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For the determination of thyroxin binding capacity and total thyroxin in serum

Two time-saving tests for your lab.: pipette once, incubate for one hour, automatic phase separation, measure.

Contents T 3 kit: 12 calibrating tubes with 3.4 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 T 3
1 package 12 tests

Contents T 4 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 T 4
1 package 12 tests

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You can increase patient scan capacity 25% or more with a Cameray® gamma camera. We can prove it.

We have proven it. On patients. In major clinical evaluation programs. It's not surprising. Cameray was designed specifically to simplify scanning procedure as well as to improve scan quality. As a result, Cameray will cut the technician's time and increase the productivity of any nuclear medicine facility. Here's why:

- All controls more accessible — because they are all on the console control panel.
- Patient numerics right on film for improved efficiency and confidence in accuracy.
- Collimators designed for quick changes.
- Repeatability assured from scan to scan without recalibration.
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It's a simple matter with our flood source, and you'll know immediately if unbalanced photo-multipliers are interfering with diagnoses.

The flood source (1 mCi; $^{57}$Co) is a solid, light, flat disk 13.5" in diameter, precision made to provide uniform radiation over the entire surface ($\pm 5\%$ or better). No liquids to mix, spill, or dispose of, and the camera collimator can remain in place.

The checkup is so simple it can (and should) be performed daily.

New England Nuclear has years of experience and numerous products in the field of nuclear instrumentation calibration. Let us send you further information.

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Europe: NEN Chemicals GmbH, D-38372 Dreieichenhain, Simansstrasse 1, W. Germany. Tel: Langen (06103) 85035
Cleon Whole-Body Imager produces patient studies like these... IN 16 MINUTES OR LESS


With Cleon, high-speed whole-body imaging becomes a clinical reality. Reduced time-to-scan and increased information content are made possible by a single, silent sweep of the 24-inch wide crystal array from head to foot of the patient. Information once recorded can be played back repeatedly for study or for re-photographing with different values of exposure and background.

Clinicians and technologists are discovering advantages that make the Cleon instrument a "whole new ball game" in whole-body and organ imaging: dual detector heads...rapid diagnoses...high patient turnover...easy operation...less patient discomfort. To receive a brochure and other information, call or write to Paul Theriault, Sales Manager.
Is radioassay testing taboo for you?

If you think the answer is "yes," then radioassay (RIA) must seem like black magic. Fisher believes facts alone will convince you it isn't.

**Fact No.1** In many progressive hospitals today (and in research centers for years), radioassay testing has proven itself the most sensitive and specific method of testing hormones, steroids, and certain drugs. For these, RIA is unequivocally the method of choice.

**Fact No.2** In five years, RIA will become commonplace in many more hospitals, including community hospitals, because of its outstanding sensitivity and specificity. What's more, the community hospitals will appreciate RIA's simplicity, safety, and economy.

**Fact No.3** The economics of RIA have a definite dollar-and-cents appeal. What hospital today can afford to overlook that point?

**Fact No.4** Yes, RIA does use radioactive material — but in low levels. It's not to be feared just understood.

**Fact No.5** Fisher has developed an RIA program that is second to none. Our program leaders are the most knowledgeable and accessible RIA experts anywhere. Ask them about gamma counters . . . test kits . . . initial investment . . . bottom-line financial benefits — they have RIA answers.

**Fact No.6** The Fisher RIA program includes a firm commitment: Fisher RIA experts will constantly survey the entire marketplace and make available to you the best RIA instruments, equipment, chemicals, test kits, and supplies. No other company can offer you more.

Call Fisher for an informative RIA conference. You have many facts to gain and nothing to lose but your taboo. Why RIA? — Why not!

**Fisher Scientific Company**
the image quality and exact diagnostic format you need

Searle Micro Dot Imager
Static, dynamic & whole body imaging ... 15 formats, 3 film sizes

The Searle Micro Dot Imager offers Pho/Gamma users a versatile display system for single-organ or whole body imaging using economical X-ray film. Three film sizes and 15 image formats let you choose the exact format best suited for any study. State-of-the-art optics and electronics put as many as 80 images on one film with single-image fidelity. You can even mix static, dynamic and different size images on the same sheet of film. An exclusive, lightweight cassette design speeds and simplifies loading and unloading of film.

The Micro Dot provides distinct, well-focused scintidots in all image sizes; it gives you superior imaging clarity, constant focus and freedom from astigmatism regardless of dot intensity and location. Absolute exposure control — with pushbutton settings for routine studies — assures correct, repeatable exposures from day to day and month to month in all image sizes.

Designed for clinical utility and operational simplicity, the Micro Dot Imager is the most complete display system available for the Pho/Gamma Scintillation Camera. For more information — including complete specifications — just write or phone your Searle representative. He'll be glad to show you how it can add unmatched versatility, convenience and economy to your laboratory's gamma imaging capabilities.

Searle Radiographics Inc.
Subsidiary of G. D. Searle & Co.
2000 Nuclear Drive, Des Plaines, Illinois 60018
Phone 312-298-6600
epiphora or crocodile tears?

Find out with microscintigraphy, ophthalmology's new diagnostic tool to evaluate the patency of the lacrimal drainage system. All your nuclear medicine department needs is the new System 350 Micropinhole Collimator* from Dunn Instruments and you're in business. You simply trace a radioactive tear with the gamma camera. The technique is fast, safe and inexpensive, involving no increase in lacrimation, no cathe-

erization of the canaliculi. This means no alteration of the physiology and anatomy, perhaps its major advantage. And, like all nuclear studies, you get hard copy records for future study and comparison. Microscintigraphy provides an accurate physiologic picture making it an excellent tool to study in vivo the dynamics of lacrimal drainage in all age groups. Best of all, it's painless. That's especially important when examining crocodiles.

