

Dopamine Receptors

CURRENTLY ACCEPTED NAME	D ₁ (D178)	D ₂ (D180)	D ₃ (D181, D152)	D ₄ (D177)	D ₅
STRUCTURAL INFORMATION	446 aa (human)	short: 414 aa (human) ^a long: 443 aa (human) ^a	400 aa (human)	386 aa (rat) ^b	477 aa (human)
SUBTYPE SELECTIVE AGONISTS	R(+)-SKF-38393 (S101), A-68930 (A8852), A-86929, A-77636 (A255), Fenoldopam (F6800), Dihydropyridine (D5814)	U-91,356A, TNPA (D030)	PD 128,907 (P216), R(+)-7-OH-DPAT (H168), BP 897 (B9708)	PD 168,077 (P233), CP-226,269, A-369508, ABT-724	R(+)-SKF-38393 (S101), A-68930 (A8852)
SUBTYPE SELECTIVE ANTAGONISTS	R(+)-SCH-23390 (D054), SCH-39166	L-741,626 (L135)	S(-)-Nafadotride (N3535), GR 103,691 (G0544), SB 277011-A, U 99194A (U116), KCH-1110	CP-293,019, L-745,870 (L131), L-750,667 (L133), RBI-257 (R123), U-101,387, A-381393	R(+)-SCH-23390 (D054), SCH-39166
SIGNAL TRANSDUCTION MECHANISMS	G _s (increase cAMP) G _q (activate PLC) ↑ L-type Ca ²⁺ channel ↓ K ⁺ currents	G _{i/o} (decrease cAMP) G _{i/q} (increase IP ₃ /DAG) ↑ arachadonic acid release ↓ Na ⁺ currents	G _{i/o} (decrease cAMP) ↑ K ⁺ currents	G _i , G _z (decrease cAMP) ↑ arachadonic acid release ↑ phospholipid methylation ↓ L-type Ca ²⁺ channel	G _s (increase cAMP) ↑ L-type Ca ²⁺ channel
RADIOLIGANDS OF CHOICE	[³ H]-SCH-23390 [¹²⁵ I]-SCH-23982	[³ H]-Nemonapride [³ H]-Spiperone [³ H]-Raclopride	[³ H]-7-OH-DPAT [¹²⁵ I]-7-OH-PIPAT	[³ H]-Nemonapride [³ H]-Spiperone [³ H]-A-369508	[³ H]-SCH-23390 [¹²⁵ I]-SCH-23982
BRAIN TISSUE EXPRESSION	Basal ganglia, olfactory tubercle, cerebral cortex	Basal ganglia, olfactory tubercle, anterior pituitary	Islands of calleja, shell of accumbens, cerebellum	Cerebral cortex, hippocampus, thalamus	Hippocampus, basal ganglia, cerebellum
DISEASE RELEVANCE	Parkinson's disease Tourette's syndrome, Huntington's chorea	Schizophrenia, Parkinson's disease	Drug abuse, schizophrenia, erectile dysfunction	Attention deficit hyperactivity disorder (ADHD)	Hypertension

Abbreviations

A-369508: 2-[4-(2-Cyanophenyl)-1-piperazinyl]-N-(3-methylphenyl) acetamide
A-381393: 2-[4-(3,4-Dimethylphenyl)piperazin-1-ylmethyl]-1H-benzimidazole
A-68930: 1R,3S-1-Aminomethyl-5,6-dihydroxy-3-phenylisochroman hydrochloride
A-77636: (-)-(1R,3S)-3-Adamantyl-1-(aminomethyl)-3,4-dihydro-5,6-dihydroxy-1H-2-benzopyran
A-86929: (-)-trans-9,10-Hydroxy-2-propyl-4,5,5a,6,7,11b-hexahydro-3-thia-5-azacyclopent-1-enal[c]phenanthrene hydrochloride
ABT-724: 2-(4-Pyridin-2-yl)piperazin-1-ylmethyl)-1H-benzimidazole
BP 897: N-[4-[4-(2-Methoxyphenyl)-1-piperazinyl]butyl]-2-naphthylcarboxamide
CP-226,269: 5-Fluoro-2-[[4-(2-pyridinyl)-1-piperazinyl]methyl]-1H-indole
CP-293,019: 7-[[4-Fluorophenoxy)methyl]-2-(5-fluoro-2-pyrimidinyl)octahydro-(7R,9aS)-2H-pyrrolo[1,2-a]pyrazine
GR 103,691: {4'-Acetyl-N-{4-[(2-methoxy-phenyl)-piperazin-1-yl]-butyl}-biphenyl-4-carboxamide
KCH-1110: 1-(2-Ethoxy-phenyl)-4-[3-(3-thiophen-2-yl-isoxazolin-5-yl)-propyl]-piperazine
L-741,626: (±)-3-[4-(4-Chlorophenyl)-4-hydroxypiperidinyl]-methylindole
L-745,870: 3-[[4-(4-Chlorophenyl)piperazin-1-yl]methyl]-1H-pyrrolo[2,3-b]pyridine
L-750,667: (±)-3-[4-Iodophenyl)-1-piperazinyl]methylpyrrolo[2,3-b]pyrimidine

7-OH-DPAT: 2-Dipropylamino-7-hydroxy-1,2,3,4-tetrahydronaphthalene
R(+)-7-OH-DPAT: R(+)-2-Dipropylamino-7-hydroxy-1,2,3,4-tetrahydronaphthalene
7-OH-PIPAT: (+)-7-Hydroxy-2-(N-n-propyl-N-3'-iodo-2-propenyl)aminotetralin
PD 128,907: 3,4,4a,10b-Tetrahydro-4-propyl-2H,5H-(1)benzopyrano(4,3-b)-1,4-oxazin-9-ol
PD 168,077: N-[[4-(2-Cyanophenyl)-1-piperazinyl]methyl]-3-methyl-benzamide
RBI-257: 1-[4-Iodobenzyl]-4-[[2-[3-isopropoxy]pyridyl]-methylamino]piperidine
SB 277011-A: trans-N-[4-[2-(6-Cyano-1,2,3,4-tetrahydroisoquinolin-2-yl)ethyl]cyclohexyl]-4-quinolinecarboxamide
SCH-23390: 7-Chloro-8-hydroxy-3-methyl-1-phenyl-2,3,4,5-tetrahydro-1H-3-benzazepine
SCH-39166: (-)-trans-6,7,7a,8,9,13b-Exahydro-3-chloro-2-hydroxy-N-methyl-5H-benzo-[d]-naphto-[2,1b]-azepine hydrochloride
TNPA: R(-)-2,10,11-Trihydroxy-N-propyl-noraporphine hydrobromide
R(+)-SKF-38393: 1-Phenyl-2,3,4,5-tetrahydro-(1H)-3-benzazepine-7,8-diol
U-101,387: 4-[4-[2-[(1S)-3,4-Dihydro-1H-2-benzopyran-1-yl]ethyl]-1-piperazinyl]-benzenesulfonamide
U-91,356A: (R)-5,6-Dihydro-5-(propylamino)-4H-imidazo[4,5,1-ij]quinolin-2-(1H)-one monohydrochloride
U99194A: 5,6-Dimethoxy-2-(N-dipropyl)-aminoindan

FOOTNOTES

a Deduced aa composition of putative third cytoplasmic loop differs between short and long isoforms.

b Deduced aa composition of putative third cytoplasmic loop varies due to the presence of 40 base pair repeats. The number of repeats is sometimes indicated (e.g., D4.2 for two repeats).