

**Iron deficiency anemia testing—  
As easy as throwing in the sponge!**

Irosorb-59 is the second in a series of **in vitro** radio-pharmaceutical tests developed by Abbott Laboratories. **The Irosorb-59 Sponge offers a remarkable degree of accuracy and simplicity that makes routine screening a practical matter.**

**Accuracy:** The diagnostic accuracy of the test is unsurpassed in measuring latent iron-binding capacity. What's more, unlike other methods, it can be used following the administration of a hematinic.

**Speed:** Irosorb-59 can be washed quickly, there being only 3 washes. No incubators or shakers are needed.

**Convenience:** Irosorb-59 is in a disposable kit form ready for immediate use at room temperature.

**Safety:** No dilution or pipetting of radioactive material is necessary. Since the patient receives no radioactive materials, the test can be used in children, pregnant women, or in adults without any hazard of radioactivity.

**Flexibility:** The test does not require the presence of the patient for the determination of the radioactivity. Serums can be frozen and saved until a sufficient number has been collected to run a rack full of tubes at one time, or serum samples can be mailed to personnel performing the test.

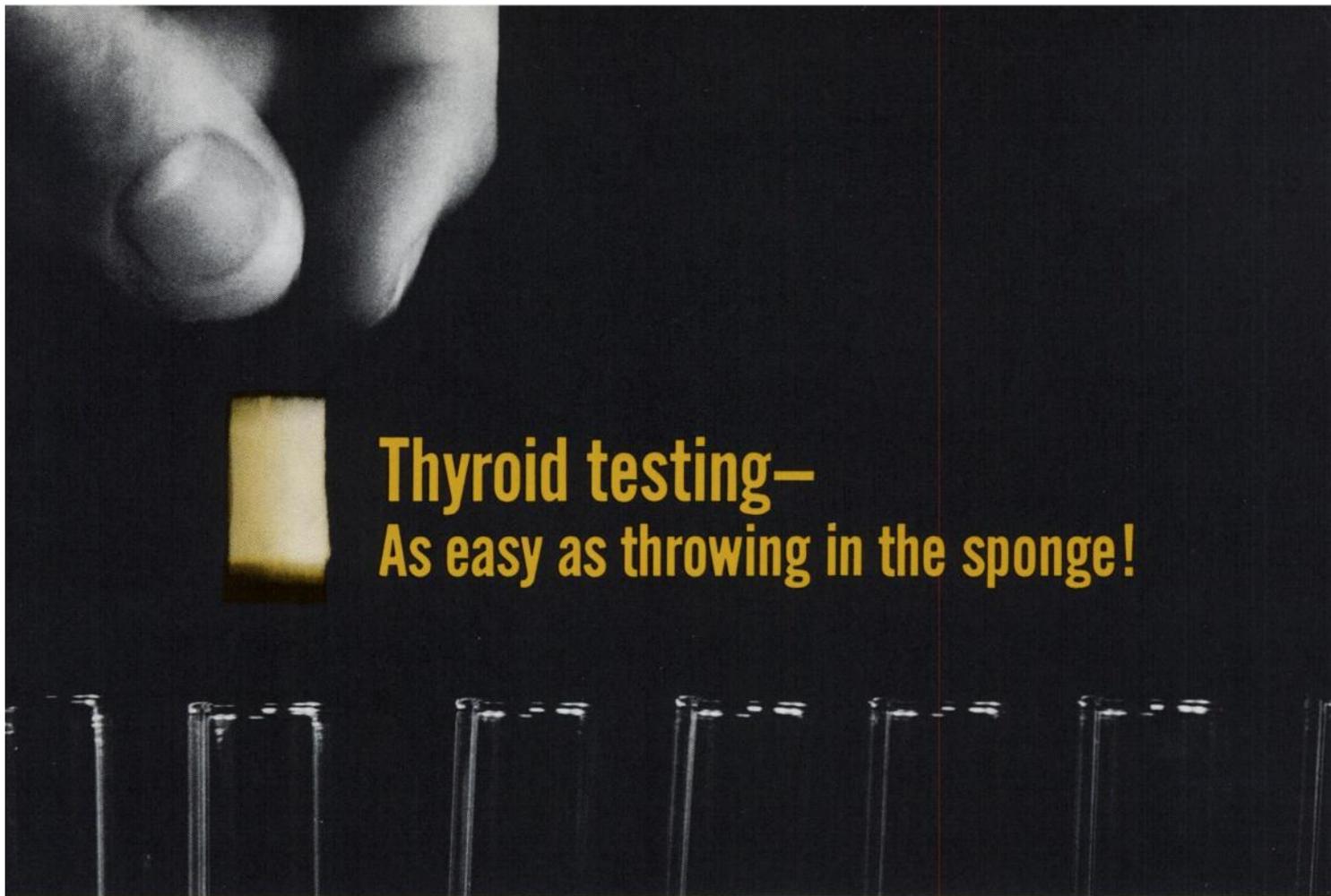
**Irosorb-59 is available to all doctors, hospitals and clinical laboratories—  
AEC licensing is not required.**

709418



**IROSORB-59<sup>®</sup>**  
**DIAGNOSTIC KIT**

**ABBOTT LABORATORIES** NORTH CHICAGO, ILLINOIS  
Abbott Laboratories, S.A., 2, rue Thalberg, 1201 Geneva, Switzerland



## Thyroid testing— As easy as throwing in the sponge!

The Triosorb Sponge is an in vitro test providing accuracy, speed and convenience.

**Accuracy:** Because factors such as red blood cells and exogenous iodine have been eliminated from consideration in the Triosorb Test, it is unsurpassed in accuracy.

**Speed:** With only 3 washes and no need for double pipettings, shakers, or incubators, the Triosorb Test can be more rapidly performed than any other T-3 test.

**Convenience:** Available in a disposable kit ready for immediate use at room temperature. There is no dilution or pipetting of radioactive materials with Triosorb. It is the simplest and most convenient thyroid function test to perform.

“The resin sponge (Triosorb) technique is superior to the erythrocyte method for performing the  $I^{131}$  T3 test in terms of simplicity, convenience and elimination of errors characteristic of the erythrocyte procedure.”<sup>1</sup>

“The T-3 uptake test was vastly improved by a resin-sponge . . . (Triosorb) . . . which is offered as a replacement for the red cells as well as for the loose granular resin which varies from day to day.”<sup>2</sup>

**Triosorb is available to all doctors, hospitals and clinical laboratories—  
AEC licensing is not required.**

1. McAdams, G. B., and Reinfrank, R. F., J. Nuclear Med., 5:112, 1964.

2. Manfredi, O. L., et al., J. Nuclear Med., 7:72, 1966.

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**TRIOSORB®-131  
TRIOSORB-125  
T-3 DIAGNOSTIC KIT**

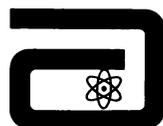
**ABBOTT LABORATORIES** NORTH CHICAGO, ILLINOIS

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Announcing  
**TETRASORB™-125**  
T-4 DIAGNOSTIC KIT

On the opposite page,  
Abbott announces its  
3rd “sorb” product—  
Tetrasorb-125.

Please lift this page  
for information about  
Triosorb® and Irosorb-59®.



This sponge puts the  
squeeze on the PBI!



"For many years the protein-bound iodine (PBI) has been used as an indirect index of the level of thyroid hormones; however, in an appreciable number of cases it does not provide an accurate measurement, because compounds containing iodine or mercury are present."<sup>1</sup>

It is now generally recognized that a quantitative **direct measurement** of thyroid hormones in serum is the most valuable single laboratory aid in assessing thyroid function.

"Using a resin-sponge and thyroxine tagged with I-125, a simple method was developed to determine serum thyroxine."<sup>2</sup>

**That method is Tetrasorb-125, the first diagnostic kit offering a direct measurement of thyroid function by determining serum thyroxine.** Hypothyroid patients show a decrease in serum thyroxine while hyperthyroid patients show an increase.

Using the principle of saturation analysis for measuring total serum thyroxine, the following results have been reported:

"When  $T_4$  and PBI values were compared, a good correlation ( $r=0.823$ ) was obtained with a higher diagnostic accuracy for the  $T_4$  determination. All euthyroid individuals with PBI's elevated due to iodine had  $T_4$  values in the normal range. . . . The  $T_4$  level correlated well with the clinical status in hypothyroid subjects receiving  $T_4$  or hyperthyroid subjects receiving various forms of therapy."<sup>1</sup>

"Unlike the protein-bound iodine determination, this technique is entirely unaffected by iodine or mercury, an important advantage from the clinical point of view."<sup>3</sup>

"These results proved that this method could be used as a routine clinical diagnostic test in place of the determination of PBI."<sup>4</sup>

By requesting both Tetrasorb-125 (a direct measure of thyroid activity) and Triosorb<sup>®</sup> (an indirect measure of thyroid activity) for his patient, the physician is provided with more information than ever before possible.

