APPENDIX

COMMON SPECT AND PET RADIOPHARMACEUTICALS USED IN NUCLEAR MEDICINE

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Radiopharmaceutical	**^{99m}Tc-MDP (Methylene diphosphonate; medronate)**
Mechanism of uptake	Chemisorption onto hydroxyapatite crystals in bone and calcium crystals in mitochondria
Gamma energy	140 keV
Decay	Isomeric transition to ^{99}Tc
Physical half-life (T1/2 phys)	6 h
Biological half-life (T1/2 bio)	26 h
Effective dose mSv/MBq (rem/mCi)	Adults: mSv/MBq0.0080 (rem/mCi 0.030) Children: mSv/MBq0.025 (rem/mCi 0.093)
Organ receiving largest radiation dose mGy/MBq (rad/mCi)	Bone, adults: mGy/MBq0.063 (rad/mCi 0.23), children: mGy/MBq0.22 (rad/mCi 0.81)
Biodistribution	About 50% of the injected activity goes to the skeleton. The remainder is excreted via glomerular filtration.
Critical organ	Bladder wall
Excretion	Renal

Radiopharmaceutical	**^{201}Tl-Thallous chloride (Thallium)**
Mechanism of uptake	60% active uptake via Na-K ATPase, remainder enters passively
Gamma energies	88% (67, 82 keV, X-rays ^{201}Hg); 12% (135, 167 keV, gamma rays)
Decay	Electron capture to ^{201}Hg
Physical half-life (T1/2 phys)	73 h
Biological half-life (T1/2 bio)	Whole body 11 days, heart 4–5 h
Effective dose equivalent mSv/MBq	0.23 mSv/MBq
Organ receiving largest radiation dose in adults mGy/MBq	Kidneys/0.46 mGy/MBq
Biodistribution	Myocardium (3–4.5%), lungs, thyroid, liver, intestine and kidneys
Critical organ	Testes/ovaries
Excretion	80% faeces, 20% urine

Radiopharmaceutical	**^{99m}Tc-Tetrofosmin (Myoview)**
Mechanism of uptake	Lipophilic complex enters myocytes by passive diffusion to localise in the cytoplasm mainly.
Gamma energy	140 keV
Decay	Isomeric transition to ^{99}Tc
Physical half-life (T1/2 phys)	6 h
Biological half-life (T1/2 bio)	Approximately 72% of injected activity is excreted within 48 h post-injection. Biological T1/2 for normal myocardium is about 5 h.
Effective dose mSv/MBq (rem/mCi)	0.0067 mSv/MBq (0.025 rem/mCi)
Organ receiving largest radiation dose in adults mGy/MBq (rad/mCi)	Gall bladder 0.031 mGy/MBq (0.11 rad/mCi)
Biodistribution	Myocardium, liver, gallbladder, intestine, and kidneys
Critical organs	Gall bladder, intestines and urinary bladder
Excretion	Urine and faeces

COMMON SPECT AND PET RADIOPHARMACEUTICALS USED IN NUCLEAR MEDICINE

Radiopharmaceutical	^{99m}Tc-MIBI (Sestamibi; methoxy isobutyl isonitrile; Cardiolite)
Mechanism of uptake	Lipophilic complex enters myocytes by passive diffusion to localise in the mitochondria.
Gamma energy	140 keV
Decay	Isomeric transition to ^{99}Tc
Physical half-life (T1/2 phys)	6 h
Biological half-life (T1/2 bio)	7 h (heart)
Effective dose mSv/MBq (rem/mCi)	0.0085 mSv/MBq (0.031 rem/mCi)
Organ receiving largest radiation dose in adults mGy/MBq (rad/mCi)	Gall bladder 0.0039 mGy/MBq (0.14 rad/mCi)
Biodistribution	Myocardium, thyroid, gallbladder and intestine
Critical organ	Gall bladder
Excretion	Urine and faeces

Radiopharmaceutical	^{99m}Tc-Pertechnetate (Thyroid scan)
Mechanism of uptake	Transported into thyroid by Sodium iodide symporter
Gamma energy	140 keV
Decay	Isomeric transition to ^{99}Tc
Physical half-life (T1/2 phys)	6 h
Biological half-life (T1/2 bio)	50 h
Effective dose mSv/MBq (rem/mCi)*	0.013 mSv/MBq (0.48 rem/mCi)
Organ receiving largest radiation dose in adults mGy/MBq*	Upper large intestine 0.062 mGy/MBq
Biodistribution	Thyroid, salivary glands, gastric mucosa, choroid plexus and functioning breast tissue
Critical organ	Upper large intestine
Excretion	Gastrointestinal system
*Assuming no thyroid blocking agent given.	

