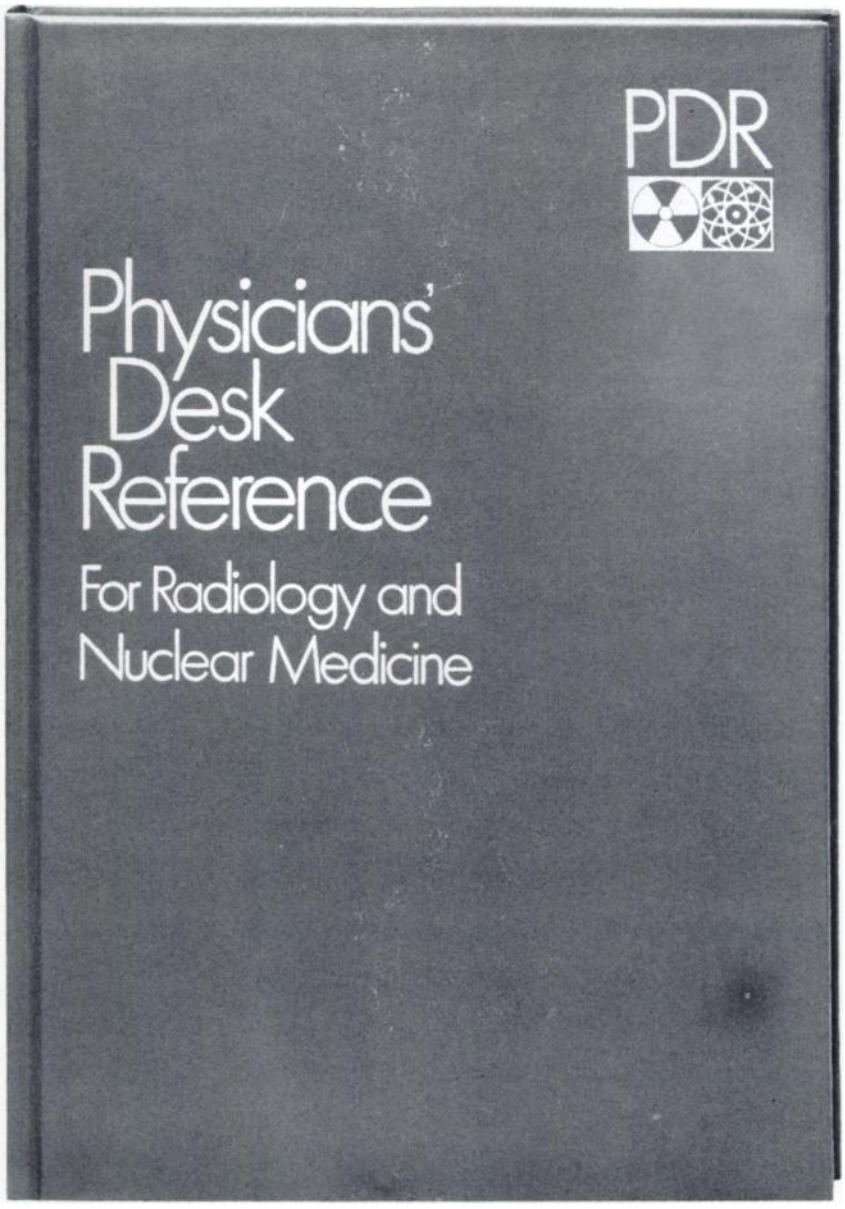
Right now PDR for Radiology and Nuclear Medicine is still relatively new. But we feel it's already becoming one of the most valued reference sources around.

It's not a replacement for PDR. But it is a specialized companion.

One that fills an essential need!







LITTON PUBLICATIONS
Oradell, New Jersey 07649

New diphosphonate bone scanning agent offers high target to non-target ratio, rapid blood clearance

Your confidence in detecting bone lesions depends on the ability of the imaging agent you use to deliver consistently excellent scans. Three hours post injection, 40-50% of ^{99m}Tc-labeled OSTEOSCAN has been taken up in the skeleton. Only 6% remains in the blood. The remainder is excreted in the urine. Together with the agent's low soft tissue uptake, the high target to non-target ratio and rapid blood clearance result in clear delineation of skeletal lesions.

OSTEOSCAN consistently provides high labeling efficiency (greater than 95%*). Because of its stable P-C-P bond, OSTEOSCAN resists *in vitro* hydrolysis and *in vivo* dissociation. This helps to minimize soft tissue uptake that can impair diagnoses.

Result: Consistently excellent scans—and confidence that detectable bone lesions will be imaged.

For product and ordering information, call Mr. Arnold P. Austin at (513) 977-8547 or write: *Procter & Gamble, Professional Services Division, P.O. Box 171, Cincinnati, Ohio 45201.*

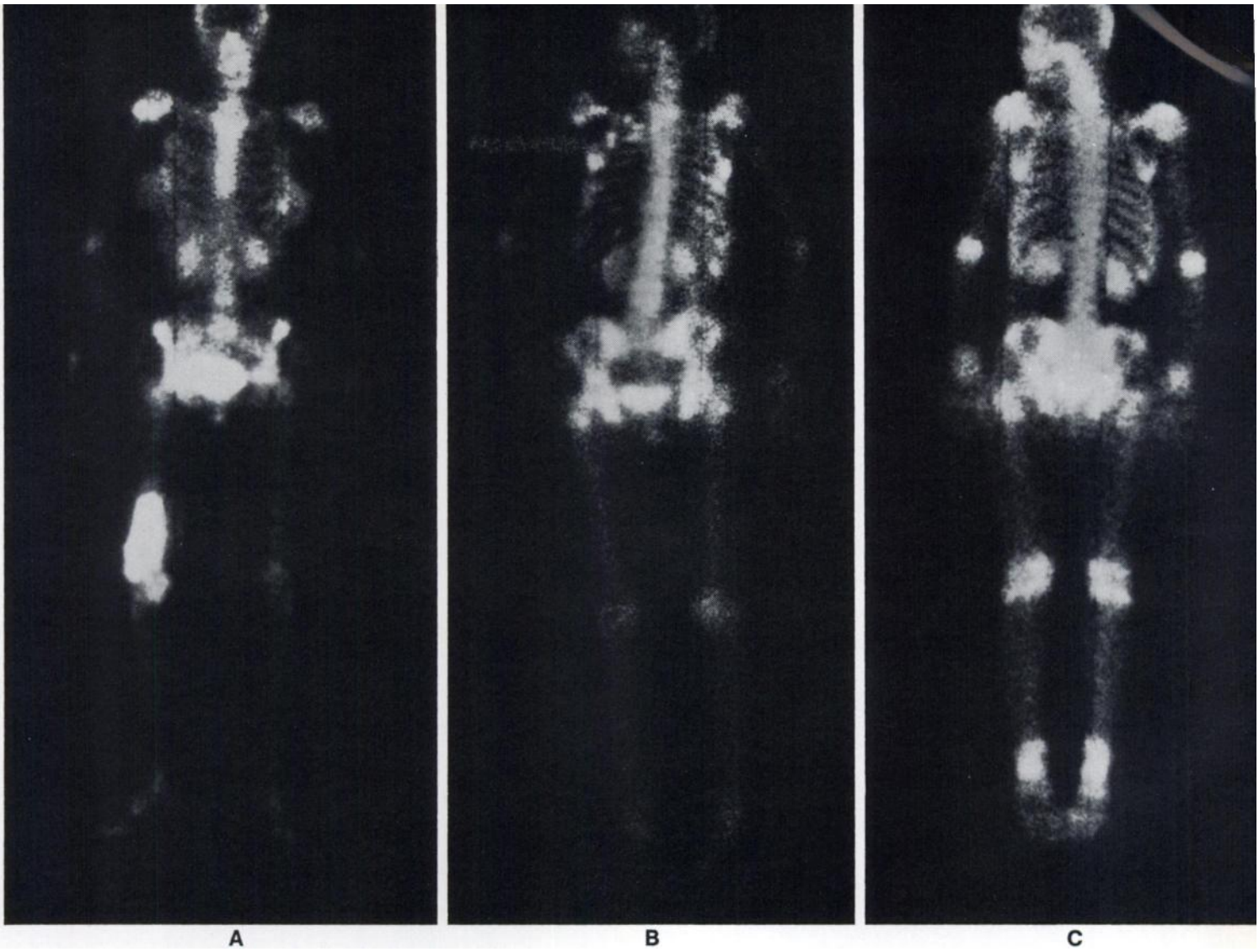
*Thin Layer Chromatography (Cellulose acetate/85% methanol)

A. 15 mCi ^{99m}Tc-OSTEOSCAN
Scanned 3.5 hr post injection
Low-Energy, All-Purpose Collimator
Speed: 32 cm/min, Length: 173 cm, Width: 60 cm
Anterior: 834,518 counts/1070 sec (17.8 min)
Comments: Metastatic meningioma

B. 15 mCi ^{99m}Tc-OSTEOSCAN
Scanned 4 hr post injection
High Sensitivity Collimator
Speed: 32 cm/min, Length: 170 cm, Width: 60 cm
Posterior: 961,752 counts/1054.3 sec (17.6 min)
Comments: Cancer of breast. Polaroid image; posterior view taken with detector under table

C. 15 mCi ^{99m}Tc-OSTEOSCAN
Scanned 4 hr post injection
Low-Energy, All-Purpose Collimator
Speed: 48 cm/min, Length: 175 cm, Width: 60 cm
Anterior: 927,833 counts/737.4 sec (12.3 min)
Comments: Patient being treated for a lymphoma

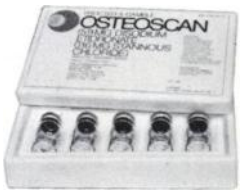
(Above scans made with Searle Radiographics Pho/Gamma Scintiscan™)



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.

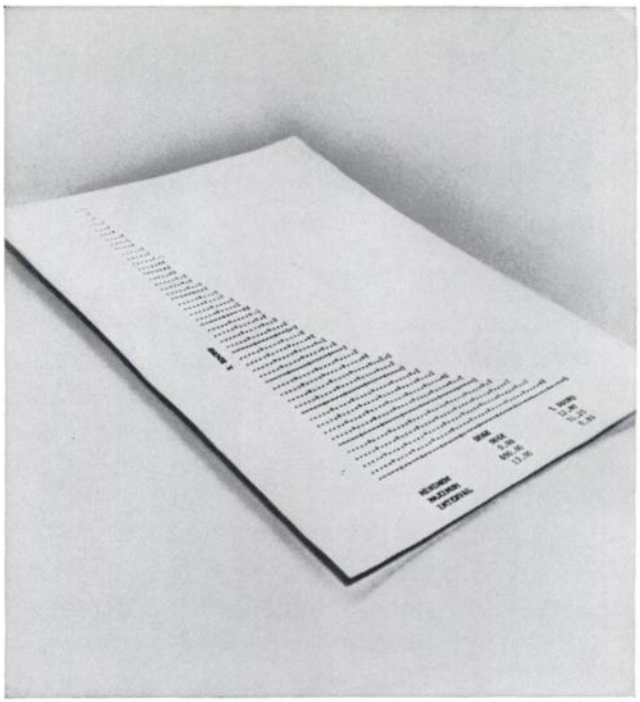
ADVERSE REACTIONS

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 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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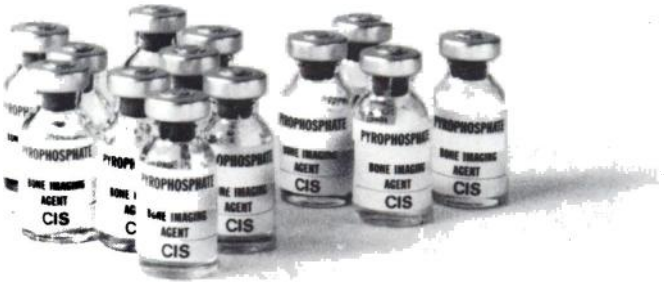