*Patents Pending

Send Crocodile Coupon to: Dunn Instruments Inc. 52 Colin P. Kelly Jr. Street, San Francisco, Ca. 94107 (415) 957-1600

Yes, I am requesting information (clinical reprints of lacrimal studies included) about the System 350 Micropinhole Collimator.
In cases of vaginal bleeding in early pregnancy it is frequently impossible on clinical grounds alone to distinguish between those patients who will abort and those who will proceed to term.

It has been shown that the assay of human placental lactogen (HPL) in maternal serum can often make this distinction. Patients with lower than normal levels usually went on to abort during their first admission, whereas those with normal levels were likely to continue successfully to term. Thus, the HPL assay "can indicate those women in whom abortion is inevitable and could be used to reduce substantially the length of hospital stay in this common complication of early pregnancy." (1)


**Human Placental Lactogen**

*a rapid, reliable test of placental function*

* no 24-hour collection of urine
* serial estimations easily performed
* no risk to either patient or foetus

Now available in kit form: HPL Immunoassay Kit (IM.68)
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A liquid radio-decontamination agent of highest efficiency, specifically formulated for the safe removal of nuclidic radioactivity from all types of laboratory ware and surfaces.

Isoclean Concentrate proves itself in use thousands of times daily as the most effective solution for cleansing hot-lab apparatus in clinical and research laboratories throughout the world.

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TASC-5 offers the clinical investigator these advantages—

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- Stabilization circuitry maintains probe sensitivity.
- Provisions for both analog and/or digital data handling.

Our new 8-page brochure discusses TASC-5 in detail. Write or call us for a fast reply.
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THE BEGINNING.
Not the End.
$29,900
You know your Nuclear Medicine department will expand. You want to accommodate future growth. And you need the best information processing system: The State of the Art.

In the past, when you’ve had to consider the limitations of price, you’ve had to mortgage the future because hard-wired systems can’t be upgraded.

Medical Data Systems proudly announces P.A.D.: a portable Processor for Acquisition and Display. It’s the new starting point for MODUMED, the State of the Art System. It interfaces to any gamma camera.

P.A.D. is software-based, disk-oriented, and priced very competitively. P.A.D. offers you more in performance and processing capabilities: for example, a high-speed movie-type display for dynamic studies, and a curve math program that provides immediate analysis.

But price and performance are only two of the many reasons you should consider P.A.D. A more important reason is the future. P.A.D. is expandable to all the other State of the Art modules: BASIC, DUAL, SIMULTANEITY, and TRINARY. In other words, there are no limitations in accommodating your future growth. P.A.D. is the beginning.
This is our Sodium Diphosphonate Kit which is useful for bone imaging. The kit is available from stock for immediate shipment. It has a long shelf life and is simple to prepare.
THE ENTIRE PROCEDURE IN FIVE EASY STEPS:
1. Add buffer
2. Pipet standards/patients serum & tracer
3. Add binder & incubate for 30 min. at room Temp.
4. Add dextran coated charcoal & Centrifuge
5. Decant & count in gamma counter

AVAILABLE IMMEDIATELY
(1) 125I-Folate Kit
(2) 3H-Folate Kit
(3) PGA-Specific Kit
(4) Folate Control Serum

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(617) 894-2684
Nobody can give you a perfect posterior whole body scan...

but we're close.

Two centimeters, to be exact.

The Searle Whole Body Scintiscan is an accessory which adds whole body bone-imaging capability to the widely used and accepted Pho/Gamma Scintillation Camera. Designed for operational simplicity and clinical safety, it can perform whole body and single organ studies with ease and accuracy. The patient-to-detector distance is less than 2 cm for posterior, "under the table" scans, allowing you to perform high resolution studies without re-positioning of seriously ill patients. A wide range of scan speeds and detector apertures lets you optimize total body information, assuring rapid data acquisition and high patient throughput.

For more information — including complete specifications — on the Scintiscan, just write or phone your Searle Representative. He'll be glad to show you how it can add whole body imaging capability to your facility with ease and economy never before possible.

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Most everyone agrees that PYROPHOSPHATE is the best bone imaging agent. Unlike diphosphonate, it is a physiologically natural compound. Unlike polyphosphate, it is a fully identifiable compound that doesn’t vary from batch to batch. Reliable bone imaging is achieved whether PYROPHOSPHATE is used today or years from now.

Far safer than strontium agents, our PYROPHOSPHATE is technetium labeled. It exhibits rapid urinary clearance, low blood levels and it isn’t picked up by the liver or intestines. It exhibits 90% labeling compared to the 50% to 70% labeling of polyphosphate.


Write or call for full information. Our PYROPHOSPHATE is comparably priced with polyphosphate and diphosphonate.
THE DYNAMIC DUO
Dynas Camera 3C and Dyna Camera 4 are Picker’s two new breakthrough developments in Anger-type scintillation cameras. They combine improved resolution with functional versatility as no other scintillation cameras can. And only Picker offers choice of detectors.

For the medium-sized hospital—Dyna Camera 3C (analog/digital capability) with tape deck and Omni-view™.

For medical centers and teaching hospitals—Dyna Camera 4 (analog/digital capability with the Gamma 11 data analysis system).

But the real virtuosity of Picker’s Dynamic Duo becomes apparent with special-purpose applications:

- Cardiology
- Endocrinology
- Neurology
- Hepatology
- Pulmonary Studies
- Metastatic Bone Studies

For electronic sophistication, high resolution quality and
maximum versatility, Picker’s Dyna Camera 3C and Dyna Camera 4 are outstanding. We’ve got the right combination to satisfy your gamma imaging needs now—and way into the foreseeable future. For full details, contact your local Picker office, or Picker Corporation, 59S Miner Road, Cleveland, OH 44143.

Picker’s latest scintillation camera design, the Dyna Camera 4 (above, left), provides excellent resolution, combined with a high degree of flexibility.