Radiopharmaceutical	^{123}I-Sodium Iodide (Thyroid scan)
Mechanism of uptake	Transported into thyroid by Sodium iodide symporter followed by organification.
Gamma energy	159 keV
Decay	Electron capture to ^{123}Te with photon emission and X-ray emission
Physical half-life (T1/2 phys)	13.2 h
Biological half-life (T1/2 bio)	80 days (thyroid)
Effective dose mSv/MBq (rem/mCi)*	0.11 mSv/MBq (0.41 rem/mCi)
Organ receiving largest radiation dose in adults mGy/MBq (rad/mCi)*	Thyroid 3.2 mGy/MBq (12 rad/mCi)
Biodistribution	Thyroid, salivary glands and stomach
Critical organ	Bladder wall
Excretion	Primarily renal
*Assuming 25% thyroid uptake.	

Radiopharmaceutical	^{131}I-Sodium Iodide (Thyroid scan)
Mechanism of uptake	Transported into thyroid by Sodium iodide symporter followed by organification.
Gamma energy	364 keV
Decay	By beta particle and gamma emission to ^{131}Xe
Physical half-life (T1/2 phys)	8.04 days
Biological half-life (T1/2 bio)	80 days (thyroid)
Effective dose mSv/MBq (rem/mCi)*	11 mSv/MBq (41 rem/mCi)
Organ receiving largest radiation dose in adults mGy/MBq (rad/mCi)*	Thyroid 360 mGy/MBq (1300 rad/mCi)
Biodistribution	Thyroid, salivary glands and stomach
Critical organ	Bladder wall
Excretion	Primarily renal
*Assuming 25% thyroid uptake.	

COMMON SPECT AND PET RADIOPHARMACEUTICALS USED IN NUCLEAR MEDICINE

Radiopharmaceutical	^{123}I-mIBG (Metaiodobenzylguanidine; iobenguane)
Mechanism of uptake	Enters the neuroendocrine cells by active uptake mechanism, via the adrenaline transporter, and is stored in the neurosecretory granules
Gamma energy	159 keV
Decay	Electron capture to ^{123}Te with photon emission and X-ray emission
Physical half-life (T1/2 phys)	13.2 h
Biological half-life (T1/2 bio)	70–90% excreted within 4 days
Effective dose mSv/MBq*	0.018 mSv/MBq
Organ receiving largest radiation dose in adults mGy/MBq*	Liver 0.071, bladder 0.070
Biodistribution	Liver, lungs, heart, spleen and salivary glands. Normal adrenal uptake is very low but is increased with adrenal tumours
Critical organ	Bladder wall
Excretion	85% excreted unchanged by the kidneys

*Assuming thyroid blockade.

Radiopharmaceutical	^{131}I-mIBG (Metaiodobenzylguanidine; iobenguane)
Mechanism of uptake	Enters the neuroendocrine cells by active uptake mechanism, via the adrenaline transporter, and is stored in the neurosecretory granules
Gamma energy	364 keV
Decay	By beta particle and gamma emission to ^{131}Xe
Physical half-life (T1/2 phys)	8.04 days
Biological half-life (T1/2 bio)	70–90% excreted within 4 days
Effective dose mSv/MBq*	0.2 mSv/MBq
Organ receiving largest radiation dose in adults mGy/MBq*	Liver 0.83 mGy/MBq
Biodistribution	Liver, spleen, bladder, salivary glands, myocardium and lungs.
Critical organ	Bladder wall
Excretion	85% excreted unchanged via kidneys
False −ve scan	Uptake blocked by reserpine, imipramine, tricyclic antidepressants and amphetamine-like drugs

*Assuming thyroid blockade.

