If you know get to know

**Triosorb®-I25 T-3 Diagnostic Kit**

The in vitro test unmatched for reproducibility, convenience and accuracy.

Reproducible. Over 15 million tests conducted over the past eight years have made Triosorb® the standard of T-3 tests.

Convenient. The disposable Triosorb® Kit is ready for immediate use at room temperature making it one of the simplest, most convenient thyroid function tests available.

Accurate. Approximately 15 drugs and conditions produce misleading Triosorb®-T-3 test results, compared with over 200 factors which affect PBI.

* Also available as Triosorb®-131.

**Tetrasorb®-I25 T-4 Diagnostic Kit**

An improved, simplified method for measuring total *serum* thyroxine with diagnostic accuracy equal to or better than any currently used measures of thyroid function. Unlike other tests, exogenous iodines don’t affect Tetrasorb® results.
The T-7 value completes the thyroid profile.

It's the Abbott method for determining the in vitro free thyroxine index.

T-7 is not a test but a numerical value derived from the multiplication of T-3 and T-4 test values. Because it is a product of two other numbers, the T-7 value will move only when both the T-3 and T-4 values move in the same direction. There are only two physiological conditions which cause this to occur, hypothyroidism and hyperthyroidism. With the exception of those patients receiving liothyrinone or d-thyroxine therapy, all other factors which affect thyroid function tests will cause the T-3 and T-4 values to move in opposite directions, and the T-7 value to remain in the normal range.

When you provide the Abbott T-3, T-4 and T-7 values you furnish a complete thyroid profile with unparalleled clinical accuracy.

With LOGIC™ your final step is as easy as 1, 2, 3.

1. Establish a baseline. Pre-set count for 10,000; read the required time from the NIXIE tubes.
2. Take a post-wash reading. Pre-set timer for the baseline established in step 1.
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No conversions or calculations needed. Minimal chance for error.
Raytheon’s Sonascan is an advanced ultrasonic imaging device for two-dimensional visualization of soft tissue structures . . . without radiation.

This unique contour scanning device provides rapid cross-sectional imaging in obstetrical and gynecological applications. It can determine placental localization, hydatidiform mole, ectopic and multiple pregnancy, and solid or cystic ovarian tumors. It also can provide continuous monitoring of fetal development.

Other applications include differentiation of cystic and solid masses, as well as mapping of the liver, kidney, spleen, gall bladder and the carotid artery for blocks and occlusions.

Sonascan features a rugged, direct-contact scanner mounted on a movable stand, plus:
- Image minification and magnification in seven steps
- Transverse to longitudinal scanning accomplished without moving the patient
- Patient’s name and pertinent information recorded on Polaroid film automatically
- Camera mounting for 35 mm or Polaroid back as desired
- Light beam marker to illuminate plane of scan
- Wide frequency response — 1, 2.25, 5 and 10 megahertz.

For additional information and pricing, or for the name of your nearest Raytheon sales office, contact Raytheon Company, Medical Electronics, 190 Willow St., Waltham, Mass. 02154. Telephone (617) 899-5949.

In medical electronics . . . Raytheon makes things happen.
### Ready!

**RENOGRAM 060**

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Lung scanning?

All macroaggregated serum albumins are not the same. Macroscan-131 offers all 5 of these benefits:

- Uniformity of particle size distribution
- Minimal free iodide
- Superior manufacturing technique (supernatant is removed in the manufacturing process)
- Safety (no recorded reactions to date in thousands of scans)
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Macroscan-131 is aseptically prepared and non-pyrogenic. It is ready to use and should not be heated prior to use.

INDICATIONS: For scintillation scanning of the lungs to evaluate total, unilateral, and regional arterial perfusion of the lungs.

WARNINGS: Radio-pharmaceutical agents should not be administered to pregnant or lactating women, or to persons less than 18 years old, unless the information to be gained outweighs the hazards. There is a theoretical hazard in acute cor pulmonale, because of the temporary small additional mechanical impediment to pulmonary blood flow. The possibility of an immunological response to albumin should be kept in mind when serial scans are performed. If blood is withdrawn into a syringe containing the drug, the injection should be made without delay to avoid possible clot formation.