**Tetrasorb-125 is available to all doctors, hospitals and clinical laboratories—AEC licensing is not required.**

1. Murphy, B. P. and Patte, C. J., J. Clin. Endocr., 26:247, 1966. 2. Kaplan, B. C., AAAS Meeting, Dec., 1966.  
3. Murphy, B. P., J. Lab. & Clin. Med., 66:161, 1965. 4. Nakajima, H., et. al., J. Clin. Endocr., 26:99, 1966.



Announcing **TETRASORB<sup>TM</sup>-125**

**T-4 DIAGNOSTIC KIT**

**ABBOTT LABORATORIES NORTH CHICAGO, ILLINOIS**

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Technetium-99m

**For high-definition diagnostic scans of brain lesions, thyroid, lungs, kidneys, liver, spleen and other organs.**



High-definition scans are an essential in the fast-developing field of radio-diagnosis. Particularly so in the localisation of brain lesions and the scanning of thyroid, kidneys, liver, spleen and other human organs.

Good scan resolution is one of the major contributions of the technetium-99m yielded by Stercow 99m - an advanced-design sterile generator by Duphar.

Supplies are despatched during the weekend pre-calibrated for the first day of use, usually Monday at 18.00 hrs M.E.T. - and an elution efficiency of approximately 80% of the technetium-99m in the Stercow is guaranteed. Further, milking is a simple, safe and speedy operation. Full details of Ster-

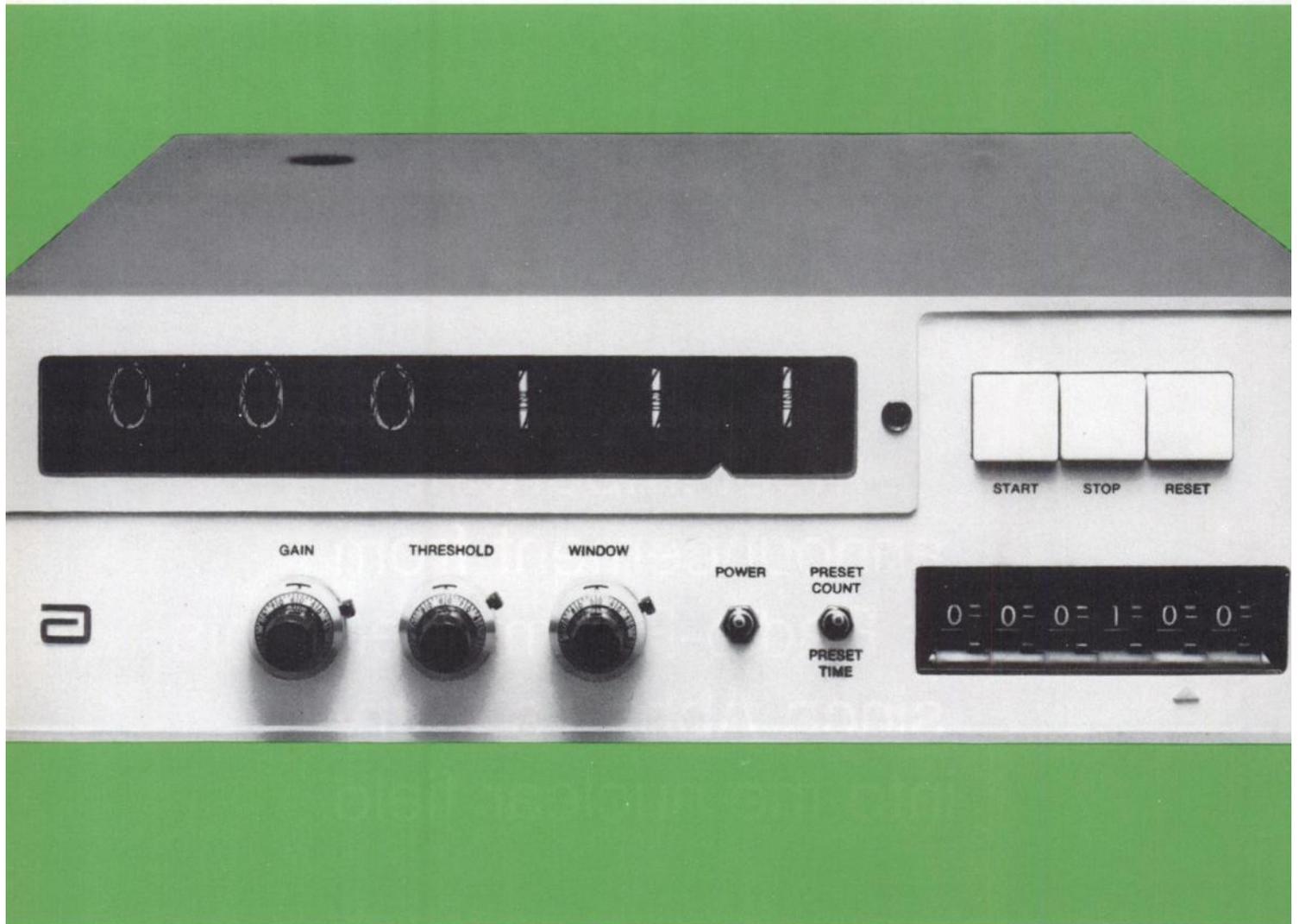
cow 99m and the uses of the scanning agent technetium-99m will gladly be sent on request. Samples are available free of charge. Stercow 99m is manufactured by Duphar to the very high quality standards necessary for nuclear pharmaceuticals. A new design of sterile generator, it is available in three types with 150, 300 or 450 mc of the parent radioisotope Mo99. Complete elution with 15, 20 or 30 ml. When milked in the approved manner, the resultant technetium-99m is sterile, non-pyrogenic and hence ready for immediate use - either orally or intravenously. The Duphar Shielded Stercow Milking System gives additional safety and efficiency in the elution operations.