Radiopharmaceutical	^{111}In-Octreotide (Octreoscan; pentetreotide; neuroendocrine tumour)
Mechanism of uptake	Somatostatin analogue: binds to somatostatin receptors with relatively increased affinity to subtypes 2 and 5
Gamma energies	173 and 247 keV
Decay	Electron capture to ^{111}Cd
Physical half-life (T1/2 phys)	67 h
Biological half-life (T1/2 bio)	80% excreted within 24 h
Effective dose mSv/MBq	0.12 mSv/MBq
Organ receiving largest radiation dose in adults mGy/MBq	Kidneys 0.66, urinary bladder wall 0.48, spleen 0.38 mGy/MBq
Biodistribution	Pituitary, thyroid, liver, spleen, kidneys, bladder +/− gall bladder and intestines at 24 h.
Critical organs	Kidneys, urinary bladder wall
Excretion	Renal

COMMON SPECT AND PET RADIOPHARMACEUTICALS USED IN NUCLEAR MEDICINE

Radiopharmaceutical	**^{67}Ga (Gallium citrate)**
Mechanism of uptake	Bound to iron binding sites of various proteins mainly plasma transferrin and tissue lactoferrin
Gamma energies	93, 185, 300 keV
Decay	Electron capture to ground state ^{67}Zn
Physical half-life (T1/2 phys)	78 h
Biological half-life (T1/2 bio)	25 days
Effective dose mSv/MBq (rem/mCi)	0.12 mSv/MBq (0.44 rem/mCi)
Organ receiving largest radiation dose in adults mGy/MBq	Bone surfaces 0.59 mGy/MBq Lower large intestine 0.2 mGy/MBq
Biodistribution	Localises in RES (liver, spleen, bone marrow), bowel wall, renal cortex, nasal mucosa, lacrimal and salivary glands. Also at tumour sites due to lysosome binding and at the sites of infection.
Critical organ	Lower large intestine
Excretion	Gastrointestinal tract (50%), urinary tract (15–25%), retention in skeleton (25%)

Radiopharmaceutical	**^{99m}Tc-MAA (Macroaggregated albumin; lung perfusion)**
Mechanism of uptake	90% of MAA particles are trapped in the lung capillaries on first pass
Gamma energy	140 keV
Decay	Isomeric transition to ^{99}Tc
Physical half-life (T1/2 phys)	6 h
Biological half-life (T1/2 bio)	6 h
Effective dose mSv/MBq (rem/mCi)	0.012 mSv/MBq (0.044 rem/mCi)
Organ receiving largest radiation dose in adults mGy/MBq (rad/mCi)	Lung 0.067 mGy/MBq (0.25 rad/mCi)
Biodistribution	Lungs (in MAA particles between 10 and 90 microns), particles less than 1 micron are trapped in the liver and spleen
Critical organs	Liver, bladder wall
Excretion	Protein is lysed within 6–8 h and taken up by RES. Radionuclide released from the lungs is excreted by the kidneys

Radiopharmaceutical	**^{99m}Tc-DTPA (diethylenetriamine pentaacetic acid) aerosol (Lung ventilation); pentetate**
Mechanism of uptake	Breathed in as aerosol
Gamma energy	140 keV
Decay	Isomeric transition to ^{99}Tc
Physical half-life (T1/2 phys)	6 h
Biological half-life (T1/2 bio)	1 h
Effective dose mSv/MBq (rem/mCi)	0.007 mSv/MBq (0.026 rem/mCi)
Organ receiving largest radiation dose in adults mGy/MBq (rad/mCi)	Bladder 0.047 mGy/MBq (0.17 rad/mCi)
Biodistribution	Gradually enters systemic circulation and cleared via kidneys
Critical organ	Bladder wall
Excretion	Renal

Radiopharmaceutical	**^{81m}Kr (Krypton) (Lung ventilation)**
Mechanism of uptake	Breathed in as gas
Gamma energy	191 keV
Decay	Isomeric transition to ^{81}Kr
Physical half-life (T1/2 phys)	13 seconds
Biological half-life (T1/2 bio)	<1 min
Effective dose mSv/MBq (rem/mCi)	0.00003 mSv/MBq (0.00012 rem/mCi)
Organ receiving largest radiation dose in adults mGy/MBq (rad/mCi)	Lung 0.00003 mGy/MBq (0.00012 rad/mCi)
Biodistribution	Inert gas breathed in, equilibrates with blood, rapidly exhaled.
Critical organ	Lung
Excretion	Exhaled

COMMON SPECT AND PET RADIOPHARMACEUTICALS USED IN NUCLEAR MEDICINE

Radiopharmaceutical	^{133}Xe (Xenon) (Lung ventilation)
Mechanism of uptake	Breathed in as gas
Gamma energy	81 keV
Decay	Beta emission to ^{133}Cs with gamma and X-ray production
Physical half-life (T1/2 phys)	5.3 days
Biological half-life (T1/2 bio)	5 min
Effective dose mSv/MBq (rem/mCi)*	0.0008 mSv/MBq (0.0030 rem/mCi)
Organ receiving largest radiation dose in adults mGy/MBq (rad/mCi)*	Lung 0.0011 mGy/MBq (0.0041 rad/mCi)
Biodistribution	Inert gas breathed in, equilibrates with blood, rapidly exhaled.
Critical organ	Lung
Excretion	Exhaled
*Assuming re-breathing for 5 min.	

