

# Subject Index

## A

abscess 116  
- of the kidney 119  
absolute activity of injected dose 6  
- concentration of activity 15  
acid metabolism 296  
adsorptive endocytosis 145  
airway disorders 257  
 $\alpha$ -keto acids 194, 198  
albumin dextrose complex 287  
- microspheres labeled with  $^{99m}\text{Tc}$  257  
amino acid 194  
analogue display 90  
anatomic lesions of a coronary artery 204  
- motion 116  
angina pectoris 215, 216  
angiocardiology and regurgitation 227  
-, computerized first pass radionuclide 227  
-, radionuclide 211  
angiographic techniques, scintigraphic 255  
antigen-binding technique 309  
aortic and mitral regurgitation 222  
- regurgitation 227  
apical aneurysm 239  
aspartic acid 194  
assimilation, oxidation, radiochromatographic results 289  
attenuation correction 64  
-- for Donner positron ring 64  
autoradiographic model of Sokoloff 37  
average deviation 118

## B

bacilli *M. lepraemurium*, preparation of 287  
bacterial metabolism 288  
beta blocker 229  
binding of carrier-free  $^{67}\text{Ga}$  and TE 147  
- immunoglobulin 308  
biologic half-life of  $^{13}\text{NH}_4$  14  
bismuth germanate ring system 53  
blood level of  $^{54}\text{Mn}$  189

blur compensation for ECT 75  
blurring tomography 72  
bronchogenic carcinoma, detection of metastasis 277

## C

$^{14}\text{C}$ -labeled substrates 286  
[1- $^{14}\text{C}$ ] fatty acid 297  
---, oxidation of, by *M. bovis* 293  
---, --, by *M. lepraemurium* 292  
---, --, by *M. tuberculosis* 293  
- oleic acid 286  
cancer cells 162  
carbon-14 fatty acids 296  
carbon-11, positron emitter 52  
cardiac blood pool imaging 226, 227  
--- scans 222, 223  
--- study, measurement of regurgitation 223  
- output 227  
- phantom 215  
- tomography 79  
cardiomyopathy 215  
carrier-free  $^{67}\text{Ga}$  192  
- Ga 186, 188  
- Mn 188  
- results 185  
CBV, PT measurement of 48  
CCK, concentration in the cerebral cortex 325  
CCK-like peptides 325  
[C-14]-2-deoxyglucose (DG) 37  
cellular metabolism 183  
central ventricular tomographic section 83  
cerebral blood volume 35, 46  
--- model 39  
- metabolic rate for glucose 39  
cerebrospinal fluid (CSF) imaging 105  
cholecystokinin 325  
chromatoelectrophoresis 319  
chronic bronchitis 269  
cisternography 132  
citrate 123  
clearance 117  
-, desferrioxamine 154  
-, half time of  $^{13}\text{NH}_3$  22

clearance of  $^{67}\text{Ga}$  119  
 --  $^{13}\text{NH}_3$  21  
 CMRGlu, reproducibility of 47  
 -, stability of 47  
 CO hemoglobin 35  
 $^{11}\text{CO}$ , for cerebral blood volume (DBV)  
   studies 36  
 - studies 36  
 $^{14}\text{CO}_2$  286  
 - production 289  
 coincident detection 53  
 complexes of ruthenium 124  
 computed body tomography 71  
 - tomography 72, 112  
 computer assisted scintigraphic techniques 90, 93  
 - processing 90  
 - tomography and nuclear medicine  
   dynamics, comparison of 105  
 contrast angiography 215  
 - enhanced computed tomography 105  
 coronary atherosclerosis 4  
 - artery disease (CAD) 31, 32, 86,  
   204, 207, 214, 215  
 --- without symptoms of angina 211  
 -- stenoses of 47% diameter narrowing  
   13  
 - blood flow 28  
 - disease 88  
 - flow 31  
 - stenosis, minimum detected 16  
 cross-reacts 325  
 crown 200  
 18-Crown-6 200, 202  
 crown ether 18-Crown-6 199  
 --, use for synthesis of labeled  
   steroids 199  
 CSF kinetics 105  
 - time-activity curves 106  
 CT kinetic study 106  
 - scan of brain 113  
 Cu transport, regulation of 162  
 $\text{Cu}^{2+}$  uptake by SVF2-M cells 177  
 cyclotron-produced  $^{64}\text{Cu}$  5  
 --  $^{13}\text{N}$ -ammonia 13

