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**AGGREGATE
LUNG**

venous injection
Adult

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Lungaggregate™ Reagent [Aggregated Albumin (Human)] has eight important advantages for pulmonary scintigraphy.

The first one is obvious:

1. Particles Presuspended in Solution.

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

2. Soft Particles for Rapid Lung Clearance.

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

3. Quick, Easy Preparation.

No thawing, reconstitution of lyophilized particles, or ultrasonic agitation are required.

4. Conveniently Stable.

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

5. Multi-Dose Economy.

Each vial can be used to give several patient doses since Lungaggregate Reagent contains a preservative.

6. Imaging Excellence.

Tc 99m is the radionuclide of choice for scintigraphy. With a 4 mCi dose of Tc 99m-Lungaggregate Reagent, up to 500,000 counts can be

obtained in two to three minutes on a gamma camera.

7. High Lung/Liver Activity Ratio.

The ratio of lung to liver-and-spleen activity is over 10/1.

8. Patient Safety.

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

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

Brief Summary

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

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

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

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

under 18 years, unless expected benefits outweigh risks involved.

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

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

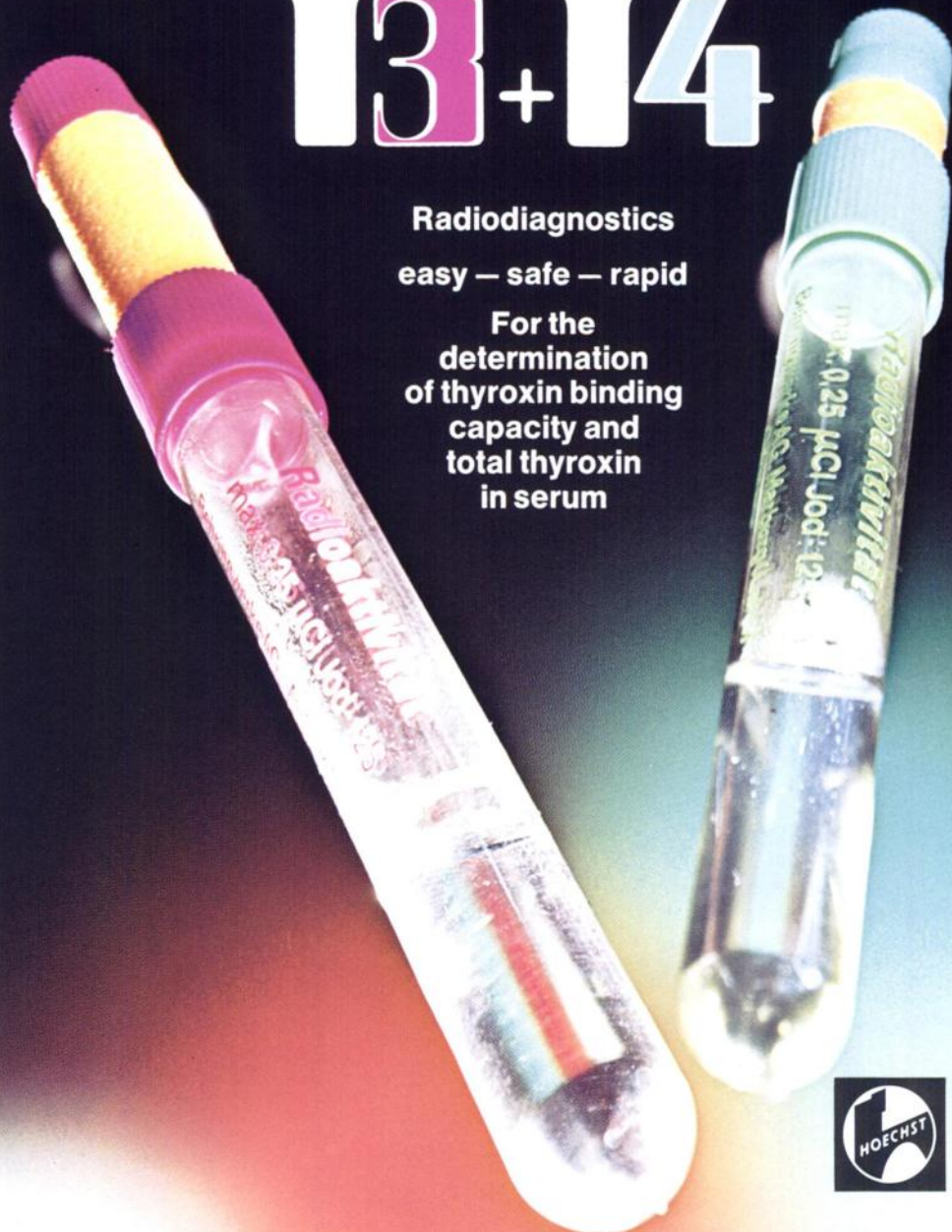
Adverse reactions: None reported in over 4,000 patient studies.



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T3+T4



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Storage: store protected from light in the refrigerator at +4° to +6° C
Stability: 8 weeks at proper storage. The expiry date is indicated on the package.

Order No.: J 5113
for T3 1 package 12 tests

Contents T 4 kit: 12 calibrating tubes with 3.3 ml TBG-T 4- (J-125)- solution each • total activity: 1 µCi J-125 • preservative: 0,02% sodium azide • 12 adsorption tubes • 1 standard serum of defined T 4-concentration •

Order No.: J 5114
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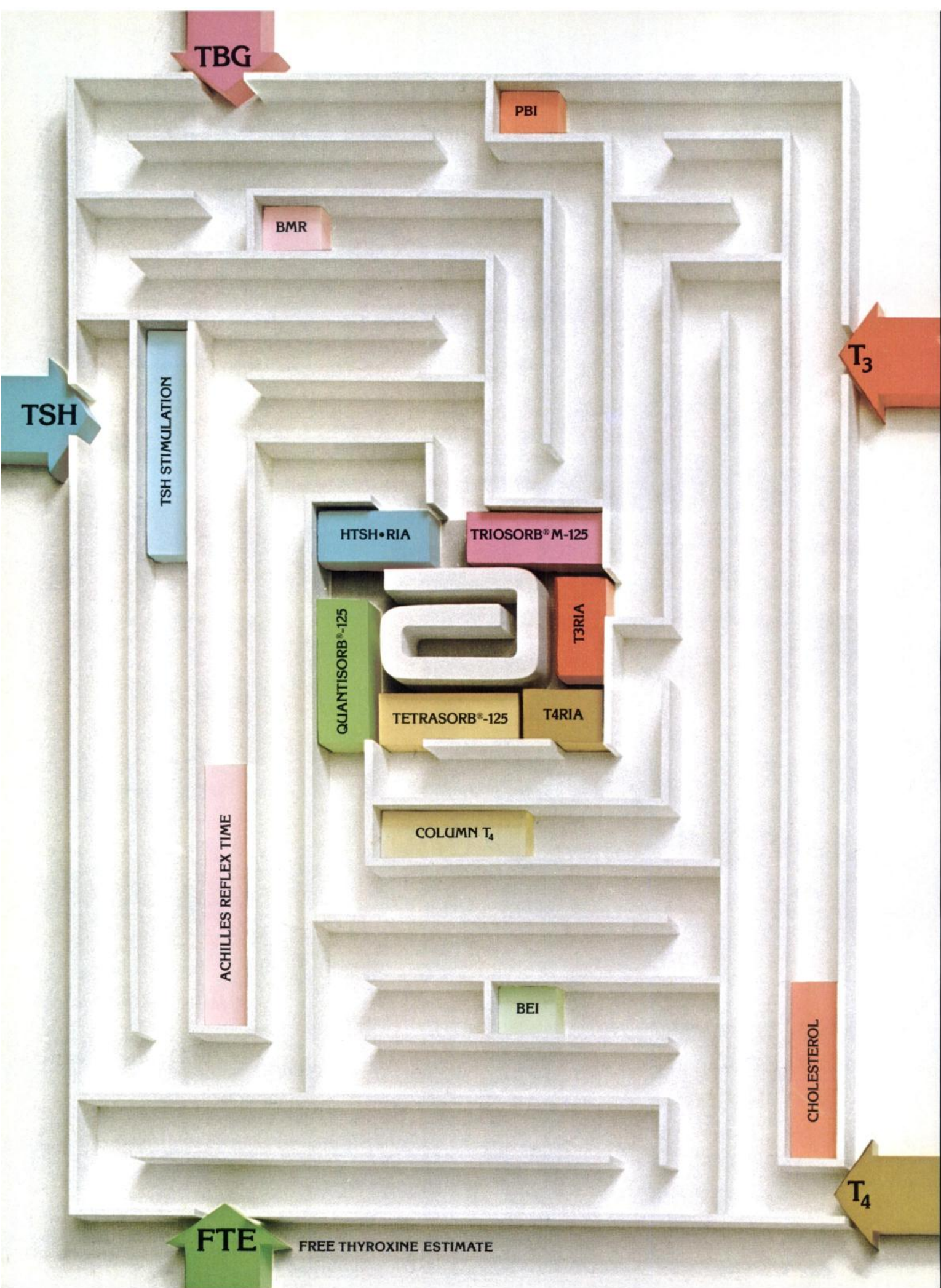
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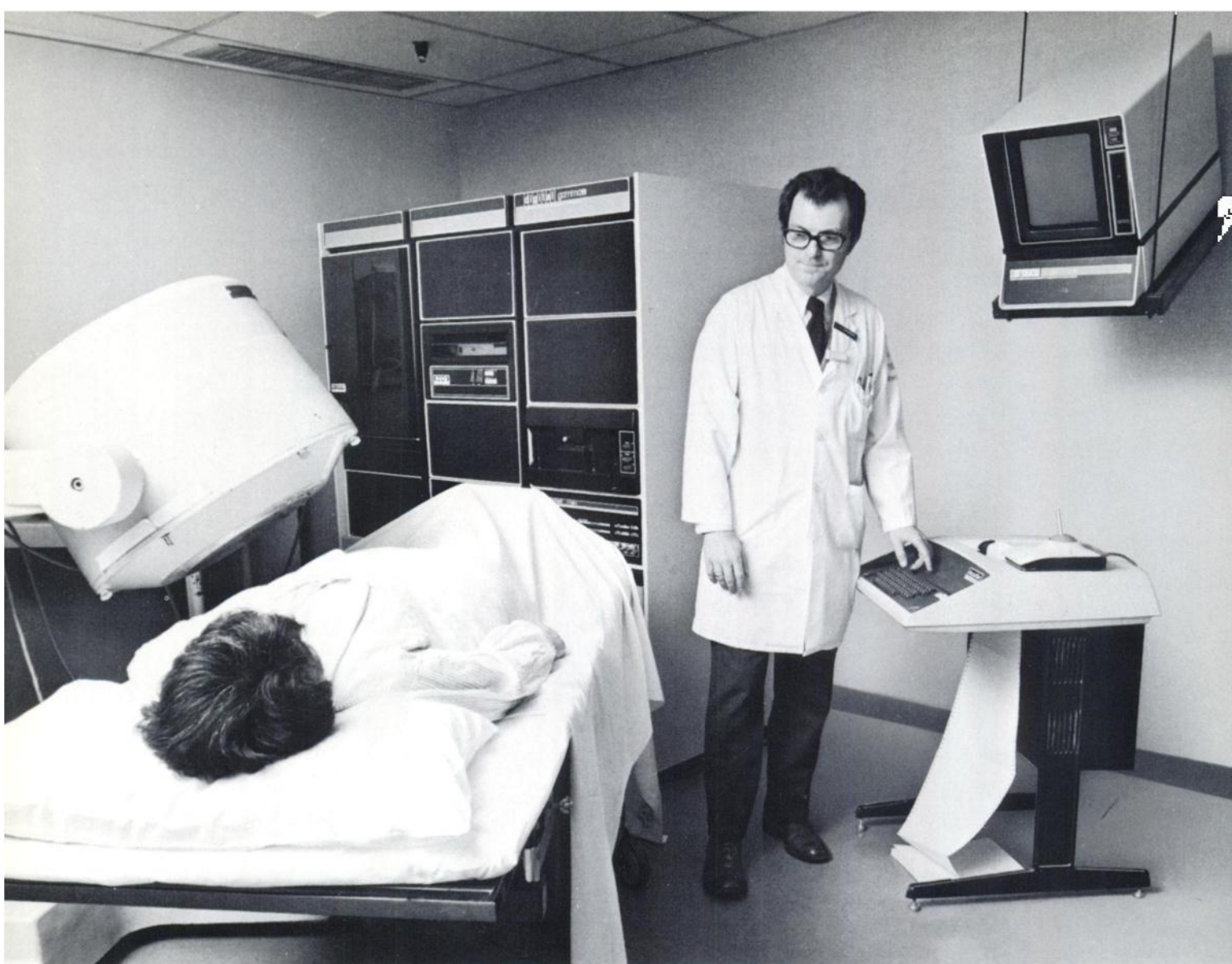
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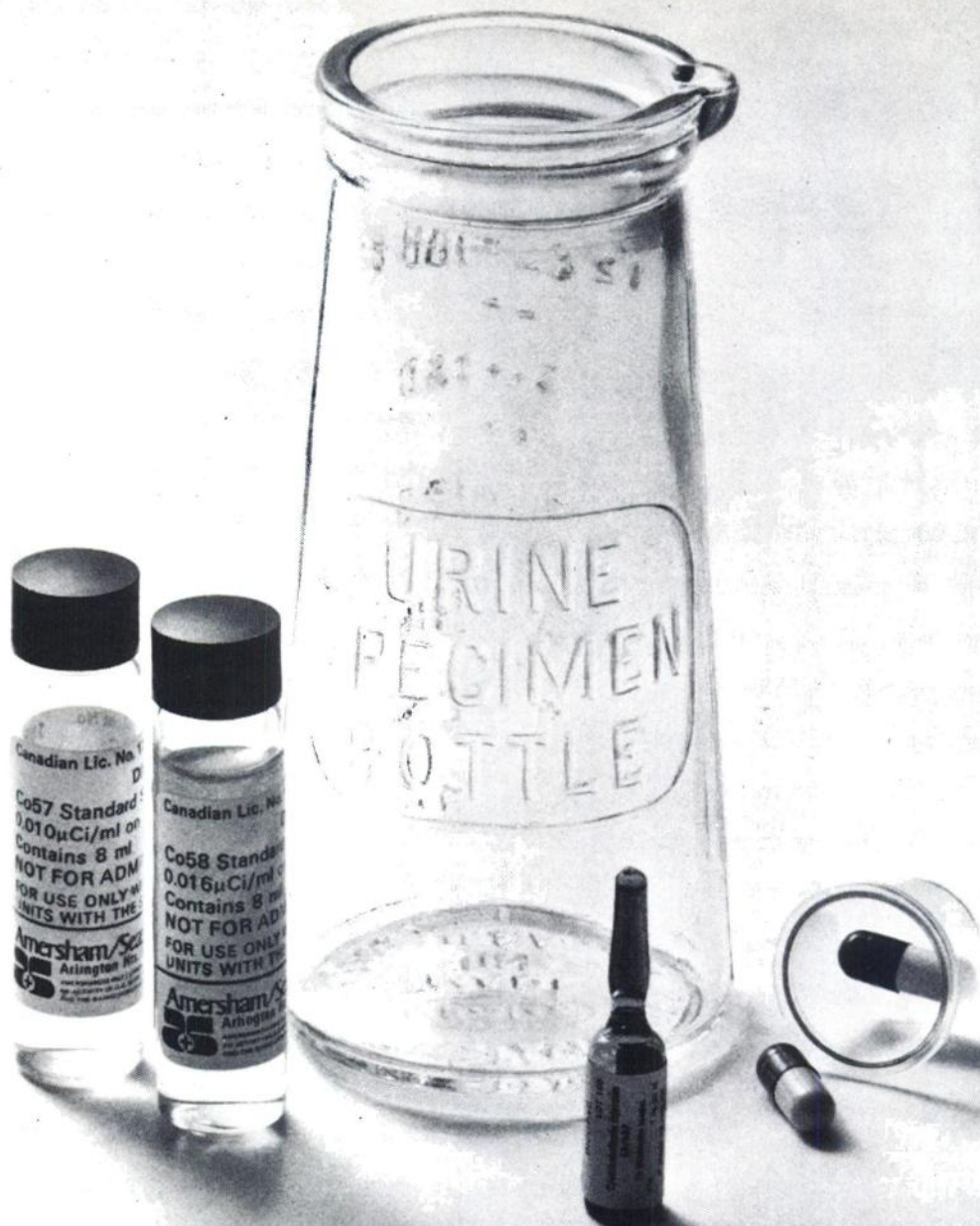
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Don't separate both parts of the Schilling test by three days. With Dicopac both parts are performed at the same time. The results are derived in less time, because the two labelled forms of vitamin B₁₂ (free cyanocobalamin Co-58 and cyanocobalamin Co-57 bound to [human] gastric juice) are administered simultaneously.

The results are expressed as a percentage of each nuclide excreted and, more importantly, as a ratio of Co-57 to Co-58. An incomplete urine collection will affect the absolute amounts of each nuclide collected, but not the ratio of Co-57 to Co-58. Therefore, the test is not necessarily invalidated by incomplete urine collection.

For convenience, the flushing dose of unlabelled vitamin B₁₂ (1 mg) is supplied in individual single dose ampules.

For more detailed information, please refer to the next page of this advertisement or contact our Customer Service Department.

Dicopac for diagnosis of vitamin B₁₂ malabsorption.