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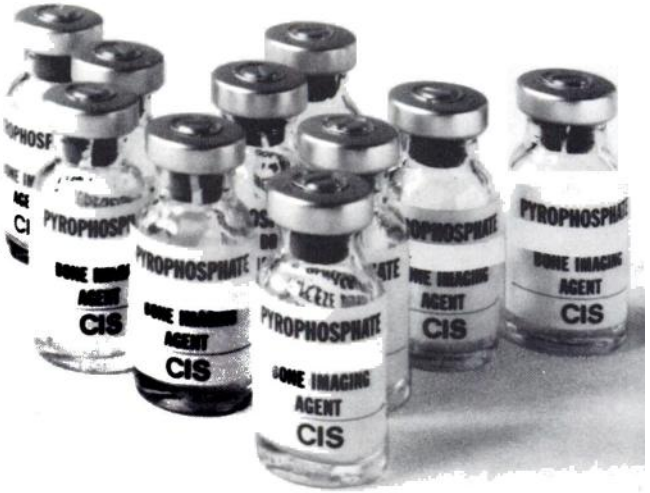
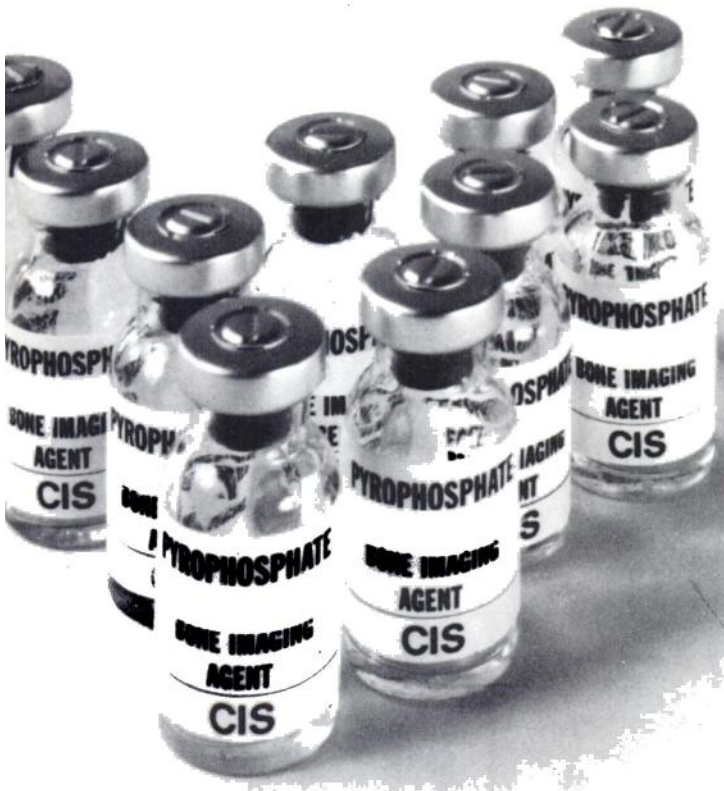


B. Bock, R. Perez, C. Panneciere and R. DiPaola *J. Nuclear Med.* 14, 380 (1973); R. M. Hopkins, J. M. Creighton and D. R. VanDeripe *Ibid* 409; F. Hosain, P. Hosain, H. N. Wagner, G. L. Dunson and J. S. Stevenson *Ibid* 410; R. Marty and J. D. Denney *Ibid* 423; M. R. McKamey, E. J. Artis and D. D. Hansen *Ibid* 426.



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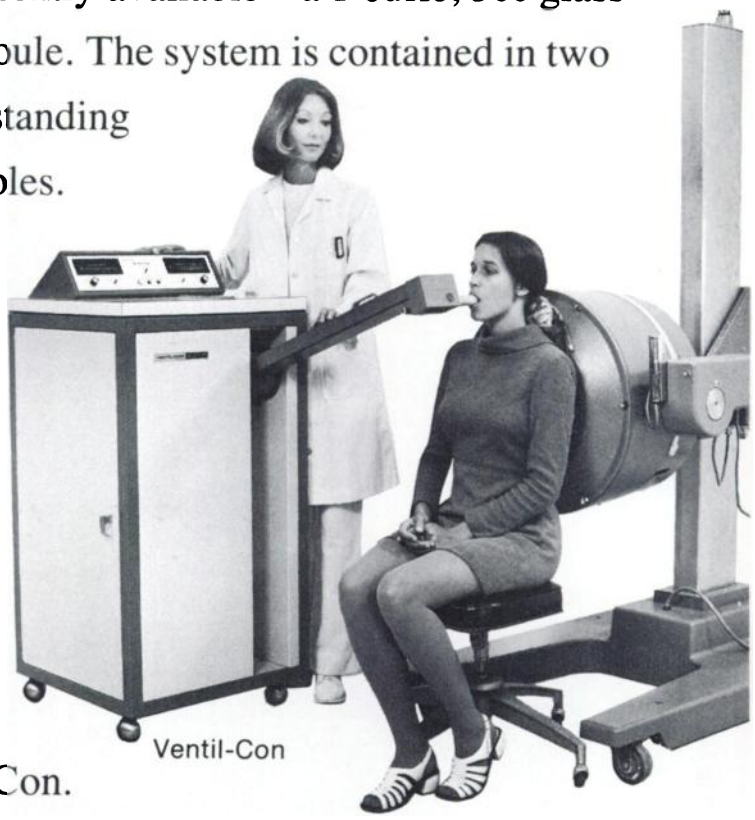

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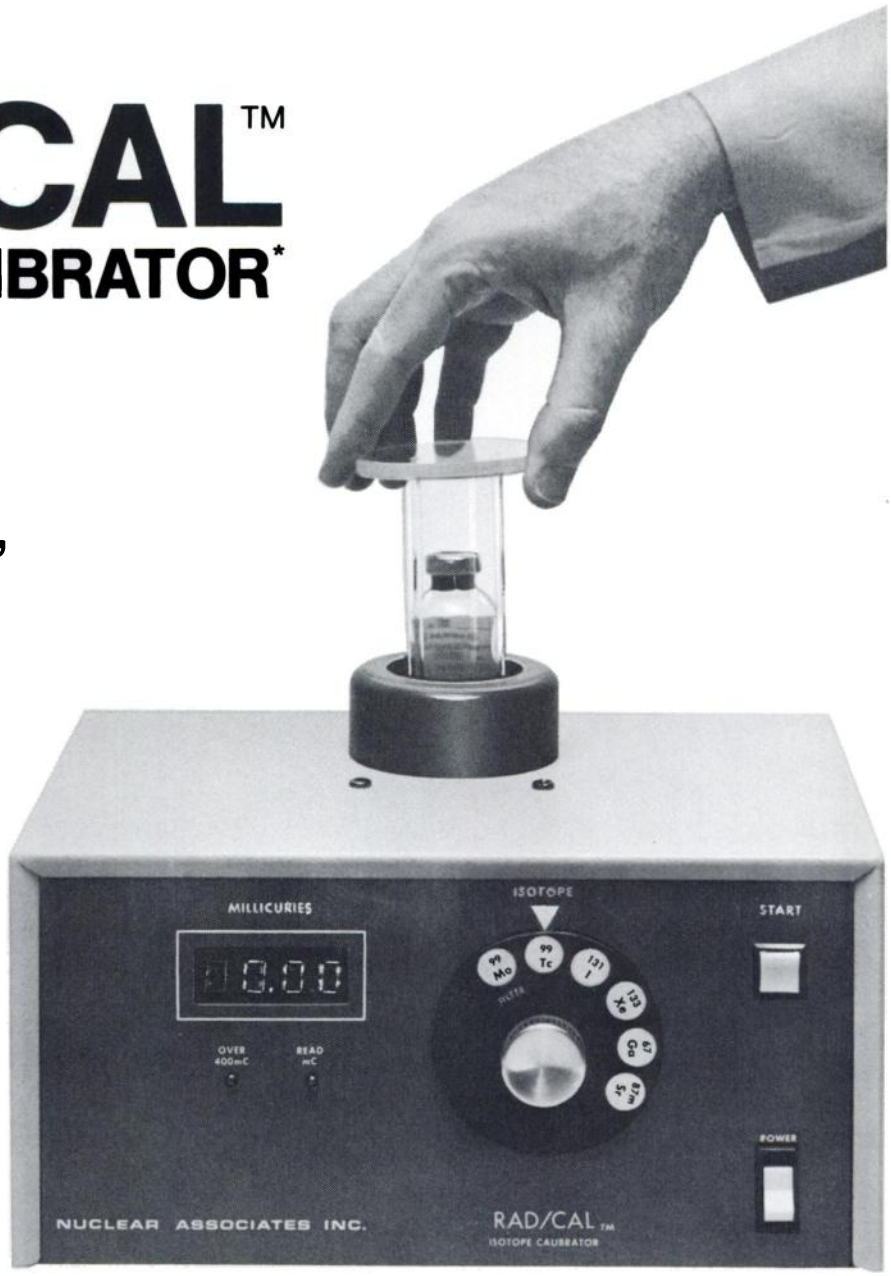

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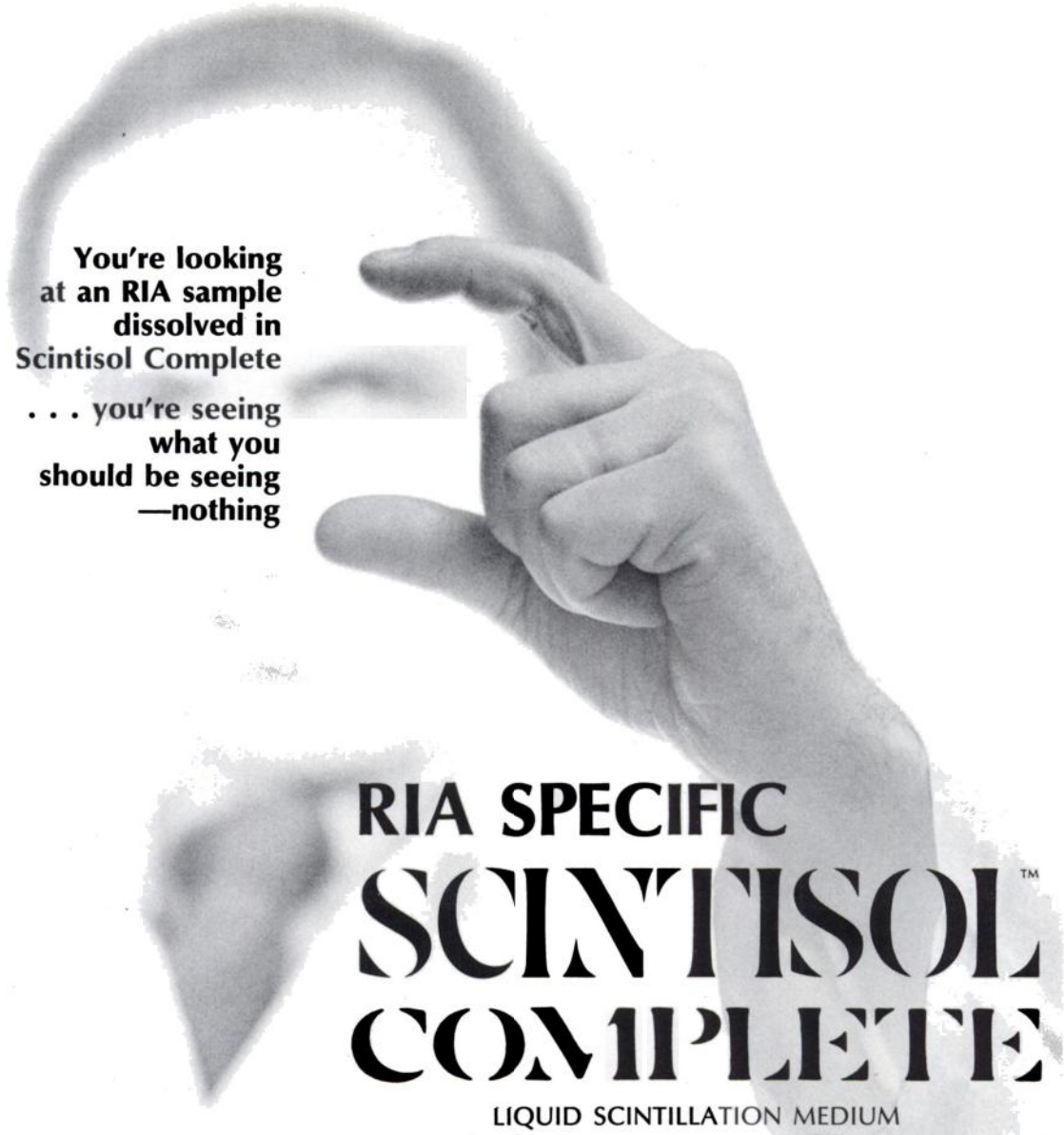