## D

decision process 276  
 depth-independent resolution 15  
 desferrioxamine 154  
 detector assemblies of Donner positron  
   ring 60  
 diagnosis of pulmonary embolism 242  
 diagnostic strategies, optimization  
   of 283  
 diastolic frames 223  
 - phase 236  
 digital display 90  
 dipyridamole-induced coronary vaso-  
   dilatation 4

display methods 90  
 distribution of  $^{67}\text{Ga}$  187  
 --  $^{54}\text{Mn}$  183  
 DNA synthesis, regulate 177  
 Donner 280-crystal ring 52  
 - positron ring tomograph, properties  
   of 67  
 doppler echocardiography, for  
   assessing valvular regurgitation  
   227  
 double-antibody 299  
 DTPA 123  
 drug distribution 116  
 dual probe multiplane 71  
 dynamic emission tomography 53  
 - principles 6  
 - scintigram file 117  
 - transverse section information 52

## E

ECAT 35, 36, 47  
 ECG-synchronized mode 223  
 echocardiography in assessment of the  
   severity 222  
 ECT system 47  
 EDTMP 123  
 effect of propranolol 229  
 --- on the left ventricular function 229  
 --- on thyrotoxic patient 231  
 efficient detection 15  
 EHDP 123  
 - and EDTMP derivatives 125  
 ejection fraction (EF) 205, 206, 214,  
   216, 227, 229, 240  
 -- at rest 211  
 --, influence of propranolol in thyre-  
   otoxicosis 229  
 --, response to exercise 214  
 electrocardiography 88  
 electromagnetic flow probes 20  
 electronic of Donner positron ring  
   60  
 electrophoresis 319  
 electrostatic printer-plotter 90  
 emission computed tomography 4, 15,  
   35  
 - tomographic scanner 116  
 - tomography 4, 52, 71, 79  
 EMT-6 receptor-bound 137  
 - sarcomalike tumor 134  
 endotoxin treatment 156  
 enhancement filter 103  
 enzymatic amination 198  
 equilibrium multiple gated technique  
   229  
 euthyroid subjects 312  
 evaluation of cadaver donor kidneys  
   275  
 -- new scintigraphic procedures 276  
 -- scintigraphic studies 281

exercise and ejection fraction 214  
 -- left ventricular volume 214  
 - induced stress 214  
 - stress in coronary artery disease  
 -- 204  
 - testing 81  
 expected utility 281

## F

fatty acids 289  
 -- metabolism 286  
 FDG metabolic behavior 47  
 - tomographic images 41  
 Fe<sup>3+</sup> and Cu<sup>2+</sup>, Ga<sup>3+</sup> 175  
<sup>59</sup>Fe and <sup>67</sup>Ga tissue concentrations  
 155  
 Fe binding capacities 155  
<sup>59</sup>Fe biodistribution 141  
 - cellular uptake curves 137  
 - citrate tumor uptake of 135  
 Fe concentration 161  
<sup>59</sup>Fe human transferrin 135  
<sup>59</sup>Fe<sup>3+</sup>, kinetic studies of 176  
<sup>59</sup>Fe-labeled transferrin 136  
 Fe, serum concentration in tumor-  
 bearing mice 155  
 (<sup>59</sup>Fe)-Tr 163  
 Fe transport in NRK and SV-NRK cells  
 164  
 --, regulation of 162  
<sup>59</sup>Fe<sup>3+</sup> uptake 176, 177  
 Fe uptake by NRK cells 163  
 ferritin metabolism 181  
<sup>18</sup>F 202  
<sup>18</sup>F-fluoride 199, 200  
 [F-18]-2-fluoro-2-deoxyglucose (FDG)  
 35  
 21-<sup>18</sup>F-fluoroprogesterone 199  
<sup>18</sup>F, incorporation by crown ether  
 18-Crown-6 199  
<sup>18</sup>F-labeled steroid 199, 200  
 filtered back-projection clinical  
 use of 78  
 first pass flow 52  
 -- radionuclide exercise testing 204  
 -- RAO angiocardigrams 206, 207  
 - passage cardiography 240  
 -- of the tracer 235  
 Fluorine-18 199  
 function of the left ventricle 235  
 functional abnormality of myocardium  
 204  
 - image 116, 235  
 - imaging 116