Dicopac[®]
(0.25 µg cyanocobalamin gastric juice, 0.25 µg Co-57 bound to [human] cyanocobalamin Co-58)

DESCRIPTION: Each Dicipac® Kit consists of five single-test cylinders, a vial of Cobalt 57 (Co 57) standard, and a vial of Cobalt 58 (Co 58) standard. Each test cylinder contains a capsule of cyanocobalamin Co 58 (vitamin B₁₂ Co 58), a capsule of cyanocobalamin Co 57 (vitamin B₁₂ Co 57) bound to human gastric juice, and an ampule of unlabelled cyanocobalamin for injection.

ACTIONS: Oral vitamin B₁₂ is normally coupled with intrinsic factor (IF) contained in the gastric juice secreted by the stomach and the vitamin B₁₂ combined with intrinsic factor is absorbed in the terminal ileum. Only intrinsic factor bound vitamin B₁₂ is absorbed by this route. Following parenteral administration or gastrointestinal absorption, cyanocobalamin is bound to plasma proteins and distributed to the liver and blood forming organs.

INDICATIONS: Dicipac Kit consisting of cyanocobalamin Co 58 and cyanocobalamin Co 57 combined with human intrinsic factor is used to assess vitamin B₁₂ absorption in the diagnosis of malabsorption due to the lack of intrinsic factor, e.g. Addisonian (pernicious) anemia, and as a diagnostic adjunct in other defects of intestinal absorption.

CONTRAINDICATIONS
None

WARNINGS: This radiopharmaceutical should not be administered to patients who are pregnant or during lactation unless the information to be gained outweighs the potential hazards.

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

The test should not be started within 24 hours of a therapeutic dose (1000 µg) of vitamin B₁₂ or within 24 hours of a loading dose of vitamin B₁₂ given for the Schilling test.

If bone marrow examinations are to be done, they should precede the administration of this test, as the flushing parenteral dose of vitamin B₁₂ may alter the bone marrow picture.

ADVERSE REACTIONS
None

DOSAGE AND ADMINISTRATION: One purple/white capsule containing 0.25 µg cyanocobalamin Co 57 (nominal activity 0.5 µCi at activity date) bound to human gastric juice for oral administration.

One red/ivory capsule containing 0.25 µg cyanocobalamin Co 58 (nominal activity 0.8 µCi at activity date) for oral administration.

One ampule of unlabelled cyanocobalamin (1 mg) for intramuscular injection.

The patient dose should be measured by a suitable radioactivity calibration system immediately prior to administration. Care must be taken when measuring the activity in the Co 57 and Co 58 capsules because of the small amount of radioactivity present.

ADMINISTRATION AND TEST PROCEDURE*: The Dicipac test is performed in a manner similar to the Schilling test, however, with this test both Co 58 cyanocobalamin and Co 57 cyanocobalamin bound to intrinsic factor are administered simultaneously. Thus, both vitamin B₁₂ absorption and response to intrinsic factor are measured with the Dicipac test.

Both Dicipac capsules are orally administered to a fasting patient, who is instructed to collect all urine for the next 24 hours. An intramuscular injection of non-radioactive vitamin B₁₂ is administered to the patient up to two hours after the radioactive capsules are administered.

After the total volume of urine is measured, aliquots are taken for counting. The urine samples and the Co 57 and Co 58 standards provided with the Dicipac Kit are counted using dual isotope counting procedures. This data is used to calculate the percent excretion of each radionuclide and the ratio of the percent excretion of Co 57 to the percent excretion of Co 58.

*Refer to "The Technical Information for the Performance of the Dicipac Test" brochure provided with the Dicipac Kit for further information on procedural techniques.

INTERPRETATION OF RESULTS: The usual percent excretion values and the ratios obtained with Dicipac are presented in Table I.

Table I. Results of 24-hour urine excretions and $\frac{\text{Co 57}}{\text{Co 58}}$ ratios with Dicipac:

Diagnosis	Mean values % (usual range)		
	Co 57 + I.F.	Co 58	$\frac{\text{Co 57}}{\text{Co 58}}$ ratio
Normals	18 (10-42)	18 (10-40)	0.7-1.3
Pernicious anemia and certain gastric lesions	9 (8-12)	3 (0-7)	>1.7
Malabsorption syndromes not caused by lack of I.F.	<6	<6	0.7-1.3

A small number of patients have been found to excrete a "normal" (i.e., >10%) amount of Co 58, but these individuals exhibit elevated ratios (>1.4). The clinical significance of these findings is presently unclear.

PHYSICAL CHARACTERISTICS: Cobalt-57 decays by electron capture with a physical half life of 270 days. The primary gamma energy of Co 57 is about 122 KeV. Cobalt-58 decays by electron capture and positron and gamma emissions with a physical half life of 71 days. The primary gamma energy of Co 58 is 811 KeV. Photons that are useful for counting are listed in Table I.^{1,2}

Table I. Principal Radiation Emission Data

Co 57	Radiation	Mean %/disintegration	Mean Energy (KeV)
	Gamma -2	87.1	121.9
Gamma -3	9.6	136.3	
Co 58	Beta -1	15.0	203.7
	Gamma -1	99.4	810.5
Annihilation Radiation		30.0	511.0

¹Dillman, L.T., Radionuclide Decay Schemes and Nuclear Parameters for Use in Radiation-Dose Estimation, Supplement No. 2, MIRD pamphlet No. 4, *J. Nucl. Med.*, p. 27, 1969.

²Dillman, L.T., Radionuclide Decay Schemes and Nuclear Parameters for Use in Radiation-Dose Estimation, part 2, Supplement No. 4, MIRD pamphlet No. 6, *J. Nucl. Med.*, p. 16, 1970.

The specific gamma ray constant for Co 57 is 1.0 R/mCi-hr at 1 cm. For Co 58 it is 5.6 R/mCi-hr at 1 cm. The half value layer for Co 57 is 0.2mm of Pb. For Co 58 it is 9mm of Pb.

To correct for physical decay of these radionuclides, the fractions that remain at selected time intervals before and after the day of calibration are shown in Table II.

This table is not needed for routine calculation, as all counting is relative to the standards which have been prepared from the same batch of each of the radionuclides as the corresponding cyanocobalamin capsules.

Table II. Physical Decay Chart: Co 57, half life 270 days; Co 58, half life 71 days

Weeks Before Activity Date	Co 57 µCi		Weeks After Activity Date		Co 58 µCi
	Co 57 µCi	Co 58 µCi	Co 57 µCi	Co 58 µCi	
10	0.60	1.48			
9	0.59	1.38	1	0.49	0.75
8	0.58	1.38	2	0.48	0.70
7	0.57	1.29	3	0.47	0.65
6	0.56	1.21	4	0.47	0.61
5	0.55	1.13	5	0.46	0.57
4	0.54	1.05	6	0.45	0.53
3	0.53	0.98	7	0.44	0.50
2	0.52	0.92	8	0.43	0.46
1	0.51	0.86	9	0.43	0.43
0*	0.50	0.80	10	0.42	0.40

*Activity date

RADIATION DOSIMETRY: The estimated absorbed radiation doses¹ to an average patient (70 kg) following the oral administration of one Dicipac capsule of Co 57 and one of Co 58 at calibrated nominal activities of 0.5 µCi and 0.8 µCi, respectively, are shown in Table I.

Table I. Radiation Doses

Tissue	Absorbed Radiation Dose	
	(rads/0.5 µCi Co 57 + Intrinsic Factor) Normal and Pernicious Anemia	(rads/0.8 µCi Co 58) Normal Pernicious Anemia
Liver*	0.085	0.14
Stomach	0.00041	0.00027
Small Intestine	0.00007	0.00043
Upper Large Intestine	0.00013	0.00070
Lower Large Intestine	0.00030	0.0018
Testes*	0.0026	0.0074
Ovaries*	0.0033	0.010
Whole-body*	0.0050	0.012

*The administration of a flushing dose of non-radioactive B₁₂ will decrease the dose to the liver, gonads, and whole-body from Co 57 and Co 58 by about 30%.

¹Method of Calculation: A Schema for Absorbed-Dose Calculation for Biologically Distributed Radionuclides, Supplement No. 1, MIRD pamphlet No. 1, *J. Nucl. Med.*, p. 7, 1968.

HOW SUPPLIED: Each Dicipac Kit consists of five single-test cylinders and two 8 ml vials containing the standard solutions. The vial containing the blue solution is the Co 57 standard and the vial containing the yellow solution is the Co 58 standard. Each standard solution is prepared so that 1 ml of solution is equivalent to 2% of the total activity of each of the corresponding capsules.

Each cylinder contains two capsules and an ampule of unlabelled cyanocobalamin (1 mg). The red/ivory capsule contains 0.25 µg Co 58 cyanocobalamin (nominal activity 0.8 µCi at activity date). The purple/white capsule contains 0.25 µg Co 57 cyanocobalamin (nominal activity 0.5 µCi at activity date) bound to human gastric juice.

Dicipac Kits should be stored at 4°C and not used after the expiry date stated on the label.

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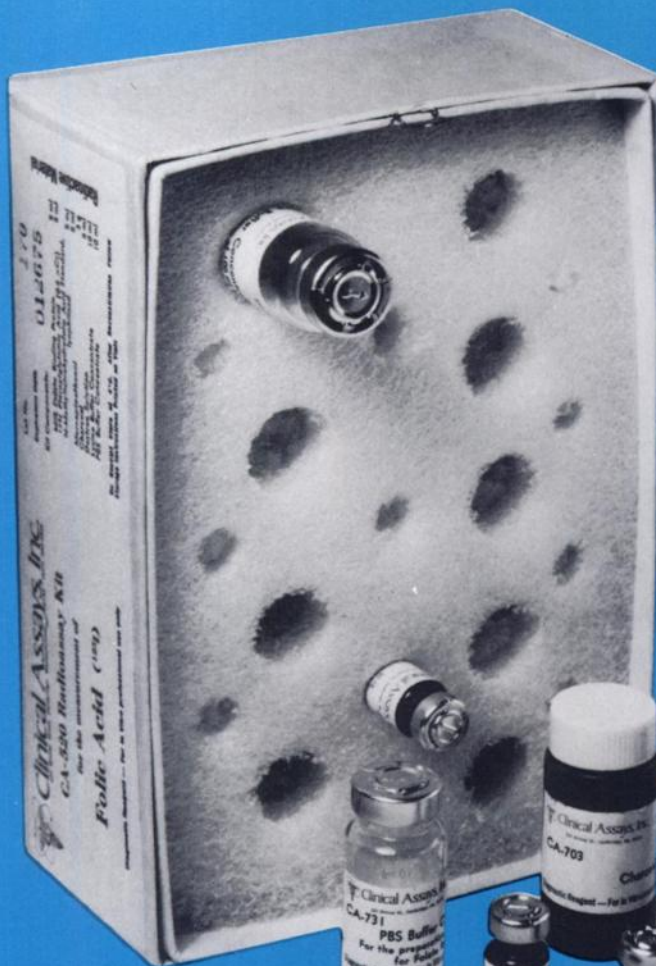
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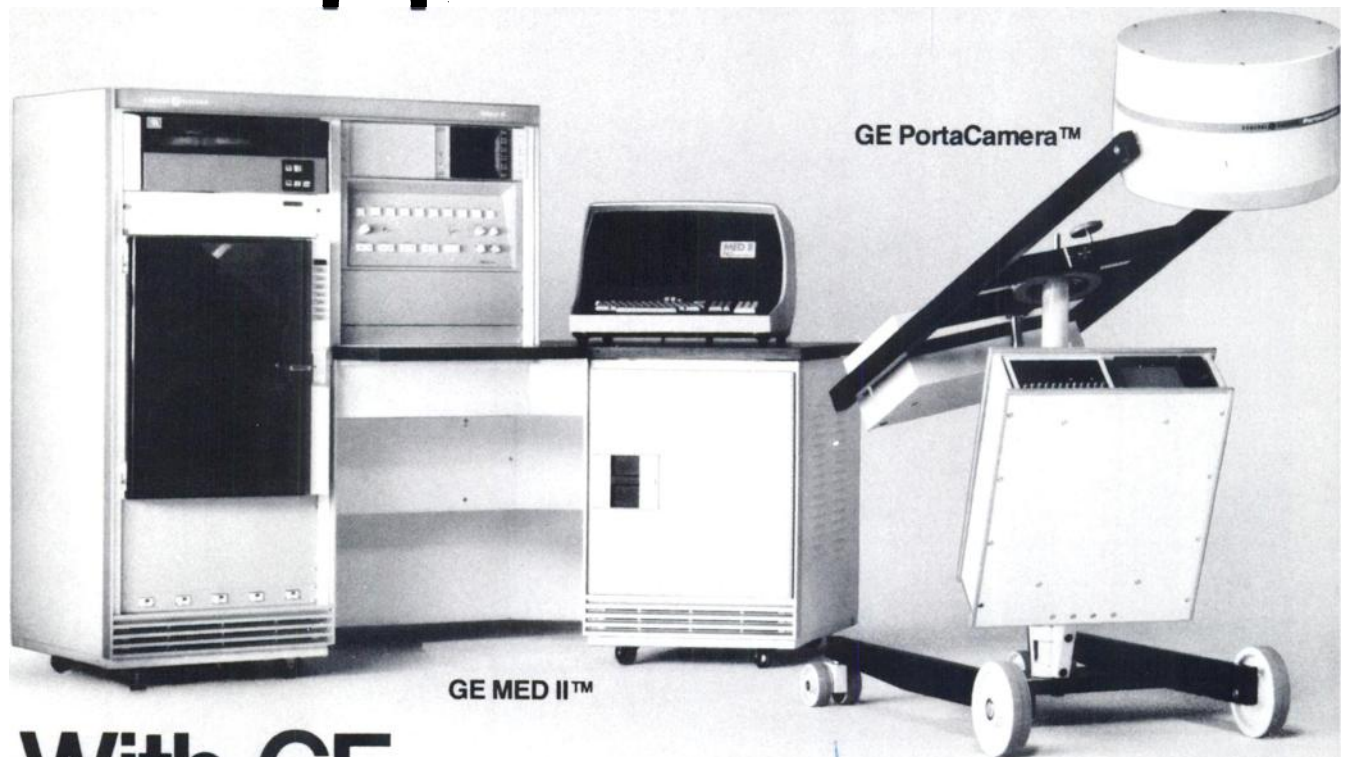
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References: 1) Dunn, R. T.; Foster, L. B.;
Clin. Chem. 19, No. 10, 1101, 1973.

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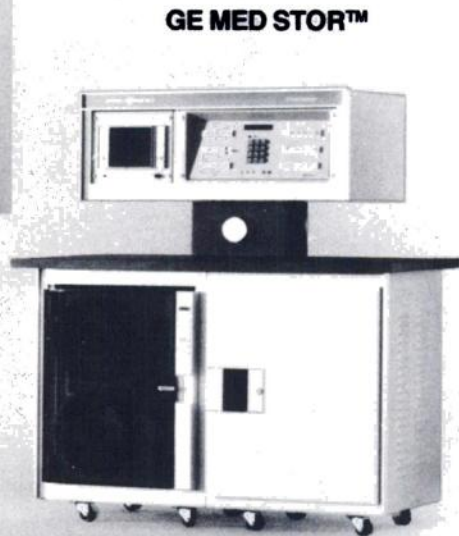
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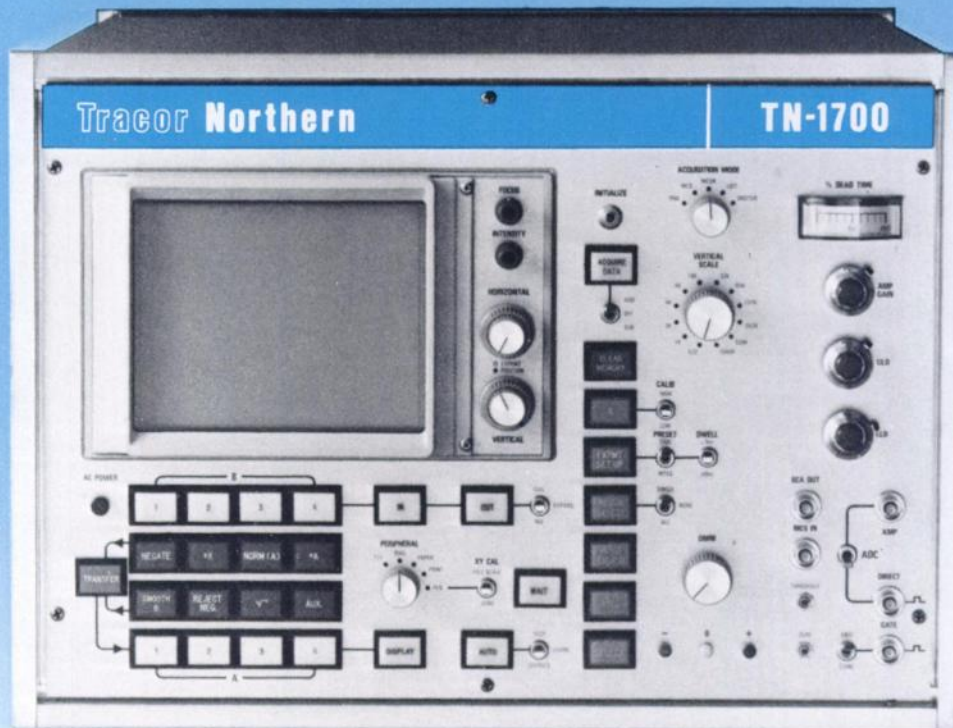
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- Plotter (with alphanumeric labels)
- Teletype
- Parallel or Line Printer

Send for your copy of our new "Applications of Multichannel Pulse Height Analyzers in Nuclear Medicine."

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Tracor Europa B.V.
Schiphol Airport Amsterdam
Building 106, The Netherlands
Telephone (020) 41 18 65
Telex 13695

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Middleton, Wisconsin 53562
(608) 836-6511
TWX-910-280-2521

Better Brain Scans

Ours is the only freeze-dried DTPA. It keeps longer without refrigeration. Requires no dilution. Has no adverse effects on blood calcium (we use monocalcium-trisodium salt, not the usual pentasodium salt).

