

Profiles
October 22, 2015

PHILIP SEEMAN
LIST OF PUBLICATIONS
[Square brackets indicate peer-reviewed publications]

- 3.[1]. BURGEN, A.S.V. and **SEEMAN, P.**: The role of the salivary duct system in the formation of the saliva. *Canadian Journal of Biochemistry and Physiology* 36: 119-143 (1958).
- 4.[2]. **SEEMAN, P.** and O'BRIEN, E.: Sodium-potassium-activated adenosine triphosphatase in schizophrenic erythrocytes. *Nature* 200: 263-264 (1963).
- 5.[3] FORTUINE, R., DYMENT, P., ROBSON, H., SZWARC, M., **SEEMAN, P.**: Catching up with Cabot. *British Medical Journal*: May 16: p. 1304 (1959).
- 6.[4]. **SEEMAN, P.** and BIALY, H.S.: The surface activity of tranquilizers. *Biochemical Pharmacology* 12: 1181-1191 (1963).
- 7.[5]. BURGEN, A.S.V. and **SEEMAN, P.**: The secretion of iodide in saliva. *Canadian Journal of Biochemistry and Physiology* 35: 481-489 (1957).
- 8.[6]. **SEEMAN, P.**: Erythrocyte membrane stabilization by steroids and alcohols: A possible model for anesthesia. *Biochemical Pharmacology* 15: 1632-1637 (1966).
- 9.[7]. **SEEMAN, P.**: A method for distinguishing specific from nonspecific hemolysins. *Biochemical Pharmacology* 15: 1767-1774 (1966).
- 10.[8]. **SEEMAN, P.**: Erythrocyte membrane stabilization by local anesthetics and tranquilizers. *Biochemical Pharmacology* 15: 1753-1766 (1966).
- 11.[9]. **SEEMAN, P.**, and WEINSTEIN, J.: Erythrocyte membrane stabilization by tranquilizers and anti-histamines. *Biochemical Pharmacology* 15: 1737-1752 (1966).
- 12.[10]. **SEEMAN, P.**: Membrane stabilization by drugs: Tranquilizers, steroids and anesthetics. *International Review of Neurobiology* 9: 145-221 (1966).
- 13.[11]. **SEEMAN, P.**: Transient holes in the erythrocyte membrane during hypotonic hemolysis and stable holes in the membrane after lysis by saponin and lysolecithin. *Journal of Cell Biology* 32: 55-70 (1967).
- 14.[12]. **SEEMAN, P.**, and PALADE, G.E.: Acid phosphatase localization in rabbit eosinophils. *Journal of Cell Biology* 34: 745-756 (1967).
- 16.[13]. METCALFE, J., **SEEMAN, P.**, and BURGEN, A.S.V.: The proton relaxation of benzyl alcohol in erythrocyte membranes. *Molecular Pharmacology* 4: 87-95 (1968).
- 17.[14]. **SEEMAN, P.**: Membrane stabilization and expansion by drugs. In: *Metabolism and membrane permeability of erythrocytes and thrombocytes*, edited by E. Deutsch, E. Gerlach and K. Moser, Georg Thieme Verlag, Stuttgart, 384-391 (1968).
- 18.[15]. **SEEMAN, P.**: Membrane expansion and stabilization by anesthetics and other drugs. In: *Permeability and function of biological membranes*, edited by R.D. Keynes, W.R. Loewenstein and B.A. Pethica, North-Holland, New York, 1970, pp. 40-56.

- 19.[16]. **SEEMAN, P.**, SAUKS, T., ARGENT, W. and KWANT, W.: The effect of membrane strain-rate and of temperature on erythrocyte fragility and critical hemolytic volume. *Biochimica Et Biophysica Acta* 183: 476-489 (1969).
- 20.[17]. **SEEMAN, P.**, KWANT, W.O., SAUKS, T. and ARGENT, W.: Membrane expansion of intact erythrocytes by anesthetics. *Biochimica Et Biophysica Acta* 183: 490-498 (1969).