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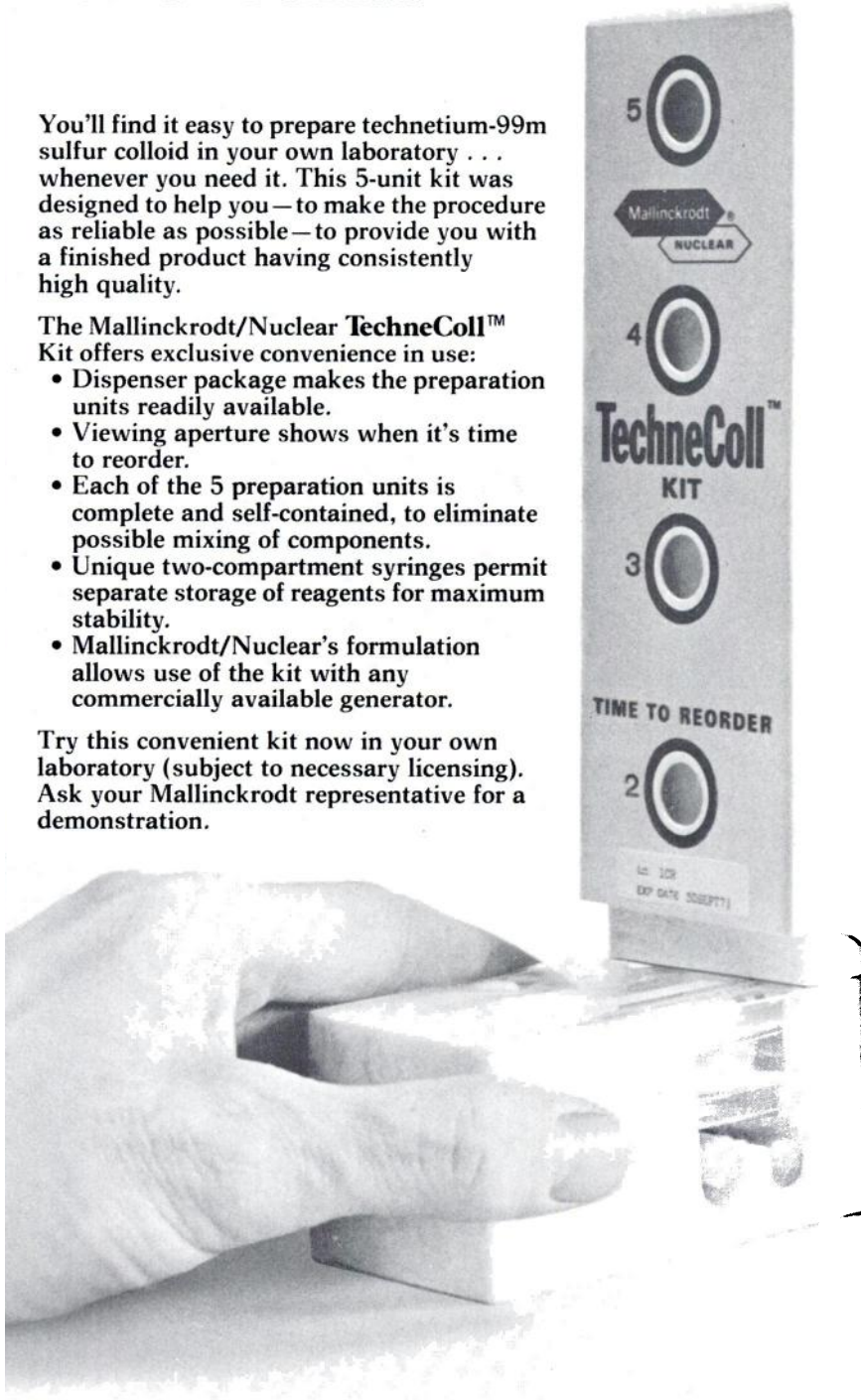

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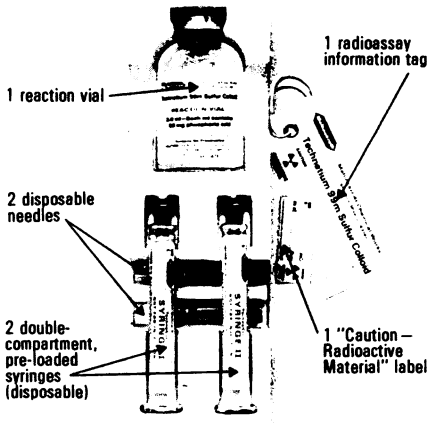

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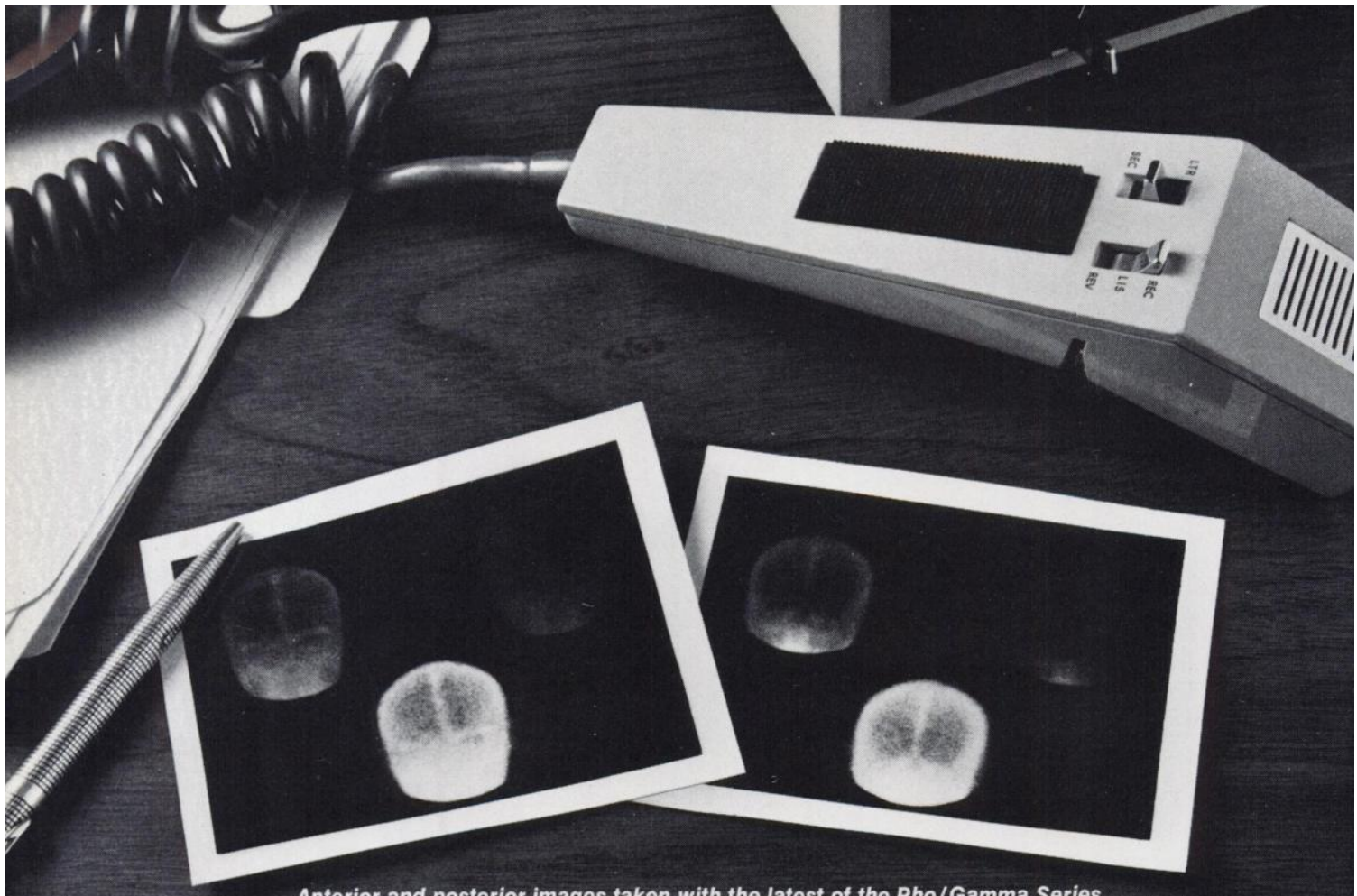

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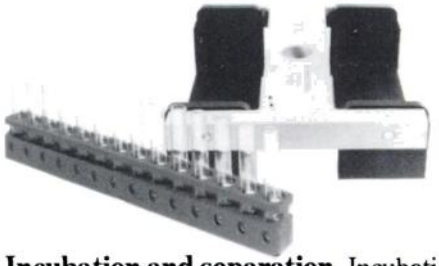

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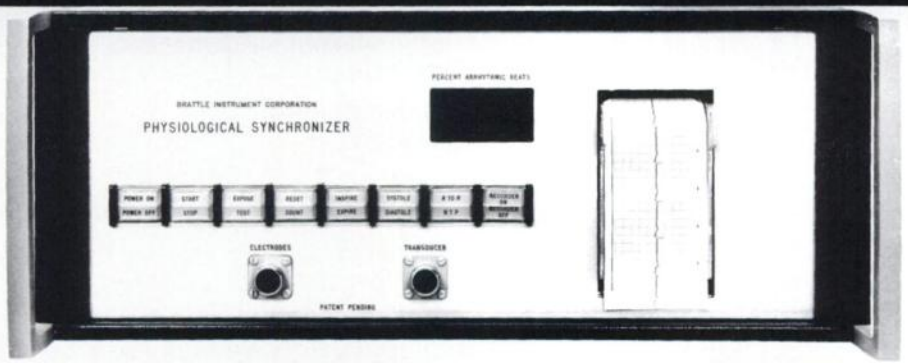

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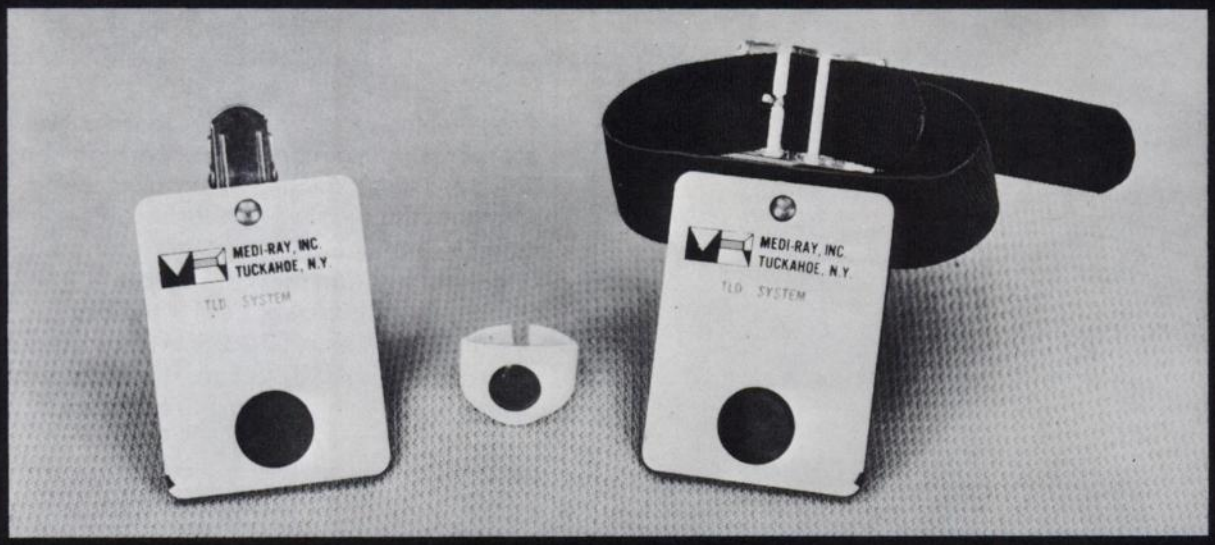

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(1) Mincey, E. K., Thorson, S. C., and Brown, J. L., et al. A new parameter of thyroid function—The effective thyroxine ratio. J. Nucl. Med. 13:165-168, February 1972.