No need to administer blocking agent, yet uptake by the thyroid, salivary glands and choroid plexus is negligible. Greater concentration in the brain. Better, more clearly defined scans.



Try a six-pack
Simple-to-use, reliable and
already accepted for better
kidney scans, our DTPA
is worth trying.

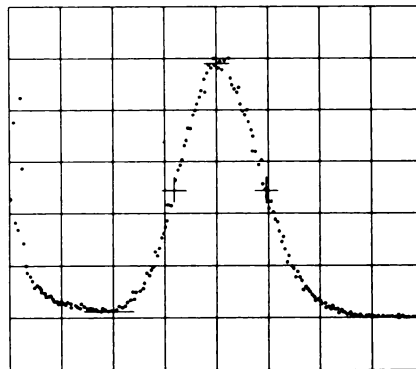


CIS Radiopharmaceuticals, Inc.
5 DeANGELO DRIVE/BEDFORD, MA. 01730/Tel. (617) 275-7120

RCA-4855 makes the big difference in PMTs for soft X-ray detection.

RCA-4855 (formerly C31061) gives you a performance/dollar ratio that's hard to beat. Not only does this remarkable phototube outperform its nearest competitor in the most important parameters required in soft X-ray spectrometry, but 4855 is a direct plug-in replacement for brand XP1010. The cost - \$120*. As a result, practically all equipments using that brand can be simply switched to RCA.

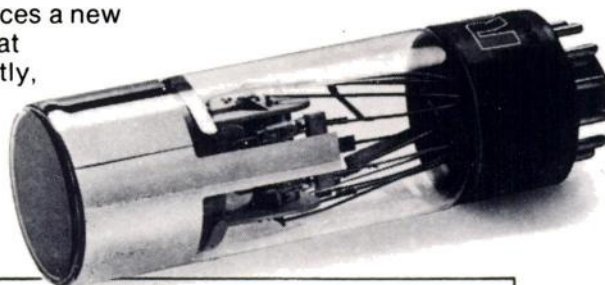
Behind the dramatic performance achievements of the 4855 is one of today's significant advances in phototube technology: a unique electron-optics approach that results in improved cathode efficiency due to greater collection efficiency. It produces a new level of performance that can improve, significantly, a wide variety of X-ray



Pulse height distribution of Fe55 X-rays using RCA-4855

and clinical instrumentation.

So make the big difference in your equipment now. The RCA-4855 is available through



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RCA Lancaster — where people and technology make the difference.

*U.S. Distributor optional resale price.

Manager, Phototube Marketing
RCA, New Holland Avenue, Bldg. 100
Lancaster, Pa. 17604

Please send me more information on the big difference in PMTs . . . RCA-4855.

Section 189H

This is your mailing label. Please print.

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Company

Street

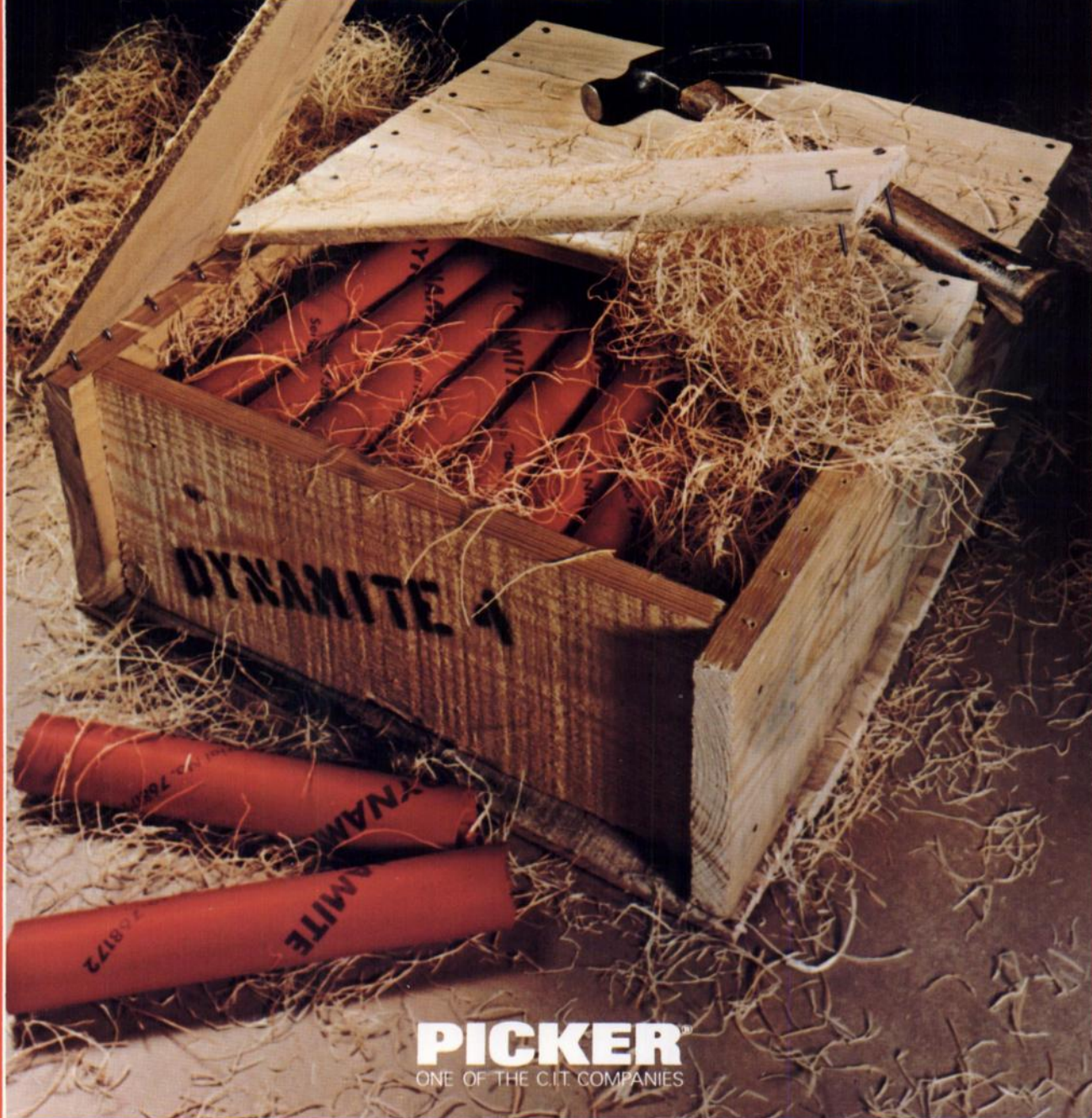
City

State Zip

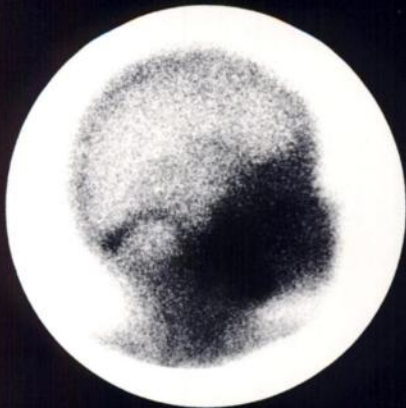
Typical Parameters	RCA-4855
Pulse Height Resolution (with Fe55 — 5.9 KeV.)	47%
Peak-to-valley ratio	30:1
Dark Noise 32 pe Σ 1/4 pe	200 cps

RCA Photo Tubes

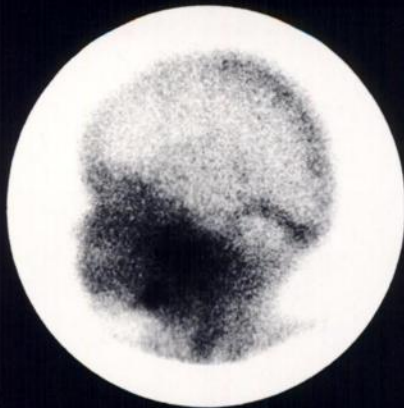
DYNAMAMITE RESULTS



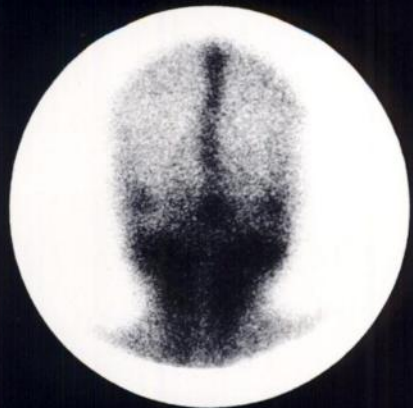
PICKER
ONE OF THE C.I.T. COMPANIES



RL

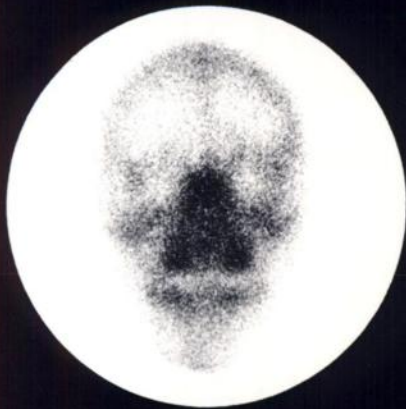


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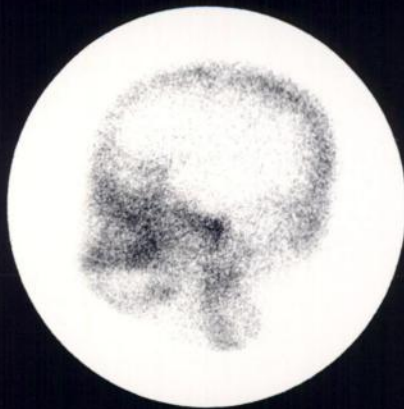


POS

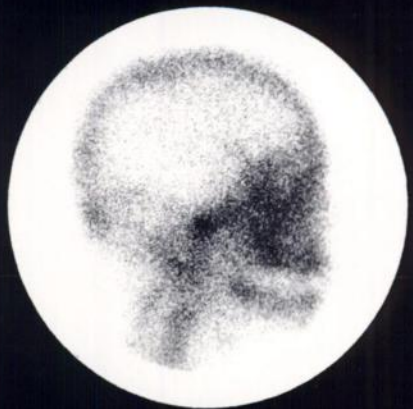
Brain Study, ^{99m}Tc Pertechnate



ANT

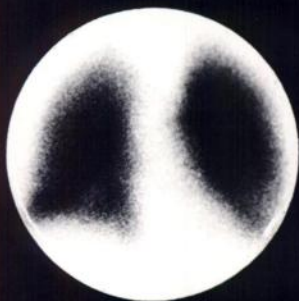


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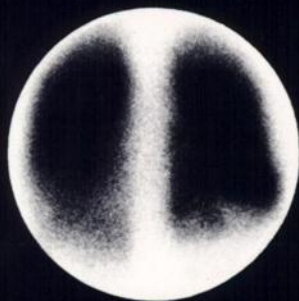


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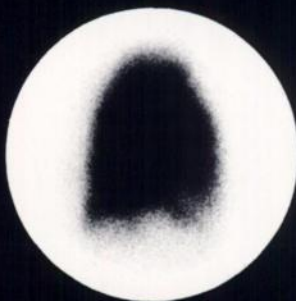
Bone Study, ^{99m}Tc Pyrophosphate



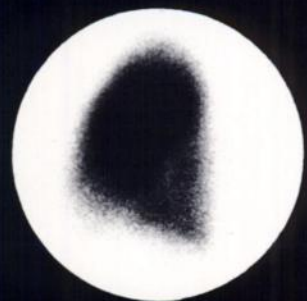
A



P

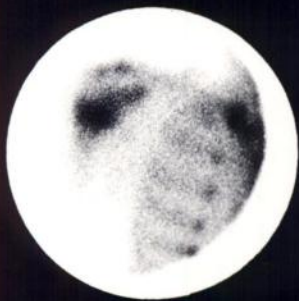


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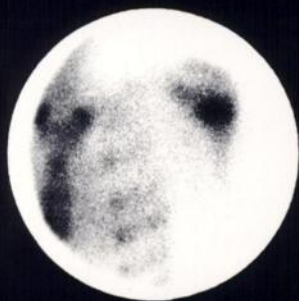


LL

Lung Study, ^{99m}Tc MAA



RIGHT SHOULDER,
ANTERIOR



LEFT SHOULDER,
ANTERIOR

Bone Study, ^{99m}Tc Pyrophosphate

For dynamite clinical results, get the dynamite Dyna™ Camera 4 system. Contact your Picker representative or write: Picker Corporation, 12 Clintonville Road, Northford, CT 06472

INTRODUCING

THE FINEST ¹²⁵I FOLATE KIT

FEATURING

- No serum blanks
- Range 0.1 - 32 ng/ml
- Will measure Folate concentration in whole blood
- ½ hour incubation

Diagnostic Products Corporation, the prime producer of the ³H Folate Assay Kit, has developed an ¹²⁵I Folate Kit with all the characteristics that have enabled us to maintain our leadership in the Folate RIA market. The unexcelled simplicity, accuracy and reproducibility of our tritiated products is characteristic of our ¹²⁵I Folate, T-3 RIA, T-4 RIA.

T-4 RIA

- No extraction
- Range 0.3 - 32 µg/100ml
- 30 minute incubation
- Cross-reactivity with T-3 - 0.15%

T-3 RIA

- No extraction
- Range 10 - 800 ng/100ml
- 30 minute incubation
- Cross-reactivity with T-4 - 0.1%

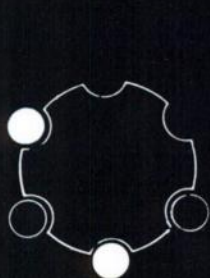
Also Available:

- [³H] Aldosterone
(No Chromatography)
- [³H] Cortisol RIA
- [⁵⁷CO] Vitamin B-12
- [³H] Digoxin
- [³H] Cyclic AMP
- [³H] Cyclic GMP

Diagnostic Products
CORPORATION

12306 Exposition Blvd., Los Angeles, Calif. 90064

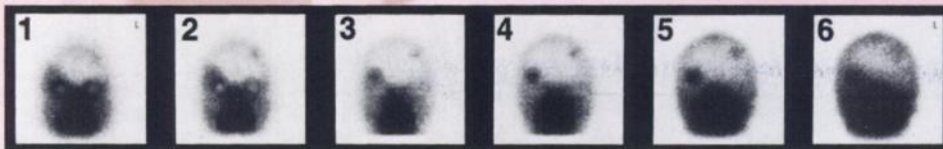
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DIMENSIONAL DIAGNOSIS



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

Your facility gets up to six anterior and six posterior tomographic images from one PHO/CON scan, each readout being sharply focused on a different

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PHO/CON utilizes two detector heads for simultaneous anterior-posterior imaging. It has a 26" x 70" scan field, suitable for any size study. Each detector head produces six simultaneous 2" x 2" tomographic images on 5" x 7" film, or three simultaneous 2" x 5½" whole body images on 8" x 10" film.

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PHO/CON is now proving its dimensional diagnostic value in teaching hospitals and cancer clinics worldwide. For complete information on this first of the new multi-plane imagers, write or phone.

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OUR 'KOWS, AND YOUR



They're all products of the "little extra" philosophy.

There's a little extra in everything you see here. Right down the line. A little extra in terms of quality and convenience.

Our lung scan kit, offering the advantages of a frozen product, gives an excellent particle size range and a tagging efficiency always at or near 100% conversion of pertechnetate to labeled MAA.

Our stannous pyrophosphate product for bone imaging gives high tagging efficiency, consistency and stability both in vitro and in vivo, and high bone-to-soft-tissue ratios.

We package sulfur colloid in a unique dispenser which lets you keep a visual check on your supply. A convenient little extra.

Our line of 14 *Ultra-TechneKow*[®] generators gives you the largest choice of moly and fission moly generators.

That little extra in all of our products adds up to a standard of quality, convenience and reliability that gives you superior scans. So, think of Mallinckrodt and those little extras when you think of a source for your Tc-99m needs.

OUR KITS SCANS.



Before prescribing please consult the complete product information, a summary of which follows:

Technescan™ MAA Lung Scan Kit
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 three reports in the literature of deaths occurring after the administration of radioiodinated aggregated albumin as a result of pre-existing primary pulmonary hypertension.^{1,2,3}

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 with severe kidney disease unless the benefits to be gained outweigh the potential hazards. Similar care should be observed with patients who are pregnant or who are lactating. Ideally, examinations using radiopharmaceuticals, especially those elective in nature, of a woman of childbearing capacity should be performed during the first few (approximately 10) days following the onset of menses.

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.

¹Dworkin, 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.

²Roberts, H. J.: Fatal hemoptysis in pulmonary embolism probably precipitated by pulmonary scanning—Report of a case and suggested precautions. *Angiology*, 21:270, 1970.

³William, J. O.: Death following injection of lung scanning agent in a case of pulmonary hypertension. *Br. J. Radiol.* 47:61, 1974.

Technescan™ PYP™ Bone Scan Kit
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.