PRECAUTIONS, ADVERSE REACTIONS: Care should be taken to administer the minimum dose consistent with patient safety and validity of data. The thyroid gland should be protected by prophylactic administration of concentrated iodide solution. Urticaria and acute cor pulmonate, possibly related to the drug, have occurred.

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Each milliliter contains 1 to 3 mg. aggregated human serum albumin labeled with iodine 131, with benzyl alcohol, 0.9%, as preservative. Radioactivity is usually between 800 and 1300 microcuries per ml. on first day of shipment. For full prescribing information, see package insert.

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It is now possible to scan bone lesions instantly with 2.8 hour Sr87m. The parent radioisotope, Yttrium-87, has a half-life of 80 hours which enables STERCOW 87m to generate the short-lived bone seeking Sr87m for two weeks. The milk is sterile and pyrogen-free. It is not contaminated with the highly radiotoxic Sr89 or Sr90. STERCOW 87m arrives ready for use. A complete elution set is included, designed to fit the Duphar milking system - ideal for convenient and safe elution.
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Xenon-133

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It's worth looking into . . . .

- Highly useful in regional ventilation studies.

- Aid in differential diagnosis between pulmonary embolism and chronic obstructive pulmonary disease.

- Another unique packaging concept provides $^{133}$Xe in a cylinder that is shielded and easily handled. Everything you need is provided including all attachments and a regulator for metering the gas.

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Telephone 617-935-6050
The Picker Dynacam 2: The scintillation camera with both high resolution and a large undistorted field of view:

Resolution

Phantom description: 3/8” thick lucite with four 1/8” thick radiating voids filled with activity.

Resolution and large undistorted field of view

Phantom description: 1/8” thick by 15” dia. lead circle mounted between two circular pieces of 1/8” thick lucite.
A. 3/8” dia. 3/8” space
B. 5/16” dia., 5/16” space
C. 1/4” dia., 1/4” space
D. 3/16” dia., 3/16” space
E. 3/16” dia. holes with centers on 9” dia. circle.
F. 3/16” dia. holes with centers on 10” dia. circle.
G. 3/16” dia. holes with centers on 11” dia. circle.
H. 3/16” dia. holes with centers on 12” dia. circle.

Resolution and large undistorted field of view

Phantom description: 1/8” thick lead bars mounted between two circular pieces of 1/8” thick lucite. A 14” outside diameter, 1” wide, lead ring surrounds the bars.
A. 1/4” bars, 1/4” spaces
B. 5/16” bars, 5/16” spaces
C. 3/8” bars, 3/8” spaces
D. 1/2” bars, 1/2” spaces
The scintillation camera with more clinically useful and proven capabilities:

Quantification of static studies (a built-in capability)
Dynacamera 2 is the scintillation camera that provides both Scintigrams and the total count in an organ or any portion of it.

Quantitative regions of interest (a built-in capability)
Dynacamera 2 permits the selection of two regions of interest and simultaneously displays both count rate vs. time and total integrated counts in both regions.

Quantitative dynamic studies (a built-in capability)
Dynacamera 2 performs quantitative dynamic function studies in selected regions without the need for modifications, accessory systems, or extra cost and produces digital histograms simultaneously for quantification of each discrete phase.

Please call your local Picker technical specialist for information about other Dynacamera 2 features or to learn about Dynacamera 3, the scintillation camera with a built-in image enhancement system. Or write Picker Medical Products Division, Dept. N, 595 Miner Road, Cleveland, Ohio 44143.

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TOXIC NODULAR GOITER. RHEUMATIC HEART DISEASE.

PHO/GAMMA SCINTIPHOTO. Isotope: $^{131}$I iodide. Pho/Gamma equipped with single-pinhole collimator. Total counts 10,000. Total exposure time 3 minutes, 32 seconds. Cold nodule evident in left lobe (see text).

RECTILINEAR SCANS. Isotope: $^{131}$I iodide. Dot scan (left). Photo scan with 81-hole collimator. 0% suppression. Scan time 10 minutes. Broken lines define palpable nodules not evident in scan recordings.

