

What's New

Every description of the items on the following three pages was condensed from information supplied by its manufacturer. The reviews are published as a service to the professionals working in the field of nuclear medicine and their inclusion herein does not in any way imply an endorsement by the Editorial Board of the JNMT or by the Society of Nuclear Medicine.

"Future Dose" CRC-30 Dose Calibrators

A new feature—Future Dose—has been added to the CRC-30 and the computer upgrades of radioisotope calibrators from Capintec, Inc. The future dose provides both radiopharmaceutical suppliers and hospital dose administrators with a powerful and convenient tool for nuclear medicine. Future dose calculates the dose for pre-set isotopes for any date and time for up to 6 months in the future. It provides a printed (in triplicate) record for all measurements and calculations.

A new brochure describing future dose and the entire family of radioisotope calibrators and upgrades is available. —Capintec, Inc., 136 Summit Ave., Montvale, NJ 07645.

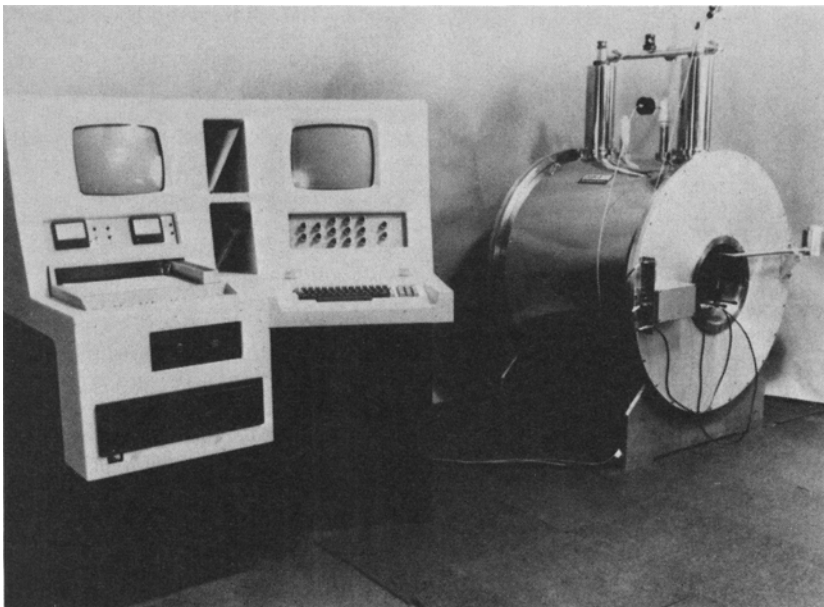
Circle Reader Service No. 56

Performance Phantom

The "Enos" phantom is a multipurpose QA tool that simulates clinical parameters to evaluate total gamma camera system performance. It can check the entire field-of-view of large-field systems and it shows the presence of linearity problems, image distortion, and resolution changes affected by contrast, depth, and scatter. It consists of a Lucite enclosure, 32.4 cm × 32.4 cm × 7.72 cm with 0.635-cm walls. Lead disks, 0.79-cm thick, are located on 5 1-cm interval steps within the phantom, at depths of 0 to 4 cm (3 to 7 cm when the phantom is inverted). Each step contains 5 disks of uniform diameter, starting with 3.2 mm for the smallest group and increasing (in 3.2 mm steps) to 19 mm for the largest group. Every set of 5 equal-size disks forms a rosette pattern to evaluate spatial resolution and each disk represents 3 half-value layers of attenuation for 140-keV photons, a condition providing an initial object contrast of 0.875 when Tc-99m in a transmission or flood phantom is used as activity source. —Nuclear Associates, 100 Voice Rd., Carle Place, NY 11514.

Circle Reader Service No. 55

Nuclear Magnetic Resonance Spectrometer



Detailed biochemical studies of localized parts of the living body can be made without resorting to surgery. The TMR 32 topical magnetic resonance spectrometer has advanced the nuclear magnetic resonance (NMR) technique to acquire high resolution P-31 NMR spectra of any region deep within the body. The volume from which the NMR signals are received is localized and centered on the region of interest by modifying the main magnetic field with static field gradients, superimposed by room-temperature profiling coils mounted coaxially inside the magnet's bore.