**Nuclear pharmaceuticals**



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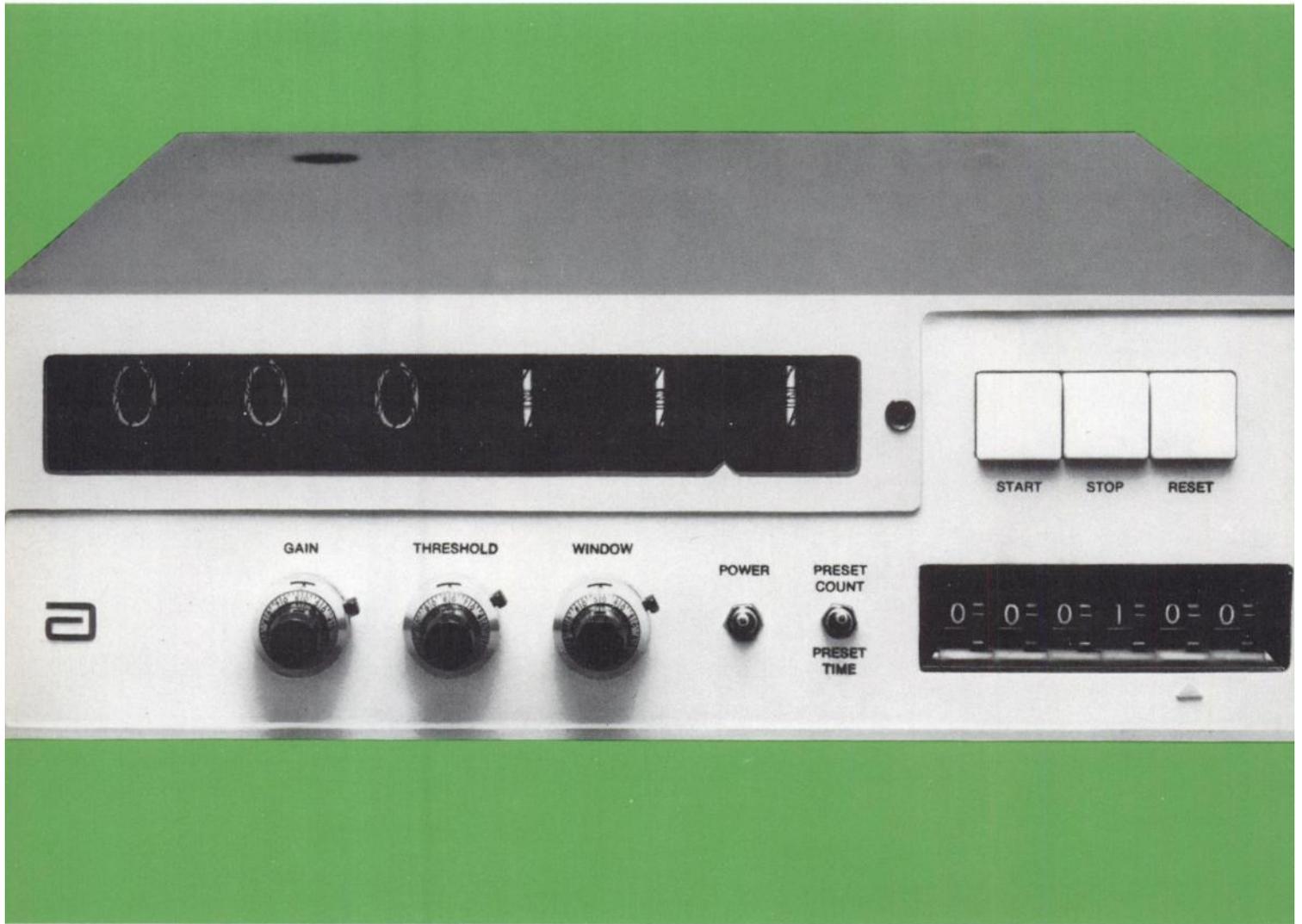
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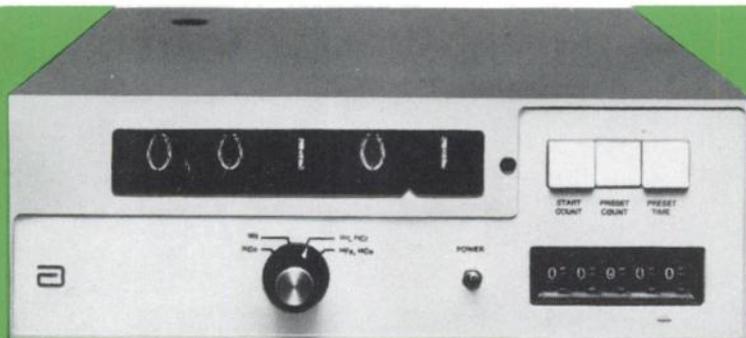
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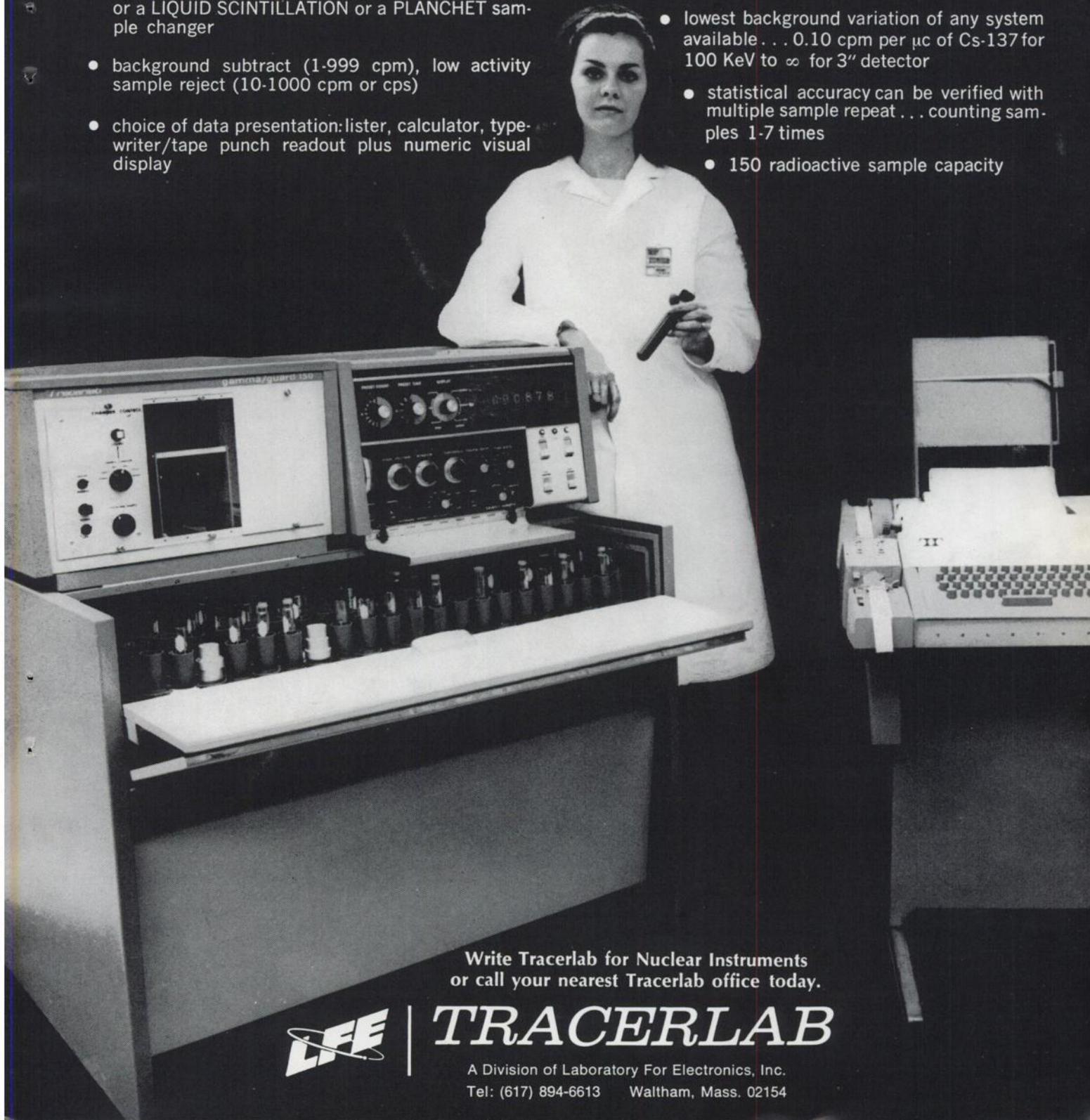


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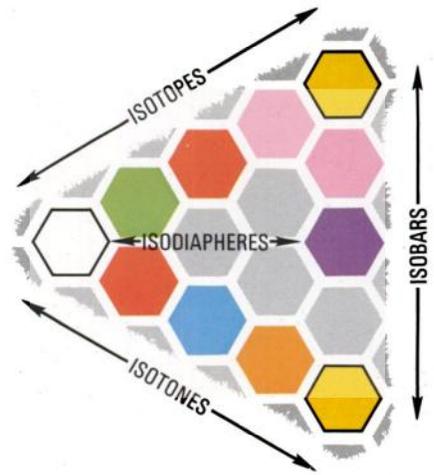
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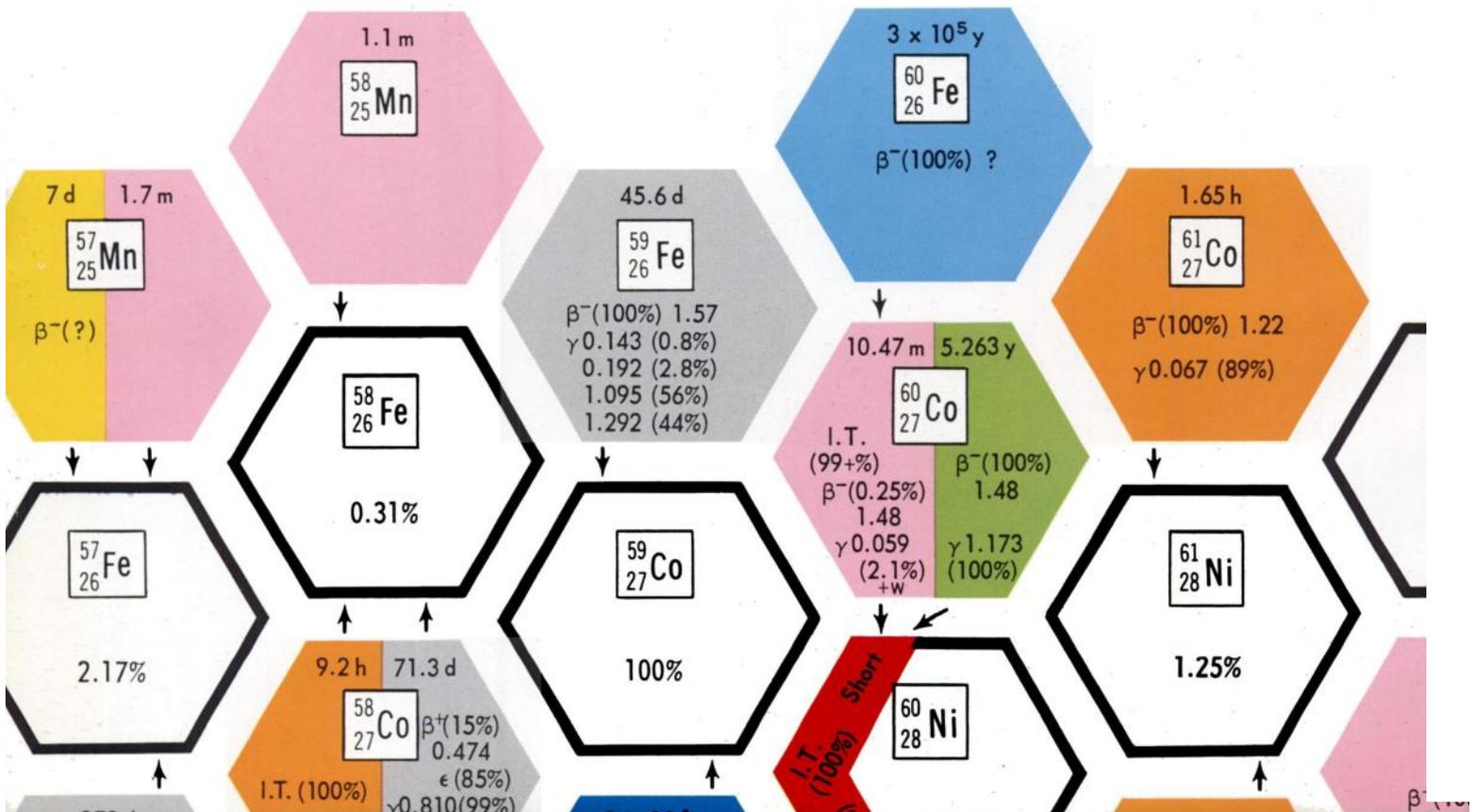
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NEW



# Trilinear Chart of the Nuclides

by Marshall Brucer, M. D.