G

Ga<sup>3+</sup> accumulation 180  
 - citrate 163

<sup>67</sup>Ga accumulation in lymphomas 181  
 --- tumor tissue 183  
 ---- and abscess 122  
<sup>68</sup>Ga as ring-source for transmission  
 measurements 56  
<sup>67</sup>Ga, binding of 136  
 -,- to transferrin 145  
 - blood clearance 118  
 -, bolus injection 192  
 - cellular uptake curves 137  
 - changes due to preirradiation 160  
 - citrate 116, 122, 134  
 --, abscess 116  
 -- biodistribution 141  
 --, heart 116  
 -- kinetics 116  
 --, liver 116  
 -- spleen 116  
 --, tumor uptake of 135  
 Ga clearance curve polyexponential  
 119  
<sup>67</sup>Ga, distribution of 118, 191  
 --, factors affecting 154  
 --, influence of Fe metabolism 154  
 --, serum Fe concentration 154  
 Ga-Fe relationships 154  
 Ga/<sup>67</sup>Ga 183  
<sup>67</sup>Ga human transferrin 135  
 -, influence of carrier on distribu-  
 tion 183  
 - in tumor 183  
<sup>67</sup>Ga<sup>3+</sup>, kinetic studies of 176  
<sup>67</sup>Ga-labeled mouse transferrin 135  
 -- transferrin 136  
 ---, binding to transferrin receptors  
 145  
 -, metabolism of 146  
 -, Mn<sup>54</sup>, influence of uptake by in-  
 fusion 189  
 -, mobilisation by carrier 186  
 - plasma concentration 156  
 - retention 161  
 gallium salts, inhibited tumor growth  
 146  
<sup>67</sup>Ga TDI 185  
 - tissue distribution 154, 189  
 --- after irradiation 160  
<sup>67</sup>Ga<sup>3+</sup>, transferrin interaction with  
 180  
<sup>67</sup>Ga, transferrin receptor hypothesis  
 134  
 Ga transport, regulation of 162  
<sup>67</sup>Ga transport, regulation of 162  
 -, tumor-blood ratios 184, 190  
 - tumor concentration 156  
 -, - detection 161  
 -, - muscleratio 184  
 -, - uptake 154, 161, 190  
 Ga uptake 121  
<sup>67</sup>Ga uptake 146, 186, 189  
<sup>67</sup>Ga<sup>3+</sup> uptake 176, 177

$^{67}\text{Ga}$ , uptake at presence of transfer-  
rin 176  
 --, in cells 180  
 --- the kidney region and colon 121  
 gastrin assay 320, 325  
 gated cardiac studies 52  
 - LAO angiocardiograms 206, 207  
 Georg von Hevesy Medal 318  
 global ejection fraction 235  
 glucose metabolism 35  
 -- model 37  
 glutamate-oxal-acetate transaminase  
 (GOT) 193  
 glycyihistidyllysine 175  
 goodness of fit criteria images 121  
 graded treadmill, Bruce protocol 81  
 Graves' disease 308, 312, 315  
 grey scale display 103

## H

Hashimoto's disease 315  
 - thyroiditis 312  
 head, cross section of 42  
 hemagglutination method 309  
 hepatobiliary agents 132  
 - clearance 125  
 Hodgkin's disease 181  
 hormonal secretion, dynamy regulation  
 of 325  
 HTACS (human thyroid adenyl cyclase  
 stimulator) 308  
 HTS (human thyroid stimulator) 308  
 human albumin minimicropheres (HAMM)  
 258  
 --, spherical particles 257  
 hyperferremic animals 160  
 hypertensive patients 112  
 hyperthyroidism 229, 312