Picker Dyna Camera 3C, shown (top, right) with Omnivue table for whole-body imaging, provides even better resolution than the widely used Dyna Camera 2C.

The new Dyna Camera 3C control (center, right) features advanced state-of-the-art electronics for better imaging and much greater versatility.

User designed to provide complete control of all functions for optimum gamma imaging results for greater patient throughput.
Dyna Camera 3C

☐ Large imaging area views any organ completely, including both lungs, both kidneys or an enlarged liver and spleen.
☐ New high-resolution detector produces clear diagnostic images for accurate lesion perception.
☐ Excellent uniformity throughout the entire image area eliminates the possibility of instrument artifacts producing false negative readings.
☐ High-speed buffer circuits combined with efficient collimators provide the fastest imaging possible for minimum patient discomfort and high patient throughput.
☐ Choice of analog or precise digital imaging of organs may be selected with controlled gray scale smoothing of the digital display to best portray the organ.
☐ Calibrated dual regions of interest for delineating and integrating dynamic function data in any selected area of clinical interest.
☐ Digital count integration for on-line analysis and quantitation of regions of interest organ profiles, and dynamic function histograms.
☐ Exposures are controlled by exclusive preset information density for highest quality scintigrams each and every exposure.
☐ Simplified patient positioning. Large field and built-in storage scope allows technician to easily and exactly position the patient.

All above are standard built-in and exclusive features, not add-on extra-cost options. Dyna Camera’s completely integrated system design means lowest overall cost, greatest operating convenience, and highest gamma imaging flexibility.

Dyna Camera 4

☐ High-resolution images, a result of advanced detector techniques producing a clear, sharp diagnostic gamma-image presentation.
☐ High-speed ultra-low dead time using analog buffering and delay line techniques.
☐ Exposure-brightness computer for best exposures every time.
☐ Basic camera at a basic camera price yet includes many unique Dyna Camera features.
☐ Preset information density statistical control for quality data.
☐ Joystick control of the calibrated region of interest for count density quantitation of normal vs abnormal areas of the patient’s organs.
☐ Choice of detectors designed to meet general purpose or specialized diagnostic needs.
☐ Excellent uniformity utilizing Picker’s patented variable-density thin-light-pipe design.
☐ Built-in patient anatomical landmarking system.
☐ Patient identification on every film.
☐ Joystick control for hot-area or standard-area calibration, the heart of the information-density controller.
☐ Built-in detector PM-tube-balancing circuitry.
☐ Wide choice of clinical application collimators with Picker quick-change self-alignment feature.
☐ Completely user designed to automate quality clinical imaging. Hidden panel for the lessor used controls.

For complete details, including information on full line of accessories for Dyna Camera 3C and Dyna Camera 4, contact your local Picker office, or Picker Corporation, 595 Miner Road, Cleveland, OH 44143.
the proven clinical counting system

Solid State Probes

- Operating room design
- In vivo use
- Single, dual and multiple or matrix detectors
- Intracavitary, intraorgan, or surface
- Real time information
- Chart, printer, and computer compatible
2 BASIC STEPS TO PREPARE FOR LUNG IMAGING

1. Add sterile sodium pertechnetate $^{99m}$Tc

2. Shake gently

...assay dose and inject I.V.

*Appropriate shielding should be maintained at all times.
Introducing from Squibb
Macrotec®
Aggregated Albumin (Human)
for labeling with technetium-99m

Simplest and quickest to prepare of three technetium-labeled lung imaging agents. No waiting, heating or involved routines.

Stable for 8 hours after labeling if stored between 2°C and 8°C. Won’t agglomerate in the vial; loses virtually no labeling while standing. No need to resuspend or rewash after standing. Just shake gently again and inject the next patient.

Uniform particle size for good imaging. Over 90% of particles in the range of 10-100 microns. Lung clearance half time about four hours. High labeling efficiency, high lung/liver ratio.

**Comparison of basic steps in preparation of three technetium-labeled lung imaging agents**

<table>
<thead>
<tr>
<th>Step</th>
<th>MACROTEC® Aggregated Albumin (Human)</th>
<th>Albumin Microspheres (human)</th>
<th>Other competing brand aggregated albumin (human)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Add 99mTcO₄⁻ to product vial</td>
<td>Add 99mTcO₄⁻ to product vial</td>
<td>Shake ampul, open and withdraw aggregate</td>
</tr>
<tr>
<td>2.</td>
<td>Shake gently</td>
<td>Agitate in boiling water</td>
<td>Introduce product to reaction vial</td>
</tr>
<tr>
<td>3.</td>
<td>Withdraw supernatant and discard</td>
<td>Add 99mTcO₄⁻ to reaction vial</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Add rinsing/suspending solution to reaction vial</td>
<td>Shake thoroughly</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Agitate ultrasonically</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Based on manufacturers' product information.
Field of View. The useful field is a hexagon that is 14.5" (36.8cm.) across the flats.

Resolution. With the high resolution low energy collimator installed, 5/32" (4.0mm) Pb bars separated by 5/32" (4.0mm) spaces can be resolved using 99mTc.

Speed. Maximum output count rate of 100K counts/sec. Performs standard studies more rapidly. Helps make fast dynamic studies a standard practice.


Area Scan. Permits rapid trunk and whole body scans. Fits in area 10' x 10' (3.05m.)

Economy. Reduced set up time. Reduced study time. Photomultiplier tube gains balanced by your technologist, eliminating need for serviceman.