Radiopharmaceutical	^{99m}Tc-DMSA (dimercaptosuccinic acid; succimer)
Mechanism of uptake	Rapidly associates with plasma proteins. Gradually clears from circulation (half time 1 h) and accumulates in renal cortex.
Gamma energy	140 keV
Decay	Isomeric transition to ^{99}Tc
Physical half-life (T1/2 phys)	6 h
Biological half-life (T1/2 bio)	>30 h
Effective dose mSv/MBq	0.016 mSv/MBq
Organ receiving largest radiation dose in adults mGy/MBq	Kidneys 0.17 mGy/MBq
Biodistribution	40–60% of injected activity accumulates in proximal and distal renal tubular cells by 1 h.
Critical organ	Renal cortex
Excretion	Renal (4–8% glomerular filtration by 1 h and 30% by 14 h).

Radiopharmaceutical	^{99m}Tc-DTPA (diethylenetriamine pentaacetic acid; pentetate)
Mechanism of uptake	Rapidly distributes throughout blood and extracellular fluid. Cleared by glomerular filtration.
Gamma energy	140 keV
Decay	Isomeric transition to ^{99}Tc
Physical half-life (T1/2 phys)	6 h
Biological half-life (T1/2 bio)	1 h
Effective dose mSv/MBq	0.0063 mSv/MBq
Organ receiving largest radiation dose in adults mGy/MBq	Bladder wall 0.065 mGy/MBq
Biodistribution	Plasma protein binding <5%. Extracted with 20% efficiency on each pass through the kidney.
Critical organ	Bladder wall
Excretion	Renal (excreted exclusively by glomerular filtration without reabsorption or tubular excretion)

Radiopharmaceutical	^{99m}Tc-MAG3 (mercaptoacetyltriglycine)
Mechanism of uptake	Cleared from circulation by glomerular filtration and tubular secretion with no reabsorption.
Gamma energy	140 keV
Decay	Isomeric transition to ^{99}Tc
Physical half-life (T1/2 phys)	6 h
Biological half-life (T1/2 bio)	<1 h
Effective dose mSv/MBq (rem/mCi)	0.011 mSv/MBq (0.041 rem/mCi)
Organ receiving largest radiation dose in adults mGy/MBq (rad/mCi)	Bladder wall 0.057 mGy/MBq (0.21 rad/mCi)
Biodistribution	95% cleared by the proximal tubules, 1–3% may be found in the liver and gall bladder.
Critical organ	Bladder wall
Excretion	Renal

COMMON SPECT AND PET RADIOPHARMACEUTICALS USED IN NUCLEAR MEDICINE

Radiopharmaceutical	^{131}I-OIH (Orthoiodohippurate; hippuran)
Mechanism of uptake	80% secreted by proximal tubules, 20% filtered by glomeruli. Highest extraction ratio without binding to renal parenchyma
Gamma energy	364 keV
Decay	By beta particle and gamma emission to ^{131}Xe
Physical half-life (T1/2 phys)	8.04 days
Biological half-life (T1/2 bio)	10–15 min with normal renal function
Effective dose mSv/MBq*	0.06 mSv/MBq
Organ receiving largest radiation dose in adults mGy/MBq*	Bladder wall 1.5 mGy/MBq
Biodistribution	Maximal renal concentration within 5 min, normal transit time 2–3 min
Critical organ	Bladder wall
Excretion	Renal

*Assuming thyroid blockade.