## I

IgA 299  
 IgE antibodies 306  
 IgG 299  
 --, allergen-specific 299  
 - antiphospholipase A in human sera  
 306  
 --, measurement with radioimmuno-  
 assay 299  
 IgM 299  
 image display 103  
 - processing 90  
 imaging agent 195  
 - results 85  
 immunoreactive cholecystokinin 325  
 increased anatomic resolution 112  
 indium-111 DTPA 106  
 insulin-binding antibodies 319

interfaced to a computer system 78  
 interfacing the tomographic scanner  
 to a computer 72  
 interpolation 103  
 interstitial fluid space 184  
 --- of skeletal muscle 189  
 intracoronary administration of 21  
 in vivo behavior of radiodiagnostic  
 agents 116  
 -- metabolic studies 193  
 -- quantitative autoradiography 35  
 -- regional glucose metabolic rate  
 49  
 iodine-125 labeled transferrin 134  
 iron-59 ( $^{59}\text{Fe}$ ) citrate 134  
 iron depletion 164  
 - deprivation 172  
 ischemia 22  
 - regional 211  
 ischemic heart disease 212  
 ISFS 184  
 $^{123}\text{I}$ -Hippuran 275  
 $^{125}\text{I}$ -labeled rabbit antihuman IgG  
 299  
 - LATS 310, 315  
 -- IgG 312  
 ---, preparation of 308  
 -- with human thyroidal binding of  
 311  
 - Phos A radioimmunoprecipitation  
 assay 305, 306  
 - rabbit antihuman IgE 299  
 - Staph A and  $^{125}\text{I}$  Ra a-hu IgG compari-  
 son of 301  
 --- solid phase radioimmunoassay 306  
 - transferrin binding 164  
 --, labeled 163  
 $^{131}\text{I}$ -Hippuran 272, 275  
 - labeled insulin 319

## K

kidney transplants 271  
 kinetic considerations 146  
 - curve of  $^{125}\text{I}$  Staph A binding 301  
 --- specific IgG binding 303  
 - parametric analysis 116  
 - studies 105  
 kinetics of assay binding 301  
 -- body fluids 105  
 --  $^{125}\text{I}$ -transferrin uptake 170  
 -- transferrin 136  
 $^{81}\text{mKr}$  259, 269  
 --, regional ventilation 259

## L

labeled aerosols 257  
 - amino acids in tumors, uptake of  
 196

- steroid 199  
 LAD-CIRC activity 6  
 LATS 309  
 - (thyroid-stimulating antibody) 315  
 - antigen 316  
 - bioassay 310  
 - protector 308  
 -, receptor assay 308  
 least squares analysis 117  
 left ventricle, negative trends in  
 systole 236  
 - ventricular ejection fraction 204,  
 230  
 --- function 204  
 ---, studies by trend scintigrams 235  
 -- time-activity curves 230  
 -- volume 214  
 ---, geometric assumptions 220  
 ---, response to exercise 214  
 limitations of positron emitters 56  
 localisation receiver operating  
 characteristic (LROC) 93  
 long acting thyroid stimulator 308  
 longitudinal and transverse slices 73  
 longitudinally tomographic 71  
 lumped constant of FDG 38  
 lung function test 260  
 - scintigraphy with labeled aerogold  
 257

## M

M. bovis (BCG) 286, 287  
 M. lepraemurium 286, 287  
 M. tuberculosis 286, 287  
 maximum deviation 118  
 MDP 123  
 metabolic pathways 196  
 - rates, absolute determination of 37  
 metabolism in body fluids 116  
 -- Fe 162  
 - of mycobacteria 286  
 -- neuroblastoma and melanoma 198  
 metal ion metabolism 180  
 --- in virus transformed cells 162  
 - transferrin-receptor interactions,  
 mathematics of 148  
 metastatic disease 277  
 MGH positron camera system 64  
 microouchterlony 309  
 microspheres, carbonized polystyrene  
 21  
 mitral regurgitation 227  
 - valve insufficiency 239  
 MMRGIu with FDG 45  
<sup>54</sup>Mn 189, 192  
 Mn carrier 187  
<sup>54</sup>Mn, distribution of 191  
 -, influence of carrier on  
 distribution 183  
 Mn/<sup>54</sup>Mn 183