Want Proof? Send for our Series 110 Radioisotope Camera brochure, and our Systems Resolution product bulletin. Visit an installation...we'll arrange it. And talk to us. We have something better. The Superior Wide Field Radioisotope Camera. From Ohio-Nuclear.
CEA-ROCHE as an aid in the management of cancer

When used in conjunction with other tests in the diagnostic armamentarium, this highly sensitive and quantitative radioimmunoassay has been shown to be useful as an aid in the management of the cancer patient

- by monitoring the effects of surgery, radiotherapy and chemotherapy,
- by providing a basis for re-evaluating therapy,
- by determining the probable presence of metastatic disease,
- by providing an early indication of the recurrence or progression of malignant disease.

Decreases in CEA titers were reported to be associated with effective therapy.1,6 Serial determinations of CEA proved to be of value in assessing the condition of the patient during therapy.2,5,7 Persistent increases in titer were associated with a lack of response to therapy or a recurrence of disease; in some cases, the titer rise preceded clinical signs by as much as three months.8,9 Except for primary pancreatic and colorectal carcinoma, titers above 20 ng/ml were, with very rare exceptions, associated with the presence of metastatic disease.7 However, metastatic disease may also occur when the CEA titer is below 20 ng/ml.

CEA-ROCHE as an aid in the diagnosis of cancer

When used as an adjunct to other tests and procedures, the CEA-ROCHE assay has provided supplemental information that was of value in assessing whether or not malignancy was present:

- in patients who had signs, symptoms and clinical history suggestive of cancer,
- in patients similar to the above who, also, had certain chronic gastrointestinal and pulmonary inflammatory diseases in which the risk of cancer is greater than in the corresponding normal population,
- in patients who were heavy cigarette smokers and had atypical sputum cytology.

These nonmalignant inflammatory diseases in their active state may give rise to CEA titers above 2.5 ng/ml. These titers usually drop below 2.5 ng/ml when these diseases are in remission.8,9,11

In a special study of 883 patients, cigarette smoking with titer elevations were associated with atypical sputum cytology.12 Decreases in CEA titer often occurred within 30 to 60 days after cessation of smoking.

It must be stressed that test results and data arrived at using the CEA-ROCHE assay cannot be compared with results obtained by any other method or reagents.

limitations of CEA-ROCHE

CEA-ROCHE is not recommended as a screen to detect cancer. CEA titers are not an absolute test for malignancy, nor for a specific type of malignancy. In the management and diagnosis of the patient suspected or known to have cancer, all other tests and procedures must continue to be given emphasis.

CEA titers less than 2.5 ng/ml are not proof of the absence of malignant disease.
and then to 9.3 ng/ml after another 30 days without any clinical sign of disease. Patient was hospitalized three months later and biopsy was positive for recurrence of cancer. In spite of initial low CEA value preoperatively, titer levels accurately reflected patient's condition and gave evidence of recurrence some 4 months prior to clinical signs.

Chemotherapy was reinstituted and assays run at 2, 3, 5, 12 and 20 weeks. There was no change in radiologic appearance of metastases. Patient gained weight and worked regularly. The CEA titers during this period were 3.8, 0.0, 0.5, 0.0 and 4.6 ng/ml respectively. One and one-half weeks later, CEA titer rose to 10.0 ng/ml and a review of x-ray films revealed appearance of new lesions.

The above representative case histories, using actual CEA-ROCHE titer readings and timing of assays, illustrate the correlation of results with published clinical studies.
CEA-ROCHE
Carcinoembryonic Antigen assay
A significant contribution to the management and diagnosis of cancer

availability of CEA-ROCHE
The CEA-ROCHE™ assay may be obtained through your hospital, institutional and private clinical laboratory obtaining the necessary reagents and procedure in a kit developed by Roche Diagnostics or as a direct reference service of Roche Clinical Laboratories, Inc.

And, as with all our pharmaceutical agents, this assay may be obtained for your patients who are unable to afford it through the Roche Indigent Patient Program.

comprehensive information available
Because of the clinical significance of CEA-ROCHE and the critical area of medicine involved, a comprehensive Clinical Monograph containing in-depth information on the nature of the assay, its applications and interpretation as well as an extensive summary of the collaborative study has been prepared.

It is recommended that this brochure be consulted before ordering or interpreting the CEA assay. You may obtain a copy by completing and returning the coupon below.

references
9. Data available on request from Hoffmann-La Roche Inc, Nutley NJ
Introducing
the lung imaging agent
for pulmonary scintigraphy
that needs no introduction
Lungaggregate™ Reagent
Aggregated Albumin (Human)

For over two years Medi+Physics has been conducting clinical trials on Lungaggregate™ Reagent. The manufacturing process and the resulting product are time-tested and dependable.

Excellence of imaging quality has been confirmed by clinical studies in more than 4,000 patients. There were no reported adverse reactions. See the last page for full product information which lists all indications, contraindications, warnings, precautions, adverse reactions, dosage, and administration in the use of this material.

Lungaggregate™ Reagent tagging efficiency is consistent, and consistently high—over 90%. There is virtually no label loss for 24 hours.

As for uniformity of size, over 90% of the particles have a mean diameter of 10 to 90 microns; less than 1% have a mean diameter over 100 microns; and none have been observed greater than 150 microns.

Preparing Lungaggregate™ Reagent is simply and quickly done—it is an aqueous suspension.

One lung imaging agent offers all of these advantages:

- Imaging excellence
- Soft albumin particles with rapid lung clearance—4.77 hours biological half-time
- High tagging efficiency—greater than 90%
- Compatibility with most sources of oxidant-free Tc 99m sodium pertechnetate solutions
- Controlled particle size—90% are within the 10 to 90-micron range
- Clinical proof—over 4,000 patient studies
- Simplicity and speed of preparation
- Six-month shelf life
- Available from nine Medi+Physics regional distribution centers
Lung images demonstrating a perfusion defect after intravenous injection of 3.5 mCi of technetated (Tc 99m) aggregated albumin (human).