(2) Gladding, T. C.: Effective thyroxine ratio (ETR)—A new test for thyroid function. J. Tenn. Med. Assn. 65:442-444, May 1972.

(3) Murray, I. P. C., Parkin, J., and Gubanyi, M.: The "Effective Thyroxine Ratio" in the assessment of thyroid function. Med. J. Australia 1:1190-1193, June 3, 1972.

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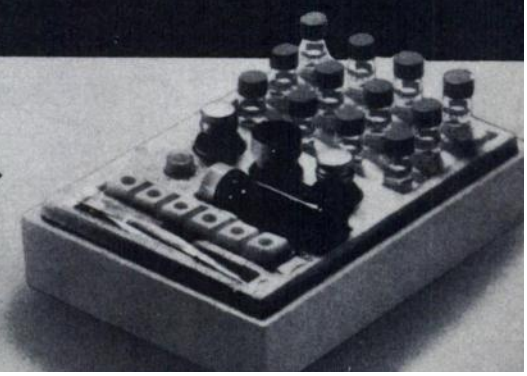

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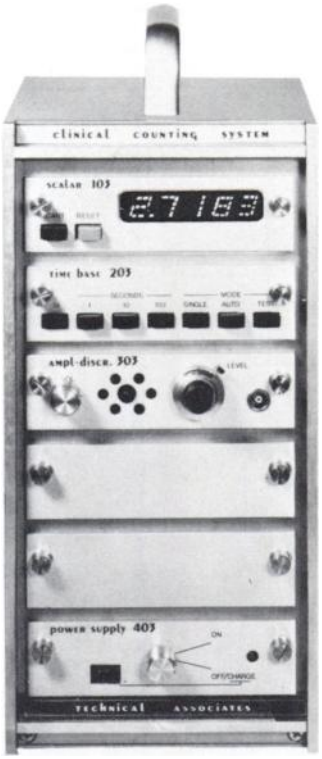
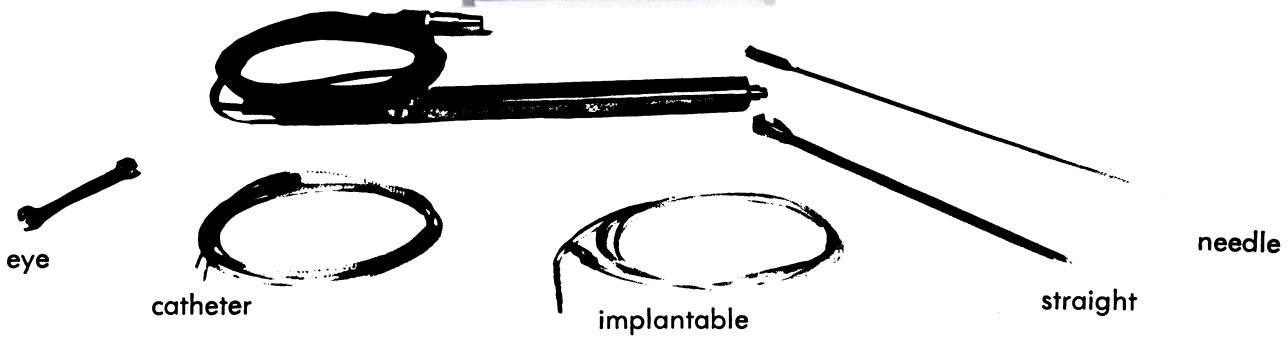
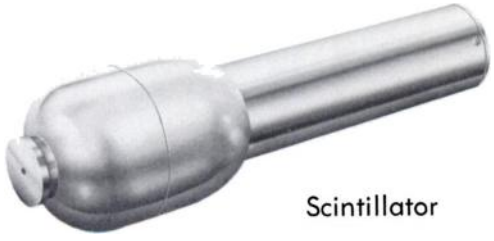




Solid State Probes

G.I.



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- Operating room design
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- Real time information
- Chart, printer, and computer compatible

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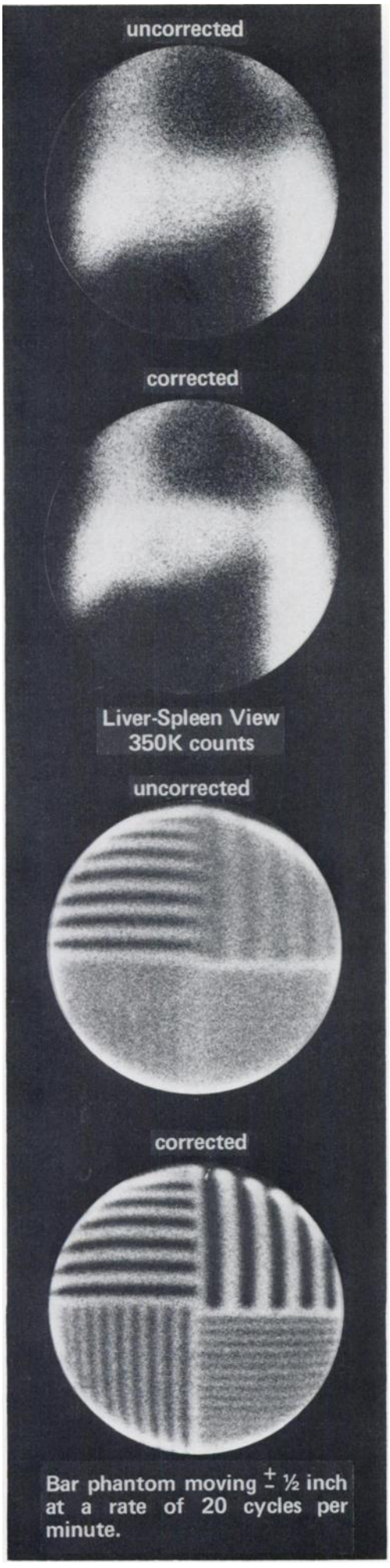
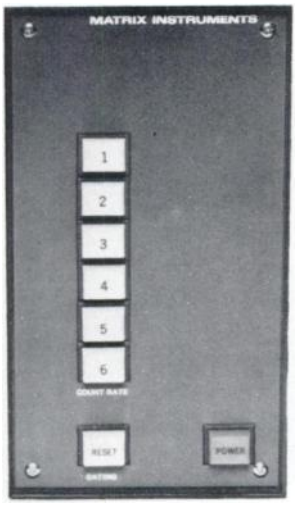


Increase the resolution of your gamma camera and ultrasound scanner by correcting organ motion effects without attaching anything to the patient or increasing the study time.



opti-imager

Opti-Imager electronically tracks and corrects organ motion effects. The centroid position of the organ is electronically determined and the x- and y-coordinate signals of the gamma camera or ultrasound scanner are corrected to bring the image displayed on the photographic scope back to the centroid position. Thus, even though the organ moves, the image on the display scope is held stationary.

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"instant" kit: Just add ^{99m}Tc, shake, inject.

valid with all ^{99m}Tc generators *(we are not afraid of some oxidizing agents)*

the highest radiopharmaceutical purity *(less than 1% of free pertechnetate)*

definitely NO uptake in the liver *(we don't believe it contains bones)*

definitely NO uptake in the thyroid, choroid plexus, salivary glands or stomach *(same argument...)*

supplied in single-dose vials, which eliminates the vast majority of difficulties which are common with similar kits *(ask for the list of bugs: we will supply it free – and surprise you with documented facts)*

our kit has been designed even for price-conscious hospitals *(just ask for our prices – you will see for yourself)*

If you consider the above as not convincing enough, we will give you a free sample – the hospitals using this kit routinely are more convinced every day...

Our bone scanning agent will of course never irrevocably confirm whether a lesion has a malignant origin or not; this kind of differential diagnosis is the specific territory of

^{99m}Tc SOLCOCITRAN®

(Which is not just another scanning agent...)

^{99m}Tc SOLCOSCINT® DTPA

(Just another one – but ours)

contains over 99.5% ^{99m}Tc-DTPA.
If this is hard to believe, write us: we will give the method to test it for yourself.

Therefore, of course: NO free pertechnetate in the thyroid, choroid plexus, salivary glands or stomach, and NO liver uptake due to colloids.

Because of its purity, Solcoscint DTPA is a manifold product:
- for brain scans
- for kidney scans and function studies (GFR,...)
- for stomach emptying time
- for dynamic studies of the heart, lung, extremities

without exposing your patient to the 50 times higher total-body dose he gets with an equivalent dose of ^{99m}Tc-pertechnetate...

In BRAIN scans the procedure is shortened due to the rapid elimination of (pure) ^{99m}Tc-DTPA. There is no interference by the choroid plexus, even without previous perchlorate administration.
The higher target-to-non-target ratio results in clearer images with a better impact.

The lower radiation exposure and the fast elimination allow repetition of the examination very soon (from 6 hours on) after the first one, if necessary.

In KIDNEY studies it is again the radiopharmaceutical PURITY allowing quantitative functional studies.

STOMACH EMPTYING TIME is another quantitative measurement requiring the highest purity of the radiopharmaceutical: Pertechnetate wouldn't do for stomachal studies...

Of course, even DTPA is a non-specific agent for the differential diagnosis between malignant and benign lesions:

^{99m}Tc **SOLCOCITRAN®** will help you much better for that.

^{99m}Tc SOLCOSCINT® DIPHOSPHATE

A sterile pyrogen free kit which forms a bone scanning agent on the addition of ^{99m}Tc-pertechnetate. Each vial contains enough lyophilized reagent to examine one patient.

Shelf life:
The kit is stable for more than 6 months (stored in the refrigerator).

Preparation:
Single step preparation. Just add ^{99m}Tc-pertechnetate from any commercial generator and shake briefly.

Radiopharmaceutical data of the injectable preparation:

^{99m}Tc-Diphosphate content:	> 99%
$^{99m}TcO_4^-$ content:	< 1%
Content of Diphosphate/Tin/^{99m}Tc-complex:	26.0 mg
^{99m}Tc bound in Diphosphate:	0.2 ng/mCi
DL_{50}:	62 mg/kg
Volume:	2–6 ml
pH:	~ 6.5
Aspect:	colourless fluid
Administration:	intravenously
Side effects and adverse reactions:	none

Administered dose:
5–10 mCi

Optimal scanning time:
3–4 hours following intravenous injection.
Patients with renal insufficiency or older patients with slower blood clearance should be scanned 5–6 hours following injection. Patients under 25 years of age can be scanned after 2 hours.

Indications:
Inflammatory diseases of the joint, osteolytic and osteoblastic bone processes, primary bone metastases, bone tumors plasmocytoma, Paget's Disease, Morbus Bechterew, bone fractures, other bone diseases.

References:

1. *Secrest, R. J., Mockett, R. E.* Bone imaging techniques using ^{99m}Tc-labeled compounds. J. Nucl. Med. Techn. 4: 21–42, 1973
2. *Barker, J. P.* ^{99m}Tc-Pyrophosphate – A new bone-seeking nuclide. J. Nucl. Med. Tech. 1: 24-26, 1973
3. *Hosain, F., et al.* Comparison of 18F, 87mSr, and ^{99m}Tc-labeled Polyphosphate, Diphosphonate, and Pyrophosphate for bone scanning. J. Nucl. Med. 14: 410, 1973

^{99m}Tc SOLCOSCINT® DTPA

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Shelf life:
The kit is stable for more than 6 months (stored in the refrigerator).

Preparation:
Single step preparation. Just add ^{99m}Tc-pertechnetate from any commercial generator and shake briefly.

