

## This sponge revolutionized thyroid testing!

By eliminating the disadvantages of earlier methods, the Triosorb Sponge has achieved a real breakthrough in thyroid testing. **It is an in vitro test unmatched in 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 unmatched 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:** Triosorb is in a disposable kit ready for immediate use at room temperature, making it the simplest and most convenient thyroid function test to perform.

McAdams\* reported that "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."

**Triosorb is available to all doctors, hospitals and clinical laboratories—AEC licensing is not required. Because Triosorb will enable far more screenings to be performed, this procedure may soon become as standard as today's blood counts and urinalyses.**



\*McAdams, G. B. and Reinfrank, R. F., Jrnl. Nuclear Med., 5:112, Feb., 1964.

**TRIOSORB®**  
T-3 DIAGNOSTIC KIT  
ABBOTT LABORATORIES NORTH CHICAGO, ILLINOIS



New!  
**This sponge simplifies iron deficiency anemia testing**

**Announcing IROSORB-59 Diagnostic Kit**

Irosorb-59 is the second in a series of *in vitro* radio-pharmaceuticals tests developed by Abbott Laboratories. The Irosorb-59 sponge consists of a polyether foam in which is embedded a pre-measured finely divided ion-exchange resin. **Irosorb-59 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, it can be scheduled where other standard methods may not be applicable. For example, it may be used following the administration of ferrous iron.

**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 material, 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. The 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.

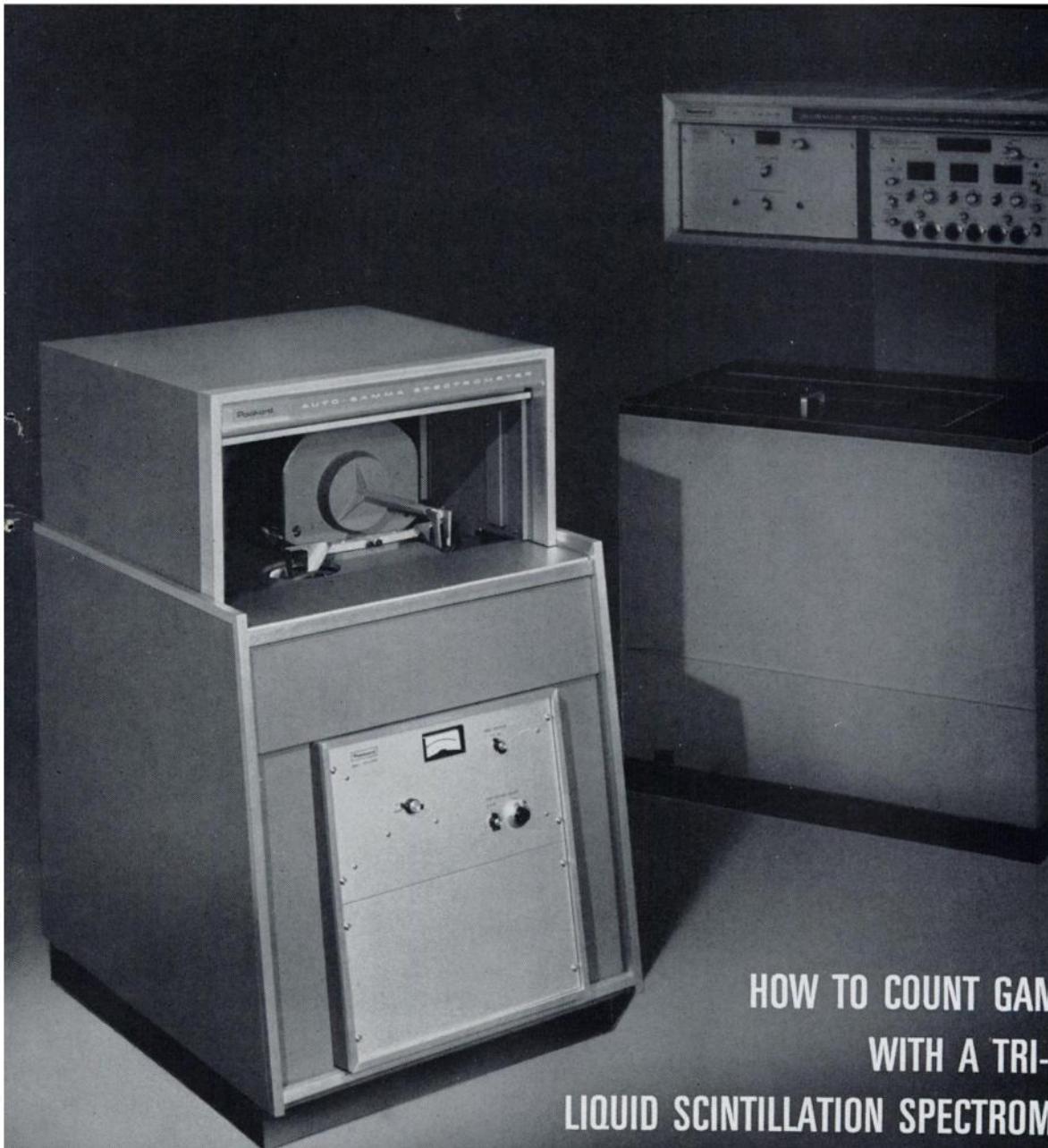
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**IROSORB-59®**  
DIAGNOSTIC KIT