Radiopharmaceutical	^{99m}Tc-Exametazime (HMPAO)-labelled leukocytes (for suspected infection/inflammation)
Mechanism of uptake	Autologous leukocytes homing to sites of infection/inflammation
Gamma energy	140 keV
Decay	Isomeric transition to ^{99}Tc
Physical half-life (T1/2 phys)	6 h
Biological half-life (T1/2 bio)	50% of labelled cells marginate, 50% of activity remains in circulation from which it clears with a half time of about 8 h
Effective dose mSv/MBq	0.017 mSv/MBq
Organ receiving largest radiation dose in adults mGy/MBq	Spleen 0.15 mGy/MBq
Biodistribution	Activity clears rapidly through lungs to liver, spleen and bone marrow. Over time, increasing amounts of activity are seen in renal and intestinal systems.
Critical organ	Spleen
Excretion	Primarily renal, some hepatobiliary

Radiopharmaceutical	^{111}In-labelled leukocytes (for suspected infection/inflammation)
Mechanism of uptake	Autologous leukocytes homing to sites of infection/inflammation
Gamma energies	173 and 247 keV
Decay	Electron capture to ^{111}Cd
Physical half-life (T1/2 phys)	67 h
Biological half-life (T1/2 bio)	5–10 h for clearance from circulation
Effective dose mSv/MBq (rem/mCi)	0.59 mSv/MBq (2.2 rem/mCi)
Organ receiving largest radiation dose in adults mGy/MBq	Spleen 5.5 mGy/MBq
Biodistribution	Spleen, liver, bone marrow
Critical organ	Spleen
Excretion	Low excretion in both urine and faeces

Radiopharmaceutical	^{99m}Tc-Sulfur colloid (Liver scan)
Mechanism of uptake	Phagocytosed in the RES of the liver and spleen
Gamma energy	140 keV
Decay	Isomeric transition to ^{99}Tc
Physical half-life (T1/2 phys)	6 h
Biological half-life (T1/2 bio)	Entirely retained in body
Effective dose mSv/MBq	0.014 mSv/MBq
Organ receiving largest radiation dose in adults mGy/MBq	Liver 0.12 mGy/MBq Spleen 0.077 mGy/MBq
Biodistribution	Clears from the blood stream with a T1/2 of 2–3 min. 80–90% is sequestered by the liver, 5–10% localises in the spleen and the rest in the bone marrow.
Critical organ	Liver/spleen
Excretion	Neglible renal

COMMON SPECT AND PET RADIOPHARMACEUTICALS USED IN NUCLEAR MEDICINE

Radiopharmaceutical	^{99m}Tc-Sulfur colloid/Nanocolloid (Lymphoscintigraphy/sentinel node localisation)
Mechanism of uptake	Particles pass from the interstitium to the lymphatic channels via gaps in between the endothelial cells. When they reach the lymph nodes, they are phagocytosed by macrophages.
Gamma energy	140 keV
Decay	Isomeric transition to ^{99}Tc
Physical half-life (T1/2 phys)	6 h
Biological half-life (T1/2 bio)	Variable
Effective dose mSv/MBq (rem/mCi)*	0.0019 mSv/MBq (0.0071 rem/mCi)
Organ receiving largest radiation dose in adults mGy/MBq*	Injection site 12.0, lymph nodes 0.6 mGy/MBq
Biodistribution	Significant proportion of activity remains in injection depot. Portion migrates via lymphatic channels to lymph nodes. Some enters systemic circulation and accumulates in liver, followed by some release of free pertechnetate.
Critical organs	Liver, bladder wall
Excretion	Renal (minor extent)

*Assuming 20% of the activity is absorbed systemically.

Radiopharmaceutical	^{99m}Tc-IDA (Iminodiacetic acid) derivatives e.g. Bromotrimethyl HIDA (mebrofenin)
Mechanism of uptake	Taken up by the liver and excreted via the biliary tract (unconjugated)
Gamma energy	140 keV
Decay	Isomeric transition to ^{99}Tc
Physical half-life (T1/2 phys)	6 h
Biological half-life (T1/2 bio)	Only 17% of injected activity remains in circulation at 10 min
Effective dose mSv/MBq	0.024 mSv/MBq
Organ receiving largest radiation dose in adults mGy/MBq	Upper large intestine 0.13, lower large intestine 0.10, small intestine 0.08, gall bladder wall 0.04 mGy/MBq
Biodistribution	Maximum liver uptake 10–12 min followed by gall bladder visualisation, then intestinal activity.
Critical organ	Upper large intestine
Excretion	Hepatobiliary (a minor fraction is excreted by the kidney)