<sup>54</sup>Mn tissue distribution of 189  
 multicrystal rings 53  
 multiplanar tomography 79  
 multiple-pinhole collimator 80  
 mycobacterium 286, 287  
 myocardial 15  
 - blood flow 25  
 ---, measurement of 21  
 ---, regional 30  
 -- perfusion 32  
 - clearance times of <sup>13</sup>NH<sub>3</sub> 25  
 - distribution of <sup>13</sup>NH<sub>3</sub> 22, 32  
 - extraction fraction of <sup>13</sup>NH<sub>3</sub> 21,  
 25  
 - glucose metabolism 38  
 - infarct avid agents 132  
 - injury 124  
 - ischemia 79  
 - metabolic rate for glucose 43  
 - <sup>13</sup>NH<sub>3</sub> concentrations 30  
 -- tissue concentration 28  
 - perfusion 20, 79  
 -- scintigraphy 86  
 - pool of amino-acid 15  
 --- glutamine 15  
 --- protein 15  
 - uptake of <sup>13</sup>N-ammonia 14  
 myocardium regional <sup>13</sup>NH<sub>3</sub> content 31

## N

<sup>13</sup>N-amino acids 195  
 -- moiety 195  
 - aromatic amino 196  
 --- acids 194  
 - aspartic acid 193  
 - compounds 194  
 - glutamic acid 194  
<sup>13</sup>NH<sub>4</sub>, absolute uptake 6  
<sup>13</sup>NH<sub>4</sub><sup>+</sup> at rest 10  
<sup>13</sup>NH<sub>4</sub> during peak vasodilatation 10  
<sup>13</sup>NH<sub>3</sub> extraction fraction 25  
 -, myocardial concentration of 29  
 -, extraction fraction and blood flow  
 29  
 - uptake 20  
 nitrogen-13 ammonia 4  
 -, myocardial perfusion 20  
<sup>13</sup>N-L-amino acids 193, 198  
 ---, enzymatic synthesis 193, 195  
 - aspartic acid 195  
 - glutamic acid 195  
<sup>13</sup>N-L-glutamic acid 197  
 --- tumor scanning agent 198  
 noninvasive studies 220  
 normal trend scintigrams 238  
<sup>13</sup>N phenylalanine 198  
 - production 5  
 - tyrosine 194, 198  
 nuclear angiographic methods 214

## O

occult metastatic, the presence of 277  
 on-line computer system 106  
 optimal  $^{125}\text{I}$  Staph A concentration 301  
 -solid phase assay conditions 301  
 organisms oxidize 297  
 orthoiodinated ( $^{131}\text{I}$ ) Hippuran 105  
 oxine 7-carboxylic acid acetate 123

## P

pancreas-scanning agent 198  
 papaverine 21  
 parametric scintigrams 241  
 perfusion 116  
 - abnormalities 16  
 - lung scan 242, 243  
 - scintigraphy 242  
 pharmacokinetic imaging 116  
 pharmacologically active substances, identification and measurement of 325  
 phenantrolin 123  
 phospholipase A 300  
 photons 15  
 physiologic tomography (PT) 35, 47  
 pinocytosis of transferrin-labeled gallium 134  
 planar tomography 86  
 plasma gastrin concentrations 324  
 pool 15  
 positron annihilation photon 53  
 - camera 53  
 - emission computed axial tomograph 20, 36  
 -- transaxial tomograph (PETT) 53  
 - emitters 52  
 - emitting radionuclides 193  
 - ring, use for dynamic imaging 56  
 preoperative metastatic search with scintigraphic tests 277  
 preparation of  $^{13}\text{NH}_3$  21  
 processing and display 91, 103  
 - techniques, quantitative 91  
 production of  $^{97}\text{Ru}$  123  
 propranolol, biological half-life 233  
 -, chronotropic effect of 233  
 - haemodynamic effects of 229  
 proteins, iron-regulated 174  
 pulmonary arterial angiography 242, 243  
 - blood flow distribution 252  
 - embolism 242  
 --, diagnosis of 242  
 --, mortality rate 243  
 --, perfusion scintigraphy and arteriography 242