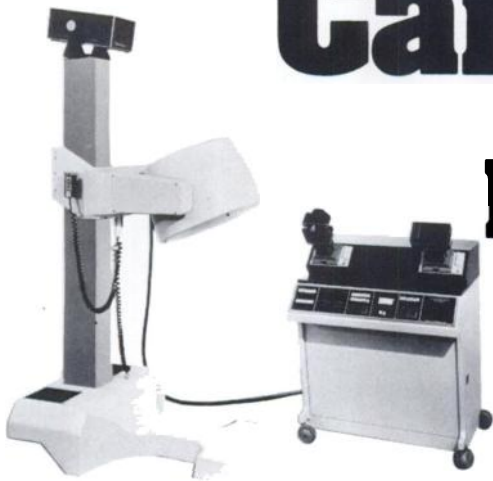
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RADIOPHARMACEUTICALS

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Cardiovascular

In Black And White



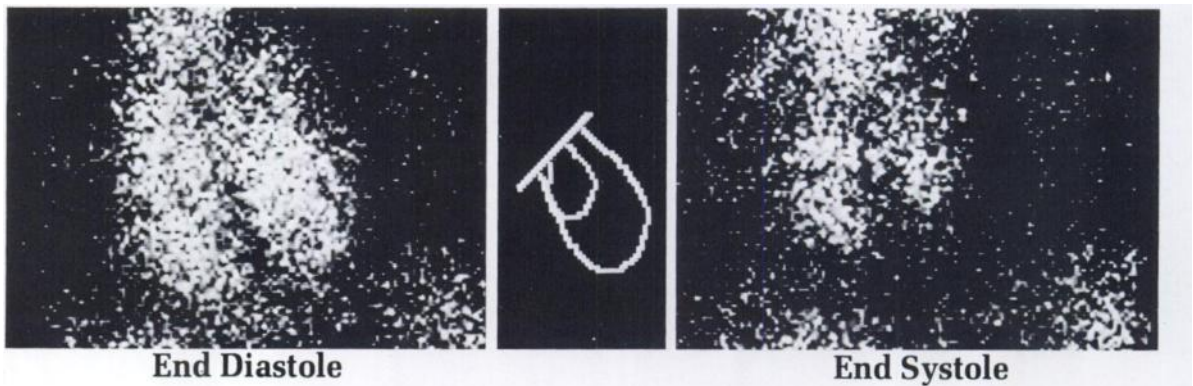
Series 100

All studies are ^{99m}Tc albumin gated blood pool studies. All studies done on Ohio-Nuclear Series 160 DataSystem with the Series 100 Camera gated directly into the 2 separate 16K memories of the DataSystem. Studies performed in December, 1974.

Normal — LAO View

32 year old male
History —
Normal

160 DataSystem
in half field mode

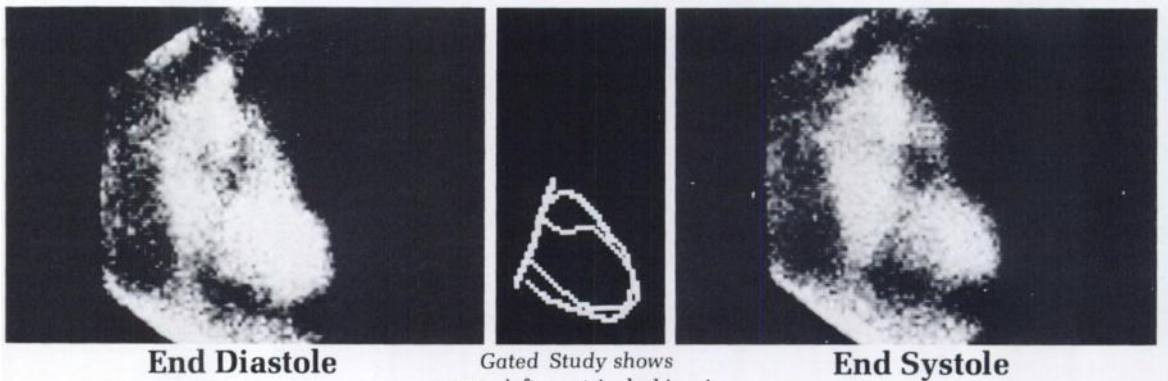


End Diastole

End Systole

Focal Akinesis — Anterior View

60 year old female
History — extensive infarct 1972, progressive shortening of breath, congestive heart failure, acute pulmonary embolism, recurring ventricular tachycardia, patient was defibrillated



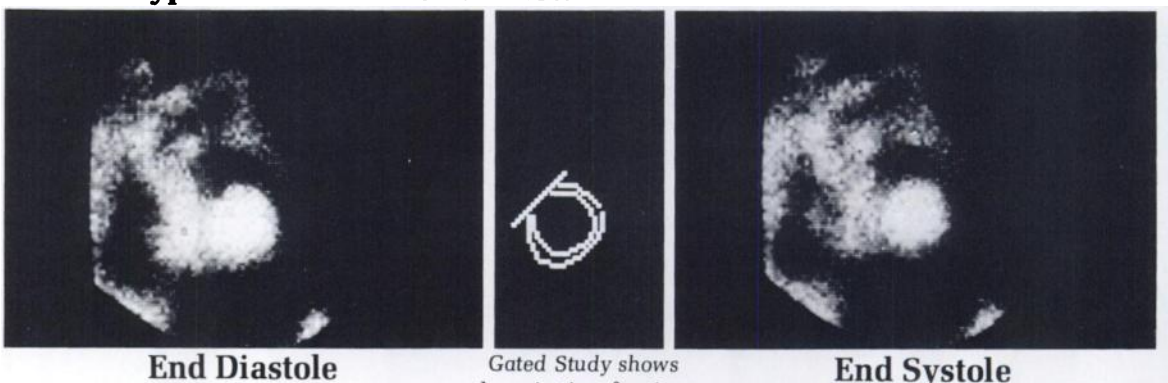
End Diastole

Gated Study shows
severe left ventricular akinesis

End Systole

Diffuse Hypokinesis — Anterior View

63 year old male
History — acute infarction Aug. '74, ventricular tachycardia, patient was defibrillated.



End Diastole

Gated Study shows
low ejection fraction
diffuse hypokinesis

End Systole

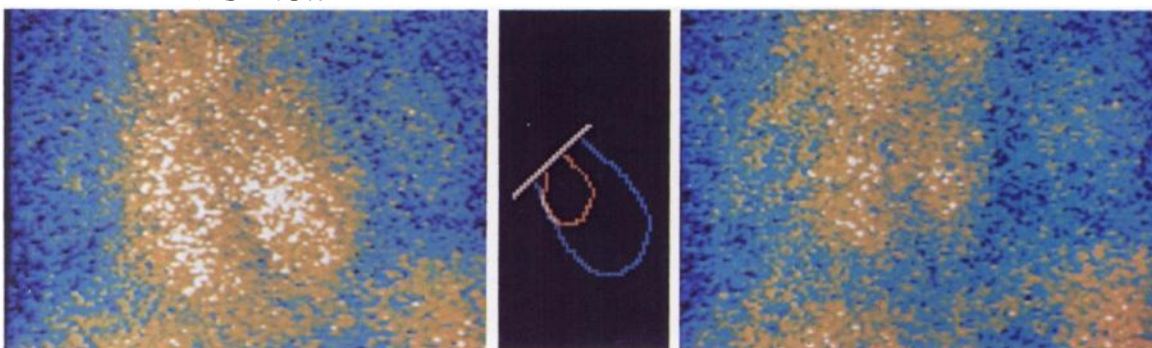
Nuclear Diagnosis

Or In Color



Series 160 DataSystem

Normal — LAO View



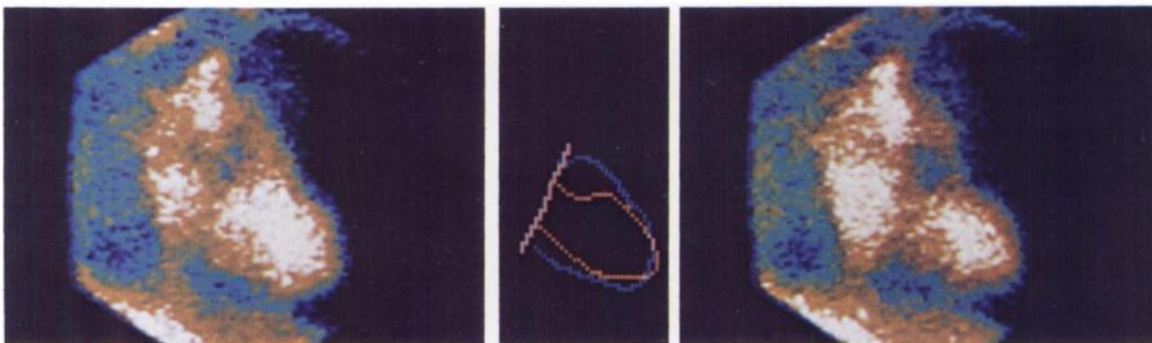
End Diastole

End Systole

32 year old male
History —
Normal

160 DataSystem
in half field mode

Focal Akinesis — Anterior View



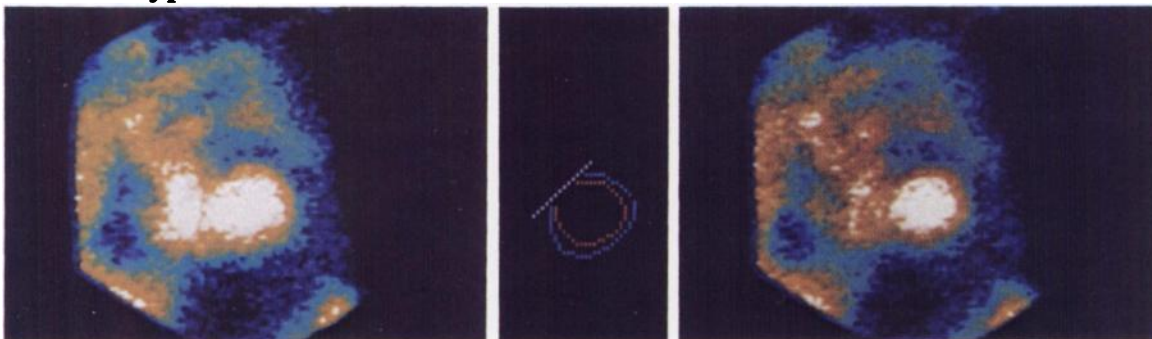
End Diastole

End Systole

Gated Study shows
severe left ventricular akinesis

60 year old female
History — extensive infarct 1972,
progressive shortening of breath,
congestive heart failure, acute
pulmonary embolism, recurring
ventricular tachycardia, patient was
defibrillated

Diffuse Hypokinesis — Anterior View



End Diastole

Gated Study shows
low ejection fraction
diffuse hypokinesis

63 year old male
History — acute infarction Aug.
'74, ventricular tachycardia, pa-
tient was defibrillated.



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WHAT'S NOW SQUIBB?

On the current nuclear medicine scene



MINITEC® (Technetium 99m) Generator

The Technetium 99m Generator using fission product molybdenum to produce technetium 99m. MINITEC 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

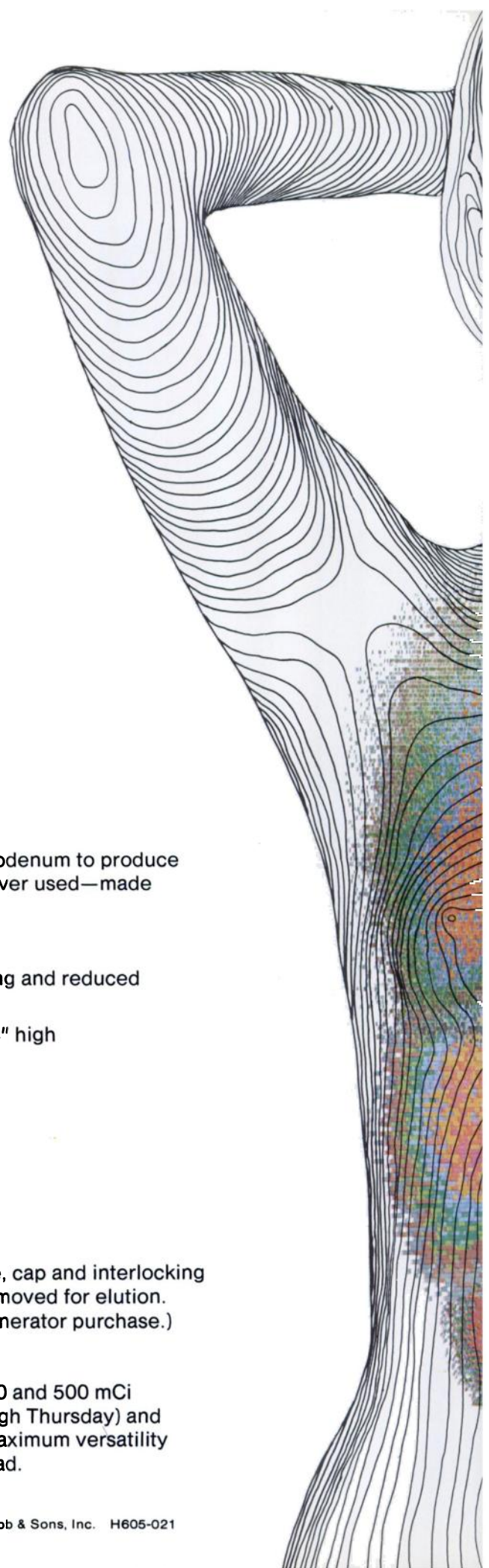
- Sets up in seconds
- Elutes in only 3 minutes after eluent vial has emptied

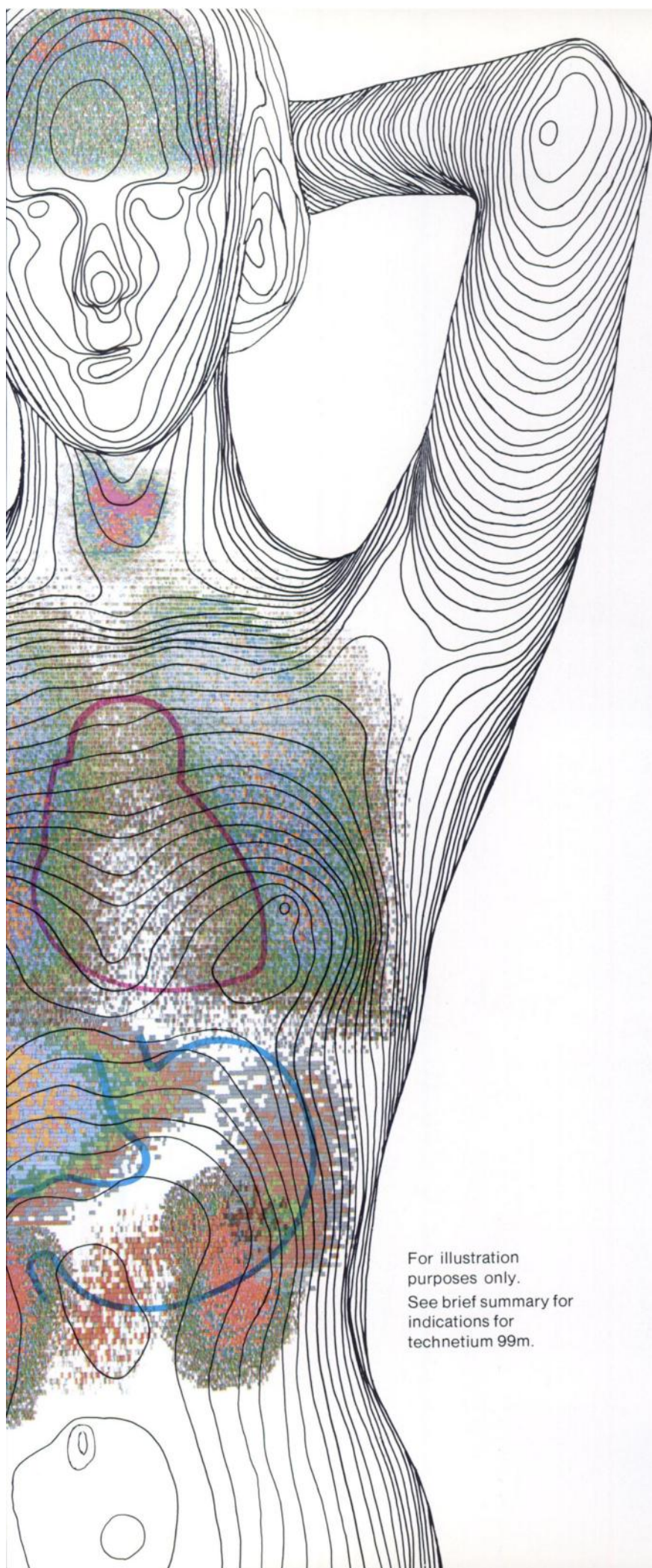
Designed for safety

- No exposed tubing when eluting
- 1½" lead surrounds the MINITEC column
- 1½" of extra lead protection from MAXI-SHIELD™. Base, cap and interlocking half rings easily assembled on site . . . only the cap is removed for elution. (You get MAXI-SHIELD free with your first MINITEC Generator purchase.)

Designed for convenience

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





For illustration purposes only. See brief summary for indications for technetium 99m.

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, 300, 400, and 500 mCi. Supplied with the generator are vials of eluent containing 5 ml. of a sterile, non-pyrogenic solution of 0.9% sodium chloride in water for injection. Also supplied is suitable equipment for eluting, collecting, and assaying the technetium 99m.

Medotopes[®]



SQUIBB HOSPITAL DIVISION

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

BEATS THE OTHERS



TechneScan™ MAA KIT

AGGREGATED
ALBUMIN (HUMAN) KIT
Catalog No. 092
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.

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

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.