ABBOTT LABORATORIES NORTH CHICAGO, ILLINOIS

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## HOW TO COUNT GAMMAS WITH A TRI-CARB LIQUID SCINTILLATION SPECTROMETER

Take an Automatic Tri-Carb Liquid Scintillation Spectrometer. Add the low-cost Model 5022 Auto-Gamma Console. Now you're ready to do fully automatic gamma counting of up to 100 samples.

Model 5022 incorporates a sample changer, a well-type crystal detector, a beta-gamma switch and *its own* high voltage supply. It uses the Tri-Carb Spectrometer and Control Unit for sample analysis and changer actuation. Because each system has its own power supply, you can switch from beta to

gamma counting as often as you like without adverse effects on counting stability.

How do you count gammas without a Tri-Carb Liquid Scintillation Spectrometer? Select one of the 24 complete Auto-Gamma Spectrometer Systems offering manual or automatic operation; one, two or three channels of analysis; three readout options and choice of 2 in. or 3 in. crystals. Call your Packard Sales Engineer for details, or write for Bulletin 5022 from Packard Instrument Company, Inc., 1000 Warrenville Road, Downers Grove, Illinois.

Packard

## New! Sterile TechneKow-CS Generator



### INJECTABLE SODIUM PERTECHNETATE $^{99m}\text{Tc}$ *from your own* **COMPACT PRODUCTION FACILITIES**

#### MEETS USAEC $^{99}\text{Mo} / {^{99m}\text{Tc}}$ LICENSING REQUIREMENTS

Sealed sterile system — semi-automatic milker kit for aseptic withdrawal of sterile sodium pertechnetate  $^{99m}\text{Tc}$ .

$^{99}\text{Mo}$  contamination negligible (less than  $1\mu\text{c}$  per mc of  $^{99m}\text{Tc}$ ), confirmed with exclusive Nuclear Consultants Molytech Calibrator.

Aluminum contamination negligible, less than 0.5 mg per 10 mc  $^{99m}\text{Tc}$ .

No radioactive contamination from other isotopes.

Complete assay procedure — simple determination.

Maximum personnel protection — Heavy lead shielding eliminates radiation hazard.

Now daily production of  $^{99m}\text{Tc}$  pertechnetate solution is practical even for low volume users.

Nuclear Consultant sealed, sterile TechneKow-CS generator is a closed system developed from experience with thousands of  $^{99m}\text{Tc}$  generators. The new TechneKow-CS generator features an eluate reservoir to eliminate loss of liquid within the ion exchange column. New TCS Positive Action Milking System assures withdrawal of complete solution, and graded shielding provides adequate personnel protection.

