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

The first one is obvious:

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

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

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

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

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

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

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

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

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

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

Description: Lungaggregate™ Reagent is a sterile, aprogenin, 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.
Two time-saving tests for your lab: pipette once, incubate for one hour, automatic phase separation, measure.

**Contents T3 kit:**
- 12 calibrating tubes with 3.5 ml thybon® (J-125)-solution each
- total activity: 3 μCi J-125
- preservative: 0.02% sodium azide
- 12 adsorption tubes • 1 ml standard serum of defined TBG capacity

**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 T4 kit:**
- 12 calibrating tubes with 3.3 ml TBG-T4-(J-125)-solution each
- total activity: 1 μCi J-125
- preservative: 0.02% sodium azide
- 12 adsorption tubes • 1 standard serum of defined T4-concentration

**Order No.:** J 5114
- for T4 • 1 package 12 tests
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When it comes to thyroid function testing, no one gives you more to go on than Abbott. Years of experience and continuing research have resulted in an extensive selection of diagnostic kits—modern, specific methodologies designed to let you run and report your thyroid tests with complete confidence and certainty. Educational materials are also available to guide you along the most direct path toward the answers you seek—avoiding the pitfalls and “blind-alley” tests that can often lead to equivocal results.

Abbott diagnostic tests and informative service materials will take you where you want to go—providing the assurance and quality that come from an acknowledged leader in diagnostic testing.

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- 3½ hour assay to determine total triiodothyronine
- 7 simple steps
- minimal cross-reactivity with T4
- high interassay reproducibility
- 50- or 100-test kits—complete and ready-to-use

**T4RIA**
- rapid, 2-hour test for total thyroxine
- requires only 0.05 ml serum
- 8 easy steps with no alcoholic extraction
- sponge separation eliminates centrifugation
- high interassay reproducibility
- convenient Compu-Curve™
- 25-, 100- or new 500-test kits

**HTSH•RIA**
- Overnight test for serum pituitary HTSH concentration
- 8 simplified procedural steps
- easy-to-use PEG separation
- 50-test kit—complete and ready-to-use

**QUANTISORB®-125**
Rapid, one-step measurement of normalized serum thyroxine; corrects for elevated TBG levels.

**TRIOSORB® M-125**
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* Available soon.

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If you would like more information—or would like to receive any of a comprehensive series of educational materials—we invite your inquiry.

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- Flow chart of thyroid function testing
- Pamphlets dealing with hypothyroidism, hyperthyroidism and free thyroxine estimates.
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T. S. P. Total System Performance. That's what you should look for in any scintillation camera you consider. Because you can't rely on just one characteristic for optimum results. It takes the best overall combination of characteristics such as system and energy resolution, uniformity, linearity, and count rate, to produce the best overall results, consistently and efficiently.

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Photo of Gamma-11 installation at The Miriam Hospital, Prov., R.I.
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KITS:
- 99m Tc Diphosphonate-Tin
  5mg Diphosphonate and 0.5mg Stannous Chloride
- 99m Tc Polyphosphate-Tin
  100mg Polyphosphate and 2mg Stannous Chloride
- 99m Tc DTPA-Tin
  5mg DTPA and 0.25mg Stannous Chloride

Ready-to-use:
- Gallium-67 Citrate
  3 mCi/Vial
- Xenon-133 in Gas Phase
  10 or 20 mCi/Vial
- Xenon-133 in Saline
  10 or 20 mCi/Vial
- Selenomethionine (Se-75)
  0.250 mCi/Vial
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 Diocap® 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.

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 611 KeV. Photons that are useful for counting are listed in Table I.1

Table I. Principal Radiation Emission Data

<table>
<thead>
<tr>
<th>Radiation</th>
<th>Mean %/diintegration</th>
<th>Mean Energy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co 57</td>
<td>Gamma-2</td>
<td>87.1</td>
</tr>
<tr>
<td>Co 58</td>
<td>Gamma-3</td>
<td>9.6</td>
</tr>
<tr>
<td>ActIvity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annihilation</td>
<td>Gamma-1</td>
<td>15.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>80.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>51.1</td>
</tr>
</tbody>
</table>


The specific gamma ray constant for Co 57 is 1.6 R/mCi-hr at 1 cm. For Co 58 it is 5.5 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.