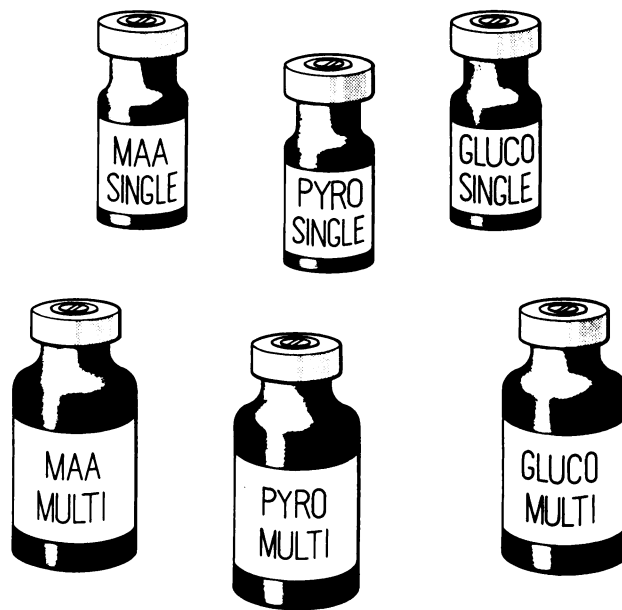
Mallinckrodt
NUCLEAR

Mallinckrodt, Inc.
675 Brown Road
Hazelwood, Missouri 63042

¹Dworkin, 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.

²Roberts, H. J.: Fatal hemoptysis in pulmonary embolism probably precipitated by pulmonary scanning—Report of a case and suggested precautions. *Angiology*, 21:270, 1970.

**THERE ARE TIMES ...
IT'S BETTER TO BE
SINGLE!**



**THEN AGAIN
THERE ARE TIMES
IT'S BETTER TO BE
MULTI!**

Like when you have only one study to run that day or six for that matter (Multi-Dose plus Single Dose vials).

ANI PRODUCTS OFFER YOU . . .

quality, dependability, convenience, economy, consistent reproducibility, safety, stability, specificity, uniformity, excellence, superiority, reliability, suitability, etc., etc., etc.

OH YES,

You will certainly get great looking scans at considerable savings to your department.

WOULD YOU BELIEVE that a company has finally done the obvious — introduced **MULTI-DOSE** and **SINGLE-DOSE** vials to the Nuclear Medicine Community.

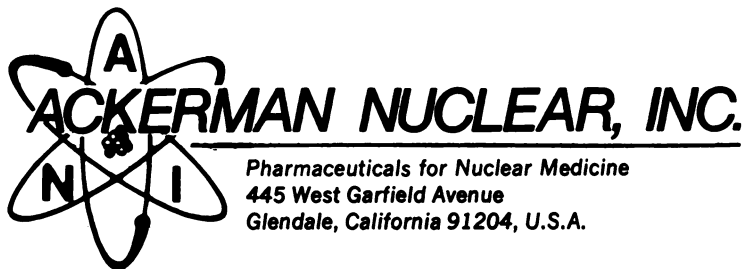
A survey of hospitals in the Greater Los Angeles Area has shown typical cost savings of 20% to 50% by proper combination of singles and multiples based on daily demand.

ANI offers this unique concept in three initial products:

- Instant MAA Reagent
(MacroAggregated Albumin)
- AN-PYROTEC
(Pyrophosphate)
- AN-GLUCOTEC
(Glucoheptonate)

Call **ANI** collect for prices and availability in your area.

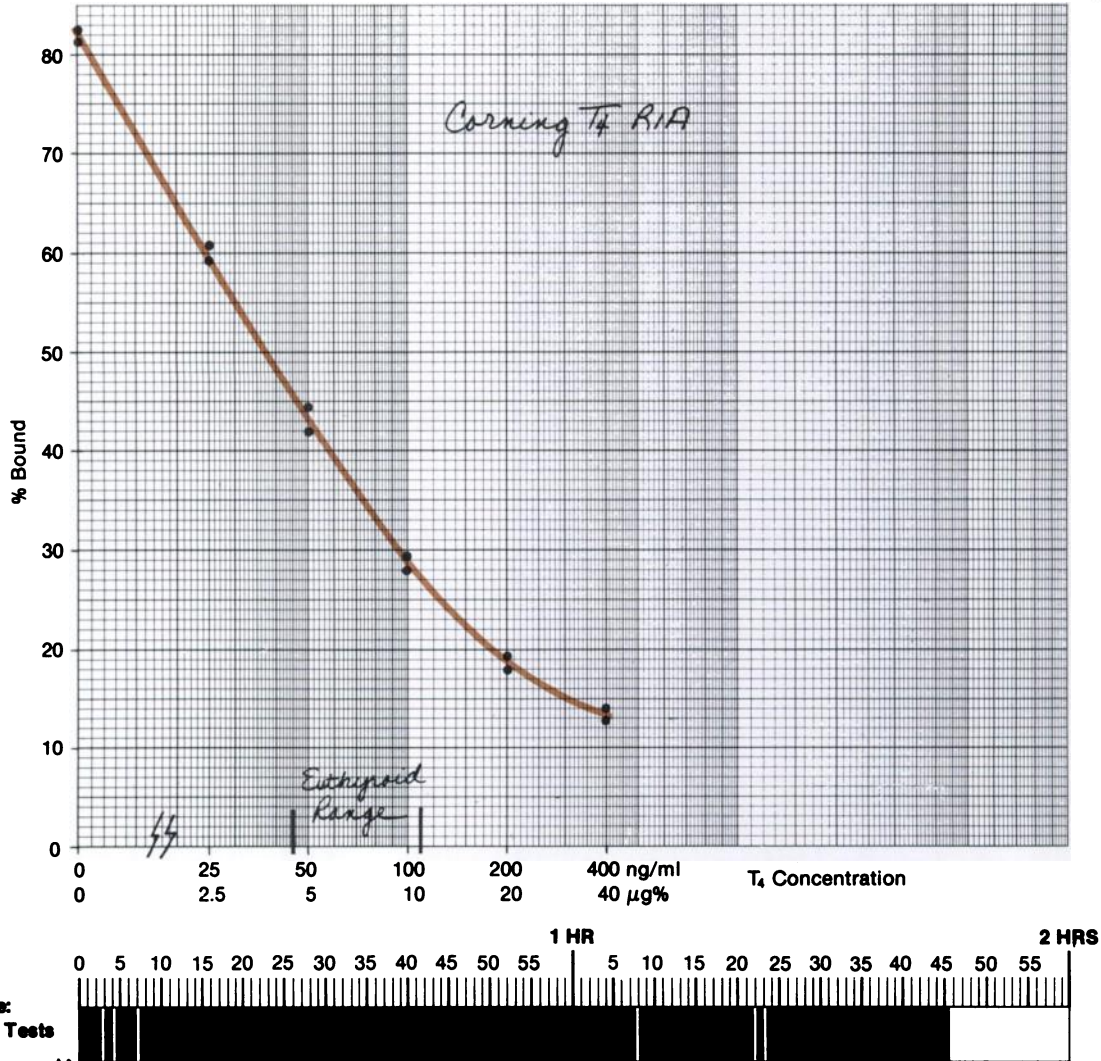
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New England Nuclear Radiopharmaceuticals

The T₄ Assay,



*Pipet sample
Pipet Phases
Vortex*

Incubate

*Centrifuge
Decant*

*Count
Total Time:
1 hour 44 minutes*

**Compare curves.
Compare procedures.
Find out how
Corning's T₄ RIA
outperforms any
other available T₄
assay.**



It's your choice. Take any available T₄. Then compare it with our Corning T₄. Ours is one of a family. All are called IMMO PHASE™ assays. All are solid phase. All are built around the bonding of antibody to microscopic glass beads.

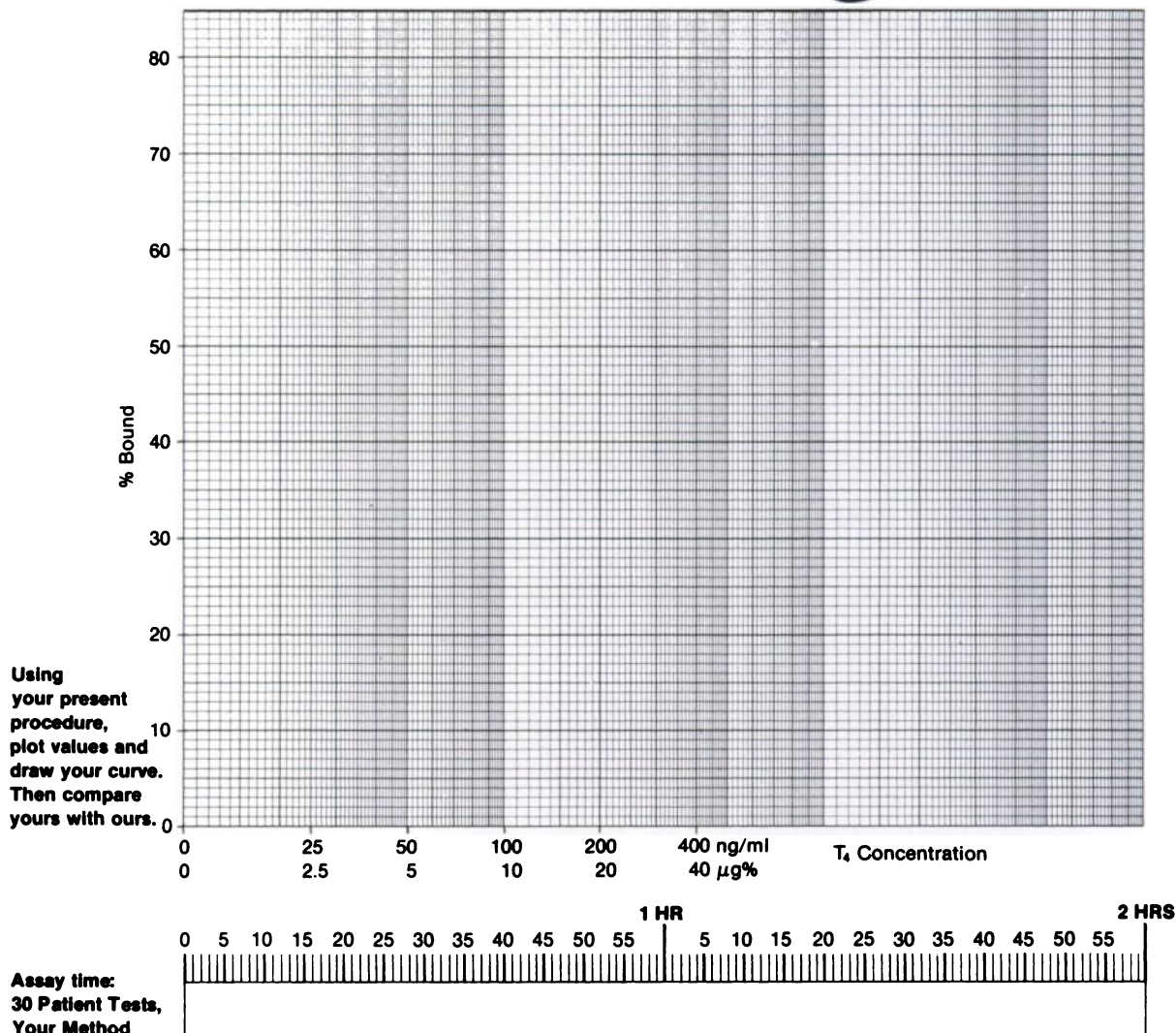
The bead and you. Our minute beads are so small that you could put 2½ million of

them on the head of a common pin. When we covalently bond antibodies to the beads, what we get is a unique, stable antibody-glass composite.

What you get is a ready-to-use antibody with a built-in solid-phase separator—the bead. Extraction is completely eliminated. And you get a curve that is unmatched in sensitivity over the complete range of values.

The simplest procedure. You get real bonuses when you pick our T₄. Because, along with exceptional performance and speed, you have the simplest T₄ procedure available. And the bead separator allows unsurpassed flexibility when running the assay. The IMMO PHASE T₄ is even compatible with automated pipetting equipment.

Assay.



How is your time line? Take a look at our time line under the graph. Check it out closely. After you've plotted your curve and compared it to ours, plot your time line. Then compare that with ours. Now draw your own conclusions!

It started with digoxin. Last year we introduced our first IMMO PHASE assay. It was digoxin and was greeted with justifiable enthusiasm. Why? Because the glass bead offers the simplest procedure. Moreover, the results were, and are, both accurate and reproducible.

This year you can get T₄ and insulin as well. **We go easy on your budget.** Premium performance doesn't always mean premium dollars. In fact, our prices are truly competitive. We may even be able to save

you money. Here's how: Let's assume you need something different than the typical standard kit. We work with you. We make arrangements tailored to your setup. We can mix and match components, regardless of lot number. Substantial savings come if you choose to order bulk quantities of individual components.

The coupon gives you all the options. We'd like to hear from you soon.

CORNING

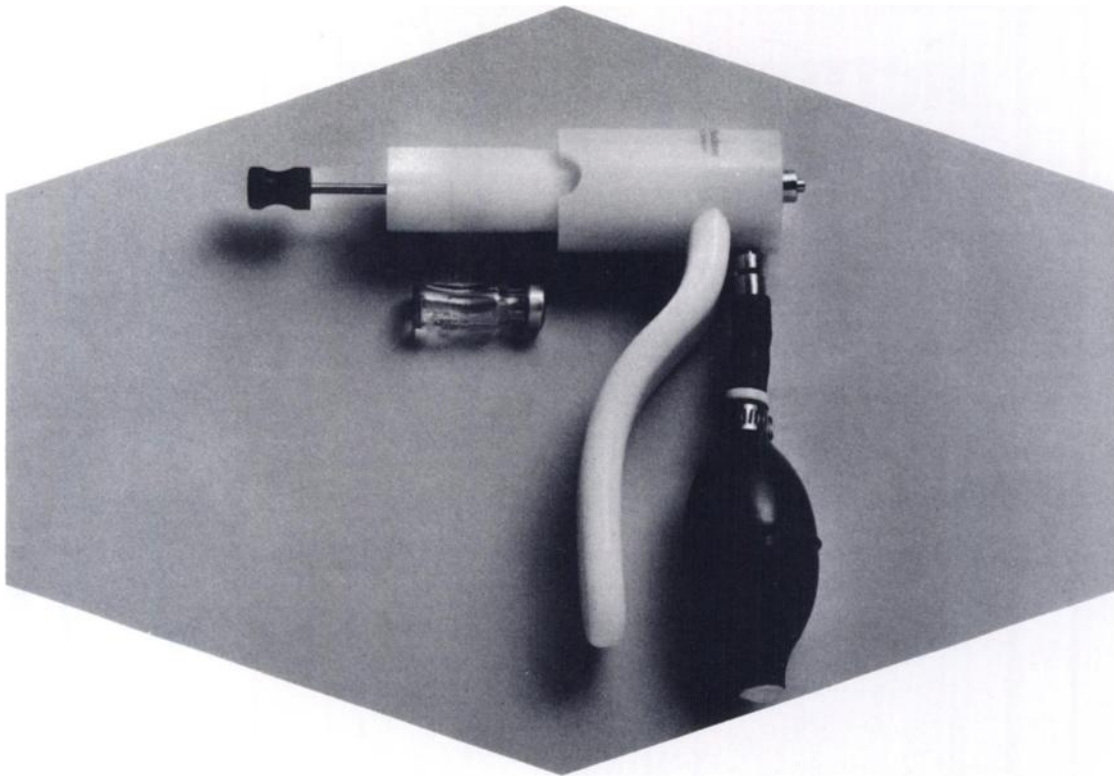
Corning Diagnostics

Corning IMMO PHASE products are distributed in Canada by Fisher Scientific Co., Ltd.

**Corning Diagnostics, Corning Glass Works
Medfield, Massachusetts 02052, (617) 359-7711**

- (1) Yes, I want to compare your IMMO PHASE T₄ Assay with my T₄ procedure.
 Have a tech rep contact me.
- (2) I want to move quickly so call me at
(Area code) _____ (Ext) _____
- (3) I need more input. Send details on:
 RIA T₄ Digoxin Insulin

Name _____
Title _____
Institution _____ Dept. _____
Address _____
City _____
State _____ Zip _____



Xenon 133 gas dispensing system

We put it all together for you: Single, precalibrated doses; easily loaded from shielded shipping container into shielded gun; conveniently dispensed by a squeeze of the bulb; administered to the patient through our new breathing apparatus.

The gun is free. The breathing apparatus is disposable. And the whole system is ready for demonstrating to you. Just contact your NEN sales representative.