Radiopharmaceutical data of the injectable preparation:

^{99m}Tc-DTPA content:	> 99%
$^{99m}TcO_4^-$ content:	< 1%
DTPA/Sn/^{99m}Tc-complex:	36.8 mg
^{99m}Tc bound in DTPA:	0.19 ng/mCi
DL_{50}:	163 mg/kg
Volume:	2–6 ml
pH:	~ 7
Aspect:	colourless fluid
Shelf life:	3 hours
Administration:	intravenously
Side effects and adverse reactions:	none

Administered dose:

Brain Studies:	Dynamic:	15–25 mCi
	Static:	according to scanner or camera specifications.
Kidney Studies:	Dynamic:	2–4 mCi
	Static:	2–4 mCi

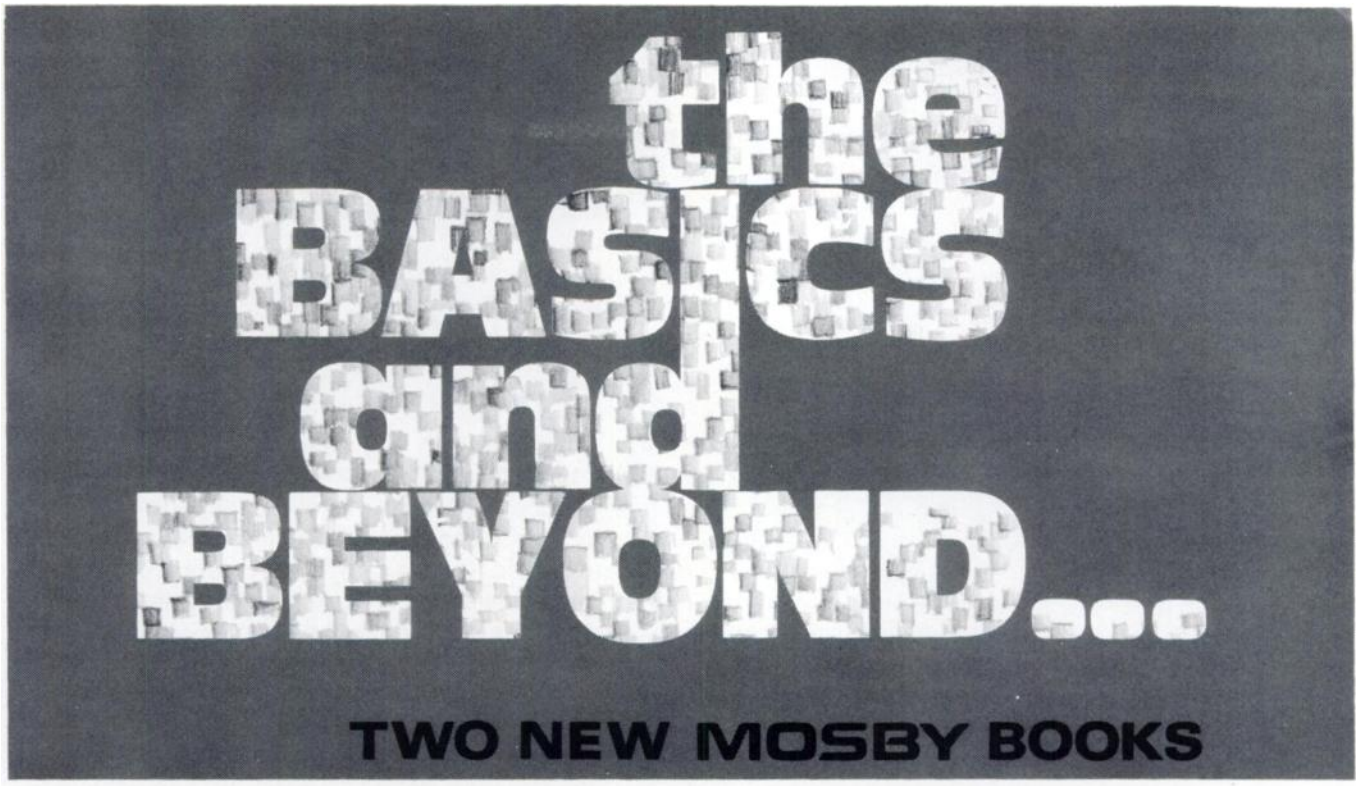
Optimal scanning time:

Dynamic brain studies:	immediately after application	
	early scan:	after 10–30 min.
	late scan:	after 2–3 hours
Static brain studies:	early scan:	after 10–30 min.
	late scan:	after 2–3 hours
Static kidney studies:	1–3 hours and later	

Indications:
Dynamic and static brain studies; detection of brain tumors and other space occupying lesions
Kidney scanning and kidney function studies
Gastric emptying time
Dynamic studies of the heart, lungs and extremities.

References:

1. *Hauser, W., et al.* Technetium-^{99m}-DTPA: A new radiopharmaceutical for brain and kidney scanning. Radiology 94: 679–684, 1970
2. *Sziklas, J. J., Hosain, F., et al.* Comparison of ^{169}Yb-DTPA, ^{113}In-DTPA, ^{14}C-inulin and endogenous creatinine to estimate glomerular filtration. J. Nucl. Biol. Med. 15: 122, 1971
3. *Chaudhuri, T. K.* Use of ^{99m}Tc-DTPA for measuring gastric emptying time. J. Nucl. Med. 6: 391–395, 1974



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Edited by CHARLES M. BOYD, M.D.; and GLENN V. DALRYMPLE, M.D.; with 11 contributing authors. June, 1974. Approx. 272 pages plus FM i-x, 8" × 10", 253 illustrations. About $21.00.

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This new book presents a "state of the art" description of nuclear cardiology, focusing on the most commonly used and latest techniques. Each procedure is detailed by an expert in that particular area—and the topics discussed concern the latest developments in the field. For example, Dr. Sol Sherry's chapter on "detection of thrombi" discusses an important advance—the introduction of ^{125}I-labeled fibrinogen test. Other discussions are similarly current, clinically relevant and wide-ranging: you'll find not only procedures for imaging, but cardiac function testing, and relevant immunoassay procedures.

Edited by H. WILLIAM STRAUSS, M.D.; BERTRAM PITT, M.D.; and A. EVERETTE JAMES, Jr., Sc.M., M.D. October, 1974. Approx. 432 pages, 7" × 10", 362 illustrations, including 10 four-color plates. About $39.50.

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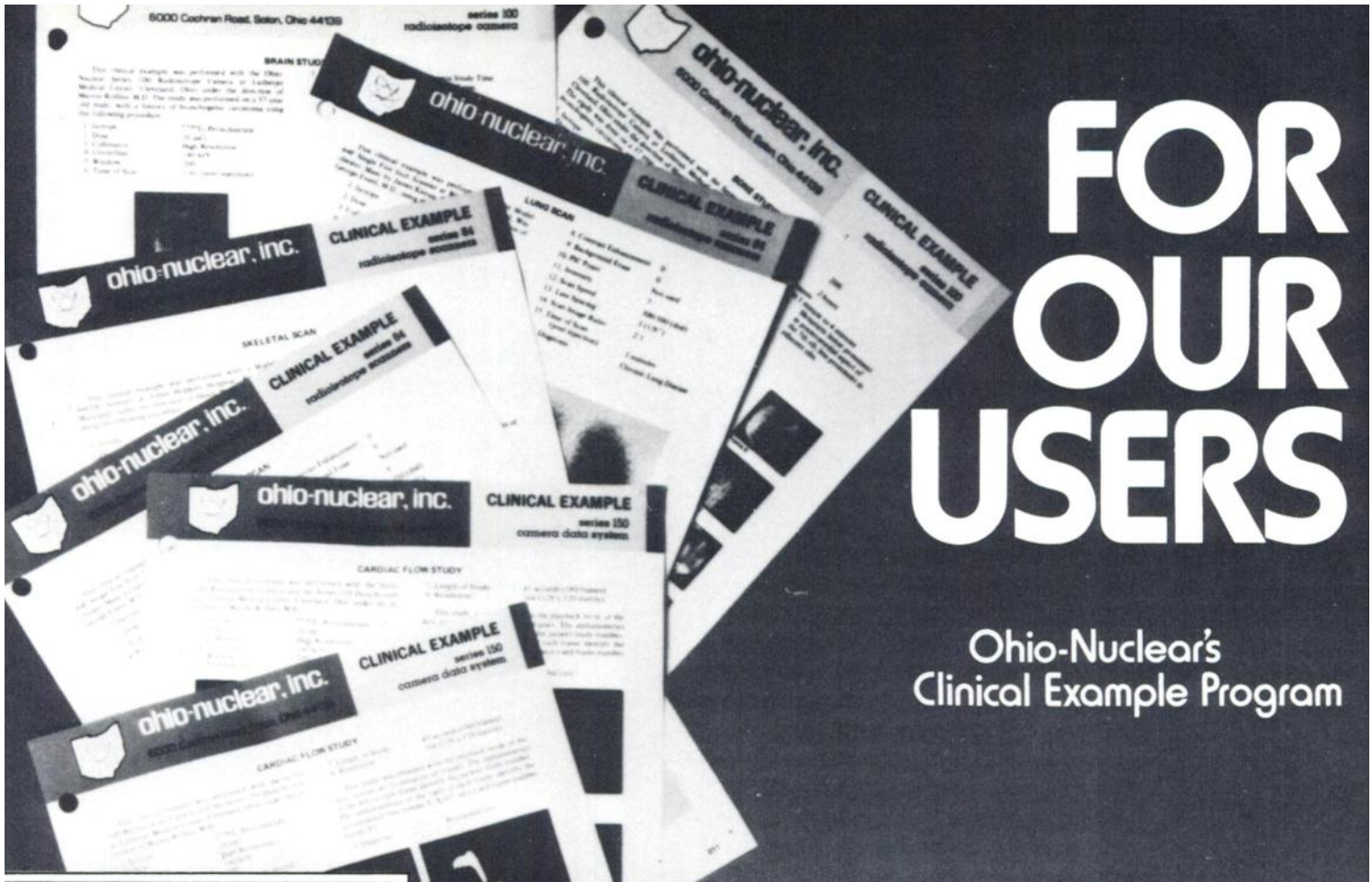

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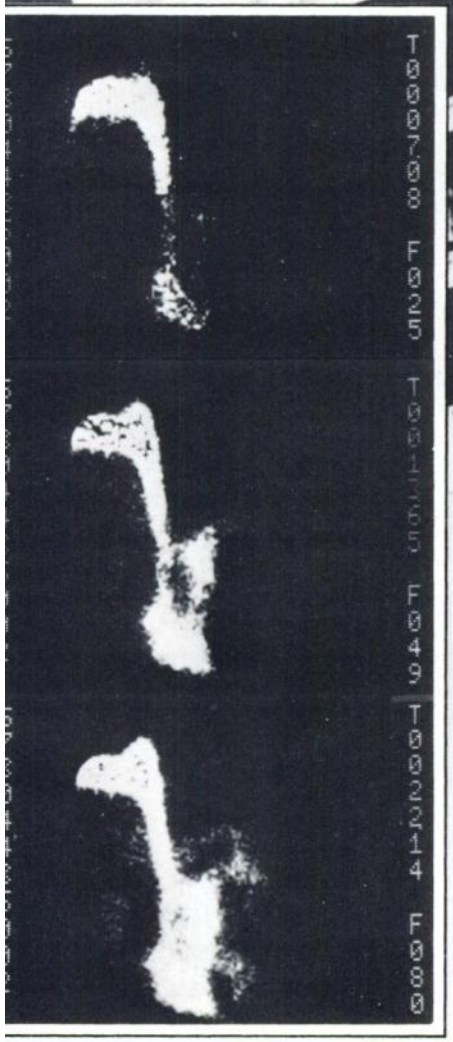