- 21.[18]. **SEEMAN, P.**, KWANT, W.O. and SAUKS, T. : Membrane expansion of erythrocyte ghosts by tranquilizers and anesthetics. *Biochimica Et Biophysica Acta* 183: 499-511 (1969).
- 22.[19]. **SEEMAN, P.**, and KWANT, W.O.: Membrane expansion of the erythrocyte by both the neutral and ionized forms of chlorpromazine. *Biochimica Et Biophysica Acta* 183: 512-519 (1969).
- 23.[20]. **SEEMAN, P.**: Temperature dependence of erythrocyte membrane expansion by alcohol anesthetics. Possible support for the partition theory of anesthesia. *Biochemica Et Biophysica Acta* 183: 520-529 (1969).
- 24.[21]. KWANT, W.O., and **SEEMAN, P.**: The membrane concentration of a local anesthetic (chlorpromazine). *Biochimica Et Biophysica Acta* 183: 530-543 (1969).
- 31.[22]. KWANT, W.O. and **SEEMAN, P.**: The erythrocyte ghost is a perfect osmometer. *Journal of General Physiology* 55: 208-219 (1970).
- 33.[23]. KWANT, W.O. and **SEEMAN, P.**: The displacement of membrane calcium by a local anesthetic (chlorpromazine). *Biochimica Et Biophysica Acta* 193: 338-349 (1969).
- 34.[24]. BRAUN, W., ISHIZUKA, M. and **SEEMAN, P.**: Suppression and enhancement of antibody formation by alteration of Ca^{2+} levels. *Nature* 226: 945-946 (1970).
- 35.[25]. **SEEMAN, P.**: The membrane expansion theory of anesthesia. In: *Molecular mechanisms of anesthesia*, edited by B.R. Fink, Raven Press, New York, 243-251 (1975).
- 36.[26]. MACLENNAN, D.H., **SEEMAN, P.**, ILES, G.H. and YIP, C.C.: Membrane formation by the adenosine triphosphatase of sarcoplasmic reticulum. *Journal of Biological Chemistry* 246: 2702-2710 (1971).
- 37.[27]. **SEEMAN, P.**, SHA'AFI, R., GALEY, W.R. and SOLOMON, A.K.: The effect of anesthetics (chlorpromazine, ethanol) on erythrocyte permeability to water. *Biochimica Et Biophysica Acta* 211: 365-368 (1970).
- 38.[28]. **SEEMAN, P.**, ROTH, S. and SCHNEIDER, H.: The membrane concentrations of alcohol anesthetics. *Biochimica Et Biophysica Acta* 225: 171-184 (1971).
- 39.[29]. **SEEMAN, P.**, CHAU, M., GOLDBERG, M., SAUKS, T. and SAX, L.: The binding of Ca^{2+} to the cell membrane increased by volatile anesthetics (alcohols, acetone, ether) which induce sensitization of nerve or muscle. *Biochimica Et Biophysica Acta* 225: 185-193 (1971).
- 40.[30]. KWANT, W.O. and **SEEMAN, P.**: Chlorpromazine adsorption to brain regions. *Biochemical Pharmacology* 20: 2089-2091 (1971).
- 41.[31]. THORPE, W.R. and **SEEMAN, P.**: Effect of denervating skeletal muscle on calcium binding by isolated sarcolemma. *Experimental Neurology* 30: 277-290 (1971).
- 42.[32]. **SEEMAN, P.**: Membrane anesthesia. In: *Biological horizons in surface science*, F. Sears and L.M. Prince (Eds.), Academic Press, New York, 289-308 (1973).

- 44.[33]. ROTH, S. and **SEEMAN, P.**: All lipid-soluble anesthetics protect red cells. *Nature* 231: 284-285 (1971).
- 45.[34]. **SEEMAN, P.**, KWANT, W.O., GOLDBERG, M. and CHAU-WONG, M.: The effects of ethanol and chlorpromazine on the passive membrane permeability to sodium ions. *Biochimica Et Biophysica Acta* 241: 349-355 (1971).