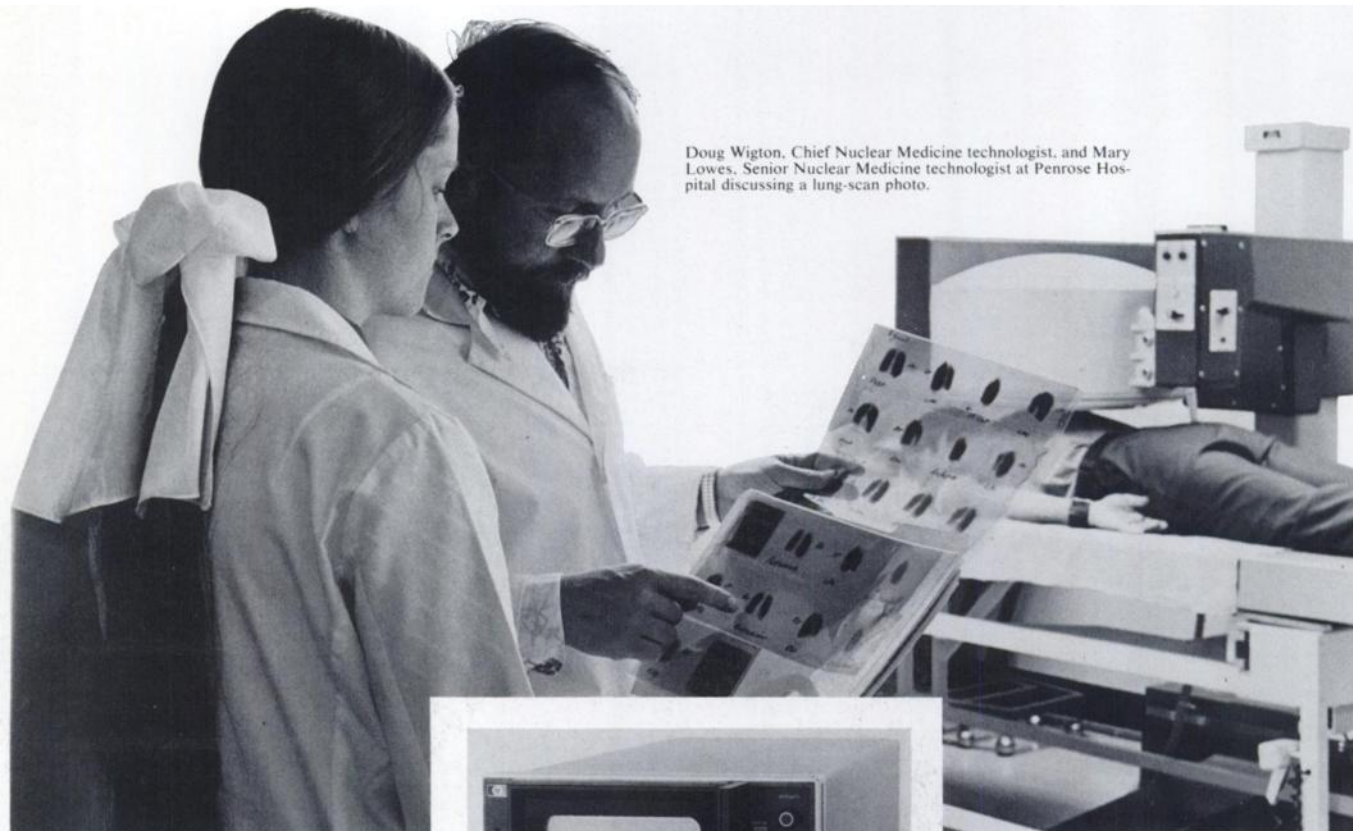


New England Nuclear Radiopharmaceutical Division

Atomlight Place, North Billerica, Mass. 01862
Telephone (617) 667-9531

Canada: NEN Canada Ltd, Dorval, Quebec. Tel: (514) 636-4971
Europe: NEN Chemicals GmbH, D6072 Dreieichenhain, Siemensstrasse 1,
Germany. Tel: Langen (06103) 8353

For diagnostic imaging, picture quality is crucial.



Doug Wigton, Chief Nuclear Medicine technologist, and Mary Lowes, Senior Nuclear Medicine technologist at Penrose Hospital discussing a lung-scan photo.

Nuclear physicians making diagnostic images want displays that show every detail, for accurate diagnosis of the patient's condition. That means displays that provide exceptionally sharp images with excellent contrast and uniform light output. The kind of picture quality that's necessary to spot even the smallest item of medical significance.

To get resolution and picture quality like that, a growing number of hospitals rely on HP displays. Fred Gydesen, MD/BS in Physics, Chief of Nuclear Medicine at Penrose and Memorial Hospitals in Colorado Springs, Colorado, finds that good diagnostic images are easier to achieve with HP displays. He and his colleagues use the variable persistence and storage capabilities of the HP 1335A, to dynamically position the patient before the scan. Then they use the exceptionally bright and uniform light output of the 1332A non-storage display to take photographs.



The 1335A gives them excellent detailing as each area of the body is scanned. The display's very small spot size focuses uniformly over the entire 8 x 10 division screen regardless of writing speed or intensity level. This eliminates the need to refocus at each

intensity setting and assures crisp images, even around the outer edges of the screen.

For photographing selected areas, the 1332A display gives them a large viewing area (9.6 x 11.9 cm), a bright, uniform image at fast scan rates, and extremely good resolution—an ideal combination for producing quality photographs.

If you need bright, high-resolution displays for your medical and instrumentation systems, ask your local HP field engineer to tell you more about the 1332A and 1335A. These displays offer a variety of operating features that can speed and simplify your work. And they're designed to integrate easily into a variety of racks, cabinets or systems. But judge for yourself. Call or write for complete details.

086/10

HEWLETT  PACKARD

Sales and service from 172 offices in 65 countries
1501 Page Mill Road, Palo Alto, California 94304



**You depend on a
bone imaging agent
for consistent detection
of skeletal lesions...**



A 65-year-old patient with known carcinoma of the prostate. Note pelvic, skull, rib, sternum and vertebral lesions.

Imaging Agent:
15 mCi
^{99m}Tc-OSTEOSCAN
Anterior Count per Time:
> 1,000,000/30 min
Posterior Count per Time:
> 1,000,000/30 min
Instrument:
Searle Pho/Gamma®
HP camera with whole body table, Microdot Imager® and high-sensitivity collimator
Scanned:
3 hours postinjection



L POSTERIOR R R ANTERIOR L

When selecting a bone scanning agent for your department, there is a single overriding concern: Which will most consistently image the patient's detectable bone lesions?

When labeled with ^{99m}Tc, the physical and chemical properties of Osteoscan's diphosphonate formula deliver the excellent lesion imaging you need . . . scan after scan, day after day.

- P-C-P molecular bonding assures excellent in vivo stability—to minimize soft tissue uptake.
- Dry mix diphosphonate formulation reduces potential for hydrolysis.
- Formulated to produce consistently high tagging efficiency.

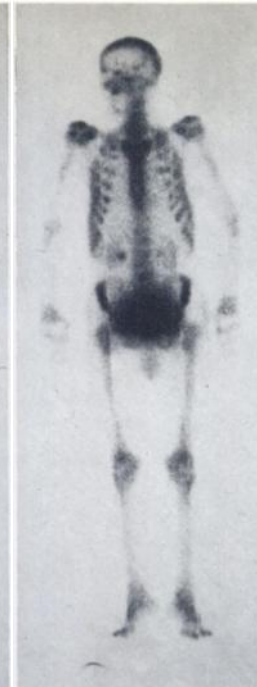
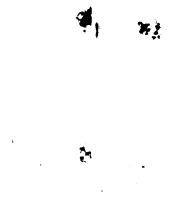
L POSTERIOR R

R ANTERIOR L



An 82-year-old patient with extensive metastatic bone disease secondary to known carcinoma of the prostate.

Imaging Agent:
15 mCi
^{99m}Tc-OSTEOSCAN
Anterior Count per Time:
561,220/30 min
Posterior Count per Time:
631,388/30 min
Instrument:
Picker Dynacamera®
2C with Omniview® table and ultrafine collimator
Scanned:
4 hours postinjection



A 86-year-old male with prostatic carcinoma and no conclusive evidence of metastasis to bone.

Imaging Agent:
15 mCi
^{99m}Tc-OSTEOSCAN
Posterior Count per Time:
636,690/35 min
Anterior Count per Time:
613,007/35 min
Instrument:
Picker Dynacamera®
2C with Omniview® table and ultrafine collimator
Scanned:
4 hours postinjection

L POSTERIOR R R ANTERIOR L

The result:

- Rapid blood clearance
- High target/non-target ratios
- Clear imaging of detectable bone lesions

If you would like further information about Osteoscan's performance benefits or would like to prove Osteoscan's consistent lesion imaging for yourself—please call Arnold Austin, Technical Manager, Professional Services Division, Procter & Gamble, (513) 977-8547.

PROCTER & GAMBLE

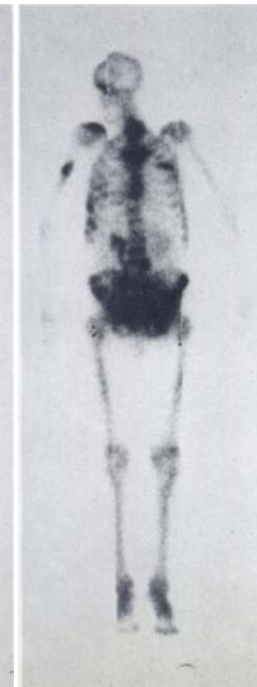
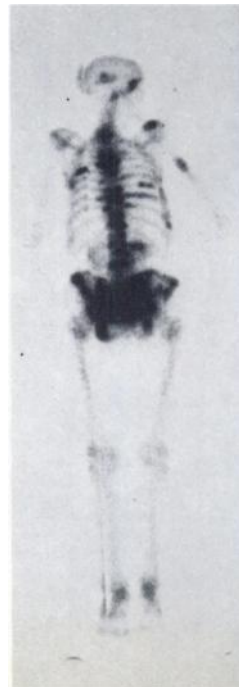
OSTEOSCAN®

(5.9 mg disodium etidronate
0.16 mg stannous chloride)

SKELTAL IMAGING AGENT

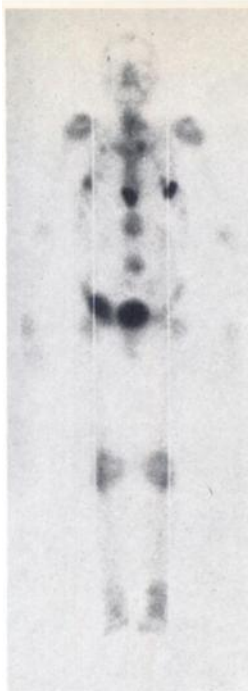
L POSTERIOR R

R ANTERIOR L



A 79-year-old male with known prostatic carcinoma metastatic to bone. Multiple lesions are seen throughout skeletal system.

Imaging Agent:
15 mCi
^{99m}Tc-OSTEOSCAN
Posterior Count per Time:
621,153/26 min
Anterior Count per Time:
649,702/31 min
Instrument:
Picker Dynacamera®
2C with Omniview® table and ultrafine collimator
Scanned:
4 hours postinjection



A 58-year-old male with a 41-year history of smoking displays extensive metastatic disease in ribs, vertebral bodies, pelvis, sternum and skull, secondary to known carcinoma of the lung.

Imaging Agent:
15 mCi
^{99m}Tc-OSTEOSCAN
Anterior Count per Time:
> 1,000,000/30 min
Posterior Count per Time:
> 1,000,000/30 min
Instrument:
Searle Pho/Gamma® HP camera with whole body table, Microdot Imager® and high-sensitivity collimator
Scanned:
3 hours postinjection



A 49-year-old female with previous right radical mastectomy for malignancy, having rib pain. Increased uptake in ribs suggests metastatic disease.

Imaging Agent:
15 mCi
^{99m}Tc-OSTEOSCAN
Posterior Count per Time:
500,361/28 min
Anterior Count per Time:
508,462/27 min
Instrument:
Picker Dynacamera® 2C with Omniview® table and ultrafine collimator
Scanned:
4 hours postinjection

L POSTERIOR R

R ANTERIOR L

L POSTERIOR R

R ANTERIOR L

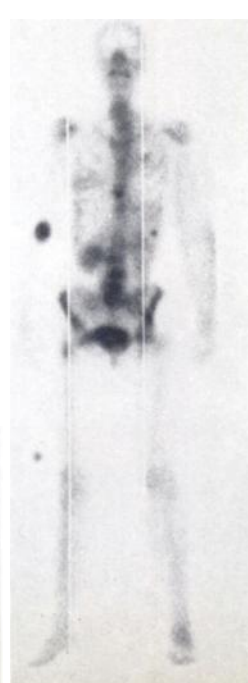
OSTEOSCAN® consistently delivers:

- Clear, sharp images
- High-quality lesion detection

See following page for brief summary of package insert.

L POSTERIOR R

R ANTERIOR L



A 43-year-old female with known metastatic disease secondary to carcinoma of the left breast. Swollen left arm is secondary to lymphedema, a result of radical mastectomy. (Note negative defect in region of left breast as a result of prosthesis.) Metastatic disease clearly visualized in vertebral bodies and ribs. Uptake at elbow is extravasation at injection site.

Imaging Agent:
15 mCi
^{99m}Tc-OSTEOSCAN
Anterior Count per Time:
> 1,000,000/30 min
Posterior Count per Time:
> 1,000,000/30 min
Instrument:
Searle Pho/Gamma® HP camera with whole body table, Microdot Imager® and high-sensitivity collimator
Scanned:
3 hours postinjection

L POSTERIOR R

R ANTERIOR L



A 61-year-old male following thoracotomy for carcinoma of the left lung. Two rib fractures (anterior view) of unknown etiology. Right thumb uptake (posterior view) secondary to arthritic changes.

Imaging Agent:
15 mCi
^{99m}Tc-OSTEOSCAN
Anterior Count per Time:
> 1,000,000/30 min
Posterior Count per Time:
> 1,000,000/30 min
Instrument:
Searle Pho/Gamma® HP camera with whole body table, Microdot Imager® and high-sensitivity collimator
Scanned:
5 hours postinjection

OSTEOSCAN... Clear, sharp images for high-quality lesion detection... consistently

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

DESCRIPTION

Each vial of OSTEOSCAN contains 5.9 mg disodium etidronate and 0.16 mg stannous chloride as active ingredients. Upon addition of ADDITIVE-FREE ^{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.

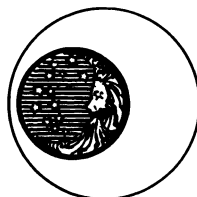
ADVERSE REACTIONS

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.



PROCTER & GAMBLE
OSTEOSCAN®

(5.9 mg disodium etidronate
0.16 mg stannous chloride)
SKELETAL IMAGING AGENT

SYRINGE TRANSPORT CART

LEAD LINED
DRAWER



When you have this convenient and safe method of transporting syringes containing Radioactivity from the Radiopharmacy to the patients . .

**Why
this?**



**MODEL STC-101
\$245.00**



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575

The first automatic dose calibrator with a hard-copy data printer system for NRC (AEC) record keeping



RADXX
Serial: []

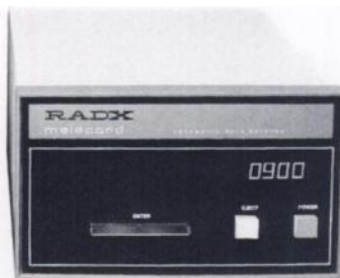
Pt. Smith, Mary. on 2/27
Exam No. 234567
Phys. Martin Welby, M.D. 2/27
Re: Brain Scan
Admin. To #2
Dose: 10 mCi. Admin. 7:15 AM '73
Location: Radiology Room NA

ST. LOUIS HOSPITAL
200 MAIN ST.
ST. LOUIS, MO

DATE: 2-27-73
TIME: 8:45 AM
TECHNITIAN: SPN
DOSE: 21.8 MILLICURIES
DOSE: 30.0 MILLILITERS
DOSE: 10 MILLICURIES
DOSE: 14.2 MILLILITERS

Admin. Time: 10:15 AM
Operator: [Signature]

melétron & melécord



**your key to accurate
dosecalibration
and error-free records**

**Now you can assay, compute dose,
and get an instrument-verified
printout — in just 30 seconds.**

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

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

Range capability is up to 10 curies. Lets you handle high-activity Mo 99/Tc 99m generators. Melétron's automatic ranging eliminates manual selection — and another chance for operator error. Background subtraction is also automatic, and design of the ionization chamber will allow a 3/16" lead shield. The large chamber accommodates all standard size vials and syringes, and even an entire generator eluate for checking Mo 99 breakthrough.

Melétron Remote Chamber is available as an accessory for use when the Melétron is located in a high radiation area, such as the "hot" lab. Allows for maximum shielding and ease of operation. When the remote chamber is connected, the Melétron's internal chamber is deactivated.



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

You get hard copy in triplicate. Saves time. Prevents errors. Makes NRC (AEC) accountability far easier.

Melécord also prints the exact time and date of each assay automatically, while it alternately displays them on a digital calendar/clock on the front panel, and Melécord can be factory programmed to generate three lines for printing institution identification on each data card.

The Melefile permanent record storage system — instant NRC (AEC) accountability.

Compact, filing cabinets hold tab cards, lot number cards to identify and account for radio pharmaceuticals, and patient data cards. Keeps records organized and readily accessible when you need them for any reason.

To find out how easy it is to solve your dosecalibration and record-keeping problems, call RADX — the innovators in nuclear medicine.

The Melécord data card — permanent documentation of all pertinent information

RADX	
Serial No.	0117
Name	Smith, Mary
Room No.	D2B7653
Physician	Marcus Welby
Date	Brain Scan
Radionuclide	Tc 99m
Dose	10 mCi
Isotope	75-A123
Control Area	Permissible to set to NA
ST. LUKES HOSPITAL 200 MAIN ST. ELY MINN.	
Lot No.	6475
Lot No.	0900
Radionuclide	TECHNETIUM 99M
Lot No.	212 MILLICURIES
Lot No.	30.0 MILLILITERS
Lot No.	10 MILLICURIES
Lot No.	142 MILLILITERS
Lot No.	10.1 mCi
Lot No.	<i>Janice Welch</i>

RADX

MODEL 145 LOCALIZATION MONITOR

Detection of Deep Vein Thrombosis

and other in vivo applications



- CPS & PERCENTAGE READOUT
- COMPACT & PORTABLE
- BATTERY OPERATED (3 D cells)
- FULLY TRANSISTORISED
- LINEAR SCALE & WIDE RANGE
- RECORDER OUTPUT
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- UNLIMITED CHANNEL SELECTION
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- CLINICALLY PROVEN FOR OVER ONE YEAR

CONTROLS

High voltage
Threshold
Window
Battery test
Response (fast & slow)
CPS or percent switch
Reset

For DEEP VEIN THROMBOSIS DETECTION, the Model 145 offers the important features of **portability**, standard **D cell** operation yielding at least 100 hours of uncycled use, **unlimited** channel selection, and **prompt** servicing.

Using I-125 labelled fibrinogen and the Model 145, early detection of deep vein thrombosis of the legs can be accomplished. With the Model 145, the leg is scanned after intravenous injection of the labelled fibrinogen. As a thrombosis develops, the radioactive fibrinogen is detected with the Model 145 and measured directly in percentage, where 100% is determined over the precordial area.