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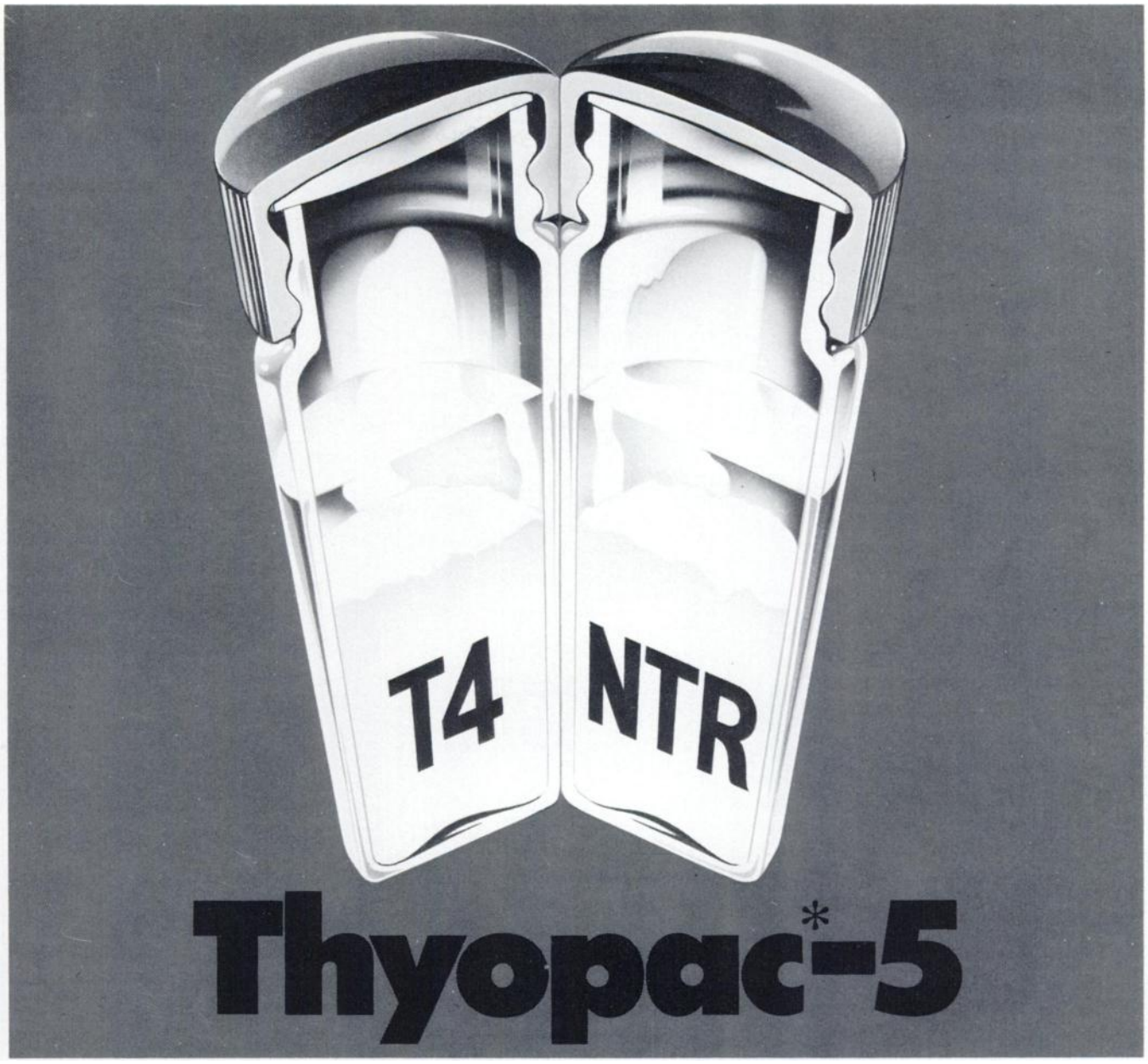

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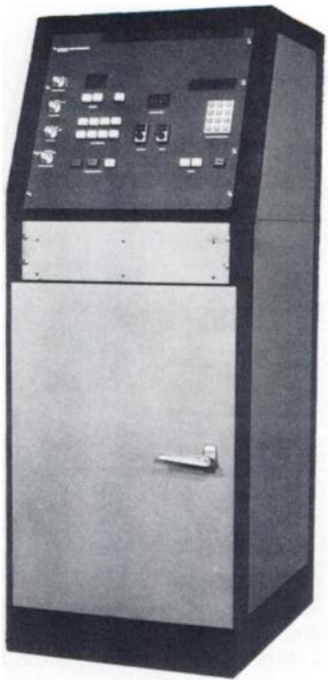

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Call for Abstracts

The submission of abstracts of original contributions in nuclear medicine is requested for consideration for the scientific program. The chapter is offering $100 and $50 prizes respectively for the two best scientific papers presented. To be eligible for consideration for the prize, papers must represent unpublished, original work by the authors. (Unpublished papers, submitted for publication and not previously presented, are eligible.) Abstracts of competitive papers must be received by the deadline. Papers will be judged on originality, significance to nuclear medicine, and the quality of the work and its presentation.

Guidelines for abstracts:

1. Abstract should contain a statement of purpose, methods used, results, and conclusions.
2. Abstract should not exceed 300 words.
3. Give title of paper and name of author(s) as you wish them to appear on the program. Underline the name of the author who will present the paper.
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We want to wipe out cancer in your lifetime. Give to the American Cancer Society.

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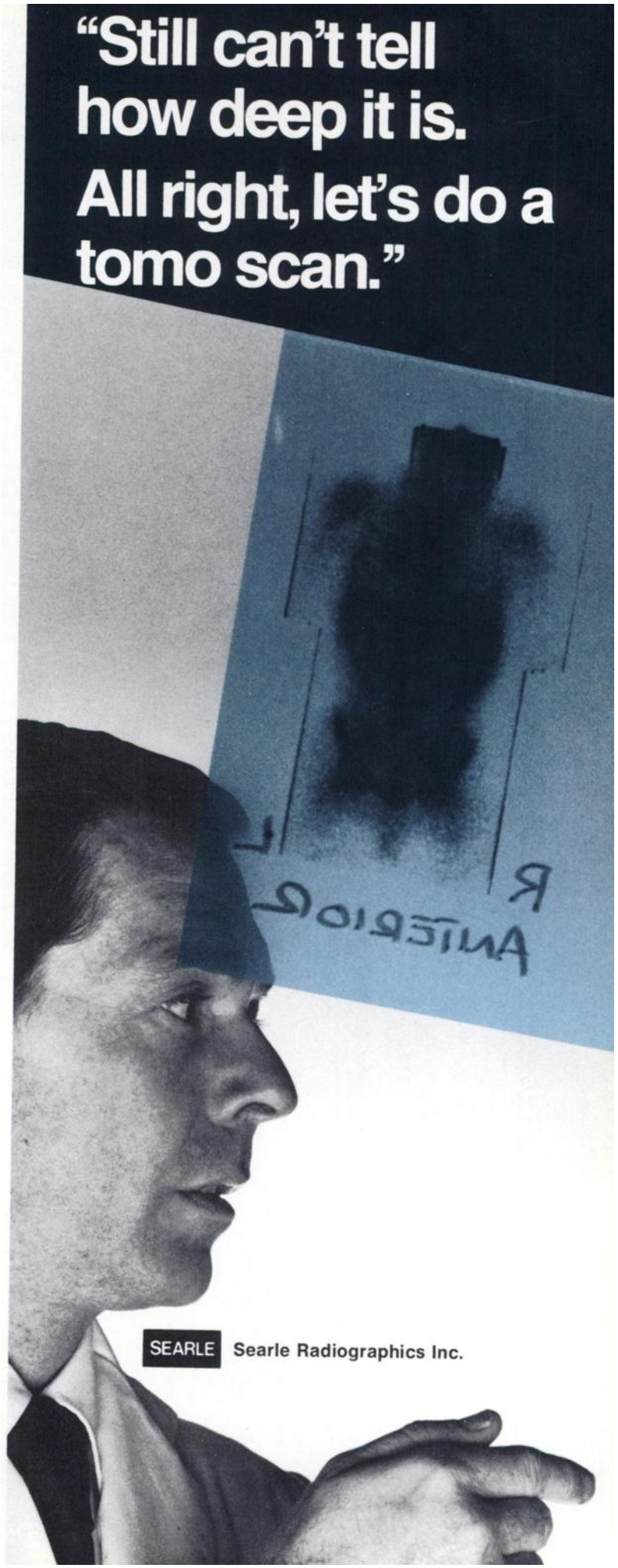

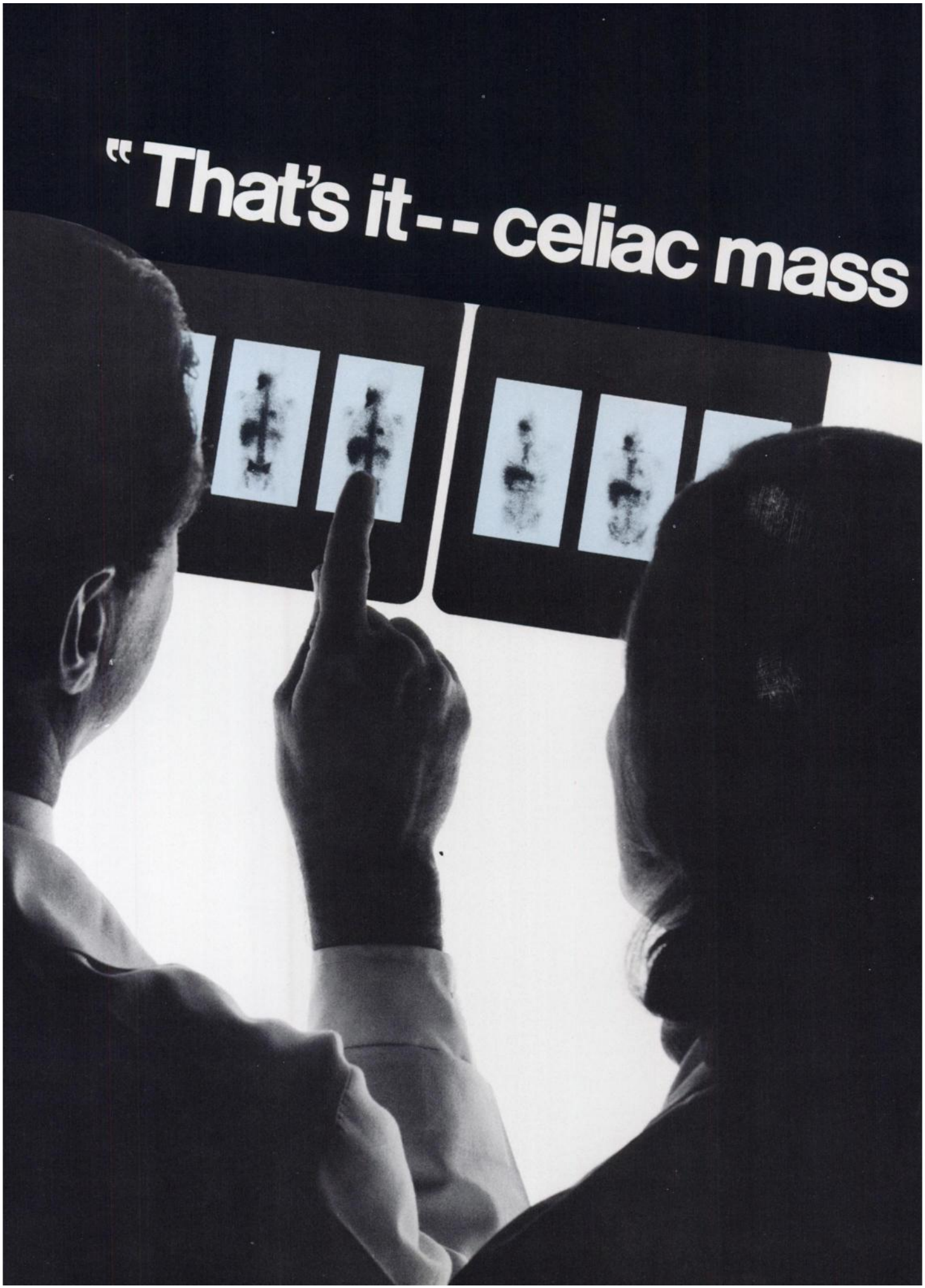
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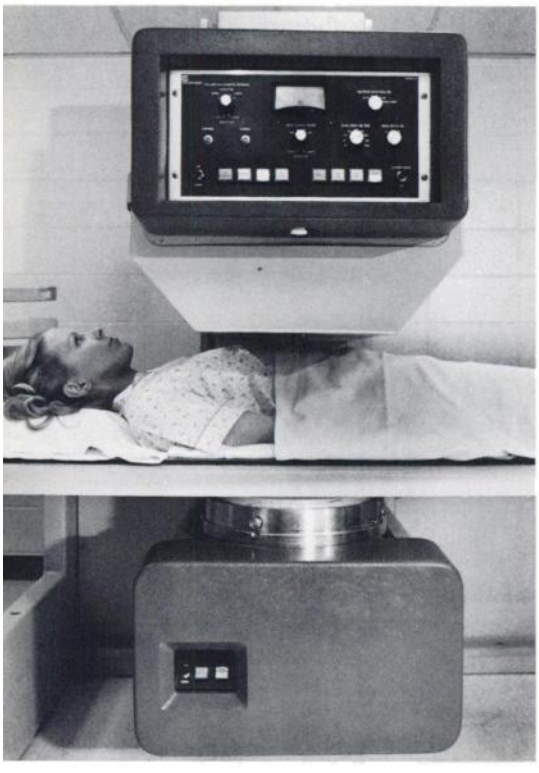
(... the tomo scan also shows a left supraclavicular lesion which was not observed with conventional scanning techniques.)