Characteristics of all the presently known nuclides (January 1968) are presented for the first time in easy-to-use trilinear chart form. Eight colors are used to simplify interpretation.

The chart shows:

- approximately 1800 nuclides
- half-life ranges by color code
- stable nuclides
- special charting of uranium, thorium, neptunium, and actinium series
- $\alpha$ ,  $\beta$ ,  $\epsilon$ , and major  $\gamma$  emissions, with energy and percent abundance



This new chart is displayed at the 15th Annual Meeting of the Society of Nuclear Medicine. It is available in two forms: as a 48-page booklet with the "Vignettes in Nuclear Medicine," available separately without charge; and

as a 54" x 38" wall chart ready for mounting. The wall chart is available for a handling charge of \$2.00. Check or money order must be sent with your request.



RADIOPHARMACEUTICALS

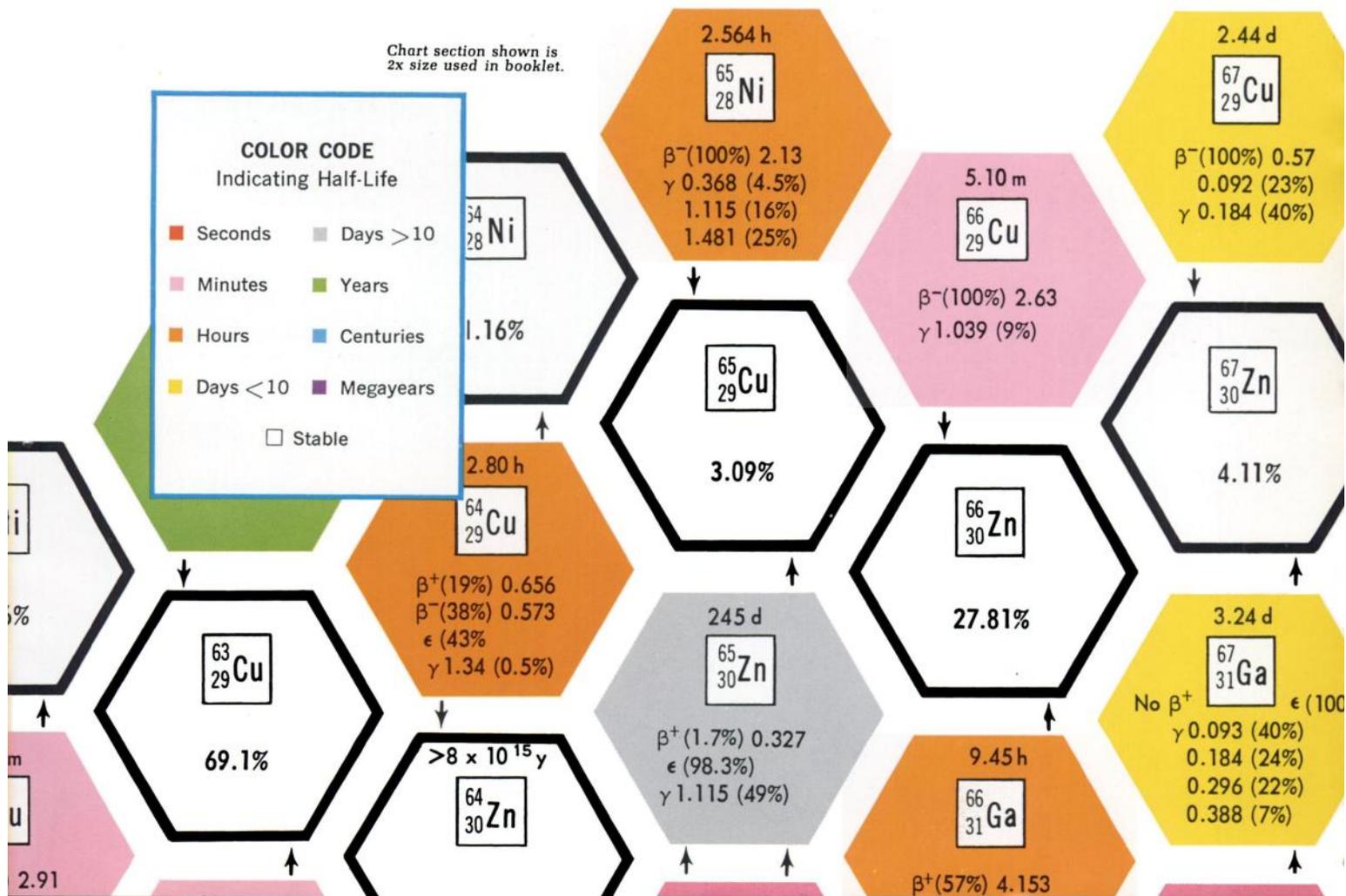
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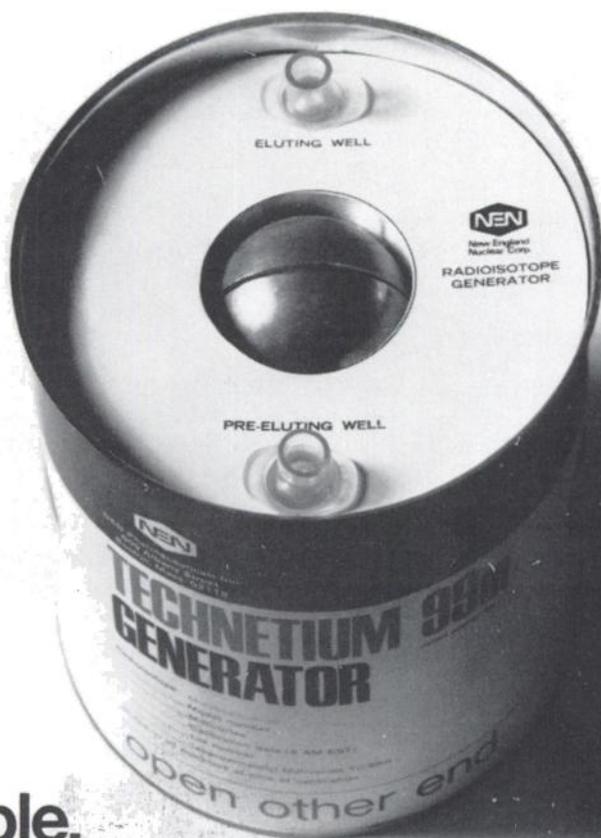
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Chart section shown is 2x size used in booklet.

**COLOR CODE**  
Indicating Half-Life

■ Seconds	■ Days > 10
■ Minutes	■ Years
■ Hours	■ Centuries
■ Days < 10	■ Megayears
□ Stable	





**This simple, self-contained unit<sup>1</sup> provides sterile,<sup>2</sup> pyrogen-free<sup>3</sup> technetium-99m<sup>4</sup> Quickly.<sup>5</sup> Safely.<sup>6</sup> Reliably.<sup>7</sup>**

**1. Simple, self-contained unit** — Nothing else needed. Nothing.

**2. Sterile** — Every generator is autoclaved before shipment and each eluate is forced through a final 0.22 micron sterilizing filter as an extra precaution. Further: user is notified before calibration time if there is any bacterial or mycotic growth.

**3. Pyrogen-free** — Every generator is tested for pyrogenicity before shipment.

**4. Technetium** — As the pertechnetate ion. And we *guarantee* the amount of technetium obtainable from each generator. No vagueness about "yield".

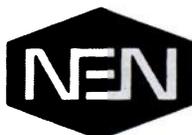
**5. Quickly** — The entire elution and assay process takes only a few minutes. And speaking of time: because of a simple, logical sequence, and a profusely illustrated, refreshingly simple instruction

manual, only a few minutes are needed to master the entire procedure — even without any relevant prior experience.

**6. Safely** — *Patient* safety derives from points 2 and 3 above and this: every elution is easily and precisely checked for possible molybdenum breakthrough; simple, accurate radioassay materials are included for testing all elutions. *Hospital personnel* safety is related to point 5 above since speed reduces exposure, and: the generator never leaves its 3/4" lead shield or its 6 inch diameter can; and the construction is unbreakable.