Ask your local area laboratory or your Nuclear/Mallinckrodt sales representative for full information, and for your copy of the new booklet: Rectilinear Scanners in Clinical Medicine.

#### *Only Nuclear Consultants can offer:*

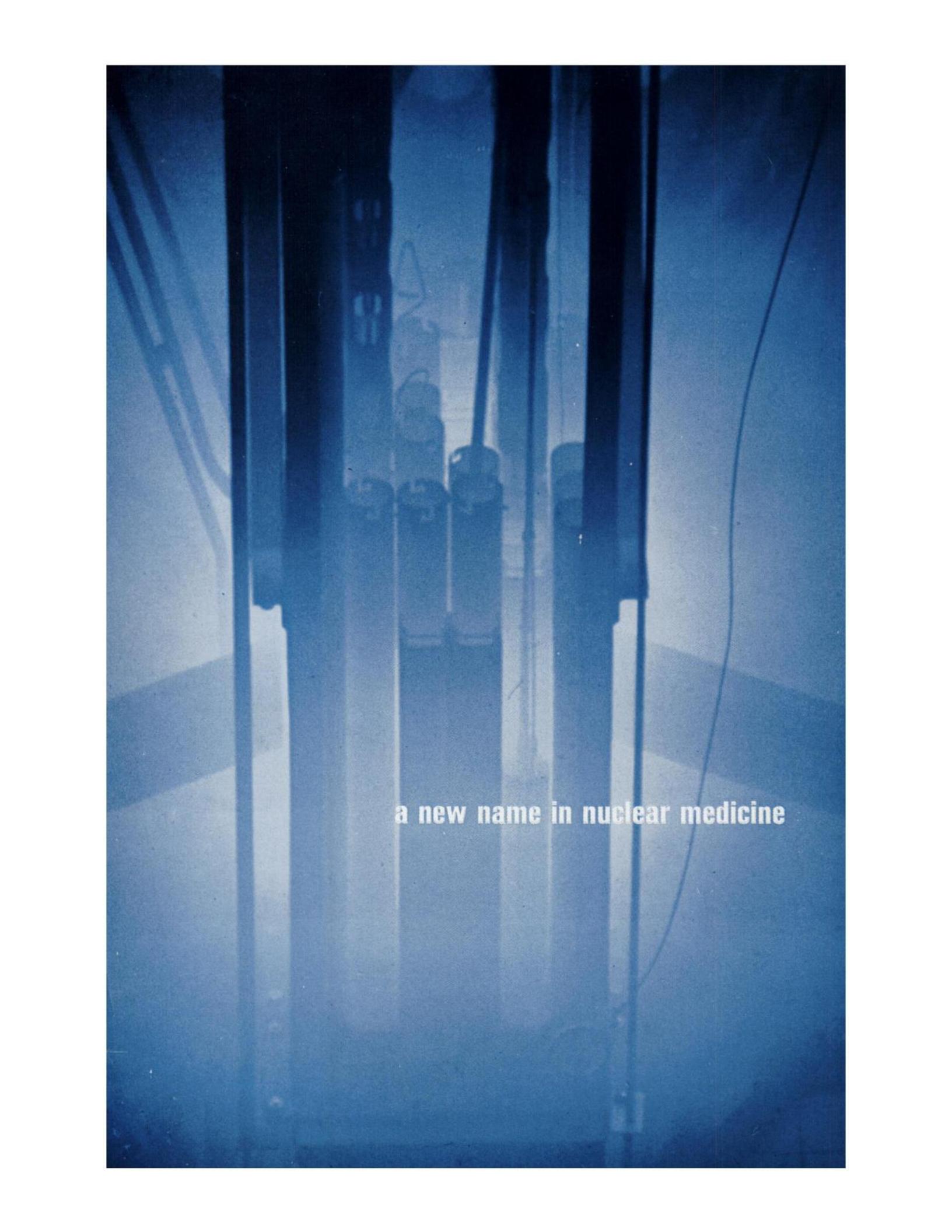
- Proof of knowledge gained by shipping more  $^{99m}\text{Tc}$  generators than all other producers put together.
- "Instant Technetium" in sterile, ready to inject form, from nearby local area laboratories.
- Either sterile or non-sealed TechneKow generators.
- Licensing assistance from our exclusive staff of medical physics consultants — let us help you.