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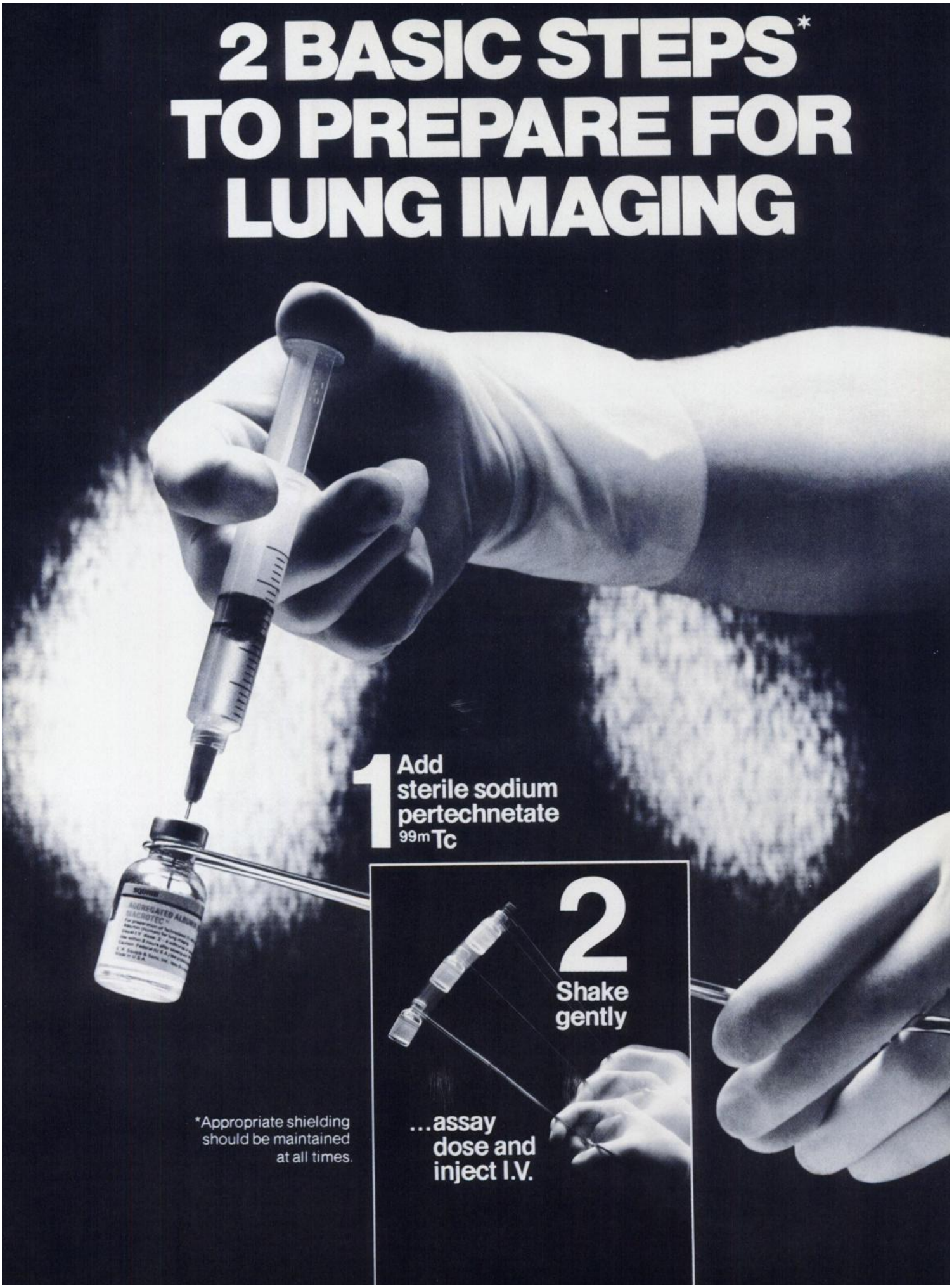
2 BASIC STEPS*
TO PREPARE FOR
LUNG IMAGING
1 Add
sterile sodium
pertechnetate
99mTc
2
Shake
gently
...assay
dose and
inject I.V.
*Appropriate shielding
should be maintained
at all times.

Introducing from Squibb

Macrotec®

Aggregated Albumin (Human)

for labeling with technetium-99m

Simplest and quickest to prepare of three technetium-labeled lung imaging agents. No waiting, heating or involved routines.

Stable for 8 hours after labeling if stored between 2° C. and 8° C. Won't agglomerate in the vial; loses virtually no labeling while standing. No need to resuspend or rewash after standing. Just shake gently again and inject the next patient.

Uniform particle size for good imaging. Over 90% of particles in the range of 10-100 microns. Lung clearance half time about four hours. High labeling efficiency, high lung/liver ratio.

COMPARISON OF BASIC STEPS IN PREPARATION OF THREE TECHNETIUM-LABELED LUNG IMAGING AGENTS*

MACROTEC® Aggregated Albumin (Human)	Albumin Microspheres (human)	Other competing brand aggregated albumin (human)
1. Add $^{99m}TcO_4^-$ to product vial	Add $^{99m}TcO_4^-$ to product vial	Shake ampul, open and withdraw aggregate
2. Shake gently	Agitate in boiling water	Introduce product to reaction vial
3.	Withdraw supernatant and discard	Add $^{99m}TcO_4^-$ to reaction vial
4.	Add rinsing/suspending solution to reaction vial	Shake thoroughly
5.	Agitate ultrasonically	

*Based on manufacturers' product information.

Macrotec®
Aggregated Albumin (Human)

BRIEF SUMMARY

Macrotec (Aggregated Albumin [Human]) is a sterile, non-pyrogenic, lyophilized preparation of aggregated albumin. Each vial of the preparation contains 0.08 mg. tin as chloride, 1.5 mg. denatured human serum albumin, and 10 mg. Normal Serum Albumin (Human).

INDICATIONS: For use in perfusion lung imaging as an adjunct to other diagnostic procedures.

CONTRAINDICATIONS: At present there are no known contraindications to the use of this product.

WARNINGS: Radiopharmaceuticals 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.

Since ^{99m}Tc is excreted in milk during lactation, formula-feedings should be substituted for breast-feedings.

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.

Note: Macrotec (Aggregated Albumin [Human]) is not radioactive. However, after ^{99m}Tc is added, adequate shielding of the resultant preparation should be maintained.

PRECAUTIONS: In the use of any 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.

Aseptic technique is essential in the preparation of Technetated (Tc-99m) Aggregated Albumin (Human).

ADVERSE REACTIONS: At present, adverse reactions have not been reported following the administration of this product.

For full prescribing information, consult package insert.

HOW SUPPLIED: In boxes of 5 vials.

Medotopes®

SQUIBB HOSPITAL DIVISION
E R Squibb & Sons, Inc
Princeton, N J 08540

The Searle Whole Body Scintiscan™ is an accessory which adds whole body bone-imaging capability to the widely used and accepted Pho/Gamma Scintillation Camera. Designed for operational simplicity and clinical safety, it can perform whole body and single organ studies with ease and accuracy. The patient-to-detector distance is less than 2 cm for posterior, "under the table" scans, allowing you to perform high resolution studies without re-positioning of seriously ill patients. A wide range of scan speeds and detector apertures lets you optimize total body information, assuring rapid data acquisition and high patient throughput.

For more information—including complete specifications—on the Scintiscan, just write or phone your Searle Representative. He'll be glad to show you how it can add whole body imaging capability to your facility with ease and economy never before possible.

SEARLE

Searle Radiographics, Inc.

Subsidiary of G. D. Searle & Co.
2000 Nuclear Drive
Des Plaines, Illinois 60018
Phone (312) 298-6600

CM-357

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■ *A transparent olive?*

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■ *Extra quality?*

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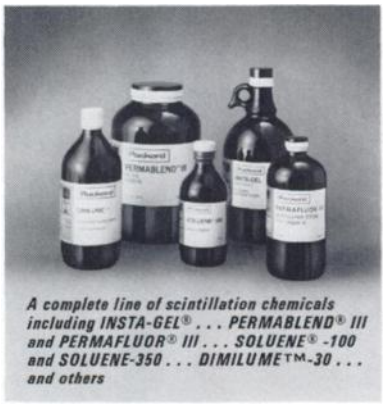
■ *That really is a complete cocktail! And I see what you mean by "extra quality."*

You also get quick delivery and complete service, thanks to Packard's worldwide facilities. Here—have an olive.

■ *Come on—you're kidding about the olive, aren't you?* It's invisible, but it's there.

*Except for two phase system between points of inversion

The invisible olive... it's the extra quality you get when you use INSTA-GEL or any PACKARD Chemicals and Supplies.