Study of the resulting spectra enables the metabolic state of internal tissues and organs to be investigated, diseased tissue to be identified, and drug therapy to be evaluated (these studies have conventionally necessitated at least superficial surgery).

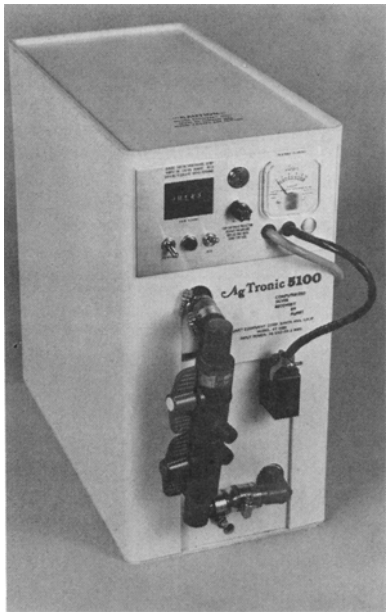
The action of the static field gradients, in suitable combination, profiles the magnetic field to delineate an approximately spherical volume of homogeneous field surrounded by

inhomogeneous field gradients. The diameter of this sensitive volume can be controlled by varying the static gradients; any object within it produces high resolution NMR spectra, which are separable from the broadened spectra produced by the surrounding volume. The spectra produced from living tissue show resolved resonances from the major phosphate metabolites the tissue contains, such as adenosine triphosphate, phosphocreatine, and inorganic phosphate.

The complete topical magnetic resonance system consists of a horizontal-bore, superconducting magnet with a field of 1.89T, a set of profiling coils, and a minicomputer-controlled console incorporating a VDU, display scope, x-y plotter and systems electronics. Two magnet sizes are produced; one has a 600-mm clear access diameter for human studies, the other a 200-mm diameter for animal work. —Oxford Instruments Inc., Oakland Center, 8970 Route 108, Columbia, MD 21045.

Circle Reader Service No. 57

Silver Recovery System



The Ag-Tronic IV from Ag-Met is a computer-controlled silver-recovery recirculating system. The Ag-Tronic microprocessor controls virtually every function—including film inventory, amperage input, self-monitoring, and replenishment monitoring. The result is more recovered silver, cleaner chemistry, longer chemistry life, better processing quality, and accurate inventory management.

—Hawks/Hawkins, 17922 Sky Park Circle, Suite D, Irvine, CA 92714.
Circle Reader Service No. 51

Video Imager

Matrix Instruments, Inc. announces the "intelligent video-imager," a compact, mobile camera system for recording single or multiple hard copy images from the output of diagnostic scanning systems.

A fully automated, completely microprocessor-controlled system, it is designed to save time and reduce human error. It can be rack-mounted or cart/table-supported to meet space limitations and mobility needs, or incorporated into an existing scanning system.

System functions under microprocessor control include a digital memory that can set and store brightness, and contrast and exposure settings for up to four film types or video signals. Microprocessor circuitry also regulates the photometer system, raster line elimination, remote control, and an extensive set of interlocks, operator

feedback functions, and self-test subroutines.

The unit is available in models that record either 1, 4, 6, or 9 images on a single sheet of 8×10 in. x-ray film.

The imager automatically self-calibrates before each exposure, records single frame images without the use of freeze frame, and can expose by selection of video frames, from 1 to 999. It can be operated within seconds after turn-on, without the warm-up period normally needed to stabilize the monitor. A set of automatic interlocks and operator feedback functions prevent such common operator errors as leaving the dark slide in the cassette. —*Matrix Instruments Inc., 230 Pegasus Ave., Northvale, NJ 07647.*

Circle Reader Service No. 54

Revised Radionuclide Decay Factor Handbook

A revised nuclear medicine handbook containing decay factors for all radionuclides used in nuclear medicine is available from Squibb.

Included in this edition are instructions for calculating both pre- and post-decay; weight distribution and other characteristics in the "standard man;" and normal blood volume ranges for men and women.