THE PHO/GAMMA SCINTILLATION CAMERA
The Thyroid Study

A Basic Technique for Evaluation of Regional Thyroid Function with the Nuclear-Chicago Pho/Gamma® Scintillation Camera

Scintiphotography, using $^{131}$I iodide and the Pho/Gamma Scintillation Camera, serves as both a primary diagnostic method and as a supplement to rectilinear scanning in the evaluation of thyroid function.

SETTING-UP. The patient is positioned with his thyroid at the appropriate distance (usually about 3 inches) from the aperture of the Pho/Gamma single-pinhole collimator which is directed at the thyroid isthmus. The patient must be positioned to remain stationary during the exposure.

ISOPODE AND DOSE. Normally, 50 $\mu$Ci of $^{131}$I iodide is given orally 6 to 24 hours prior to the study. Smaller doses may be used, depending upon radioiodide uptake. The 24-hour uptake is generally twice the 6-hour uptake and therefore permits data accumulation at double the rate. (Note: Thyroid scintiphotography may also follow oral or intravenous administration of $^{99m}$Tc pertechnetate to yield higher data densities and good images of small nodules.)

DATA ACCUMULATION. With $^{131}$I iodide, small cold nodules located within thyroid lobes may be defined by data densities as low as 5000 counts in the entire scintiphoto. Better resolution is produced in the image by longer counting times to accumulate an increased number of counts. Extended exposure times may also be necessary to obtain thyroid images in children who are given reduced isotope doses.

CASE HISTORY. The clinical illustrations on the facing page are for a patient with the following case history: Female, 53 years old. Scheduled for mitral-valve surgery. Referred for thyroid evaluation because of atrial fibrillation and recent weight loss. Pertinent physiological findings limited to a fine tremor and a 60-gram multinodular thyroid gland. Neck radioiodide uptake was 43% at 24 hours and $TT_4$ was 9.4 $\mu$g/mL (normal maximum 8.2 $\mu$g/mL). Initially, a rectilinear scan was ordered.

EVALUATION. The rectilinear scan was performed with the focal distance of the collimator carefully adjusted to the level of the thyroid gland. The images thus produced failed to show any clear definition of two discrete palpable nodules, which are shown, as palpated, in outlines superimposed on the images.

The Pho/Gamma scintiphotography study was therefore ordered, following the procedure described above. In the scintiphoto obtained from this study, a definite cold nodule is apparent. It is seen as a large area of decreased labelling laterally in the mid-portion of the more actively functioning tissue in the left lobe. Other areas of decreased labelling are seen in both lobes.

CONCLUSIONS. The Pho/Gamma thyroid-imaging technique illustrated here is most often used as a primary diagnostic method for the determination of regional thyroid function. It may be used as a secondary or supplementary method when rectilinear scanning fails to demonstrate the nature of a clearly palpable nodule. In the latter case, the scintiphoto made with the Pho/Gamma single-pinhole collimator often demonstrates cold nodules, even though they are not apparent on the scan. Pho/Gamma imaging generally requires one-third the time of a rectilinear scan of the same area.

Nuclear Reviews

PHO/GAMMA AT WORK: A DISTILLATION. For convenient reference, we offer a new brochure containing both clinical and phantom studies, plus results of the latest advances in scintillation-camera technology. Profusely illustrated. Properly detailed. Write for it.

SCINTILLATION SYSTEM PAR EXCELLENCE. Pho/Gamma with its Data-Store/Playback unit equips you to achieve such things as unambiguous area-of-interest pulmonary dilution curves. And, in addition to comparative quantification of data, studies can be replayed at will—for teaching, for reviewing and comparing dynamic pre- and post-operative studies—and for re-doing scintiphotos that didn’t make it (without having to repeat the original study). Interested? A new issue of "The Nucleus," our publication for the nuclear-medicine community, is now available. It contains an informative discussion of the many capabilities of Pho/Gamma with Data-Store/Playback. It includes studies which demonstrate these capabilities in clinical practice, and discusses (in detail) the techniques involved in producing taped dynamic studies with the Data-Store/Playback unit. Your copy (or copies) are ready on request.
What's the difference between a Tc99m-generator and stercow™ 99m?