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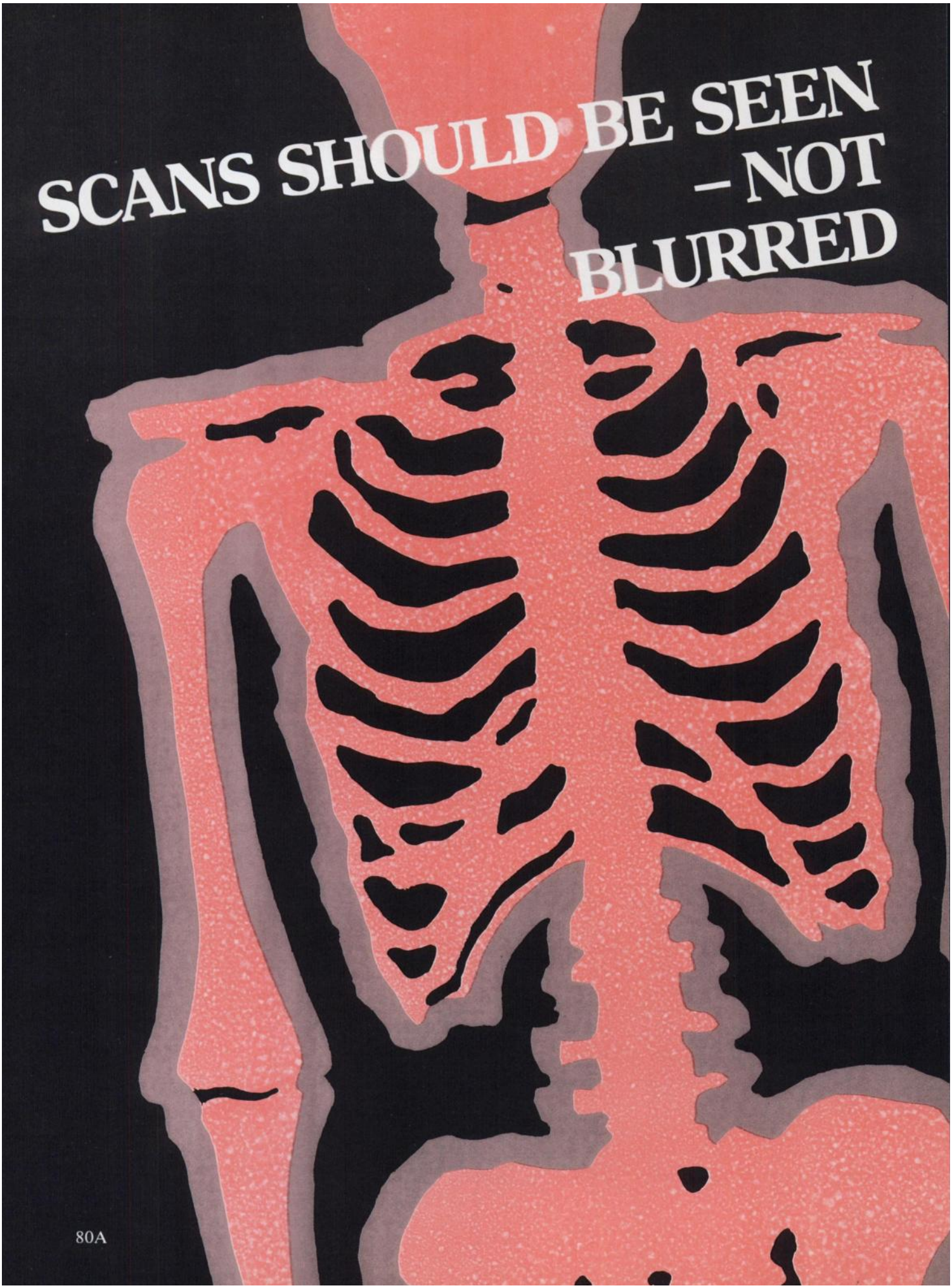
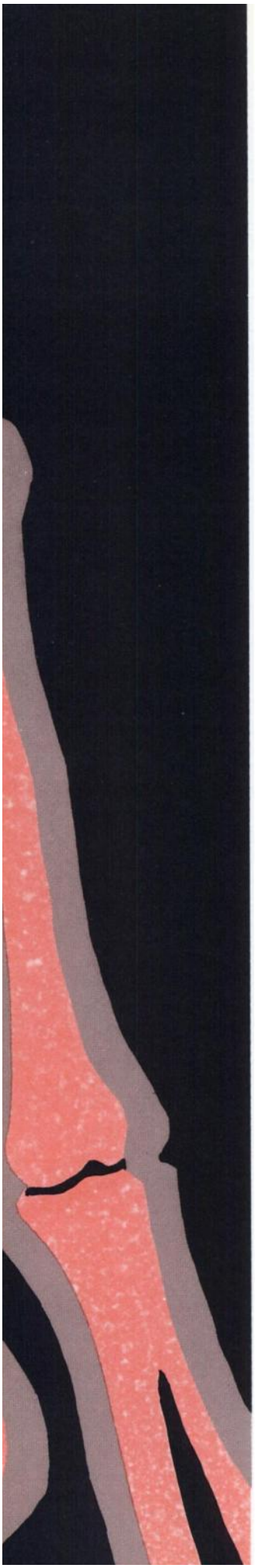

SCANS SHOULD BE SEEN
– NOT
BLURRED

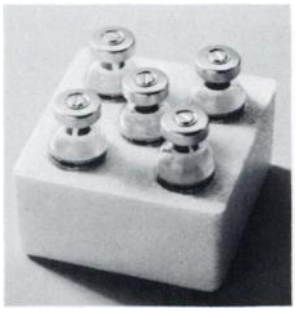


MALLINCKRODT'S NEW

TechneScan® PYP™ KIT (STANNOUS PYROPHOSPHATE)

A MOST SUITABLE PHOSPHATE FOR SUPERIOR BONE IMAGE QUALITY

A superior bone imaging agent because:



- It is a consistent product
- It clears the bloodstream fast
- It gives high bone-to-tissue ratios
- It very seldom produces liver visualization
- It provides for a variable dose-to-scan time
- It gives high initial tagging efficiencies
- It is stable both in-vitro and in-vivo

Excerpts from recent literature on stannous pyrophosphate:

"With the rectilinear scanner, ^{18}F appeared to be the best bone scanning agent. Technetium-99m-phosphate compounds were favorable for clinical use because of availability and usefulness in studies with the gamma camera. Quality of scan with polyphosphate was most variable. Sometimes phosphate compounds and ^{87m}Sr showed considerable interference with bone scan due to soft-tissue radioactivity. Diphosphonate might be regarded as the agent of choice because of its low concentration in the soft tissue. *Pyrophosphate appeared to be most favorable agent considering ease of preparation, reproducibility, and quality of scan." (1)* (Italics added.)

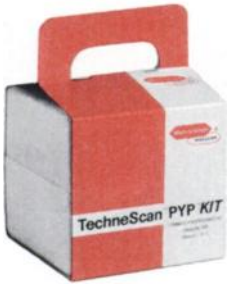
"While the physical properties of ^{18}F are poor, the biological properties are still superior for bone imaging. The biological properties of polyphosphate made from this kit are significantly worse than the pyrophosphate or EHDP prepared from kits. The latter two are more similar to ^{18}F in blood clearance and soft-tissue uptake." (2)

'In summary, ^{18}F seems to be the best radiopharmaceutical for bone scanning. Technetium-labeled pyrophosphate gives better results than polyphosphate of higher molecular weight, and the availability of these two compounds makes bone scanning easier." (3)

1. Hosain F, Hosain P, Wagner HN, Dunson GL, Stevenson JS: Comparison of ^{18}F, ^{87m}Sr, and ^{99m}Tc-Labeled Polyphosphate, Diphosphonate, and Pyrophosphate for Bone Scanning. J Nucl Med 14: 410, 1973 *Abst.*
2. Ackerhalt RE, Blau M, Bakshi S, Sondel JA: A Comparative Study of Three ^{99m}Tc-Labeled Phosphorous Compounds and ^{18}F-Fluoride for Skeletal Imaging. J Nucl Med 14: 375, 1973 *Abst.*
3. Bok B, Perez R, Panneciere C, DiPaola R: Bone Scanning Radiopharmaceuticals: A Comparison of Three Products. J Nucl Med 14: 380, 1973 *Abst.*

TechneScan® PYP™ KIT
(STANNOUS PYROPHOSPHATE)

Mallinckrodt NUCLEAR



SEE FOLLOWING PAGE FOR PRESCRIBING INFORMATION

BEFORE USING, PLEASE CONSULT COMPLETE PRODUCT INFORMATION, A SUMMARY OF WHICH FOLLOWS:

DESCRIPTION

The **TechneScan PYP** reaction vial contains all of the non-radioactive reagents required to prepare a sterile, non-pyrogenic solution of Technetium Tc 99m Stannous Pyrophosphate (**TechneScan PYP** Tc 99m) for intravenous injection.

Each 10-milliliter reaction vial contains a total of 15.4 milligrams of stannous pyrophosphate in the lyophilized state in a nitrogen gas atmosphere. The pH of the solution is adjusted with hydrochloric acid prior to lyophilization.

ACTION

When injected intravenously, **TechneScan PYP** Tc 99m has a specific affinity for areas of altered osteogenesis.

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

INDICATIONS

TechneScan PYP Tc 99m 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 **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.

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

PRECAUTIONS

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.

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 **TechneScan PYP** Tc 99m is 5 to 15 millicuries (1 to 14 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.

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

DIRECTIONS FOR PREPARATION

Procedural Precautions

All transfer and vial stopper entries must be done using aseptic techniques.

Procedure:

1. A reaction vial is removed from the refrigerator and approximately five (5) minutes are allowed for the contents to come to room temperature.
2. Affix "Caution—Radioactive Material" label to boxed area of reaction vial label.
3. Sodium pertechnetate Tc-99m solution (1 to 10 milliliters) is added to the **TechneScan PYP** reaction vial. In choosing the amount of technetium-99m radioactivity to be used in the preparation of the **TechneScan PYP** Tc 99m (Technetium Tc 99m Stannous Pyrophosphate), the labeling efficiency, number of patients, administered radioactive dose, and radioactive decay must be taken into account. The recommended maximum amount of technetium-99m to be added to the **TechneScan PYP** reaction vial is 100 millicuries.
4. Shake the reaction vial sufficiently to bring the lyophilized material into solution. Allow to stand for five (5) minutes at room temperature.
5. Using proper shielding, the reaction vial should be visually inspected. The resulting solution should be clear and free of particulate matter. If not, the reaction vial should not be used.
6. Calculate the radioactivity concentration of the **TechneScan PYP** Tc 99m and fill in the appropriate information on the string tag.

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.

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

5—Radioassay Information String Tags.

Reaction Vial Contains:

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

TechneScan®
PYP™ KIT

(STANNOUS PYROPHOSPHATE)

Mallinckrodt NUCLEAR

Mallinckrodt, Inc.
675 Brown Road
Hazelwood, Missouri 63042

New 600-Sample Capacity Controlled-Temperature Auto-Gamma® System

- Evolutionary anti-jam sample elevator
- Unmatched simplicity of sample handling—no special carriers, caps or cups required

- New high speed changer is 41% faster—"Save an hour a day"

- Mix and match—accommodates samples up to 16.7 mm diameter
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- Radioassay Ratio Display (B/T . . . B/Bo . . . $\%T_3$)
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- Constant temperature for stabilized counting

The better one. Packard's modularly expandable 600-Sample, Controlled-Temperature Auto-Gamma System. (The performance, precision and features you want.)

Write for complete information. Request Bulletin No. 1203

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Auto-Gamma® System

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RIA Kits premeasured and predispensed...so you don't have to supply all the accuracy.

RIA-Mat™ Circulating T3 I125 Kit for measuring total T3

Mallinckrodt brings a new concept to RIA testing—premeasured standards and reagents, and predispensed radioactivity. Accuracy that assures reliable results is built in. So technicians no longer need to spend excessive amounts of time and effort preparing for or running tests.

Kits are frozen to assure reagent stability. Just thaw and start. Radioactivity has been predispensed; final preparation of standards and reagents is done for you; all serum standards are matched; separation of bound and free components is simplified and made reliable through the RIA-Mat™ Strip. No refrigerated centrifuging is required. There are significant reductions in preparation time, pipetting steps and other procedures that formerly placed high demands on technologists.

It's just the first of a series of new concepts in RIA kits that help take the burden of accuracy from your shoulders. Contact your Mallinckrodt representative or write for complete information or an evaluation kit.

First of our new ideas to change your ideas about RIA testing.

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RADIOPHARMACEUTICALS

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the image quality and exact diagnostic format you need

Searle Micro Dot Imager

Static, dynamic & whole body imaging . . . 15 formats, 3 film sizes

The Searle Micro Dot Imager offers Pho/Gamma users a versatile display system for single-organ or whole body imaging using economical X-ray film. Three film sizes and 15 image formats let you choose the exact format best suited for any study. State-of-the-art optics and electronics put as many as 80 images on one film with single-image fidelity. You can even mix static, dynamic and different size images on the same sheet of film. An exclusive, lightweight cassette design speeds and simplifies loading and unloading of film.

The Micro Dot provides distinct, well-focused scintidots in all image sizes; it gives you superior imaging clarity, constant focus and freedom from astigmatism regardless of dot intensity and location. Absolute exposure control—with pushbutton settings for routine studies—assures correct, repeatable exposures from day to day and month to month in all image sizes.

Designed for clinical utility and operational simplicity, the Micro Dot Imager is the most complete display system available for the Pho/Gamma Scintillation Camera. For more information—including complete specifications—just write or phone your Searle representative. He'll be glad to show you how it can add unmatched versatility, convenience and economy to your laboratory's gamma imaging capabilities.

SEARLE **Searle Radiographics Inc.**
Subsidiary of G. D. Searle & Co.
2000 Nuclear Drive, Des Plaines, Illinois 60018
Phone 312-298-6600

CM-356