Other features include a temperature conversion chart, whole vial assay methods, and a half-value layer in lead for each radionuclide. A half-value layer is the amount of lead shielding necessary to stop half the radiation emitted from a radioactive source. —*Squibb Medotopes, PO Box 4000, Princeton, NJ 08540.*

Circle Reader Service No. 52

QC Radiopharmaceutical Analyzer

This QC radiopharmaceutical analyzer provides a rapid, simple, and reliable means of evaluating kit tagging efficiency before administering radiolabeled compounds. Operation of the system is easy; there are no radiochromatogram strip carriers to load or chart tracings to interpret. The prepared strip is simply placed on the stainless steel positioning grid and the "start" button is pressed. At the end of the preselected count range (statistical precision) period, the bright, 3-digit LED display produces a direct readout of the percentage of bound or unbound radionuclide. A statistical precision of 3% can be obtained in less than 30 sec. —*Nuclear Associates, 100 Voice Rd., Carle Place, NY 11514.*

Circle Reader Service No. 53

What's New in RIA Products

Digoxin Clasp® RIA Kit

An improved digoxin CLASP® RIA kit, containing a new I-125 digoxigenin formulation that does not require reconstitution, is now available from Squibb. The I-125 component in the new kit is filled into a single bottle as a liquid. In the old kit, I-125 was packaged as a lyophilized powder and five vials were required for a 100-test kit. By using the new radiolabeled digoxin analogue, one less preparation step is needed.

As a result of the reformulation, the new kit can be shipped without dry ice—enabling users to save more than \$12 in handling charges.

The improved digoxin CLASP RIA kit from Squibb uses a human matrix for standards and for control. —*E.R. Squibb, Box 4000, Princeton, NJ 08540.*

Circle Reader Service No. 60

Direct Myoglobin RIA Kit

A direct RIA for the quantitative determination of myoglobin in serum or plasma is now offered by Damon Diagnostics. This reliable myoglobin assay is performed on 0.1 ml of serum or plasma containing EDTA or heparin with the choice of a 20-min or 1-hr incubation period at 2–8°C. Separation of bound from free myoglobin is accomplished by addition of PEG, followed by a short centrifugation.

The 100-test size kit contains I-125 labeled myoglobin, myoglobin antiserum, and PEG. Standards are predispensed and calibrated over the range 0–800 ng/ml. Sensitivity of the assay is 8.0 + 1.5 ng/ml. Shelf life of the kit is 7 weeks. —*Damon Diagnostics, 115 Fourth Ave., Needham Heights, MA 02194.*

Circle Reader Service No. 62

Direct Assay for ACTH

A direct no-extraction RIA for the quantitative determination of adrenocorticotrophic hormone (ACTH) in plasma is now available from Damon Diagnostic. Manufactured by the Commissariat à l'Énergie Atomique (CEA) for International CIS, this ultrasensitive and immunospecific assay is useful in the differential diagnosis of Cushing's syndrome, and

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the diagnosis of Addison's disease and pituitary insufficiency.

Mainly secreted by the anterior lobe of the pituitary gland, ACTH is involved in many biologic functions. Its main action is directed toward the adrenal cortex. Adrenocortical insufficiency (Addison's disease) results in plasma ACTH concentrations higher than basal values. Low ACTH levels associated with hypocortisolemia are an indication of pituitary insufficiency. In Cushing's syndrome associated with an adrenal tumor, low plasma ACTH concentrations are observed. The formation of pituitary adenoma in Cushing's syndrome produces a marked elevation in plasma ACTH.

The assay is performed directly on 0.1 ml of plasma containing EDTA, with a 48-hr incubation period at 2-6°C.

Available in 100- or 200-test sizes, the kit includes I-125 labeled ACTH, 6 predispensed ACTH standards, ACTH antiserum, stabilizing agent, charcoal, and buffer. Standards are calibrated to MRC 74/555 and range from 0-800 pg/ml. Shelf-life of the kit is 3 weeks.

— *Damon Diagnostics, 115 Fourth Ave., Needham Heights, MA 02194.*

Circle Reader Service No. 64

New Thyroid RIAs

Abbott Laboratories announces the availability of its first two solid-phase thyroid radioassay tests utilizing the rapid assay bead (RAB) system for greater test control and procedural ease. Triobead-125 measures T₃ uptake and Tetrabead-125 measures T₄.