- 47.[35]. CHAU-WONG, M. and **SEEMAN, P.**: The control of membrane-bound calcium ions by ATP. *Biochimica Et Biophysica Acta* 241: 473-482 (1971).
- 48.[36]. THORPE, W.R. and **SEEMAN, P.**: The site of action of caffeine and procaine in skeletal muscle. *Journal of Pharmacology and Experimental Therapeutics* 179: 324-330 (1971).
- 50.[37]. **SEEMAN, P.**: The membrane actions of anesthetics and tranquilizers. *Pharmacological Reviews* 24: 583-655 (1972).
- 51.[38]. MACHLEIDT, H., ROTH, S. and **SEEMAN, P.**: The hydrophobic expansion of erythrocyte membranes by the phenol anesthetics. *Biochimica Et Biophysica Acta* 255: 178-189 (1972).
- 52.[39]. **SEEMAN, P.** and ROTH, S.: General anesthetics expand cell membranes at surgical concentrations. *Biochimica Et Biophysica Acta* 255: 171-177 (1972).
- 53.[40]. ROTH, S. and **SEEMAN, P.**, AKERMAN, S.B.A. and CHAU-WONG, M.: The action and adsorption of local anesthetic enantiomers on erythrocyte and synaptosome membranes. *Biochimica Et Biophysica Acta* 255: 199-206 (1972).
- 54.[41]. ROTH, S. and **SEEMAN, P.**: Anesthetics expand erythrocyte membranes without causing loss of K⁺. *Biochimica Et Biophysica Acta* 255: 190-198 (1972).
- 55.[42]. ROTH, S. and **SEEMAN, P.**: The membrane concentrations of neutral and positive anesthetics (alcohol, chlorpromazine, morphine) fit the Meyer-Overton rule of anesthesia; negative narcotics do not. *Biochimica Et Biophysica Acta* 255: 207-219 (1972).
- 56.[43]. THORPE, W. and **SEEMAN, P.**: Drug-induced contracture of muscle. *Int. Symp. on Malignant Hyperthermia*, edited by R.A. Gordon, B.A. Britt and W. Kalow, C.C. Thomas, USA, 152-162 (1972).
- 61.[44]. MACLENNAN, D.H., ILES, G.H., YIP, C.C. and **SEEMAN, P.**: Isolation of sarcoplasmic reticulum proteins. *Cold Spring Harbour Symposium* 37: 469-477 (1973).
- 62.[45]. **SEEMAN, P.**: Membrane ultrastructure of complement-induced lesions. In: *Recent physical studies of the structure of biomembranes*, edited by D. Chapman; and In: *Chemistry and Physics of Lipids* 8: 270-277 (1972).
- 63.[46]. **SEEMAN, P.**: Drug-induced expansion of biomembranes. In: *Recent physical studies of structure of biomembranes*, edited by D. Chapman; and In: *Chemistry and Physics of Lipids* 8: 361-365 (1972).
- 65.[47]. THORPE, W.R. and **SEEMAN, P.**: On the mechanism of the nicotine-induced contracture of skeletal muscle. *Canadian Journal of Physiology and Pharmacology* 50: 920-923 (1972).
- 66.[48]. **SEEMAN, P.**, CHAU-WONG, M. and MOYYEN, S.: Membrane expansion by vinblastine and strychnine. *Nature* 241: 22 (1973).

- 67.[49]. **SEEMAN, P.**: Macromolecules may inhibit diffusion of hemoglobin from lysing erythrocytes by exclusion of solvent. *Canadian Journal of Physiology and Pharmacology* 51: 226-229 (1973).
- 68.[50]. **SEEMAN, P.** and ILES, G.H.: Pits in the freeze-cleavage plane of normal erythrocyte membranes; and ultrastructure of membrane lesions in immune lysis. *Nouvelle Revue Française d'Hematologie* 12: 889-900 (1972).