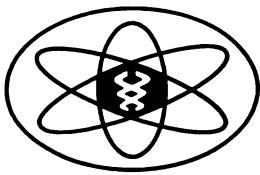
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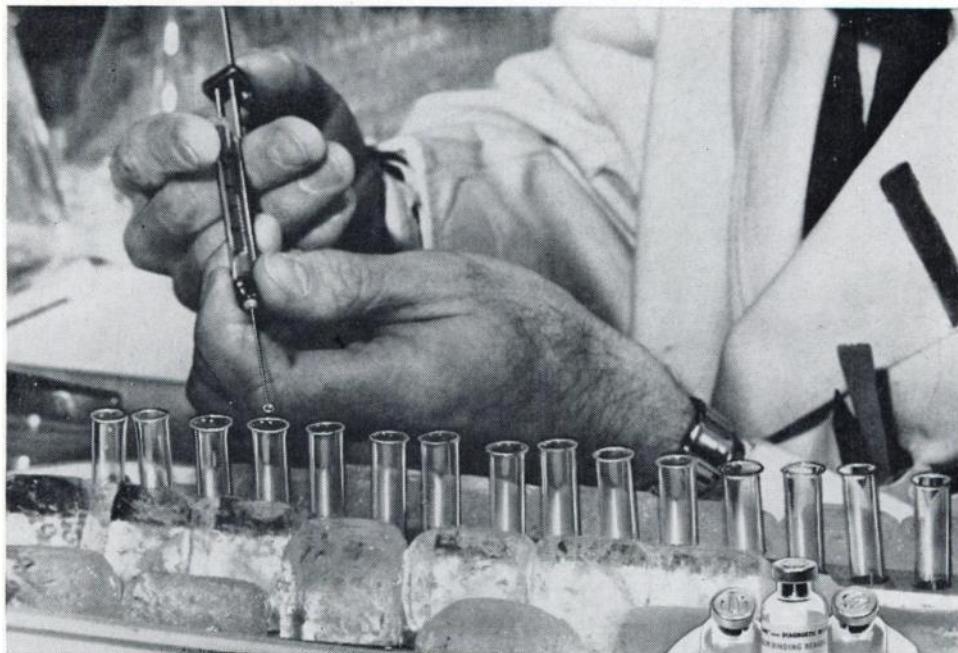


Early in 1965, Neisler Laboratories, Inc., an 80-year-old ethical pharmaceutical company, was purchased by Union Carbide Corporation, long recognized as one of this country's leaders in industrial nuclear research. As a result of this action, many of the radioisotopes produced by Union Carbide's nuclear reactor at Tuxedo, New York, will soon become available for use in nuclear medicine. Pharmaceutical processing will be carried out adjacent to the reactor where the radioisotopes are created, and the useful products will be distributed by Neisler, a company whose personnel are completely oriented to serving the needs of the medical profession.

**directly from our  
nuclear reactor to your  
radioisotope laboratory**

Neisler Laboratories now offers the first of its line of nuclear reactor products for medicine — the NEIMOTEC T.M. (<sup>99</sup>Mo/<sup>99m</sup>Tc) Generator — for the convenient production of short-lived technetium-<sup>99m</sup>, one of the most useful radioisotopes available for clinical investigation. Write for details.

**NEISLER LABORATORIES, INC.**  
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## The means of assaying insulin in multiple serum samples or tissue extracts

**Quickly** - results available on the second day.

**Simply** - only routine path. lab. techniques are called for, plus radioactivity counting facilities; no specially trained technical staff needed.

**Conveniently** - No animals are required. All special reagents are in the kit provided.

**Reliably** - accuracy and reproducibility of results are at least the equal of bioassay methods.

**Cheaply** - The standard kit (\$42.00) provides material for at least 150 assays in duplicate, plus controls.

### **INSULIN IMMUNOASSAY KIT CODE IM.39** containing Iodinated Insulin-I<sub>125</sub> plus binding reagent.

A data sheet giving complete practical details of the recommended assay procedure is available on request.