Counts collected—413,000 to 419,000 per view.
Lung imaging time—160 seconds on posterior and lateral views.
208 seconds on anterior view.
(Complete data are available on request from Medi+Physics)
**Lungaggregate™ Reagent**

**Aggregated Albumin (Human)**

1. Name:
   Aggregated Albumin (Human) for Intravenous Injection after Labeling with Sodium Pertechnetate Tc 99m Lungaggregate™ Reagent.

2. Description of Indications:
   Lungaggregate™ Reagent is prepared from albumin from human plasma of patients who have been tested for hepatitis associated (Australia) antigen (less than 1.0 mg of human serum albumin per ml), stanozolol, chloroquine, or digoxin free at room temperature for 30 minutes. The total amount of the drug in the fresh solution must not exceed the maximum concentration of 0.1 mg/ml.

3. Method of Preparation:
   (NOTE I) Axylic technique must be used in the following preparation to minimize the possibility of contamination with microorganisms.

4. Record on the mixing vial label, lead label, and record the time and date of preparation, the volume of Lungaggregate™ Reagent and Tc 99m-pertechnetate activity, and the calibrator time to be added to the mixing vial.

5. Shake the aggregate ampoule vigorously to suspend particles.

6. Open the ampoule.

7. Withdraw (very slowly) 1.5 to 2.0 ml of aggregate from the ampoule using a syringe with an 18 to 21 gauge needle.

8. Inject (very slowly) the syringe contents into the mixing vial.

9. Wrap the mixing vial in an absorbent paper disc and place it in the lead shield. Place the complete shield label on the lead shield.

10. Allow the system to incubate at room temperature for 30 minutes. (The total amount of Lungaggregate™ Reagent and Tc 99m-pertechnetate solutions added must be less than 1.5 ml since this is the maximum capacity of the mixing vial. Moreover, the Total Tc 99m activity used must be such that at the time of use of the product the patient dose consisting of 1 to 4 mCi activity must contain 0.1 to 1.5 mg of Reagent.) Use of Sodium Pertechnetate Tc 99m having a maximum specific concentration of 20 mCi/ml is recommended.

11. Retain record as documentation for completed preparation procedure.

12. Clinical Studies:
   Evaluation of in vivo distribution kinetics of Tc 99m activity following intravenous administration of Tc 99m labeled Lungaggregate™ to normal human subjects was performed by a quantitative washout whole body scintillation scanning. The data was consistent with a kinetics model which identified 95% of the administered activity as initially localized in the lungs with a subsequent biological clearance halftime of 286 minutes or 4.77 hours; as activity cleared from the lungs, 30% of the administered activity was eventually released in the liver and spleen; all remaining activity had a whole body distribution pattern similar to that of pertechnetate ion. Mathematically stated, the model identifies the fractional distribution pattern of activity as follows:

   Lung = 0.60 Tc 99m, Liver = 0.15 Tc 99m, Spleen = 0.30 (1-e^-4 minutes), Whole Body

   distribution similar to pertechnetate ion = 0.10 + 0.60 (1-e^-4 minutes)

   (where 4 minutes is the time after administration of activity).

   Clinical evaluation of Tc 99m labeled Lungaggregate™ Reagent in approximately 4,000 reported patients indicated that when prepared and used as directed, satisfactory images of pulmonary perfusion resulted. No adverse reactions have been observed that could be causally related to the administration of this agent.

9. Adverse Reactions:
   Although no adverse reactions attributable to the reagent were reported in approximately 4,000 reported patient studies using Tc 99m labeled Lungaggregate™ Reagent and while no adverse reactions are anticipated relative to its use, one cannot completely discount the possibility of such an occurrence. Hypersensitivity to the agent and intolerance to any degree of particle-induced pulmonary capillary blockade may possibly result in adverse reactions.

   Fatal reactions have been reported following administration of other preparations of macroaggregated human serum albumins (A, X, R, X, 18, Dosage and Administration Procedures).

   10.1. Administer 1 to 4 mCi of Tc 99m labeled macroaggregated albumin in a volume containing no less than 1.9% of the Lungaggregate™ Reagent to a patient in a single study.

   10.2. Prepare patient for the study by intravenous injection before withdrawing dose from the mixing vial.

   10.3. Shake contents of the mixing vial vigorously just before removing aliquot intended for patient use.

   10.4. Withdraw (very slowly) the calculated dosage and volume from vial into a syringe using an 18 to 21 gauge needle.

   10.5. Inject dose intravenously promptly after withdrawal from vial.

   10.6. Avoid drawing blood or tissue fluids into syringes in a manner which would enhance clotting.

   10.7. Image immediately after I.V. injection.

   10.8. Store remainder of preparation in the mixing vial under refrigeration (On Net Freeze), protected from light. It may be used up to 24 hours after time of preparation. Discard after 24 hours from time of preparation.

11. Dosage and Administration:
   - Apply adequate restraint to the patient during injection, particularly if the patient is of advanced age, is critically ill, or has a history of anaphylaxis or other adverse reaction to pertechnetate ion.
   - The single injection of (1 to 4) mCi is administered as a bolus injection.
   - The injection should be administered as rapidly as possible, not to exceed 1 minute.
   - A delay of 30 to 60 minutes is recommended prior to imaging.
   - The injection of 1 mCi of Tc 99m labeled Lungaggregate™ Reagent is suited for use in patients weighing 70 kg or less, and 4 mCi is adequate for patients weighing more than 80 kg.
   - An additional 1 mCi may be administered if necessary for optimal visualization of the lungs.

12. Contraindications:
   - Hypersensitivity to the agent or its components has been noted with the use of Lungaggregate™ Reagent.
   - Use of Lungaggregate™ Reagent is contraindicated in patients with known or suspected hypersensitivity reactions.
   - Use of Lungaggregate™ Reagent is contraindicated in patients with known or suspected sensitivity to pertechnetate ion.