SPECIFICATIONS

RANGE: 30, 100, 300, 1000, 3000 cps
and 0 - 120%

TIME CONSTANT: Fast 2 sec., slow 14 sec.

SIZE: 4½ x 5½ x 8 inches (HxWxL exclusive
of handle).

WEIGHT: 6.5 lbs total

DETECTOR: 1mm x 1 inch NaI (TL) mounted
on PMT and 7 mg/cm² aluminum
window. Optional - 1 inch x 1 inch
NaI (TL) detector with thin window
at extra cost.



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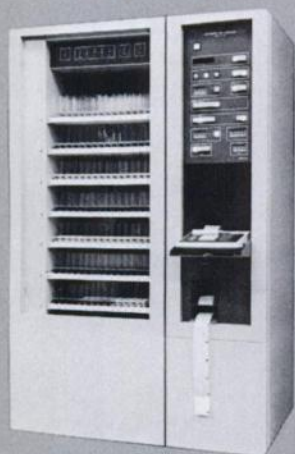
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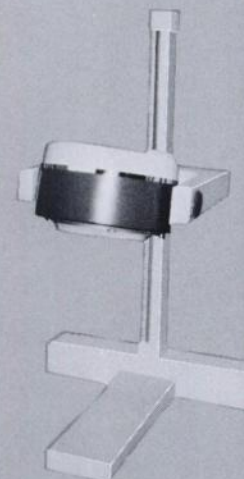
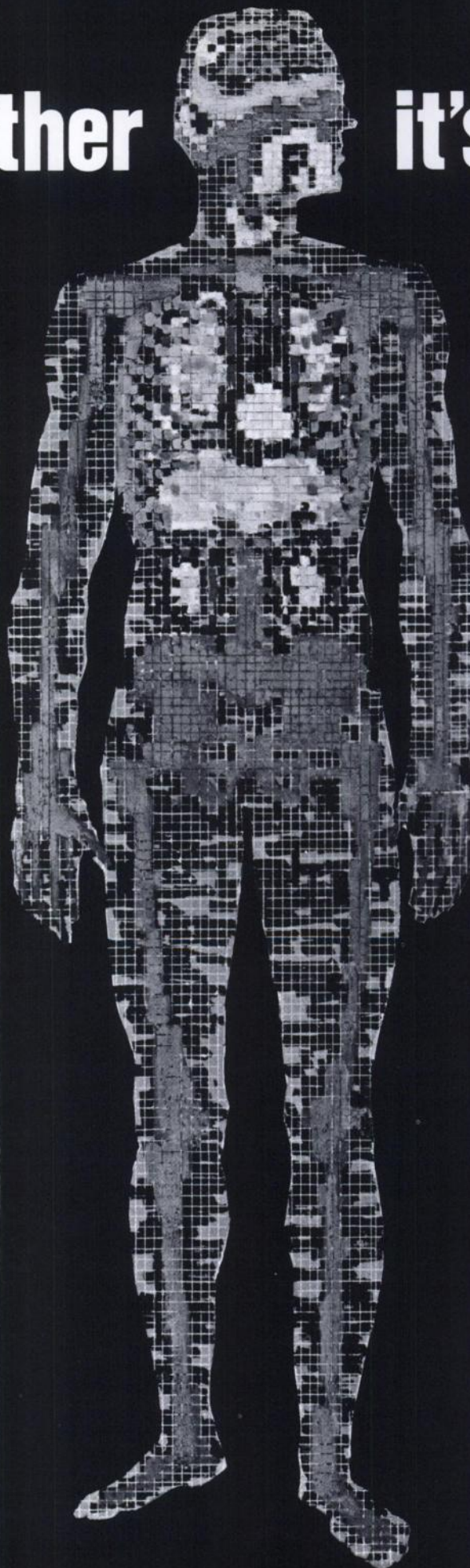
In the U.S. and Canada: Order from any office of Amersham-Searle, Nuclear Associates, Picker and other distributors—or call Isolab collect.

Whether it's *in-vivo* or



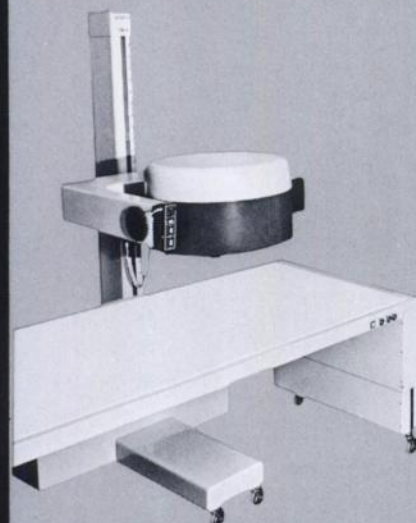
Automatic RIA Gamma Counter

180-1260 sample capacity. Accepts most standard sized test tubes. Rack/tray based to save handling time. Built-in calculator-printer. Optional teletype printout/punchout.



NEW Gamma Cameras

Two gamma cameras to choose from: one designed to give you exceptional image resolution — the second, an economy model. The short dead time of both give you high information density even with short frame times. Maximum count rates up to 200,000 cps.

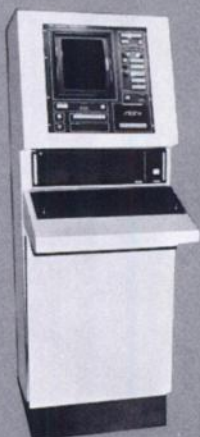


Whole Body Imaging Accessory

Space saving imaging accessory greatly extends the camera's usefulness.

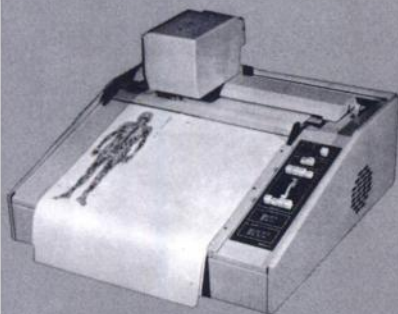
in-vitro.. Elscint gives maximum performance at minimum price.

IMAGING ACCESSORIES



NEW LOW COST Videodisplay Processor

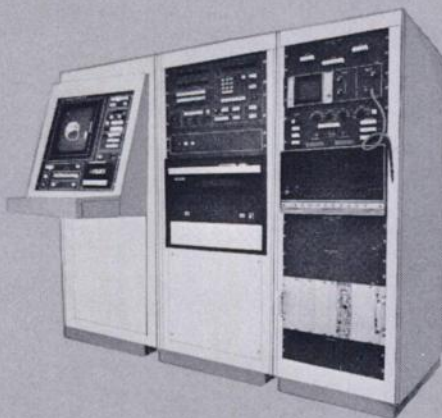
Full 16 color or 32 gray shades, and on-line or off-line display of camera or scanner images facilitates accurate patient diagnosis. Includes memory for data study or manipulation, photography and printout on Elscint color printer. Easy to use. Interfaces to rectilinear scanners and gamma cameras.



Color Dot Printer

Provides full color hard copies of images, printed on regular paper, either minified or at actual body size.

DATA PROCESSING



Dynamic Image/Function Processor

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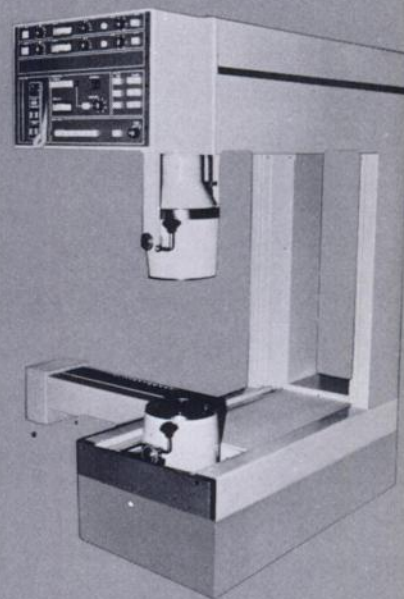
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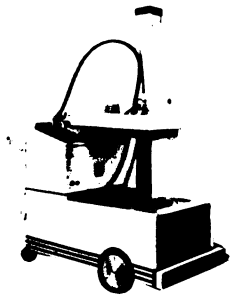


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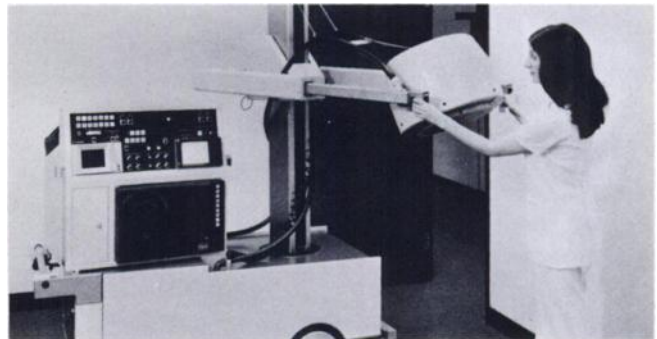
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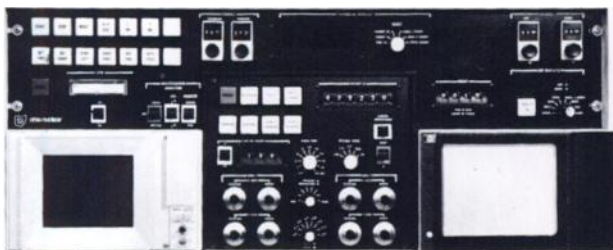
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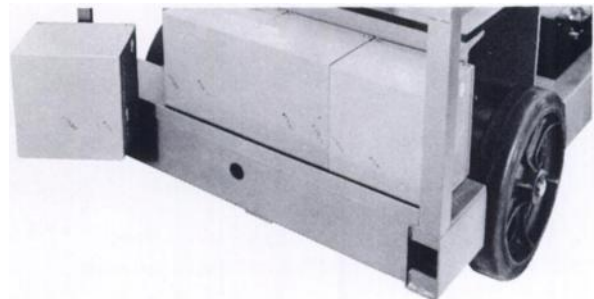
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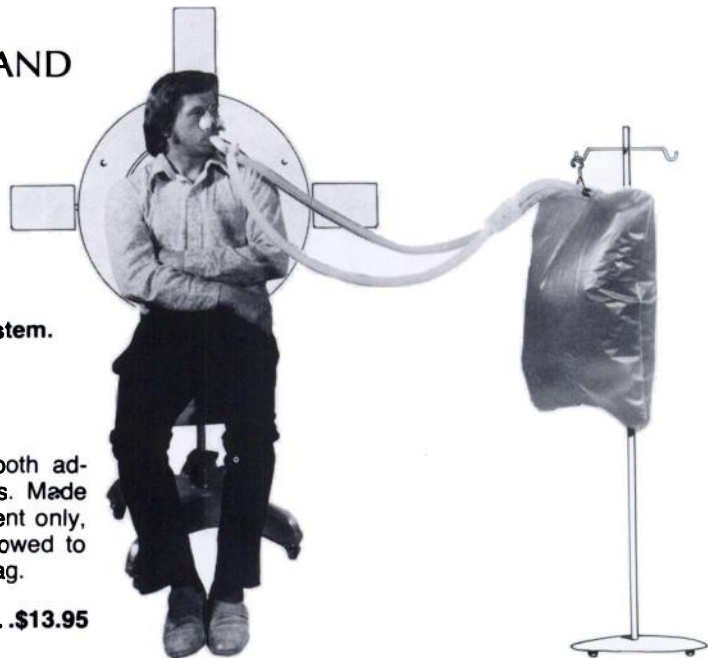
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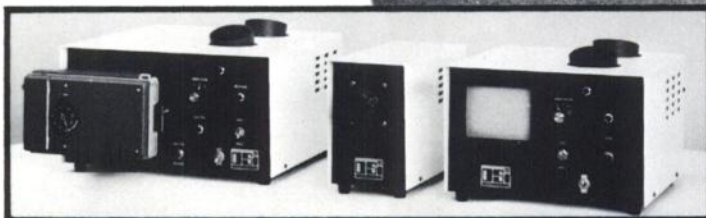
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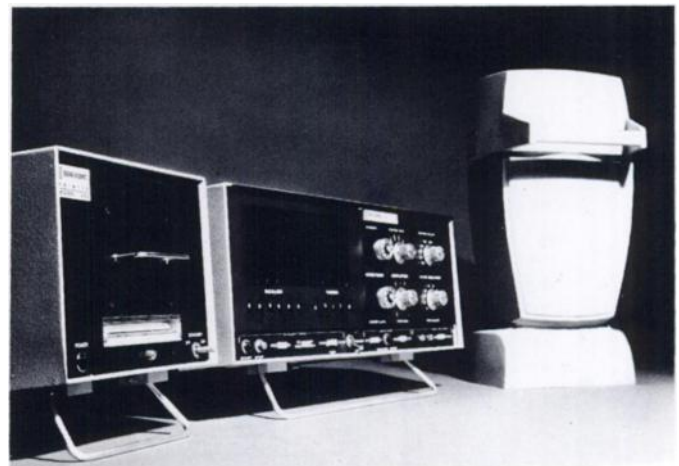
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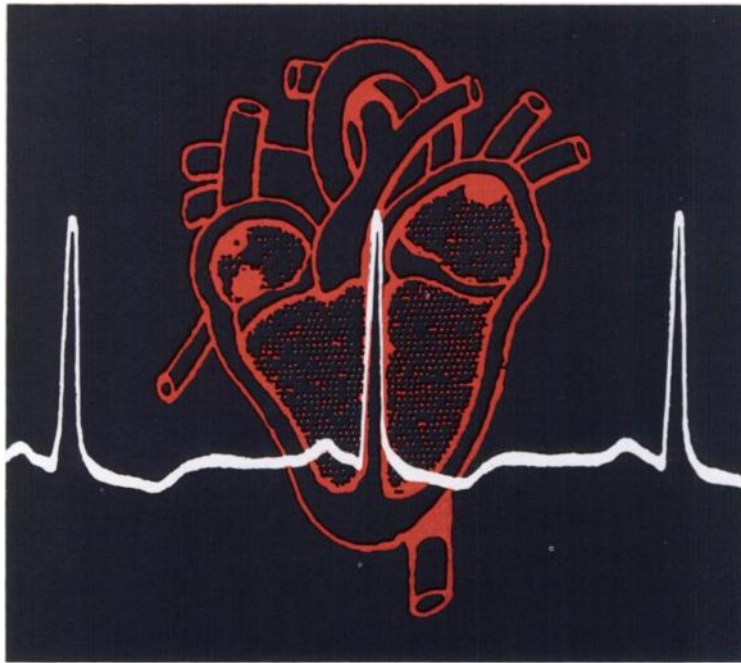
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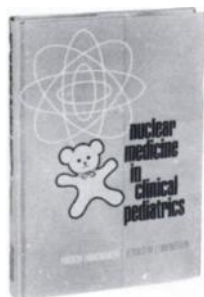
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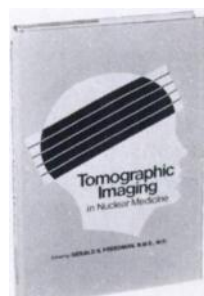
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Mallinckrodt's RIA-Mat™ Digoxin I 125 Test.



This test was developed with a single objective: to give you the most precise radioassay possible for monitoring serum digoxin levels. Here are the high points of the test, adding up to a new level of accuracy:

Test standards are prepared **only** from USP Reference Standard Digoxin. They're ready to use. Just thaw them out.

Only one pipetting volume is required for all reagent transfers, 50 μ l. Since the labeled antigen is predispensed, there's no pipetting of radioactivity. And, the test determination is completely unaffected

by changes in patient albumin concentration.

The antigen has high specific activity, yielding a high counting rate for good statistics. Separation is convenient and efficient due to the use of **RIA-Mat Strip**.

The total system is simplified to the point that no centrifuging or decanting of radioactivity is required. Nor is washing or preparation of reagents.

These are the high points. We want to give you the entire story. And samples. Our phone number at Mallinckrodt is (314) 731-4141. Or, write or use the post card.

We want to put this new level of accuracy in your hands.

Gentlemen:

- Please have a representative contact me to arrange a RIA-Mat™ Digoxin I 125 Test Kit evaluation. I understand that there will be no cost or obligation on my part.
- Please send me literature on your RIA-Mat™ Digoxin Test.

NAME _____ TITLE _____

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STREET _____

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We'd appreciate the following information, although it's not required:

- Currently doing RIA work
- Not yet doing RIA work



RADIOPHARMACEUTICALS
St. Louis, Missouri 63147

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helping you perform your
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SAFER

Lead lining permits storage of radiopharmaceuticals, radionuclides, sources.

VERSATILE

Modular construction so they can be used alone or in any desired combination.

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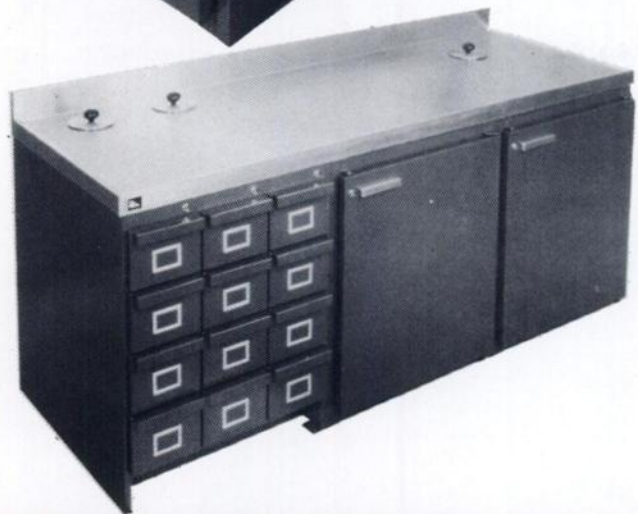
All units designed to give maximum usable volume.