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

<table>
<thead>
<tr>
<th>Weeks Before Activity Date</th>
<th>Co 57 μCi</th>
<th>Co 58 μCi</th>
<th>Weeks After Activity Date</th>
<th>Co 57 μCi</th>
<th>Co 58 μCi</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.50</td>
<td>1.48</td>
<td>1</td>
<td>0.49</td>
<td>0.75</td>
</tr>
<tr>
<td>8</td>
<td>0.59</td>
<td>1.38</td>
<td>2</td>
<td>0.48</td>
<td>0.70</td>
</tr>
<tr>
<td>7</td>
<td>0.57</td>
<td>1.29</td>
<td>3</td>
<td>0.47</td>
<td>0.66</td>
</tr>
<tr>
<td>6</td>
<td>0.55</td>
<td>1.19</td>
<td>4</td>
<td>0.47</td>
<td>0.61</td>
</tr>
<tr>
<td>5</td>
<td>0.54</td>
<td>1.08</td>
<td>5</td>
<td>0.46</td>
<td>0.57</td>
</tr>
<tr>
<td>4</td>
<td>0.53</td>
<td>0.98</td>
<td>6</td>
<td>0.45</td>
<td>0.53</td>
</tr>
<tr>
<td>3</td>
<td>0.52</td>
<td>0.92</td>
<td>7</td>
<td>0.44</td>
<td>0.50</td>
</tr>
<tr>
<td>2</td>
<td>0.51</td>
<td>0.85</td>
<td>8</td>
<td>0.43</td>
<td>0.46</td>
</tr>
<tr>
<td>1</td>
<td>0.50</td>
<td>0.80</td>
<td>9</td>
<td>0.42</td>
<td>0.43</td>
</tr>
<tr>
<td>0*</td>
<td>0.50</td>
<td>0.80</td>
<td>10</td>
<td>0.42</td>
<td>0.40</td>
</tr>
</tbody>
</table>

*Activity date

RADIATION DOSEMETER: The estimated absorbed radiation doses1 to an average patient (70 kg) following the oral administration of one Diocap capsule of Co 57 and one of Co 58 are calculated nominal activities of 0.6 μCi and 0.5 μCi, respectively, as shown in Table I.

Table I. Radiation Dose

<table>
<thead>
<tr>
<th>Tissue</th>
<th>Absorbed Radiation Dose (rads/0.5 μCi Co 57 + Intrinsic Factor)</th>
<th>(rads/0.8 μCi Co 58)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal and Pernicious Anemia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liver†</td>
<td>0.005</td>
<td>0.14</td>
</tr>
<tr>
<td>Stomach</td>
<td>0.006</td>
<td>0.0027</td>
</tr>
<tr>
<td>Small Intestine</td>
<td>0.00007</td>
<td>0.0043</td>
</tr>
<tr>
<td>Upper Large Intestine</td>
<td>0.00013</td>
<td>0.0070</td>
</tr>
<tr>
<td>Lower Large Intestine</td>
<td>0.00030</td>
<td>0.0016</td>
</tr>
<tr>
<td>Extremities</td>
<td>0.0026</td>
<td>0.0007</td>
</tr>
<tr>
<td>Over-all body</td>
<td>0.0032</td>
<td>0.0027</td>
</tr>
<tr>
<td>Whole-body*</td>
<td>0.0050</td>
<td>0.012</td>
</tr>
</tbody>
</table>

†The administration of a flushing dose of non-radioactive B12 will decrease the dose to the liver, provided two capsules of Co 57 and one of Co 58 are administered.


HOW SUPPLIED: Each Diocap Kit consists of five single-test cylinders and two 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 57 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 capsule contains two capsules and an ampule of unlabelled cyanocobalamin (1 mg). The red/ivory capsule contains 0.35 μg Co 58 cyanocobalamin (nominal activity 0.8 μCi at activity date). The purple/white capsule contains 0.9 μg Co 57 cyanocobalamin (nominal activity 0.5 μCi at activity date) bound to human gastric juice.

Diocap Kits should be stored at 4°C and not used after the expiry date stated on the label.
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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.
Before prescribing please consult the complete product information, a summary of which follows.

**TechnoeScan™ MAA Lung Scan Kit**

**CONTRAINDICATIONS:** The use of TechnoeScan MAA 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 impedance to pulmonary blood flow. Although not reported with TechnoeScan MAA Tc 99m there are reports in the literature of deaths occurring after the administration of radiolabeled aggregated albumin as a result of pre-existing primary pulmonary hypertension.

The contents of the TechnoeScan MAA reaction vial are intended only for use in the preparation of TechnoeScan 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 are to be gained outweigh the potential hazards. Similar care should be observed with patients who are pregnant or who are lactating.

**EU**

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 ensure that radiation exposure is limited to those who need it. The use of 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.

**ADVERSE REACTIONS:**
- Although no anaphylactic reactions have been reported in patients following the administration of TechnoeScan 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.

**Preparation:**

The TechnoeScan PYP Kit must be maintained at refrigerator temperature until use. The contents of the TechnoeScan PYP reaction vial are intended only for use in the preparation of TechnoeScan PYP Tc 99m Stannous Pyrophosphate and are not to be directly administered to the patient.

**Use:**

The TechnoeScan PYP Kit must be maintained at refrigerator temperature until use. The contents of the TechnoeScan PYP reaction vial are intended only for use in the preparation of TechnoeScan PYP Tc 99m Stannous Pyrophosphate and are not to be directly administered to the patient.