13. Warnings:
   - Whenever protein-containing materials such as Tc 99m labeled Lungaggregate™ are administered to man, especially when administered repetitively, there is a possibility that hypersensitivity reactions may occur. Epinephrine, antihistamines and corticosteroids should be readily available whenever this product is administered.

14. Precautions:
   - The precautions associated with the use of Tc 99m labeled Lungaggregate™ are thought to be the same as those associated with the use of radioisotopes and agents with similar physical and chemical properties.
   - Appropriate procedures should be used to minimize exposure to the patient and personnel.
   - The dose of the Tc 99m labeled Lungaggregate™ used in a given patient should be the minimum necessary to achieve the intended therapeutic effect.
   - The injection should be made slowly to prevent induction of the aggregates. In any case, once the preparation is withdrawn from the vial it should be administered as rapidly as possible.
   - Deeply localize the injection site and use the aggregation of the aggregates.
   - One should also avoid aspirating blood and tissue fluids into the syringe and a manner which could enhance clumping of small clumps. Some users have successfully circumvented this latter situation by infusing a small amount of saline intravascularly and then giving the Tc 99m-Lungaggregate™ preparation through the patient I.V. needle. On the other hand, some institutions have used an ongoing intravenous infusion as a portal for administering this agent because of the well known tendency of fibrinogen or fibrinogen to clot and obstruct such intravascularly placed devices. Only authorized physicians and personnel who have adequate training in the proper use and safe handling and disposal of radioactive pharmaceuticals should use this product.
When is a Dosecalibrator also a Dosecomputer?

The RADX Mark V was designed specifically for Nuclear Medicine departments, with digital read-out and an oversize well-type ionization chamber for high statistical accuracy. No geometric errors. Impervious to barometric pressure changes.

Only the RADX Mark V dosecalibrator measures the activity of radionuclides from 1 µCi to 1000 mCi, then computes the exact volume needed for patient injection.

Programming the Mark V for various isotopes is error-free. You simply plug in a module for the isotope you are assaying. The Mark V may be customized to your specific needs by acquiring only the modules corresponding to the isotopes you are currently using. However, additional modules may be added at any time. Updating is simple and economical.

And as if all of this were not enough, RADX recognizes that a day without your Mark V is like a day without sunshine. If during the warranty period, your Mark V does not perform within stated specifications, RADX will air express you a loaner to use while yours is being repaired—at no charge.

Then consider that the Mark V costs much less than other dosecalibrators that do not provide all of these features. Now call RADX.

RADX
P.O. Box 19164 • Houston,Texas 77024 • (713) 468-9628
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 Dicopac® Kit consists of five single-test cylinders, a vial of Cobalt 57 (Co 57) standard, and a vial of Carbon 14 (C 14) standard. Each test cylinder contains a capsule of cyanocobalamin Co 57 (vitamin B 12 Co 57), a capsule of cyanocobalamin Co 57 (vitamin B 12 Co 57) bound to human gastric juice, and an ampule of unlabelled cyanocobalamin for injection.

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

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

CONTRAINDICATIONS

None.

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

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

Radiotherapeutics 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 eliminate radiation exposure to the patient, to other personnel, proper patient management, and to ensure minimum radiation exposure to occupational workers.

Table 1: Main Results of 24-hour urine excrections and Co 57 ratios with Dicopac:

<table>
<thead>
<tr>
<th>Co 57 + IF</th>
<th>Co 58</th>
<th>Co 57</th>
<th>Co 58 Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>18-10</td>
<td>18/10-40</td>
<td>6.7-1.3</td>
</tr>
<tr>
<td>Pernicious anemia and certain gastrointestinal lesions not caused by lack of IF</td>
<td>&lt;6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malabsorption syndromes caused by lack of IF</td>
<td>&lt;8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The table above shows the mean values (% of total) and the ratios obtained with Dicopac are presented in Table 1.

A small number of patients have been found to excrete a "normal" (i.e., >10%) amount of Co 57, but these individuals exhibit elevated ratios (>14). 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-57 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 1.

Table I. Principal Radiation Emission Data

<table>
<thead>
<tr>
<th>Radiation</th>
<th>Mean %/Integration</th>
<th>Mean Energy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co 57</td>
<td>Gamma -2</td>
<td>87.1</td>
</tr>
<tr>
<td></td>
<td>Gamma -3</td>
<td>95.8</td>
</tr>
<tr>
<td>Co 58</td>
<td>Beta -1</td>
<td>15.0</td>
</tr>
<tr>
<td></td>
<td>Gamma -1</td>
<td>89.4</td>
</tr>
<tr>
<td>Annihilation</td>
<td>Gamma -1</td>
<td>30.0</td>
</tr>
</tbody>
</table>

The specific gamma ray constant for Co 57 is 1.0 R/Mc/hr at 1 cm. For Co 58 it is 5.5 R/Mc/hr at 1 cm. The half value layer for Co 57 is 0.22 mm of Pb. For Co 58 it is 5.9mm of Pb.

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

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

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

<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>1.00</td>
<td>1.10</td>
<td>1</td>
<td>0.49</td>
<td>0.75</td>
</tr>
<tr>
<td>1</td>
<td>0.58</td>
<td>0.87</td>
<td>2</td>
<td>0.48</td>
<td>0.70</td>
</tr>
<tr>
<td>2</td>
<td>0.57</td>
<td>0.86</td>
<td>3</td>
<td>0.47</td>
<td>0.65</td>
</tr>
<tr>
<td>3</td>
<td>0.56</td>
<td>0.85</td>
<td>4</td>
<td>0.47</td>
<td>0.61</td>
</tr>
<tr>
<td>4</td>
<td>0.55</td>
<td>0.85</td>
<td>5</td>
<td>0.46</td>
<td>0.57</td>
</tr>
<tr>
<td>5</td>
<td>0.54</td>
<td>0.84</td>
<td>6</td>
<td>0.45</td>
<td>0.53</td>
</tr>
<tr>
<td>6</td>
<td>0.53</td>
<td>0.85</td>
<td>7</td>
<td>0.44</td>
<td>0.50</td>
</tr>
<tr>
<td>7</td>
<td>0.52</td>
<td>0.84</td>
<td>8</td>
<td>0.43</td>
<td>0.46</td>
</tr>
<tr>
<td>8</td>
<td>0.50</td>
<td>0.83</td>
<td>9</td>
<td>0.42</td>
<td>0.40</td>
</tr>
</tbody>
</table>

Arrows indicate dates when the activity of Co 57 and Co 58 is less than 0.1% of the activity at these times.