**7. Reliability** — Semi-automatic operation eliminates the risk of improper elution with the wrong solvent, the wrong volume of solvent, or at the wrong rate.

Write for full information and prices.



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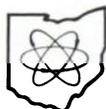
Six years of proven clinical effectiveness with Dual Head Scanners, has brought one fact to light . . . don't plan the obsolescence of your radioisotope scanner before you purchase one.

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Optional accessories include an inexpensive positron counting circuit and a two-isotope subtraction circuit.

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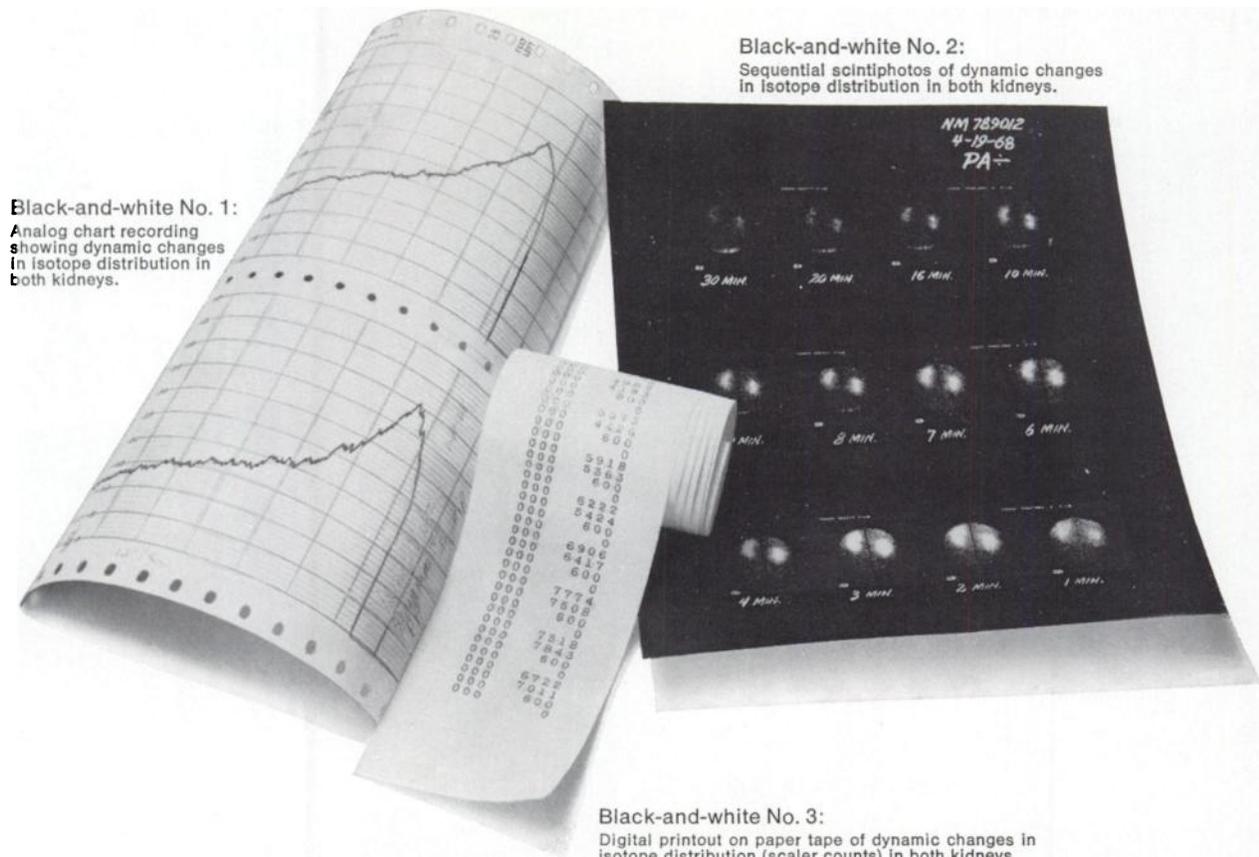


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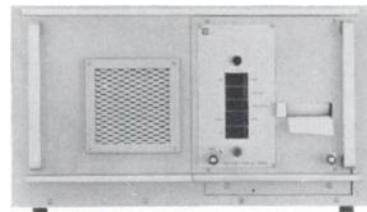
# And here's the new accessory trio for Pho/Gamma III that makes it possible:



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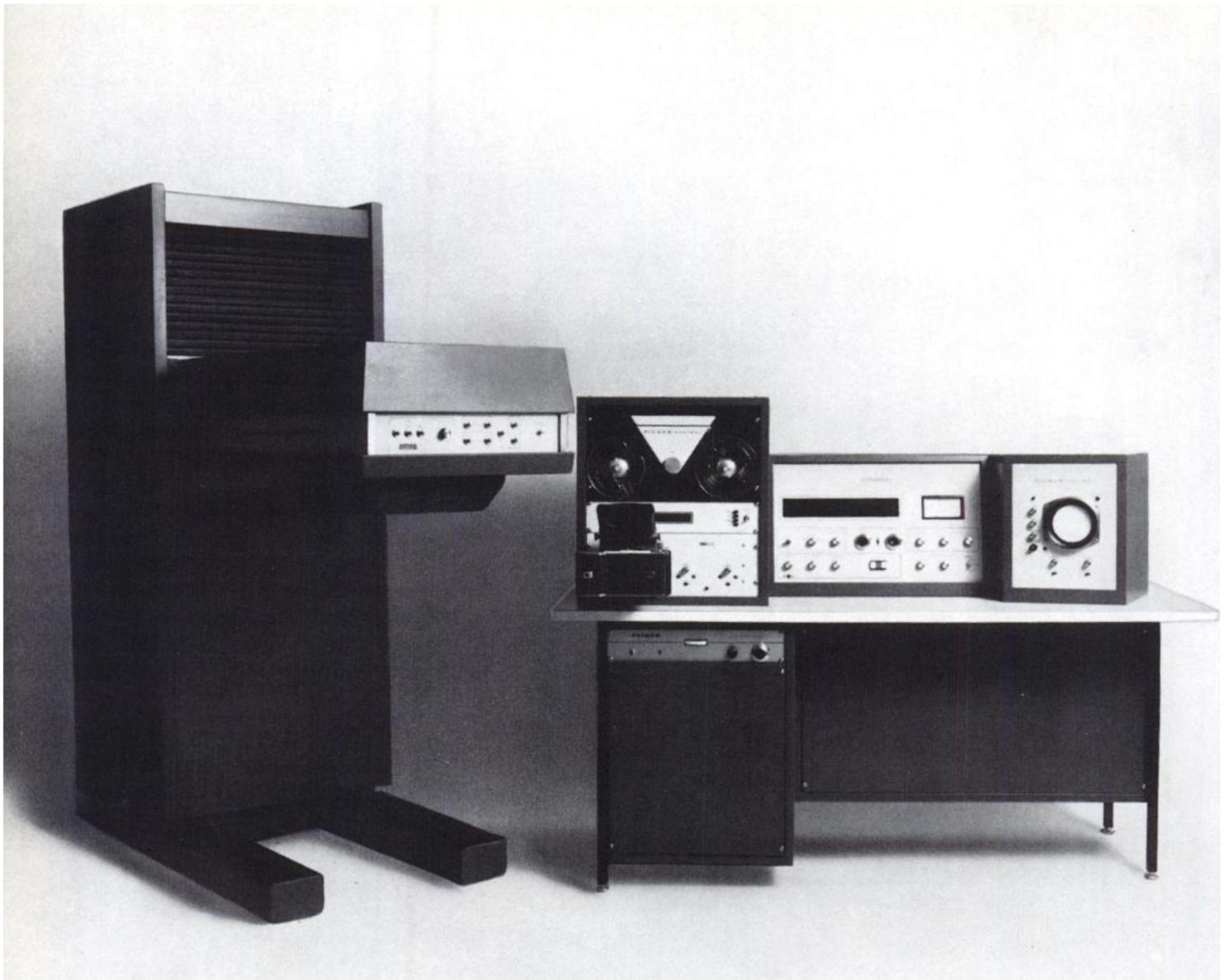
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I'm a **T3** molecule

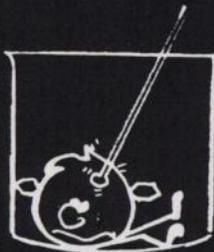
I have been



pipetted



rotated



swizzled

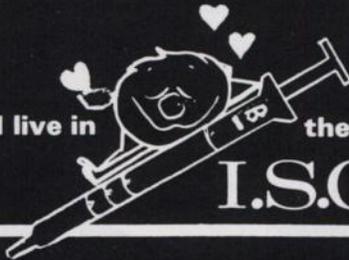


frozen



& agitated

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it makes  
sense  
to use  
the finest