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

The contents of the kit are not radioactive.
All studies are 99mTc 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

**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

**Diffuse Hypokinesis — Anterior View**

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

End Diastole

End Systole

Focal Akinesis — Anterior View

End Diastole

Gated Study shows severe left ventricular akinesis

End Systole

Diffuse Hypokinesis — Anterior View

End Diastole

Gated Study shows low ejection fraction diffuse hypokinesis

End Systole

Series 160 DataSystem

32 year old male

History — Normal

160 DataSystem in half field mode

60 year old female

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

63 year old male

History — acute infarction Aug. '74, ventricular tachycardia, patient was defibrillated.
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.
Minitec®
(Technetium 99m)
Generator

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

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

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

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

This radiopharmaceutical should not be administered to women who are pregnant or who may become pregnant or during lactation unless the information to be obtained outweighs the possible potential risks from the radiation exposure involved. Ideally, examinations using radiopharmaceuticals, especially those elective in nature, of a woman of childbearing capability should be performed during the first few (approximately 10) days following the onset of menses.

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

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

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

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

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

For complete prescribing information, consult package insert.

How Supplied: Minitec (Technetium 99m) Generator is available in potencies of 50, 100, 200, 300, 400, and 500 mCi. Supplied with the generator are vials of eluent containing 5 ml of a sterile, non-pyrogenic solution of 0.9% sodium chloride in water for injection. Also supplied is suitable equipment for eluting, collecting, and assaying the technetium 99m.
BEATS THE OTHERS

TechneScan™ MAA KIT

COLD
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 shift of additional myocardial blood flow. Although not reported with TechneScan MAA Tc 99m there are two reported cases of acute cor pulmonale following the administration of radiiodinated aggregated albumin as a result of pre-existing primary pulmonary hypertension.1

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 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.

Radio pharmaceuticals should be used only by physicians who are qualified by specific training in the safe use and handling of radio- nuclides 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.

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

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

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 multies based on daily demand.

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(Glucoheptonate)

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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 antibod-glass complex.

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.

Using your present procedure, plot values and draw your curve. Then compare yours with ours.

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 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

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

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Europe: NEN Chemicals GmbH, D6072 Dreieichenhain, Siemensstrasse 1, Germany. Tel: Langen (06193) 8353
For diagnostic imaging, picture quality is crucial.

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.
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 99mTc-OSTEOSCAN

Time: 3 hours postinjection

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)
SKELETAL IMAGING AGENT

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

Imaging Agent: 15 mCi 99mTc-OSTEOSCAN

Time: 4 hours postinjection

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 99mTc, 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.

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

Imaging Agent: 15 mCi 99mTc-OSTEOSCAN

Time: 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 99mTc-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 99mTc-OSTEOSCAN
Posterior Count per Time: 500,003/28 min
Anterior Count per Time: 508,462/27 min
Instrument: Picker Dynacam® 2C with Omniview table and ultrafine collimator
Scanned: 4 hours postinjection

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. Metastatic disease clearly visualized in vertebral bodies and ribs. Uptake at elbow is extravasation at injection site.

Imaging Agent: 15 mCi 99mTc-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 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 99mTc-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® consistently delivers:

- Clear, sharp images
- High-quality lesion detection

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

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

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

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

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

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

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

ADVERSE REACTIONS
None.

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

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

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

PROCTER & GAMBLE
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
The first automatic dosecalibrator with a hard-copy data printer system for NRC (AEC) record keeping
Programmed sequenced instruction eliminates operator errors. All you do to assay a radionuclide is insert the proper key — from the 33 isotope keys now available, with others to come as they are needed — your insurance against instrument obsolescence.

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

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.

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

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


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 Meléfile 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.
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
- VARIABLE DEPTH COLLIMATOR
- UNLIMITED CHANNEL SELECTION
- MANUFACTURED & SERVICED IN THE U. S. A.
- 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

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

**DATA PROCESSING**

**Dynamic Image/Function Processor**

Advanced version of Elscint's Videodisplay Processor. Adds large dual disc memory for extensive non-destructive data processing. Displays time functions in real time; provides up to 8 regions of interest; eliminates artifacts and non-uniformities. Upgradable to Analyzing Image Processor.

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

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Scan the whole body or any part of the body with pushbutton ease. Every desirable performance feature is built into these scanners. You'll get long dependable service at an unbelievably low price. A full range of options meets every need.

**Analyzing Image Processor**

Most sophisticated image processing system available today. Offers all capabilities of our Dynamic Image Processor plus many other features needed for in-depth study of renal functions, regional cerebral blood flow, cardiac and many other studies. Simultaneous acquisition and processing is a standard feature.

Elscint Inc.

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No knobs, no meters, no errors
The spartan panel above tells the second-best part of our story. If you want to photograph peak systole, press the SYSTOLE button. If, say, you want systole only at full expiration, press the EXPIRATION button as well. If only breathing is relevant, don't press the heart button.

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

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

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.

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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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