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

Table I. Radiation Doses

<table>
<thead>
<tr>
<th>Tissue</th>
<th>Absorbed Radiation Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal and Pernicious Anemia</td>
<td>(rads/0.5 µCi Co 57 + Intrinsic Factor) (rads/0.8 µCi Co 58)</td>
</tr>
<tr>
<td>Liver*</td>
<td>0.056</td>
</tr>
<tr>
<td>Stomach</td>
<td>0.000041</td>
</tr>
<tr>
<td>Small intestine</td>
<td>0.000174</td>
</tr>
<tr>
<td>Upper Large intestine</td>
<td>0.00013</td>
</tr>
<tr>
<td>Lower Large intestine</td>
<td>0.00030</td>
</tr>
<tr>
<td>Intestines</td>
<td>0.00026</td>
</tr>
<tr>
<td>Overies</td>
<td>0.0033</td>
</tr>
<tr>
<td>Whole body*</td>
<td>0.0012</td>
</tr>
</tbody>
</table>

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

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

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

Dicopac Kits should be stored at 4°C and not used after the expiry date stated on the label.
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In Vitro Diagnostics.

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5. DIG/TOXIN
6. TETRAMUNO
7. TRIMUNO
8. HPL
9. ANGIOTENSIN

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* Thin Layer Chromatography (Cellulose acetate/85% methanol)

A. 15 mCi $^{99m}$Tc-OSTEOSCAN
Scanned 3.5 hr post injection
Low-Energy, All-Purpose Collimator
Speed: 32 cm/min, Length: 173 cm, Width: 60 cm
Anterior: 834,518 counts/1070 sec (17.8 min)
Comments: Metastatic meningioma

B. 15 mCi $^{99m}$Tc-OSTEOSCAN
Scanned 4 hr post injection
High Sensitivity Collimator
Speed: 32 cm/min, Length: 170 cm, Width: 60 cm
Posterior: 961,752 counts/1054.3 sec (17.6 min)
Comments: Cancer of breast. Polaroid image; posterior view taken with detector under table

C. 15 mCi $^{99m}$Tc-OSTEOSCAN
Scanned 4 hr post injection
Low-Energy, All-Purpose Collimator
Speed: 48 cm/min, Length: 175 cm, Width: 60 cm
Anterior: 927,833 counts/737.4 sec (12.3 min)
Comments: Patient being treated for a lymphoma

(Above scans made with Searle Radiographics Pho/Gamma Scintiscan®)

JOURNAL OF NUCLEAR MEDICINE
PROCTER & GAMBLE
OSTEOSCAN
(5.9 MG DISODIUM ETIDRONATE
0.16 MG STANNOUS CHLORIDE)
SKELETAL IMAGING AGENT
See following page for brief summary of package insert.
Three ACTIONS combine and detectable ally.

WARNING.

OSTEOSCAN.

Each who OSTEOSCAN, should have been persistent following radiation exposure, should be measured 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 selective 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 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 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 ensure minimum radiation exposure to the patient, consistent with proper patient management, and to ensure minimum radiation exposure to occupational workers.

ADVERSE REACTIONS.

None.

DOSAGE 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.

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With the collaboration of K. Schindler

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- Proven Endocrine Sciences methodology supplied with each antiserum.
- Each vial sufficient for the immunoassay of 500 tubes.*
- Expert technical assistance: experienced Endocrine Sciences professionals always readily accessible.

T3-38 and T4-15 are specific, high-affinity reagents developed for the radioimmunoassay of triiodothyronine (T3) and thyroxine (T4). Tested through routine use in our own clinical laboratories for over a year, T3-38 and T4-15 have been used in a simple RIA to determine T3 and T4 directly in plasma. The higher sensitivity and specificity of these antisera used in direct RIA offer distinct advantages over methods involving extraction and competitive protein binding. Increased sensitivity alone allows more precise measurement of T3 and T4 at critical lower physiological concentrations. Greater accuracy and precision are attained through elimination of errors associated with extraction and other sample processing.

Sensitivity: Standard curves normally obtained with T3-38 at a dilution of 1/7500 and T4-15 at a dilution of 1/750 are shown. Range and sensitivity of each curve were selected to measure generally encountered physiological concentrations of each hormone using sample volumes indicated above. The range of each can be adjusted to meet individual requirements by varying the dilution of the respective antiserum.

Specificity: T3-38 and T4-15 demonstrate very low cross-reactivity.
- Multiple sample sizes with either T3-38 or T4-15 exhibit consistent linearity.
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- Comparison of RIA using T4-15 with competitive protein binding:
  - Mean plasma T4 by RIA: 9.5 ug%
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Our antisera and reagents are offered as components rather than kits, because we believe in allowing more sophisticated users greater flexibility in methodology without incurring the additional expense of unnecessary reagents. Optimal sensitivity and reliability are easily attained using recommended procedures, thus eliminating the variability associated with most RIA kits. Check our specifications, then contact us for complete technical bulletins or to arrange for shipment.