- 69.[51]. **SEEMAN, P.**, CHENG, D. and ILES, G.H.: Structure of membrane holes in osmotic and saponin hemolysis. *Journal of Cell Biology* 56: 519-527 (1973).
- 70.[52]. ILES, G.H., **SEEMAN, P.**, NAYLOR, D. and CINADER, B.: Membrane lesions in immune lysis: Surface rings, globule aggregates and transient openings. *Journal of Cell Biology* 56: 528-539 (1973).
- 71.[53]. **SEEMAN, P.**, CHAU-WONG, M. and MOYYEN, S.: Adsorption and conduction-block of opiate narcotics on nerve membranes: identical effects of levo- and dextro-forms. *Canadian Journal of Physiology and Pharmacology* 50: 1181-1192 (1972).
- 72.[54]. **SEEMAN, P.**, CHAU-WONG, M. and MOYYEN, S.: Membrane binding of morphine, diphenylhydantoin and tetrahydrocannabinol. *Canadian Journal of Physiology and Pharmacology* 50: 1193-1200 (1972).
- 73.[55]. **SEEMAN, P.**: The pH concept. *Science* 177: 835-836 (1972).
- 76.[56]. **SEEMAN, P.**: The molecular basis of fluidity in membranes. In: *Recent physical studies of structure of biomembranes*, edited by D. Chapman, 1972, North-Holland, Amsterdam; and In: *Chemistry and Physics of Lipids* 8: 311-313 (1972).
- 77.[57]. NAFTALIN, R.J., **SEEMAN, P.**, SIMMONS, N.L. and SYMONS, M.C.R.: A sugar-dependent increase in red cell stability. *Biochimica Et Biophysica Acta* 352: 146-171 (1974).
- 79.[58]. **SEEMAN, P.** : Teach cH, not pH. *Biochemical Education Quarterly Bulletin, International Union of Biochemistry* 1(3): 44-47 (1973).
- 80.[59]. **SEEMAN, P.** and ILES, G.H.: Pits in the freeze-cleavage plane of normal erythrocyte membranes; and ultrastructure of membrane lesions in immune lysis. In: *Red cell shape; physiology, pathology, ultrastructure*, edited by M. Bessis, R.I. Weed and P.F. Leblond, Springer-Verlag, New York, pp. 169-180, 1973.
- 81.[60]. **SEEMAN, P.**, STAIMAN, A., LEE, T. and CHAU-WONG, M. : The membrane actions of tranquilizers in relation to neuroleptic-induced Parkinsonism and tardive dyskinesia. *Advances in Biochemical Psychopharmacology* 9: 137-148 (1974).
- 82.[61]. **SEEMAN, P.**, STAIMAN, A. and CHAU-WONG, M.: The nerve impulse-blocking actions of tranquilizers, and the binding of neuroleptics to synaptosome membranes. *Journal of Pharmacology and Experimental Therapeutics* 190: 123-130 (1974).
- 83.[62]. **SEEMAN, P.** and LEE, T.: The dopamine-releasing actions of neuroleptics and ethanol. *Journal of Pharmacology and Experimental Therapeutics* 190: 131-140 (1974).
- 84.[63]. STAIMAN, A. and **SEEMAN, P.**: The impulse-blocking concentrations of anesthetics, alcohols, anti-convulsants, barbiturates and narcotics on phrenic and sciatic nerves. *Canadian Journal of Physiology and Pharmacology* 52: 535-550 (1974).

- 85.[64]. MULLER, P., **SEEMAN, P.** and SPERO, L.: The additive effects of tranquilizers and dopamine on smooth muscle. *Canadian Journal of Physiology and Pharmacology* 52: 551-557 (1974).
- 86.[65]. **SEEMAN, P.** and LEE, T.: Enhanced binding of chlorpromazine to cholesterol-depleted nerve membranes. *Canadian Journal of Physiology and Pharmacology* 52: 522-525 (1974).