--, results of lung scans 244  
 PYP 123

## Q

quantitation of radionuclide concentration 52  
 quantitative analysis of TL-201 ECT 88  
 - interpretation of thallium-201 scintigrams 83  
 - myocardial perfusion imaging 31  
 - profile interpretation 81  
 - renal nuclear medicine studies 105

## R

Ra a-hu IgG 300  
 radioactive microspheres 20  
 radioallergosorbent test (RAST) 299  
 radiocardiography 235  
 radiochromatographic analysis 288  
 radiochromatography 296  
 - of M. lepraemurium 294  
 radioimmunoassay 318  
 - of plasma insulin 318  
 -, potential of 318  
 -, quantitative solid phase 299, 300  
 -, substances measured by 320, 323  
 radioimmunoprecipitation assay 299, 300  
 -- liquid phase for IgG 300  
 radioiodinated Staph A 300  
 radionuclide angiocardiograms 204, 206  
 - angiography 205, 214  
 - equilibrium angiography 215, 220  
 radiorespirometry, identification of mycobacteria 286  
 random coincidence 39  
 -- fractions 39  
 rate constants of FDG 38  
 $^{81}\text{Rb}$  260  
 receiver operating characteristic curves 90  
 receptor assay 309, 310, 315, 316  
 --,  $^{125}\text{I}$ -LATS 308, 309, 315  
 -- of long-acting thyroid stimulator 308  
 --, polyethylene glycol (PEG) 310  
 reconstruction for emission tomography 65  
 - of a transverse section 64  
 -- functional images 65  
 regional ejection fractions 235  
 - function 211  
 - myocardial perfusion 20, 32  
 - wall motion 235

regulation of  $\text{Fe}^{3+}$ , and  $\text{Cu}^{2+}$  transport 175  
 regurgitation, measure by gated blood pool scanning 222  
 -, quantitative assessment 222  
 renal 105  
 - CT 109  
 - disease 271  
 - kinetics 105  
 - nuclear medicine 106  
 - transplant, preimplantation evaluation 271  
 renograffin 105  
 renograms (time-activity curves) 106  
 representative cycle 236  
 resolution of the ECAT 39  
 resolving time of Donner positron ring 60  
 rest-dipyridamole images 16  
 results of TL 201 emission tomography 84  
 RIA 318  
 -, measurement of enzymatic analysis 326  
 -, -- enzyme levels 326  
 -, versatility of 320  
 role of learning in image interpretation 104  
 rubidium-82 53  
 $^{103}\text{Ru}$  124, 125  
 $^{97}\text{Ru}$  123, 125  
 - blood clearance 125  
 - bone-blood ratios 123  
 -- muscle ratios 123  
 Ru-chloride 125  
 Ru-MDP 125  
 $^{97}\text{Ru}$  muscle uptake 125  
 Ru-phenantrolin compounds 125  
 $^{97}\text{Ru}$ , physical characteristics of 126  
 Ru-pyp 125  
 $^{103}\text{Ru}$ -sulfur colloid 131  
 ruthenium 123  
 - 7-CA acetate 124  
 - chemistry 132  
 - chlorid 124  
 - citrate 125  
 - compounds in cancer chemotherapy 132  
 - DTPA 125  
 -- citrate 124  
 - EDTMP 124, 129  
 - ethylidene-hydroxisodium phosphonate 124  
 - methylene diphosphonate 124  
 - oxine 7-CA 124  
 - 1,10-phenanthroline 124  
 - phosphate compounds 125  
 - sulfur colloid for lymph-angiography 124  
 - 3,4,7,8-tetramethyl 124  
 - tracer 123  
 - 97 labeled compounds 123  
 -- oxine 7-carboxylid acid 129