Other Endocrine Sciences quality RIA reagents including T3 and T4 free plasma, 125I hormones, and purified bovine serum albumin are also available. Inquiries should be directed to our products division.

* Based on use of RIA procedure similar to that provided by Endocrine Sciences

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Volume 16, Number 1

57A
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Guidelines for abstracts:

1. Abstract should contain a statement of
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2. Abstract should not exceed 300 words.

3. Give title of paper and name of author(s)
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For further information, contact:
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ADELAIDE, SOUTH AUSTRALIA
DIRECTOR OF NUCLEAR MEDICINE

(Salary $19,612 to $22,060, according to experience, plus 12.5% in lieu of Private Practice)

Applications are invited for the position of Director of Nuclear Medicine from medical practitioners with appropriate postgraduate qualifications enabling registration in South Australia as a specialist, and extensive experience in nuclear medicine. (The present director has resigned to take up a position in the United States.)

The Institute's Division of Nuclear Medicine is in the Royal Adelaide Hospital. It is very well equipped with modern imaging facilities, including two Pho-Gamma H.P. scintillation cameras, a dual 5-inch-detector whole-body rectilinear scanner, and a standard 3-inch rectilinear scanner. A third camera will soon be delivered.

Installation of a dedicated laboratory computer is now under consideration, to replace the extensive use being made of the University of Adelaide's CDC 6400 computer. The Division also has a multi-probe detector system for kinetic studies, and a full range of beta and gamma sample-counting equipment. A well-equipped radiopharmaceutical laboratory staffed by two radiochemists produces radiopharmaceuticals. Brain blood-flow studies have been very highly developed. Computer applications and programming are carried out by two physicists. The total staff is over 20.

Approximately 13,000 procedures are performed per annum. The responsibilities of the Division also include operation of the whole-body counter in the Royal Adelaide Hospital. The department is and will remain the main central facility of its kind in South Australia. With the introduction of ultrasound and an E.M.I. scanner, close co-operation with the hospital department of radiology is under consideration to cover a full range of organ imaging.

Applications stating full name; place, date and year of birth; nationality; marital status; past and present employment; details of academic record and qualifications; experience and published work; together with the names of three referees, should be sent to the Director, Box 14, Rundle Street Post Office, Adelaide, South Australia 5000.
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the highest radiopharmaceutical purity (less than 1% of free pertechnetate)

definitely NO uptake in the liver (we don’t believe it contains bones)

definitely NO uptake in the thyroid, choroid plexus, salivary glands or stomach (same argument...)

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  without exposing your patient to the 50 times higher total-body dose he gets with an equivalent dose of $^{99m}$Tc-pertechnetate...

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A sterile pyrogen free kit which forms a bone scanning agent on the addition of 99mTc-pertechnetate. Each vial contains enough lyophilized reagent to examine one patient.

**Shelf life:**
The kit is stable for more than 6 months (stored in the refrigerator).

**Preparation:**
Single step preparation. Just add 99mTc-pertechnetate from any commercial generator and shake briefly.

**Radiopharmaceutical data of the injectable preparation:**

| 99mTc-Diphosphate content: | > 99% |
| 99mTcO₄ content: | < 1% |
| Content of Diphosphate/Tin99mTc-complex: | 26.0 mg |
| 99mTc bound in Diphosphate: | 0.2 ng/mCi |
| DL₅₀: | 62 mg/kg |
| Volume: | 2–6 ml |
| pH: | ~ 6.5 |
| Aspect: | colourless fluid |
| Administration: | intravenously |
| Side effects and adverse reactions: | none |

**Administered dose:**
5–10 mCi

**Optimal scanning time:**
3–4 hours following intravenous injection. Patients with renal insufficiency or older patients with slower blood clearance should be scanned 5–6 hours following injection. Patients under 25 years of age can be scanned after 2 hours.

**Indications:**
Inflammatory diseases of the joint, osteolytic and osteoblastic bone processes, primary bone metastases, bone tumors plasmocytoma, Paget's Disease, Morbus Bechterew, bone fractures, other bone diseases.

**References:**

**99mTc SOLCOCITRAN®**

is our tumor-tracer. Its highly specific affinity for malignant brain and bone lesions is of outstanding interest.

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**Shelf life:**
The kit is stable for more than 6 months (stored in the refrigerator).

**Preparation:**
Single step preparation. Just add 99mTc-pertechnetate from any commercial generator and shake briefly.

**Radiopharmaceutical data of the injectable preparation:**

| 99mTc-DTPA content: | > 99% |
| 99mTcO₄ content: | < 1% |
| DTPA/Sn99mTc-complex: | 36.8 mg |
| 99mTc bound in DTPA: | 0.19 ng/mCi |
| DL₅₀: | 163 mg/kg |
| Volume: | 2–6 ml |
| pH: | ~ 7 |
| Aspect: | colourless fluid |
| Shelf life: | 3 hours |
| Administration: | intravenously |
| Side effects and adverse reactions: | none |

**Administered dose:**
Brain Studies: Dynamic: 15–25 mCi
Static: according to scanner or camera specifications.
Kidney Studies: Dynamic: 2–4 mCi
Static: 2–4 mCi

**Optimal scanning time:**
Dynamic brain studies: immediately after application early scan: after 10–30 min. late scan: after 2–3 hours
Static brain studies: early scan: after 10–30 min. late scan: after 2–3 hours
Static kidney studies: 1–3 hours and later

**Indications:**
Dynamic and static brain studies; detection of brain tumors and other space occupying lesions Kidney scanning and kidney function studies Gastric emptying time Dynamic studies of the heart, lungs and extremities.

**References:**

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Series 75 DataSystem. An economical storage and retrieval system that will record and playback studies, playback in compressed time, and which offers histograms, 2 regions of interest, and variable framing rate on playback for recording dynamic studies on film.

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See following page for brief summary.
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, and 300 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.
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