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RADIOIMMUNOASSAY FOR 2',5'-OLIGOADENYLATE.

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The antiviral action of interferon has been demonstrated to be associated with the 2-5 A system,2',5'-oligoadenylate referred to 2-5 A,2-5 A synthetase and 2-5 A phosphodiesterase. Recently,it was reported that assay for the 2-5 A synthetase activity in human lymphocyte may be useful as a diagonosis tool for viral infection. We developed simple and sensitive radioimmunoassay for the 2-5 A. An antiserum high specific for the 2-5 A was produced from rabbits immunized with pppA2'p5'A2'p5'A2'p5'A-BSA as an antigen. A novel I-125 labeled 2-5 A analog with high specific activity(pppA2'p5'A2'p5'A-β-Ala-Tyr(OMe)-I-125,800 μCi/μg)was synthesized in high yield and used as a labeled probe. Radioimmunoassay of 2-5 A using the antiserum and the probe was carried out by the second antibody method. The minimum detectable dose was 0.0625 ng/ml, and the detectable range was 0.0625-64 ng/ml.The antiserum had very weak cross reaction with 3',5'-oligoadenylate,ATP,and adenosine. The intra-assay coefficients of variation(CVs) were 3.8-7.8 %,and the inter-assay CVs were 3.1-7.3 %. The assay was also used for the detection of 2-5 A synthetase in the cells stimulated by interferon.

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STUDY ON THE TSH RECEPTOR ANTIBODY KIT.

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Presence of TSH Receptor Antibody(TRAb) in the serum of the patients of Graves' disease and Hashimoto's disease have been clarified recently to increase the demand for TRAb determination. In recent years, a TRAb determination kit applied radio receptor assay technique using solubilized porcine TSH receptor has been developed by Smith et al. The performance of the kit was examined to be described as follows.

Consequently, the majority of the test results we obtained were satisfactory. Also, good stability of the kit was observed with small variation in the empirical values ditermined before the expirely period of the kit. All 105 cases of normal subjects were negative subject to the cut off level of 10%. In 103 cases among them, the binding inhibition was within ±8%. The positive rate in untreated patients were 24 out of 30 cases (80%) of Graves' disease and 1 out of 14 cases (7%) of Hashimoto's disease. Non-specific binding was 9.6±2.1% in 27 normal subjects, 10.2±3.1% in 30 Graves' disease and 10.5±2.1% in 14 Hashimoto's disease.

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DEVELOPMENT OF MULTI-PURPOSE DATA BASE SYSTEM FOR NUCLEAR MEDICINE

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The data management in the nuclear medicine department includes the statistics of examination services such as number of examinations and used amount of radiopharmaceuticals by each examination and organ, recording of reserved examinations and purchased radiopharmaceuticals, simple statistic processing of examination data, management of magnetic tapes and floppy disks in which data are stored, etc. Necessity of such data management is increasing. We have developed a multi-purpose data base system for our nuclear medicine data processor - HARP series. This newly developed system will be presented here.
Since the data base should have the input item, capacity, retrieval keys, display format, etc. determined in various manners depending on the purposes, we made studies on the following items: (1) Freely settable input items, (2) Data base generation, (3) Handling of time serial data, (4) Simple description of data retrieval algorhythm for mass study --- Simple language, and (5) Report display by circular and bar graphs. By defining the nature of input item, such as number of digits, upper and lower limits, input sequence, freeze sign, etc. in the item file, we have successfully developed a very flexible data base in which addition and deletion of items can be done very easily.

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MEDICAL IMAGE DATA PROCESSOR GMS-55U.

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Toshiba Nasu works.

Medical Image Data Processor GMS-55U can input image data of the digital fluorography, X-ray film, gamma camera, etc.
by using a special image input unit. For processing this image data, abundant clinical programs and image processing programs are available.

The principal features of this processor are as follows:
(1) The data matrix size is 512 x 512 max., providing high resolution.
(2) For display, the unit is provided with a high-resolution color display unit on which display can be made with 512 x 512 matrix and the maximum color scale of 256 levels.
(3) When this unit is connected with Toshiba DIGIFORMER-X, high-speed data acquisition of up to 30 frames/second can be accomplished. Acquired data can be analyzed by the DF data processing program with respect to the ejection fraction, cardiac volume, etc. Various image analyses can be made as well.
(4) It is posssible for the user to easily develop programs by using the BASIC language for image processing (GPL) or FORTRAN.