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TAS/RC.156/1

## Scanning with $Tc^{99m}$ —

# Less hazard to the patient doesn't necessarily mean more work in the laboratory



Scan furnished through the courtesy of Lester M. Levy, M.D., Long Island Jewish Hospital, N.Y., N.Y.

Physicians who use isotopic scanning procedures look for the most reliable and informative diagnostic pictures with the least radiation danger to the patient and to themselves. Accordingly, ultrahigh energy and long-lived isotopes have tended to be replaced by lower energy and shorter-lived sources.<sup>1</sup>

### The development of isotopes with shorter, but more useful, lives

Among the isotopes of moderate energy that have acquired increased use is Technetium-99m. Having a half-life of only 6 hours, this relatively new scanning agent is obtained as the pertechnetate ion ( $TcO_4^-$ ) from Molybdenum-99, which in turn has a half-life of 67 hours.

In the two years since Harper and co-workers at Argonne Cancer Research Hospital stated that "with a clean 140-kev gamma, 6-hr.  $Tc^{99m}$  offers overwhelming physical advantages in scanning...,"<sup>2</sup> many isotope clinicians have explored its uses in discovering and localizing tumors and other abnormalities in the brain.

$Tc^{99m}$  permits rapid brain scanning and provides an image with a desirable degree of delineation. The half-life of  $Tc^{99m}$  is sufficiently short to permit intravenous doses of up to 10 millicuries without subjecting the patient to excessive radiation. It enters the blood, spreads quickly to the extracellular space, and localizes in the organ to be visualized. Selective localization of the pertechnetate ion occurs in the abnormal brain tissue sufficiently for scanning purposes.

### The problems involved in preparing $Tc^{99m}$ for use

While the basic principle of obtaining  $Tc^{99m}$  (elution from  $Mo^{99}$ ) is extremely simple, the detailed steps in assuring its sterility and freedom from pyrogens are laborious and time-consuming.

The eluent can be contaminated in a number of ways. Pyrogens may be present in the materials used in assembling a generator, in chemical reagents, in water, and other sources. They may even pass through a millipore filtration system. Nondisposable syringes may introduce contamination. Maintaining asepsis in open generator systems during elution and collection is difficult.

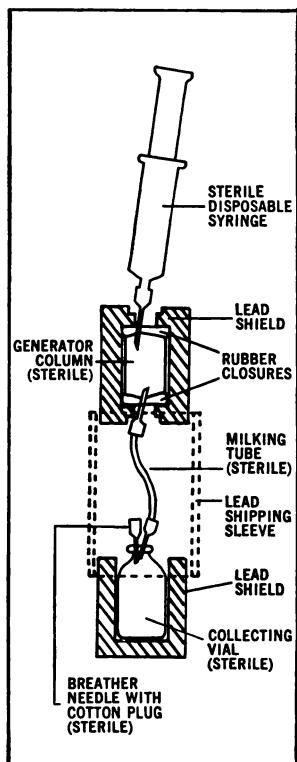
Even the commercial units available to laboratories have been unsatisfactory because material to be used intravenously had to be sterilized by autoclaving or filtration before injection. Pyrogens still represented an unsolved problem, since sterilization by filtration is no assurance of freedom from pyrogens.

All of these problems have made  $Tc^{99m}$  inconvenient and time-consuming to use.

### Technetope Sterile Generator— instant sterile technetium-99m for intravenous use

Technetope (Squibb Technetium-99m) Sterile Generator is the first completely self-contained system for producing sterile, nonpyrogenic  $Tc^{99m}$  for clinical use.

All components and all accessories are



made of sterile, pyrogen-free materials. The generator column is autoclaved prior to shipment to assure sterility.

The column need never be removed from the lead shipping shield. Even the lead sleeve in which the generator is shipped becomes a functional part of the system when used as additional shielding during elution.