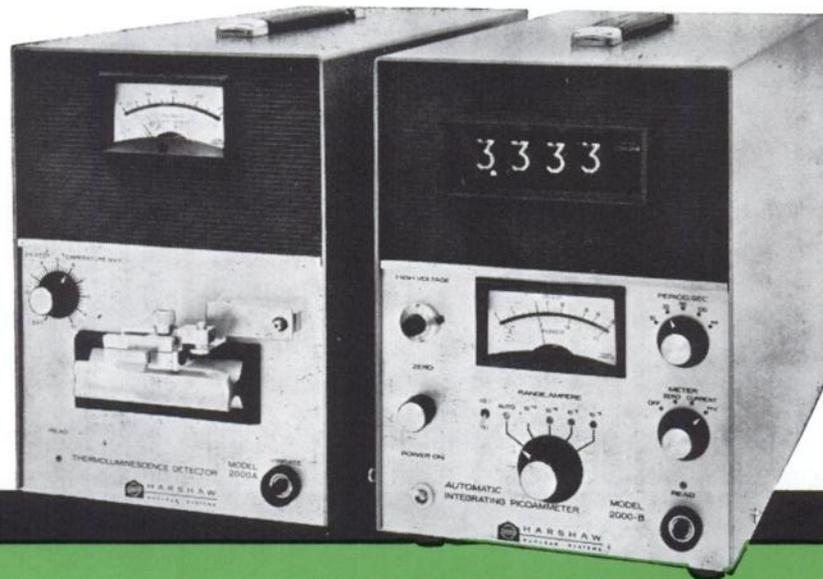
**INDICATIONS:** Brain scanning, kidney scanning and kidney uptake studies. **CONTRAINDICATIONS:** Acute nephritis, oliguria, or known sensitivity to mercurial compounds. Should not be administered to patients under 18 years, or to women capable of childbearing, except when necessary diagnostic information cannot be obtained by other types of studies or can only be obtained at a risk greater than the radiation exposure caused by these agents. In uremic patients (B.U.N.>50 mg/100 ml), kidneys may not be visualized by scanning and hepatic radiation dose may be increased. **WARNINGS:** Limit dose to smallest amount consistent with obtaining relevant diagnostic information. **PRECAUTIONS:** Approved radiation safety precautions should be maintained at all times. To reduce radiation to kidneys, a

nonradioactive mercurial diuretic may be administered prior to brain scans, but should *not* be given before kidney studies. **ADVERSE REACTIONS:** No serious reactions reported to date; however, patients should be carefully observed. *Physicians should consult product package insert before administering.* For further information, write: NEISLER LABORATORIES, INC., Subsidiary of UNION CARBIDE CORPORATION, Radiopharmaceutical Dept., P.O. Box 433, Tuxedo, N. Y. 10987.

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### Calcium Sulphate as

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**SQUIBB**

a research concept in radiopharmaceuticals

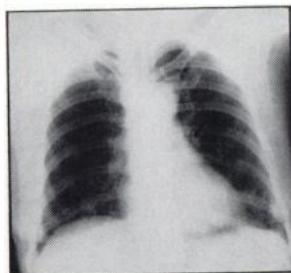
# pulmonary embolism: a major cause of death?

**Several studies<sup>1,2</sup> have reported high mortality from pulmonary embolism. Yet, such deaths may be only a small fraction of the total disease incidence.<sup>3,4</sup>**

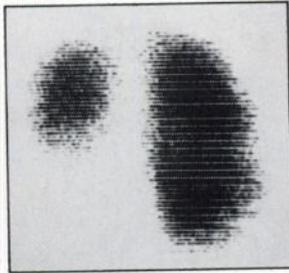
In a 1959 report, Coon and Willis<sup>1</sup> attributed as many as 47,000 annual deaths solely to pulmonary embolism. They further held that pulmonary embolism may have significantly affected the outcome in three times this many deaths. Another study<sup>2</sup> reported autopsy findings on 161 of 247 patients who had died after hip fracture. Thirty-eight percent of these were found to have died of pulmonary embolism. In the unautopsied cases, however, pulmonary embolism was listed as the primary cause of death in only 2%.

Deaths from pulmonary embolism, however, probably comprise only a small portion of the total incidence. For example, a recent study<sup>3</sup> of 61 consecutive adult autopsies revealed recent and organized thrombi ranging from massive occluding emboli of the pulmonary arteries to minute and barely visible fragments in 64% of the cases. But the true incidence may be even higher. Based on accumulating evidence in the literature and on their own experience, some researchers<sup>4</sup> postulate that pulmonary embolism may occur in nearly everyone at some time or another, that the recognized clinical entity is only a tiny part of the full spectrum of the disease. These studies point to the desirability of a high index of suspicion of pulmonary embolism and its earliest possible diagnosis.

**help in diagnosing pulmonary emboli**—Lung-scanning procedures utilizing such agents as Albumotope—LS [Squibb Aggregated Radio-Iodinated (<sup>131</sup>I) Albumin (Human)] now offer help in detecting pulmonary emboli when used in conjunction with other procedures. In fact "...it appears that the lung scan can point to the site of embolic lesions before signs of lung infarction are recognizable on plain chest films."<sup>5</sup> Then, too, lung scanning is simpler, faster, and comparatively safer than pulmonary arteriography and "...has proven to be an objective and reliable means of establishing a firm diagnosis of pulmonary embolism. ..."<sup>6</sup> In some instances it has also shown the capacity



Patient in distress:  
substernal pain, faintness, dyspnea.  
Chest film: normal\*.



Same patient. Initial scan:  
massive pulmonary embolism,  
left lower lobe\*.

\*Illustration furnished through the courtesy of George V. Taplin, M.D., Harbor General Hospital, Torrance, California.

to detect small areas of pulmonary ischemia in the absence of abnormal angiographic findings.<sup>7</sup> Finally, lung scanning provides a simple and reliable means of follow-up during recovery from pulmonary embolism which may be repeated at relatively short intervals when necessary. Indeed, it is considered by some to be "...the most convenient and probably the most sensitive method now available for this purpose."<sup>4</sup>

Albumotope—LS for lung scanning: another example of Squibb leadership in radiopharmaceutical research and development.

**Side Effects and Precautions:** Radioisotopes should not be used in pregnant women, nursing mothers, or in patients under 18 years of age unless indications are very exceptional.

There have been no reported cardiovascular or other untoward effects attributable to Albumotope—LS. Extensive clinical use of Albumotope—LS has not borne out the hypothetical possibility that particles of large size might induce deleterious cardiovascular or cerebrovascular effects. The product appears to possess no antigenic properties. One patient with a known history of angioneurotic edema, who had been given Lugol's solution in conjunction with aggregated radioalbumin similar to Albumotope—LS, developed urticaria.

**Available:** As a sterile, nonpyrogenic, aqueous suspension. Each cc. contains approximately 1 mg. aggregated human serum albumin labeled with 800-1500 microcuries of iodine-131 at time of manufacture. Also contains 0.9% benzyl alcohol as a preservative.

#### References:

- (1) Coon, W. W., and Willis, P. W., 3rd: *Amer. J. Cardiol.* 4:611 (Nov.) 1959.
- (2) Fitts, W. T., Jr., et al.: *Surgery* 56:663 (Oct.) 1964.
- (3) Freeman, D.G.; Suyemoto, J., and Wessler, S.: *New Eng. J. Med.* 272:1278 (June 17) 1965.
- (4) Poe, N. D., et al.: *Amer. Heart J.* 73:582 (May) 1967.
- (5) Haynie, T. P.; Hendrick, C. K., and Schreiber, M. H.: *J. Nucl. Med.* 6:613, 1965.
- (6) Sabiston, D. C., Jr., and Wagner, H. N., Jr.: *Ann. Surg.* 160:575 (Oct.) 1964.
- (7) Taplin, G. V., et al.: *Major Applications of Lung Perfusion Scanning*, Scientific Exhibit, 14th Annual Meeting Soc. Nucl. Med., Seattle, Wash., June 20-23, 1967.