## S

Scatchard plot technique, kinetics of binding 137  
 scintigraphic examinations, pre-operative 277  
 - procedures, value of 276  
 - studies, evaluation of 281  
 - tests, accuracy 277  
 -- in staging oncologic disease 277  
 screening test 4  
 segmental wall motion 204  
 --- analysis 205  
 sensitivity 276, 283  
 sepharose-4B 300  
 sequence of typical cross-sectional images 26  
 serial 105  
 - CT and radionuclide imaging comparison of 112  
 -- scanning 106  
 serum Fe concentrations, elevations of 156  
 --- in normal mice 155  
 seven-pinhole 79  
 -- collimator 79  
 short-lived radionuclides 199  
 siderophores, existence of 176  
 siderophorelike growth factor 175  
 simulated "mathematical tumours" 90  
 single breath of  $^{11}\text{CO}$  50  
 - photon 53  
 -- emission 71  
 size reference on the arteriograms 6  
 solid phase radioimmunoassays 299  
 spatial resolution 15  
 specificity 283  
 - of the test 276  
 spinal myelography 112  
 squamous cell carcinoma 124  
 standard error of the estimate 118  
 staphylococcus aureus, protein A from 300  
 --, radioiodinated protein A from 299  
 stationary imaging device 52  
 - tomographic methods 85  
 stenotic left circumflex coronary artery 10  
 storage display oscilloscope 90  
 stress, exercise induced 214  
 - thallium-201 imaging 79  
 subcellular  $^{67}\text{Ga}$  146  
 sum of the deviation squared 118  
 superimpost "cold spot" 101  
 SV-transformed cells 162  
 SVT2-M cells 163, 165  
 systolic ejection rate 229, 230  
 - frames 223  
 - phase 236  
 - time interval 230

## T

<sup>99m</sup>Tc-antimony sulfide colloid 130  
 - HAMM 258, 259, 269  
 --, base profile of 263  
 --, central deposition 261  
 -- in chronic bronchitis 269  
 --, inhomogenous deposition 267  
 --, normal deposition 261  
 --, spotty deposition 265  
 - HSA 215, 227  
 - human serum albumin 214, 223, 235  
 - methylene diphosphonate 197  
 - pertechnetate 205  
 - red blood cells 227, 229  
 - Sn-DTPA 272, 275  
 technetium-<sup>99m</sup> DTPA 205  
 - human serum albumin 206  
 8-tetramethyl 123  
 thallium-201 79  
 - tomograms 86, 88  
 thyroglobulin (TG) antibody 309, 316  
 thyroid diseases 312  
 - plasma membrane binding immuno-  
 globulin 316  
 - stimulating immunoglobulins 308  
 - stimulators 308  
 thyroidal antibody 315, 310  
 - plasma membrane 308  
 ---, displacement of <sup>125</sup>J-LATS 308  
 thyrotoxicosis and left ventricular  
 function 229  
 time-activity 105  
 time-density curves 105, 107, 113  
 tomograms by back-projection 75  
 tomographic images of CMRGlu 43  
 - myocardial perfusion imaging 79  
 - pneumoencephalography 105  
 - scanner 71, 78  
 - technique 79, 84  
 tomographs, <sup>13</sup>NH<sub>4</sub><sup>+</sup> 9  
 tomography, cross-sectional 4  
 -, positron emission computerized axial  
 (PCT) 21  
 -, transverse section 52  
 TPMBI 308, 312, 316  
 - activity 315  
 trace metal ion transport 162  
 tracer distribution index (TDI) 184,  
 190  
 transamination 198  
 transferrin and carrier-free <sup>59</sup>Fe,  
 binding of 147  
 - binding capacity 180  
 - bound <sup>67</sup>Ga, uptake by adsorptive  
 endocytosis 145  
 -, delivery of Ga 162  
 -, Ga-binding to 163  
 - in <sup>67</sup>Ga tumor uptake 134  
 - inhibited <sup>67</sup>Ga tumor uptake 134  
 - preparation 163

- receptor complexes 171  
 -- hypothesis 135, 141  
 - receptors 146, 162, 169, 175  
 transformed cells abnormality in Fe  
 162  
 transmission tomograph, using <sup>64</sup>Cu  
 8  
 transverse section emission computed  
 tomography, concepts for 54  
 --, reconstruction of 65  
 -- tomography 52  
 trend scintigrams 235  
 tricuspid insufficiency 227  
 TSI (thyroid-stimulating immuno-  
 globulin) 308  
 tumor 195  
 - agents 132  
 - blood ratios 185  
 - concentrations 160  
 - imaging agent 195  
 - uptake 126