Triobead-125 and Tetrabead-125 are simplified solid-phase tests that provide sensitivity with a high degree of accuracy because front-to-back variations have been minimized. The two tests use the coated-bead technology, established in Abbott's hepatitis tests, to simplify the procedure. This change in technology eliminates pipetting steps and time-consuming centrifugation. Each bead is immersion-coated with either antibody (Tetrabead-125) or charcoal (Triobead-125) to strict tolerances, assuring quality of results and excellent reproducibility.

In addition, the RAB system promotes superior kinetic control because it allows for simultaneous addition of beads in assay groups of up to 168 tubes. The RAB consists of an assay rack in which

to load the tubes, a holding tray, and a combination of bead loaders and decanting screens.

This system offers the advantage of initiating and later halting the reaction in each tube at the same time, thus providing maximal precision within each run. Commonly, antibody-coated test tubes are used, allowing the reactions to start individually as reagent is added. Resulting time differentials can produce a front-to-back variance in results.

The RAB loader also minimizes the technologist's time since it is no longer necessary to pipet the antibody and the need for centrifugation has been eliminated. The use of an automatic pipetting station to dispense serum and reagent can further increase time savings. — *Abbott Laboratories, Diagnostic Division, Abbott Park, North Chicago, IL 60064.*

Circle Reader Service No. 61

Monographs re: Thyroid Tests in Pregnancy and Systemic Illness

A new 6-page clinical monograph that describes why the free thyroxine test is a useful primary screening test for assessing thyroid function in pregnancy is available from Clinical Assays. Entitled "Assessment of Thyroid Function in Pregnancy," the monograph is based on a study of euthyroid pregnant women conducted by Burton V. Caldwell, MD, PhD. It presents data that show how hormonal changes in pregnancy can complicate the interpretation of some laboratory tests used to help establish or exclude a diagnosis of hypo or hyperthyroidism. The free T₄ test by RIA is shown to be of greater diagnostic reliability than the total T₄ measurement alone, and makes the indirect method of assessing thyroid function through the free thyroxine index (FTI) no longer necessary. A diagram outlining the recommended sequence of thyroid tests for pregnant patients is included.

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A 4-page clinical monograph that explains the value of a free T₄ assay for assessing thyroid function in patients with systemic illness is also available. "The Diagnosis of Thyroid Disease in Patients with Systemic Illness," by Sidney H. Ingbar, MD, describes how alterations in the serum total T₄ and T₃ concentrations in seriously ill patients can lead to an erroneous diagnosis of hypothyroidism, or failure to diagnose other thyroid disorders that may be present. Measurement of free T₄ by a 1-tube

RIA, however, can better reflect thyroid status than the commonly used free thyroxine index. — *Marketing Communications, Clinical Assays, Div. of Travenol Laboratories, Inc., 620 Memorial Drive, Cambridge, MA 02139.*

Circle Reader Service No. 66

RIA Kit for CEA

Clinical laboratories in the United States can now use an assay for carcinoembryonic antigen (CEA) that decreases the time and cost of monitoring cancer therapy.

The Food and Drug Administration recently approved Abbott CEA-RIA, for marketing in the U.S.

The assay offers savings of up to 50% in hands-on time compared to the previously available RIA test offered by another manufacturer. Because the pattern of results with the Abbott test closely parallels that of the older test, laboratories can convert easily to the simpler, faster methods.

The new test, using the solid phase (antibody-coated beads) sandwich principle developed for the Abbott hepatitis B tests, significantly reduces total and attended time required to assay CEA levels in blood. The test is supplied in kits containing all necessary reagents.

The test also provides stability by using highly specific antibodies that are more resistant to degradation when labeled than the labeled antigen in the older RIA. Benefits provided by the newer test include ability to use serum or plasma; no interference from heparin, citrate, EDTA, lipemia or hypo/hyperproteinemia; and elimination of pH and ionic-strength problems. The test offers better lot-to-lot reproducibility and precision and substantially longer kit shelf life. — *Abbott Laboratories, Abbott Park, North Chicago, IL 60064.*

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