## Albumotope®—LS

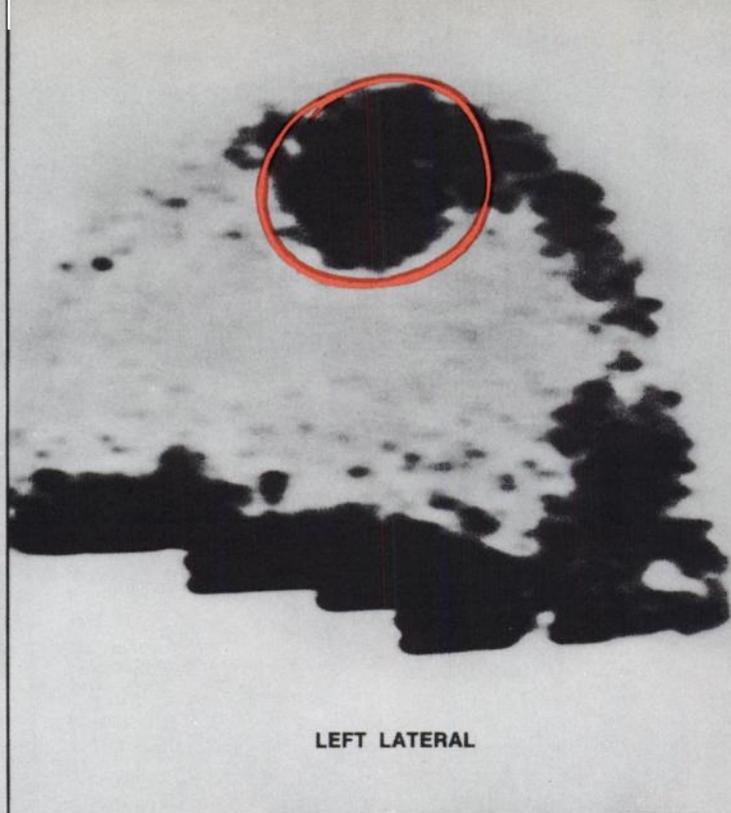
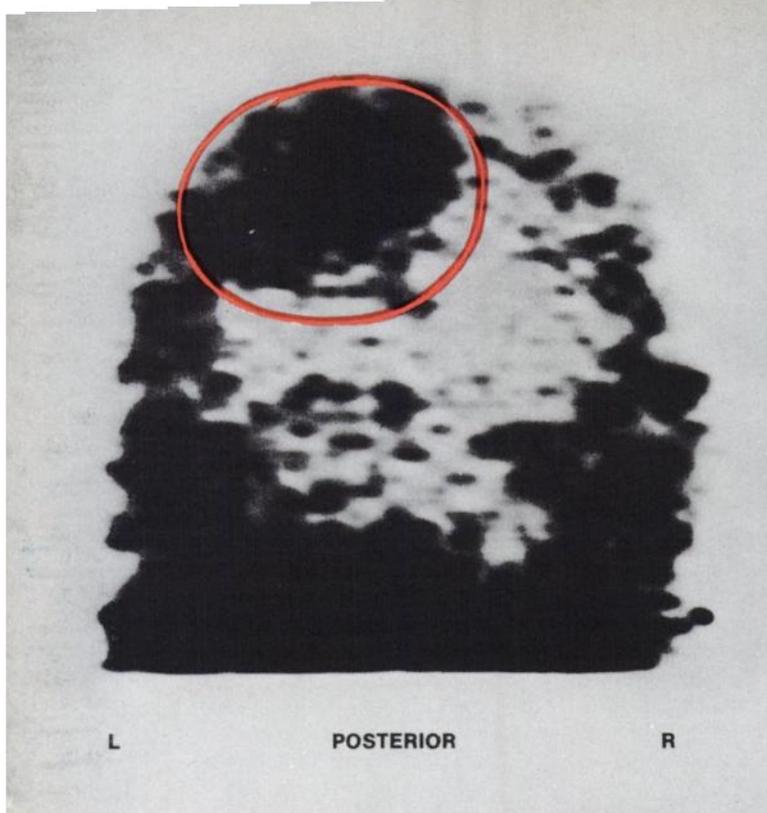
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Albumin (Human)

For Lung Scanning

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## In suspected brain pathology, find out fast with **Pertsan-99m**

**For brain scanning, Pertsan-99m provides more information with less radiation to the patient than any other related cerebral test—whether other radioisotopes or x-rays. And you get each projection fast—as little as 2 minutes with a camera, 15 minutes or less with rectilinear scanners.**

A 54-year-old man was hospitalized with progressive weakness of the right side, followed by seizures of the right side (Jacksonian seizures). Brain scans showed an abnormal concentration of isotope in the left parasagittal area. Surgery revealed a meningioma, which was removed, and the patient recovered.

The 2 scans above, showing the marked abnormal uptake (which turned out to be a meningioma), were made with Pertsan-99m. This product is shipped Monday through Friday—and Sunday. Thus, brain scans can be scheduled 6 days a week—Monday through Saturday.

**INDICATIONS:** Adjunctive diagnostic aid in detecting and localizing intracranial neoplastic (primary or metastatic) and non-neoplastic lesions.

**CONTRAINDICATIONS:** Radio-pharmaceutical agents should not be administered to pregnant women or to persons less than 18 years old unless the indications are very exceptional.

**PRECAUTIONS:** Care should be taken to ensure minimum radiation exposure to the patient as well as all personnel; to prevent extracranial contamination because this can lead to erroneous interpretation; and to differentiate areas of abnormal activity from areas of normal vascular activity.

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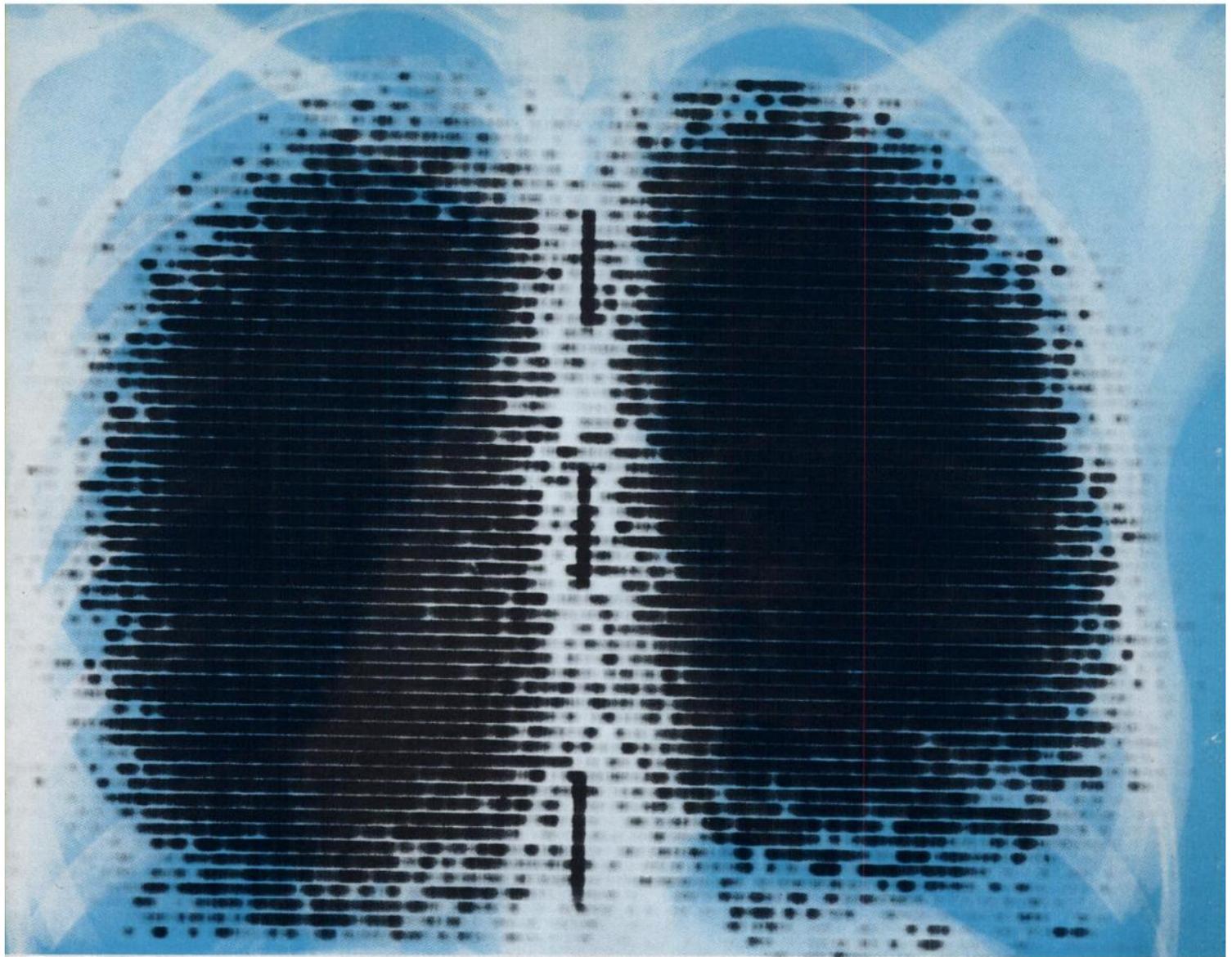


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AGGREGATED RADIO-IODINATED ( $I^{131}$ ) ALBUMIN (HUMAN)

**If it's a pulmonary problem,  
Macroscan-131 pictures it!**

**Pulmonary embolism, suspected:** To confirm (or rule out) its occurrence.

**Chronic pulmonary tuberculosis:** To estimate unilateral and regional function and perfusion of the lungs.

**Emphysema:** To evaluate the degree of focal lack of perfusion.

**Pneumonitis:** To evaluate the decreased regional blood flow that occurs without obstruction of vessels.

**Lung tumors:** To evaluate the regional ische-

mia resulting from compression or obstruction of pulmonary arteries.

**Surgery and/or other therapy for lung disorders:** To evaluate the effectiveness of therapeutic measures.

Macroscan-131 is sterile 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 to the lungs.