ECONOMICAL

Eliminates need for extra shielding materials.

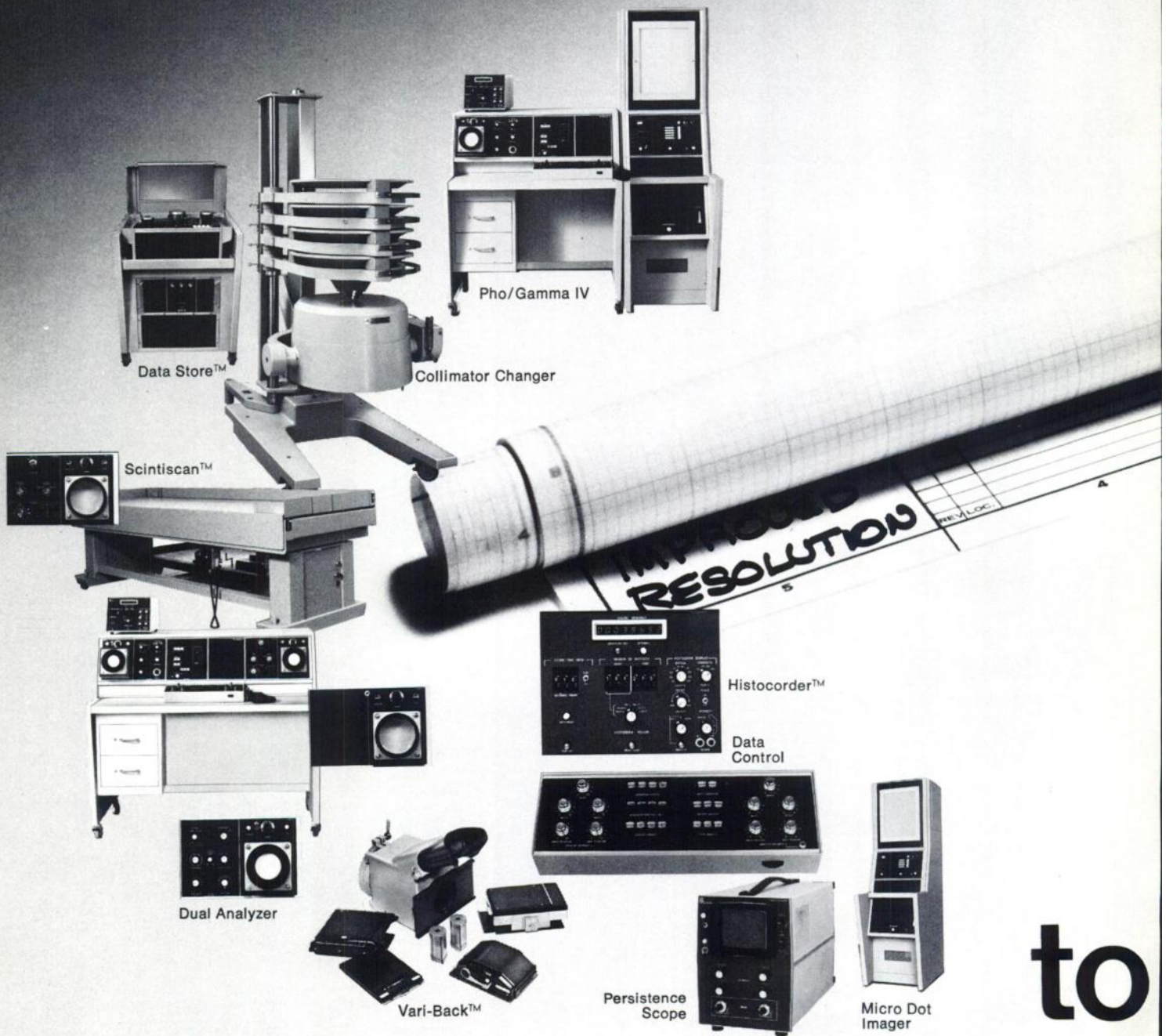
DURABLE

Stainless steel top work surfaces and bake painted exteriors.

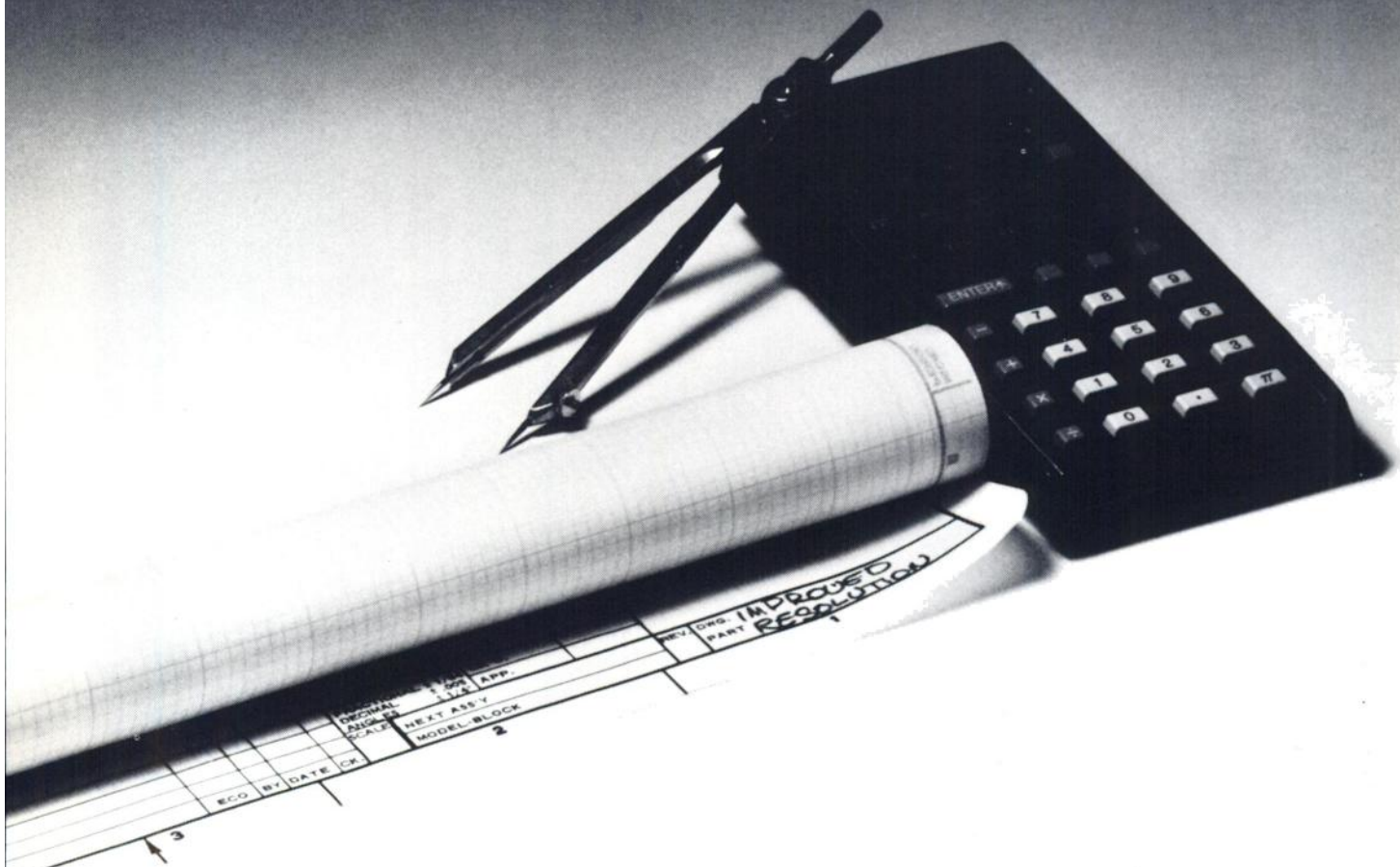


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Pho/Gamma[®] IV evolution...



to



Even as you read this, evolution of the Pho/Gamma IV Scintillation Camera system goes on. Our product development engineers are in daily contact with working laboratories nationwide. And the Pho/Gamma IV is being continuously improved to meet your growing, changing needs.

One result of this effort is Pho/Gamma IV's versatility. Over the years, accessory adaptability has been expanded so that you can now build *whole systems* around the Pho/Gamma IV, with ease unmatched by any other manufacturer. You can integrate Pho/Gamma IV with units such as the Micro Dot Imager, a wide range of collimators, photographic readout equipment, display and data

recording systems, and much more. Pho/Gamma IV is adaptable to new radioisotopes and procedures as you need them.

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Naturally, our continuing improvement of instruments is augmented by continuing improvement of service. As a Searle Instrument custodian, you have the world's largest nuclear

service force at your beck and call. Trained, knowledgeable service is just minutes away.

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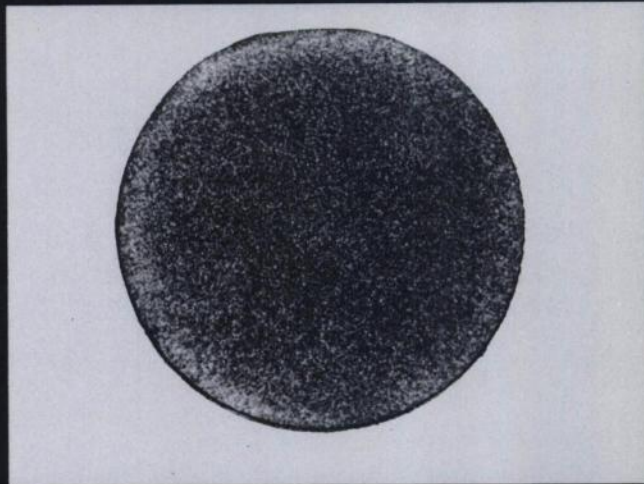
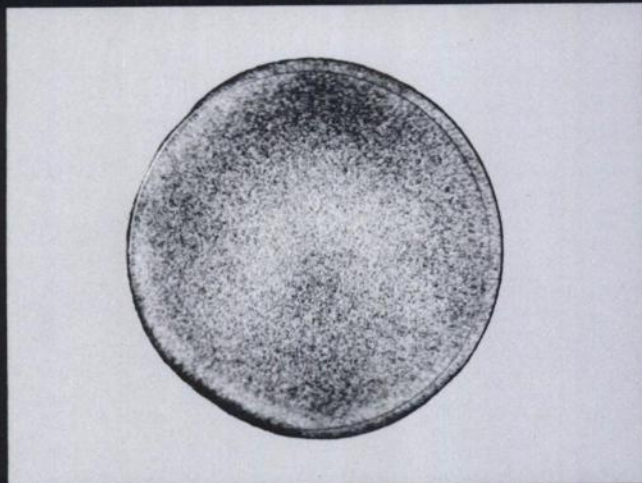
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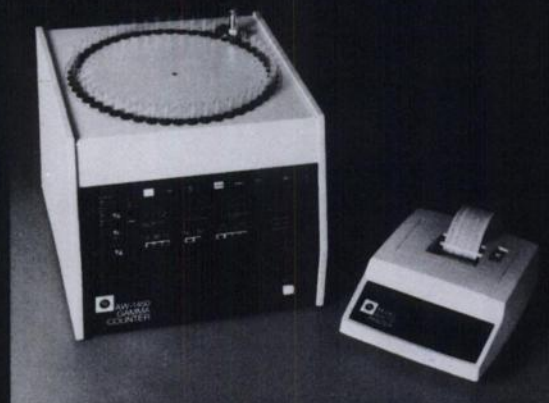
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Clinical Assays introduces the first digitoxin specific antibody-coated tube assay system. This assay, in conjunction with the well established GammaCoat ^{125}I Digoxin Kit, permits the identification and quantitation of both glycosides. The use of the antibody-coated tube and ^{125}I derivative tracer shortens each RIA procedure to five simple steps.

1. Add buffer.
2. Add serum. Incubate.
3. Add tracer. Incubate.
4. Aspirate and wash.
5. Count the coated tubes.

This important development lowers overall costs and assay time significantly. The simplicity of the methodology minimizes variations from technician to technician and from laboratory to laboratory.

The use of a special additive, unique in the GammaCoat Systems, substantially eliminates the errors associated with variable serum proteins (1,2), resulting in a highly accurate assay. The GammaCoat assays for digoxin and digitoxin are the first such ^{125}I assays to consistently correlate with the established ^3H methodologies.

Other kits available:

GammaCoat Cortisol (^{125}I)
GammaCoat Renin Activity (^{125}I)
Vitamin B₁₂ (^{57}Co)
Folate (^{125}I)
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Cortisol (^3H)
Prostaglandins (^3H)

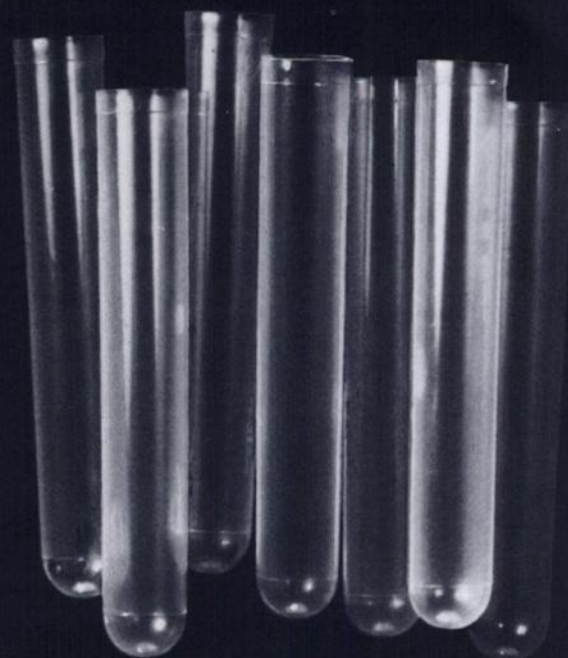
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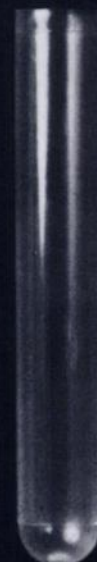
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References: 1) Burnett, G. H.; Conklin, R. L.; Wasson, G. W.; MacKinney, A. A.; Clin. Chem. 19 No. 7 725, 1973. 2) Holtzman, J. L.; Shafer, R. B.; Erickson, R. R.; Clin. Chem. 20 No. 9 1194, 1974.



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Thyopac^{*}-5

From one simple test, two important results.

New Thyopac-5 is the first screening test which enables pathologists to perform a normalized thyroxine ratio (NTR) and a total thyroxine assay (T4) in the same vial. It thus separates simply, rapidly and precisely those patients with definite thyroid abnormalities from those with no dysfunction. After screening, Thyopac-3 and Thyopac-4 can be used to provide a more detailed diagnostic picture. In patients with normal thyroid function, Thyopac-5 automatically corrects for abnormal binding capacity, whether caused by unrelated clinical conditions such as pregnancy, hypoproteinaemia, or by medication such as oral contraceptives. Full details available on request.

- two independent results from one test
- flexibility of choice: 3 assay sequences
- samples withdrawn at equilibrium
- independent of time and temperature

Thyopac^{*}-5
a logical extension to
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Help your cardiologist study heart kinetics non-invasively with Brattle-gated scintiphotos.



RAO, DIASTOLE



RAO, SYSTOLE



LAO, DIASTOLE

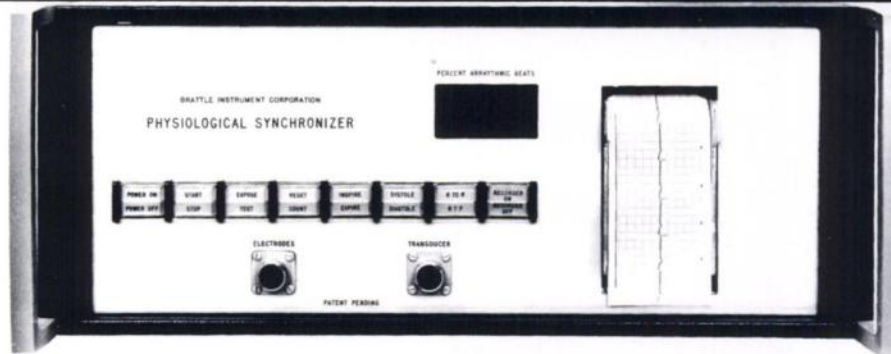


LAO, SYSTOLE

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 contrac-

tion 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 be-

cause 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.

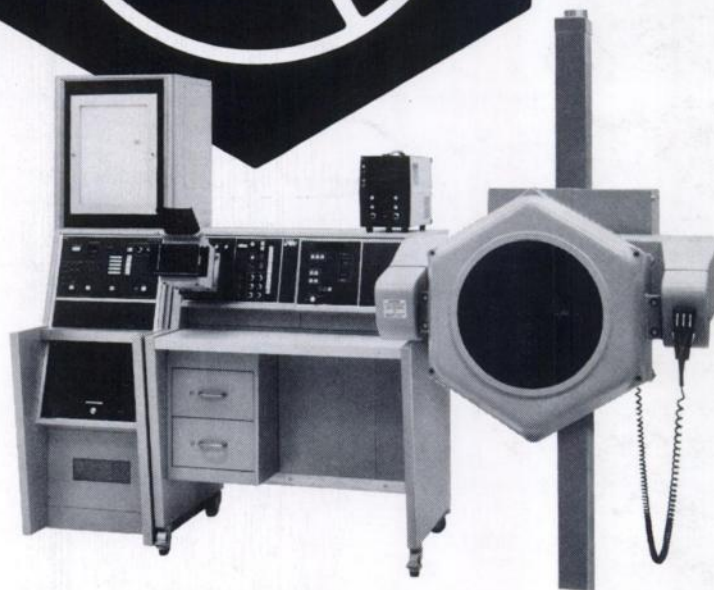
What's the next step? Get in touch

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.)

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