The new generator consists of an alumina-packed glass column inside a lead shield. Sealed at top and bottom with rubber closures that permit aseptic elution and storage, the column

contains Mo<sup>99</sup> (half-life 67 hours).

To fill the average laboratory's requirements for one week, each generator is shipped with:

- 6 bottles of sterile, non-pyrogenic eluent
- 6 sets of sterile disposable syringes and needles for injecting the eluent
- 6 sterile milking tubes with a needle at each end
- 6 sterile breather needles
- 6 empty sterile vials with an accompanying lead shield for collecting the eluted Tc<sup>99m</sup>
- A bottle of Cobalt-57 Standard (Cobaltous Chloride Co 57)

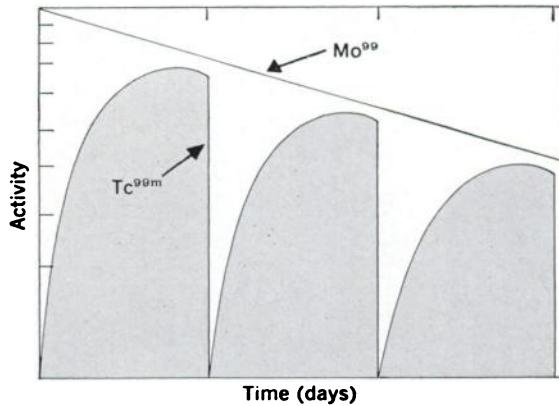
Only standard aseptic technique such as a physician routinely uses in removing medication from sterile sealed containers is required in the use of Technetope.

#### Simplicity for the technician

The milking procedure is simple. A breather needle and one end of the double-needle milking tube are inserted into the top of the shielded collecting vial. The needle at the other end of the milking tube is inserted aseptically into the rubber closure at the bottom of the generator column. The eluent

is injected aseptically through the rubber closure at the top of the generator column. Eluted sterile Tc<sup>99m</sup> will flow rapidly into the collecting vial.

The radioactivity of the Mo<sup>99</sup> in the generator decays with a half-life of 67 hours. Hence the amount of Tc<sup>99m</sup> in the eluate will depend upon the time interval between elutions. For optimal amounts of Tc<sup>99m</sup> the generator should be eluted every 24 hours.



Mo<sup>99</sup> decay and Tc<sup>99m</sup> growth after daily elutions

To facilitate the assay of the eluate, a bottle of Squibb Cobalt-57 Standard (Cobaltous Chloride Co 57) is provided with the generator. Detailed instructions are supplied for calculating Tc<sup>99m</sup> activity from the net counts per minute observed in a well-type scintillation counter.

Physicians and institutions with AEC licenses can obtain sterile pyrogen-free Tc<sup>99m</sup> by ordering Technetope Sterile Generator, list number 08871. Write for more details to: Professional Service Department, E. R. Squibb & Sons, Inc., 745 Fifth Avenue, New York, N. Y. 10022.

**Contraindications:** Radiopharmaceuticals should not be administered to pregnant women or patients under the age of 18 unless the indications are very exceptional.