A Tc99m-generator provides a handy means of producing a short-lived isotope. STERCOW 99m provides such an isotope whenever and wherever you need it sterile. Moreover, STERCOW 99m fits into the Duphar milking system providing the ultimate in safe and simple elution with evacuated vials. STERCOW 99m is designed to be top loaded with 550 mCi molybdenum-99 parent and produces sterile, pyrogen-free Tc99m eluate in a maximum concentration.

That's the difference
Color scans have always been colorful.
When count rate differences between target and non-target areas are extremely small, color contrast enhancement produces scans that contain considerably more information, thus simplifying diagnoses. And only Raytheon nuclear imaging devices give you this advantage.

By simply inserting a plug, you can change a Raytheon imaging device from conventional linear color operation to the color dot contrast enhancement mode. Raytheon offers a wide variety of plugs to meet your clinical requirements for color contrast enhancement. The accompanying graph illustrates the results you can expect at various count rate activity levels.

In addition, you have a choice of continuous color, another Raytheon exclusive, or conventional color recording with variable tapper frequency.

But there are a number of features of Raytheon nuclear imaging devices that make them the most advanced units available today. For example: The scanning heads are completely flexible. Tomograms, oblique scans of normally masked areas, parallel-headed scanning for whole body applications, and conventional opposed-head scanning are some of the ways the heads can be manipulated.

Here is another important feature: You can get four different scintigrams simultaneously when the scanner is equipped with a subtraction option. Thus, you can obtain four views of the brain at one time: 1. right lateral on photo; 2. left lateral on photo; 3. right lateral plus left lateral on color dot recorder; 4. right lateral minus left lateral on color dot recording. Or perhaps you may only want one view with four levels of contrast enhancement. No need to perform multiple scans. The Raytheon
Dual probes in summation with continuous tapper and linear color.

(Color scan courtesy of Amiel Z. Rudavsky, M.D., Mt. Sinai Hospital, New York City.)

The scanner will give you various levels of enhancement simultaneously.

With a Raytheon nuclear imaging device, you can also have a unit that can be updated to meet your future needs. You can convert a single 3" scanner to a single 5, dual 3, or dual 5 right in the hospital.

Ease of operation is built into each unit. To set up for a scan, just insert the automatic energy selector plug, search for the hot spot, and select line spacing and a scan speed of up to 600 cm/min. Information density and film contrast are read out on a single easy-to-read meter.

We would like to provide you with additional details on Raytheon's family of nuclear imaging devices.

Write or call Raytheon Company, Medical Electronics, 190 Willow St., Waltham, Mass. 02154.
Tel. 617-899-5949.
Raytheon's 12-minute, color film on nuclear imaging devices is available for your viewing. To arrange a convenient time to see this informative film, contact your nearest Raytheon sales representative. Or, get in touch with Raytheon Company, Medical Electronics, 190 Willow Street, Waltham, Mass. 02154. Telephone 617-899-5949.
When high in-depth resolution is required but scanner speed is too slow, what then? (Simply consider the Picker Colorpix™ 2.)

Users of nuclear medical equipment are accustomed to compromise. To get, you give. High in-depth resolution? (Okay, but at slow speed.) High speed? (Yes, but…) Until now. With the development of the Colorpix 2 even institutions with heavy static-imaging loads can enjoy maximum diagnostic information. And more.

We show herewith a sampling of typical Colorpix 2 scans. And we list below—in the briefest of forms—the outstanding Colorpix 2 features. Finally, we’ve also included a Business Reply Card to simplify your request for the detailed Colorpix 2 booklet. (Now it’s no longer a question of speed versus resolution.)

Colorpix 2 Features

(1) Superb in-depth resolution (uses focusing collimators).

(2) High speed (complete organ views in 2 or 3 minutes).

(3) Color scans to enhance perception of small count variations.

(4) Image enhancement capabilities.

(5) High counting efficiency for low dose studies.

(6) Ability to handle high energy gamma emitters (like strontium 85 for bone studies).

(7) Dynamic function study capability (e.g., renal uptake studies).

(8) Field large enough to do lungs or liver in a single view.

(9) Tape recorder available to record and replay for optimizing enhancement and background suppression levels.