## U

[U-<sup>14</sup>C] fatty acids 286  
 unlabeled hormone, disappearance of  
 295

## V

valve dysfunction 240  
 valvular regurgitation 222, 226  
 --, assessment of the severity 222  
 ventilation 116  
 ventricular performance 229  
 virus 40-transformed cells 162

## W

wall motion 240

## X

<sup>133</sup>Xe, regional ventilation 259



# Cardiac Nuclear Medicine

Editors: B. L. Holmann, H. L. Abrams, E. Zeitler

With contributions by W. E. Adams, F. Bitter, U. Buell, H.-J. Engel, H. Geffers, B. L. Holmann, E. Kleinhans, A. Lenaers, P. R. Lichtlen, O. Nickel, N. Schad, M. Seiderer, M. Stauch, B. E. Strauer, A. Tarkowska, J. Wynne, J. S. Zielonka

1979. 47 figures, 22 tables. V, 88 pages  
ISBN 3-540-09803-8

*(Monograph edition of the journal "Cardiovascular Radiology" Vol. 2, No. 3)*

**Contents:** Cardiac Nuclear Medicine: An Overview. – Assessment of Ventricular Function with First-Pass Angiocardiography. – Equilibrium (Gated) Radio-nuclide Ventriculography. – Myocardial Scintigraphy with Infarct-Avid Tracers. – Quantitative Assessment of Thallium-201 Images. – Thallium-201 Myocardial Perfusion Scintigraphy during Rest and Exercise. – Assessment of Regional Myocardial Blood Flow Using the Inert Gas Washout Technique. – Emission Tomography of the Heart: Principles and Applications.

Cardiac nuclear medicine has grown dramatically over the past decade to the point where it is now an integral part of routine diagnosis for patients with heart disease, particularly coronary artery disease. This is in no small part the result of dramatic improvements in technology and the application of these improvements to the development and refinement of diagnostic techniques.

In this book leading authorities in cardiac imaging techniques provide an up-to-date description of the field, covering the clinical applicability, efficacy and future potential of myocardial perfusion scintigraphy, quantitation and regional blood flow, assessment of ventricular performance, and detection of acute infarction using radiotracers. This book supplies the physician involved in cardiac diagnosis with the background necessary to integrate the radiotracer method into his diagnostic armamentarium.



Springer-Verlag  
Berlin  
Heidelberg  
New York

G. B. Saha

# Fundamentals of Nuclear Pharmacy

1979. 88 figures, 16 tables. XV, 272 pages  
ISBN 3-540-90416-6

**Contents:** The Atom. – Radioactive Decay. – Production of Radionuclides. – Radionuclide Generators. – Radiopharmaceuticals. – Radiolabeling of Compounds. – Characteristics of Specific Radiopharmaceuticals. – Quality Control of Radiopharmaceuticals. – Radiopharmacy. – Radiation Dosimetry, Safety, and Regulations. – In Vitro Tests. – Radiopharmacology in Nuclear Medicine. – Appendices. – Index.

## Nuklearmedizin/ Nuclear Medicine

(Handbuch der medizinischen Radiologie, Band 15)

Teil 1 A:

**Radiopharmaka, Gerätetechnik, Strahlenschutz.  
Radiopharmaceuticals, Instrumentation Technology,  
Radiation Protection.**

Redigiert von/Edited by H. Hundeshagen  
1980. 244 Abbildungen in 280 Einzeldarstellungen,  
65 Tabellen. XX, 722 Seiten (146 Seiten in Englisch)  
ISBN 3-540-08487-8



Springer-Verlag  
Berlin  
Heidelberg  
New York

Teil 2:

**Diagnostik, Therapie, Klinische Forschung.  
Diagnosis, Therapy, Clinical Research.**

Mit Beiträgen zahlreicher Fachwissenschaftler  
Redigiert von/Edited by H. Hundeshagen  
1978. 369 Abbildungen in 1366 Einzeldarstellungen, teil-  
weise in Farbe, 146 Tabellen. XXVI, 1156 Seiten  
(51 Seiten in Englisch)  
ISBN 3-540-08388-X