**Warning:** Maintain proper radiation safety precautions at all times.

**References:** 1. Loken, M. K., et al.: Minnesota Med. 49:237, 1966. 2. Harper, P. V., et al.: Nucleonics 22:50, 1964.

**TECHNETOPE®**  
SQUIBB TECHNETIUM<sup>99m</sup> STERILE GENERATOR  
*—for instant sterile technetium*

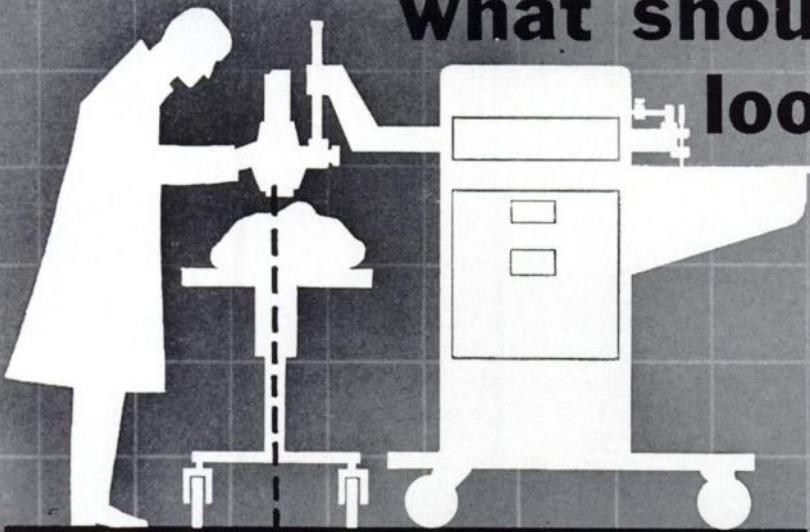
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when investing in a scintillation scanner

## what should you look for?

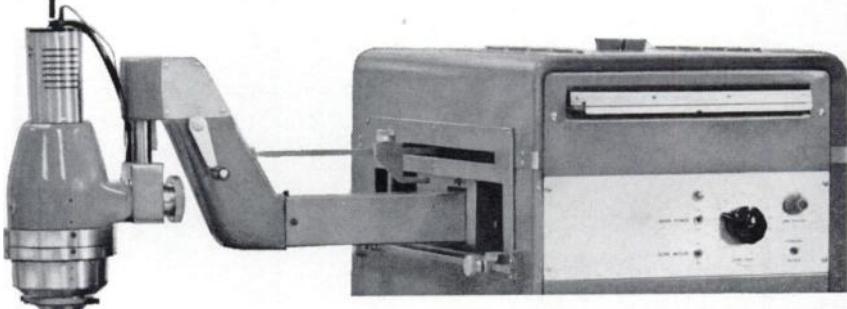


*among other things...*

***the ability to upgrade***

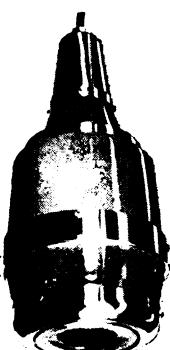
*from this*

3"



*to this*

5"



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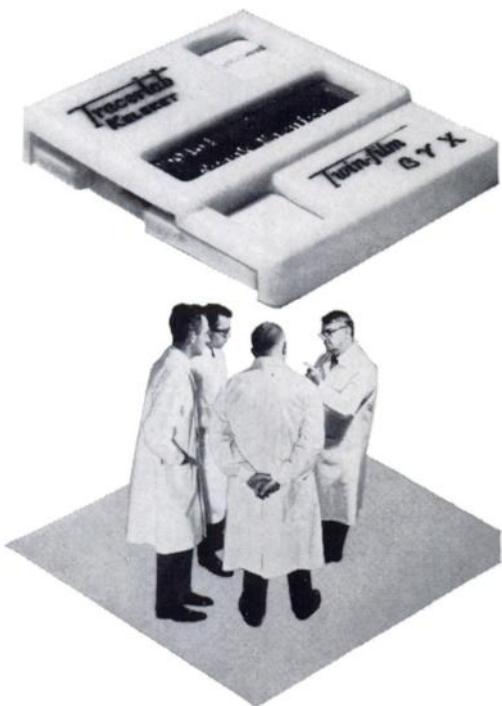
Volume 7, 1966

*Official Publication  
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# Tracerlab Film Badge Service



## where people count!

A dosimetry badge is a personal thing; the health, the very life of the wearer may depend on it. That's why Tracerlab people give so much personal care and attention to each and every film badge that passes through their hands, before and after computer processing and quick return to you. And more dosimetry badges pass through their skilled hands than any other monitoring service. Yours should be among them.

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## Stercow

Shielded Milking System

a new design

The Stercow together with the Shielded Stercow Milking System offers a unique possibility

to minimize radiation exposure  
to maintain sterility  
to save laboratory time.