Abnormal lung study. Bilateral perfusion defects are noted in this patient who had multiple pulmonary emboli secondary to a deep thrombophlebitis of the leg. Isotope: 1131 Macroaggregated Albumin. Dose: 350 µCi.

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1. 0-2 minutes. Count: 50,531
2. 4-6 minutes. Count: 61,179
3. 8-10 minutes. Count: 58,696
4. 12-14 minutes. Count 55,836
5. 16-18 minutes. Count 53,907
6. 20-22 minutes. Count 41,196

7. AP. Count: 175,227
8. AP View.
9. AP. Transmission Scan

7. Abnormal brain study. 62-year-old male patient recovering from an acute myocardial infarction when
he sustained an acute CVA with right-sided hemiplegia. Time: Approximately 10 minutes. Isotope:
Tc99m. Dose: 15 mCi.
8. Abnormal liver study. 27-year-old female.
Metastatic carcinoma of the rectum. Scanning time:
4-5 minutes. Isotope: Tc99m Sulphur Colloid. Dose:
4 mCi.
9. Transmission scan of normal lungs. Isotope:
Tc99m. Dose: 15 mCi.

☐ Please send detailed information on the Colorpix 2.
☐ Please have a representative call for an appointment.

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Institution_______________________________________________________
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A Table for Imaging With a Movable Top

The "floating" top overhangs to allow supine posterior brain views. Ten inches of travel in both longitudinal and lateral planes.

Graduated calibration scale and positive cam locks assures reproducible positioning.

No crossmembers or support bars to interfere with placement of probes, scanner heads, or camera detectors.

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3) Multidetector Scanners (Dyna-pix, etc.)
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Nuclear Medicine staff position available in 1,000-bed university-affiliated voluntary hospital. Clinical isotope laboratory currently performs in excess of 12,000 patient procedures per annum; fixed equipment includes 2 scintillation cameras, PDP-8 computer, image intensifier scintillation camera, 2 rectilinear scanners and a variety of scalers and well counters. Position provides opportunity for clinical research and teaching. Suitably qualified individual will be considered for University faculty appointment. Reply to Box 101, Society of Nuclear Medicine, 211 E. 43rd St., N.Y., N.Y. 10017.

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If you are an internist with a good background in nuclear medicine you may be qualified to serve as co-director of a complex of nuclear laboratories in the New York metropolitan area. You must have experience with both rectilinear scanners and scintillation cameras, and be familiar with radioimmunoassay. Knowledge of computers, infra-red thermography and diagnostic ultrasound will be useful but is not necessary. Interest in clinical research leading to the writing and presentation of papers is desirable. You must be willing to spend 2 to 4 hours daily in the private practice of internal medicine in addition to nuclear laboratory supervision. Salary starts at $30,000 depending on qualifications, plus the opportunity to acquire valuable stock and to begin the most challenging unusual and rewarding career that you will ever find in the field of nuclear medicine, with a chance for lifetime economic security. If you are still interested, send background resume and curriculum vitae to

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and we will contact you for an interview.
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The Department of Radiology at Duke University Medical Center offers two programs of residency training in nuclear medicine. Applicants desiring certification by the American Board of Radiology may qualify for the diagnostic examination while completing their training in nuclear medicine. This is a four-year program of nuclear medicine and diagnostic radiology, closely interdigitated. A two-year program of nuclear medicine training is also offered to candidates who have completed at least one year as AMA-approved radiologists or internal medicine residents. The Division of Nuclear Medicine serves the 790-bed Duke Hospital and the 500-bed Veterans Hospital performing over 8000 clinical nuclear medicine studies annually. Residents are paid $8000 the first year and $8500 the second year. In addition a $1000 per annum dependency allowance will be paid the resident for the first dependent child and an additional $500 per annum for the second with a maximum of $1500 dependency allowance. A $3000 term life insurance policy is purchased for each resident at no cost to the incumbent. This insurance policy may be continued following the completion of the residency program. Contact: Jack K. Goodrich, M.D., Director, Division of Nuclear Medicine, Department of Radiology, Duke University Medical Center, Durham, North Carolina 27706.

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