**CONTRAINDICATION:** Radio-pharmaceutical agents should not be administered to pregnant women, nursing mothers, or to persons less than 18 years old unless the indications are very exceptional.

**PRECAUTIONS, SIDE EFFECTS:** Care should be taken to administer the minimum dose consistent with safety and validity of data. The possibility of an immunological response to albumin should be kept in mind when serial scans are performed. There is a theoretical hazard in acute cor pulmonale, because of the temporary small additional mechanical impediment to pulmonary blood flow. A possible case of urticaria has been related to a similar preparation. The thyroid gland should be protected by prophylactic administration of concentrated iodide solution.



# New aid in diagnosing liver disease

a new Squibb radiopharmaceutical offers  
important advantages in liver scanning

New ALBUMOTOPE-H (Squibb Aggregated Radio-Iodinated [ $I^{131}$ ] Albumin [Human] for Liver Scanning) offers excellent liver scans with exceptionally low radiation exposure to your patient. In addition, it is rapidly metabolized by the reticuloendothelial cells so that it may be administered for serial follow-up of therapy for hepatic abscesses or hepatic malignancy. And there appears to be little risk of sensitivity reactions.

**excellent liver scans** Albumotope-H appears to be free of a major disadvantage of  $I^{131}$ -rose bengal, one of the most widely used agents for liver scanning. As rose bengal is rapidly excreted in the bile, a constantly varying amount is present in the liver during the 40 to 60 minutes of the scanning procedure.<sup>1</sup> This can produce a wide range of densities<sup>2</sup> or "...excessively dark and light areas which may give rise to misinterpretations."<sup>3</sup>

**less radiation exposure to patients** Radiation exposure with Albumotope-H is low because of rapid metabolic degradation in the liver and elimination of the  $I^{131}$  label from the body within 72 hours, if thyroid uptake is blocked by prior oral administration of non-radioactive iodine. The calculated radiation dose to the liver has been estimated to be at least 100 times less than that of an equivalent dose of colloidal radiogold-198 and about 3 times less than  $I^{131}$ -rose bengal.<sup>3</sup>

**less chance of toxicity** Unlike inorganic colloid radiopharmaceuticals, Albumotope-H is metabo-



lized by the body. In contrast to radiogold, there is no accumulation in the reticuloendothelial cells and no alteration in their function or future capacity. This not only means reduced potential for toxicity but also that serial liver scans can be done with the same test agent. In addition, anaphylactoid reactions have not been reported in studies of colloidal albumin  $I^{131}$ . And only a few isolated instances of skin reactions have been reported.

**a Squibb "first"** ALBUMOTOPE-H (Squibb Aggregated Radio-Iodinated [ $I^{131}$ ] Albumin [Human] for Liver Scanning) is a Squibb "first" and a new addition to a broad line of radiopharmaceuticals available under the Medotopes® label. The isotope clinician in your area or your Squibb Professional Representative will be happy to give you additional information concerning Albumotope-H and how liver scanning may be of value to you in your practice.

**contraindications and precautions** Radiopharmaceuticals should not be administered to pregnant women or to persons under the age of 18 years unless indications are very exceptional. Colloidal radioalbumin should not

be administered to nursing mothers because iodide is excreted in human milk. In women of child-bearing age, radiopharmaceuticals may be administered during or immediately following a menstrual period to minimize the possibility of administration during pregnancy.

**adverse reactions** A few isolated instances of generalized urticaria or dermatitis have been reported in patients receiving an aggregated albumin preparation.

ALBUMOTOPE-H (Squibb Aggregated Radio-Iodinated [ $I^{131}$ ] Albumin [Human] for Liver Scanning), an aqueous colloidal formulation of radio-iodinated microaggregates of human serum albumin, contains 1-10 mg. of heat-aggregated (colloidal) human serum albumin per cc. The sterile, nonpyrogenic preparation also contains 0.9% benzyl alcohol as a preservative.

**References:** (1) Charkes, N. D., and Shlansky, E.: *J. Albert Einstein Med. Center* 12:126 (April) 1964. (2) Schwabe, A. D., and Bender, M. A., in Bland, W. H., ed.: *Nuclear Medicine*, New York, McGraw-Hill, 1965, p. 297. (3) Taplin, G. V., et al.: *J. Nucl. Med.* 5:259 (April) 1964.

**Albumotope®-H**  
Squibb Aggregated  
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Albumin (Human) for  
Liver Scanning

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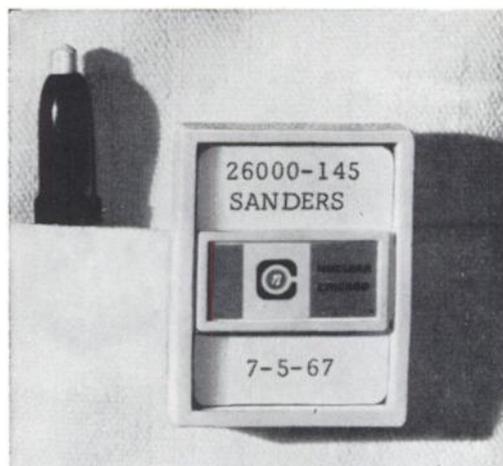


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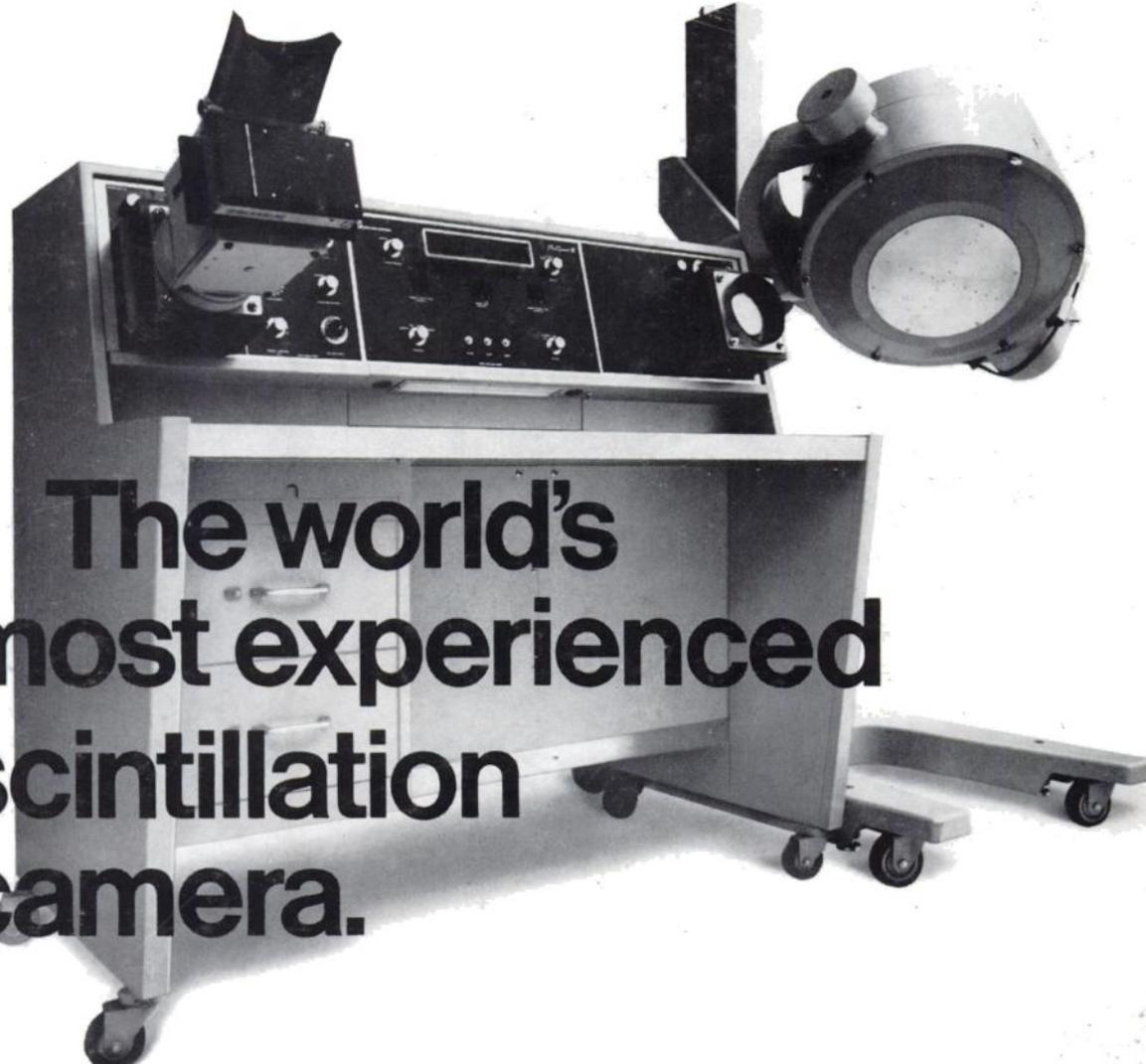
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