DRN 4332 Technetium (Tc99m) Stercow

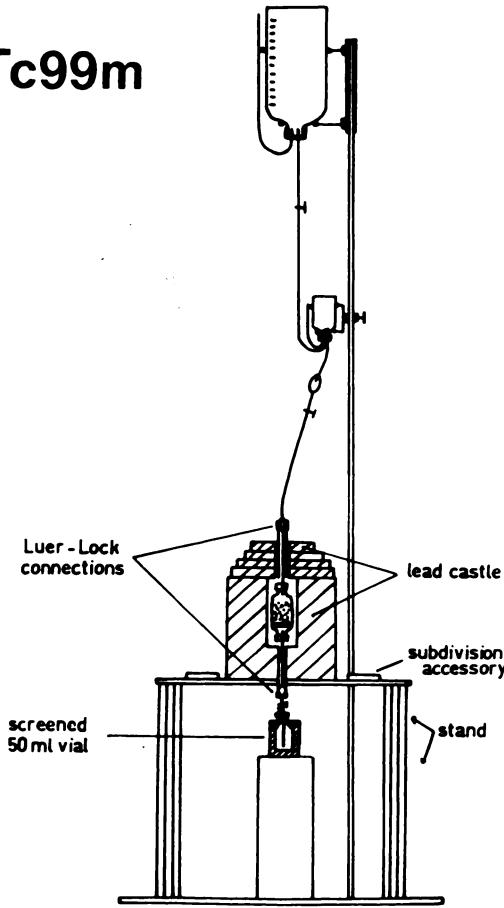
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25 mC	Dfl. 180,—
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\* only available in Belgium, W.-Germany  
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### EASY

Technicians spend far less time with TBI... the *in vitro* thyroid function test that practically takes care of itself.

There's no stop watch timing. No critical temperature to maintain. And patient serum is counted only once. Total technician time is almost half that required of any other T-3 test.

### ACCURATE

Nuclear Consultants TBI, with its exclusive "Matched Control", offers unsurpassed accuracy for hyperthyroid, euthyroid and hypothyroid evaluation. In tests performed on over 2200 patients, the TBI test has been reported in agreement with 92% of the final clinical diagnoses of hyperthyroid patients; 89% of the euthyroid patients; and 96% of the hypothyroid patients.\*

### DEPENDABLE

Primary binding sites are measured *directly*, eliminating the use of secondary sites and the uncertainty associated with indirect indication.

### COMPARE TBI

- New TBI buffer eliminates variables due to problems of serum handling, produces exceptional stability and reproducibility
- Unsurpassed accuracy for hyperthyroid — euthyroid — hypothyroid evaluation
- Timing and temperature are not critical
- Takes less technician time than any other T-3 test
- TBI low cost permits use as a screening test
- Available in kit and bulk form.

Write for further information and a copy of NCC's new booklet:  
*Thyro Binding Index*.



\*Ref.: Scholer, J. F.,  
J. of Nuclear Med.,  
May '63, p. 192.



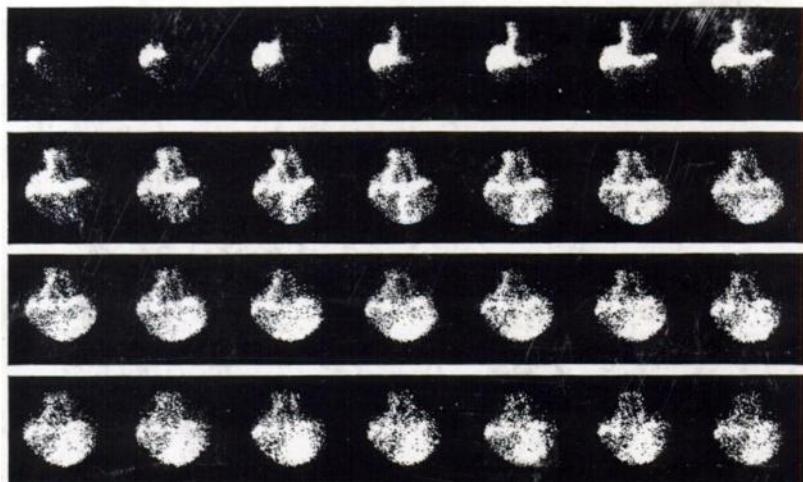
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