Radiopharmaceutical	^{18}F-FDG (Fluorodeoxyglucose)
Mechanism of uptake	FDG is an analogue of glucose. Most tumour cells overexpress glucose transporters and have enhanced hexokinase activity. FDG is phosphorylated to FDG-6-PO_4 and remains trapped in the cell. Unlike glucose it does not undergo further metabolism.
Positron energy	0.635 MeV
Decay	Positron emission
Physical half-life (T1/2 phys)	110 min
Biological half-life (T1/2 bio)	Cleared from non-cardiac tissues within 3–24 h, myocardium 96 h
Effective dose mSv/MBq	0.019 mSv/MBq
Organ receiving largest radiation dose in adults mGy/MBq	Bladder wall 0.16, heart 0.062, brain 0.028 mGy/MBq
Biodistribution	Physiological and variable FDG uptake: brain, myocardium, breast, liver, stomach, spleen, intestine, kidneys, urine, salivary glands, lymphatic tissue, bone marrow, thymus, testicles, uterus, ovaries, brown fat and skeletal muscle
Critical organ	Bladder wall
Excretion	20% excreted in the urine within 2 h

COMMON SPECT AND PET RADIOPHARMACEUTICALS USED IN NUCLEAR MEDICINE

Radiopharmaceutical	^{18}F-Fluoride
Mechanism of uptake	Deposits on the bone surfaces
Positron energy	0.635 MeV
Decay	Positron emission
Physical half-life (T1/2 phys)	110 min
Biological half-life (T1/2 bio)	Essentially irreversibly bound to bone. 50% cleared by kidneys.
Effective dose mSv/MBq in adults	0.027 mSv/MBq
Organ receiving largest radiation dose in adults mGy/MBq	Bladder wall 0.22 mGy/MBq Red marrow 0.028 mGy/MBq
Biodistribution	50% taken up by the skeleton and the remainder is eliminated by the kidneys.
Critical organs	Bladder wall, red marrow
Excretion	Renal

Radiopharmaceutical	^{13}N-Ammonia
Mechanism of uptake	Freely diffuses across the cell membranes and is enzymatically trapped as glutamine. Very high 1st pass extraction
Positron energy	1.190 MeV
Decay	Positron emission
Physical half-life (T1/2 phys)	10 min
Biological half-life (T1/2 bio)	Clears from blood with half-life of 2.8 min. Half-life in myocardium is >1 h
Effective dose mSv/MBq	0.0027 mSv/MBq
Organ receiving largest radiation dose in adults mGy/MBq	Bladder wall 0.0081 mGy/MBq
Biodistribution	Liver, brain, myocardium and skeletal muscle. Small amounts in the kidneys
Critical organ	Bladder wall
Excretion	Excreted in urine as ^{13}N-urea

Radiopharmaceutical	^{11}C-Carbon monoxide
Mechanism of uptake	Absorbed at the lung gas–tissue interface and enters the pulmonary circulation where it becomes entirely bound to haemoglobin, producing a blood pool marker.
Positron energy	0.960 MeV
Decay	Positron emission
Physical half-life (T1/2 phys)	20 min
Biological half-life (T1/2 bio)	Essentially irreversibly bound to haemoglobin. Half-life in blood pool 195 min.
Effective dose mSv/MBq*	0.0063 mSv/MBq
Organ receiving largest radiation dose in adults mGy/MBq*	Heart 0.02 mGy/MBq
Biodistribution	Blood pool
Critical organs	Heart, lung
Excretion	Negligible

*Single inhalation with 20 s breath hold.

COMMON SPECT AND PET RADIOPHARMACEUTICALS USED IN NUCLEAR MEDICINE

Radiopharmaceutical	**^{68}Ga-DOTA-peptides (TOC/NOC/TATE)**
Mechanism of uptake	Binds to different somatostatin receptors (SSTR) ^{68}Ga-DOTATATE binds predominantly to SST receptor 2 ^{68}Ga-DOTATOC binds to SST receptors 2 and 5 ^{68}Ga-DOTANOC binds to SST receptors 2, 3 and 5
Positron energy	1.92 MeV
Decay	Positron emission (89%) and Electron capture (11%) to ^{68}Zn
Physical half-life (T1/2 phys)	68 min
Effective dose mSv/MBq	^{68}Ga-DOTATATE: 0.025 mSv/MBq ^{68}Ga-DOTATOC: 0.023 mSv/MBq ^{68}Ga-DOTANOC: 0.016 mSv/MBq
Organ receiving largest radiation dose	Spleen and kidneys
Biodistribution	Highest physiological uptake in the spleen. Other sites are pituitary, liver, head of pancreas in the uncinate process, adrenals and kidneys. Thyroid may show low grade uptake.
Critical organ	Spleen
Excretion	Kidneys

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