- 87.[66]. **SEEMAN, P.**, MACHLEIDT, H., KAHLING, J. and SENGUPTA, S.: A new prolonged-acting type of chlorpromazine: Behavioural effects and prolonged actions on nerve membranes. *Canadian Journal of Physiology and Pharmacology* 52: 558-565 (1974).
- 88.[67]. **SEEMAN, P.**, CHEN, S.S., CHAU-WONG, M. and STAIMAN, A.: Calcium reversal of nerve blockade by alcohols, anesthetics, tranquilizers and barbiturates. *Canadian Journal of Physiology and Pharmacology* 52: 526-534 (1974).
- 96.[68]. **SEEMAN, P.**: The membrane expansion theory of anesthesia: Direct evidence using ethanol and a high-precision density meter. *Experientia* 30: 759-760 (1974).
- 98.[69]. **SEEMAN, P.**: The actions of nervous system drugs on cell membranes. *Hospital Practice* 9(9): 93-101 (1974).
- 100.[70]. **SEEMAN, P.** and BROWN, G.M. (Editors): *Frontiers in Neurology and Neuroscience Research 1974. First International Symposium of the Neuroscience Institute, University of Toronto.* Univ. of Toronto Press, August, 1974, 154 pages. **Book.**
- 101.[71]. **SEEMAN, P.** and LEE, T.: Antipsychotic drugs: Direct correlation between clinical potency and presynaptic action on dopamine neurones. *Science* 188: 1217-1219 (1975).
- 102.[72]. **SEEMAN, P.**: Answers of an M.D. to questions of an M.P. *Canadian Medical Association Journal* 111: 707-730 (1974)
- 103.[73]. MULLER, P. and **SEEMAN, P.**: Neuroleptics: Relation between cataleptic and anti-turning actions, and role of the cholinergic system. *Journal of Pharmacy and Pharmacology* 26: 981-984 (1974).
- 104.[74]. **SEEMAN, P.** and LEE, T.: Neuroleptic drugs: Direct correlation between clinical potency and presynaptic action on dopamine neurons. In: *Antipsychotic drugs, pharmacodynamics and pharmacokinetics*, edited by G. Sedvall, Karolinska Institute, Pergamon Press Ltd., Oxford, pp. 183-191 (1976).
- 106.[75]. STAIMAN, A.L., and **SEEMAN, P.**: Different sites of membrane action for tetrodotoxin and lipid-soluble anesthetics. *Canadian Journal of Physiology and Pharmacology* 53: 513-524 (1975).
- 108.[76]. **SEEMAN, P.**: Action and interaction of psychoactive drugs on nerve impulse conduction and release of neurotransmitters. In: *Clinical pharmacology of psychoactive drugs*, edited by E.M. Sellers, Alcoholism and Drug Addiction Research Foundation, Toronto, pp. 165-170 (1975).
- 109.[77]. **SEEMAN, P.**, and SELLERS, E.M.: Editors, *Principles Of Medical Pharmacology.* First Edition, 1975, 448 pages, University of Toronto Press. **Book.**
- 114.[78]. **SEEMAN, P.**: The actions of nervous system drugs on cell membranes. In: *Cell membranes, biochemistry, cell biology and pathology*, edited by G. Weissmann and R. Claiborne, HP Publ. Co., New York, N.Y. pp. 239-248 (1975).

- 115.[79]. **SEEMAN, P.**, CHAU-WONG, M., TEDESCO, J., and WONG, K.: Brain receptors for antipsychotic drugs and dopamine: Direct binding assays. *Proceedings of the National Academy of Sciences, U.S.A.* 72: 4376-4380 (1975).
- 118.[80]. **SEEMAN, P.**, LEE, T., CHAU-WONG, M., and WONG, K.: Antipsychotic drug doses and neuroleptic/dopamine receptors. *Nature* 261: 717-719 (1976).
- 119.[81]. BROWN, G.M., **SEEMAN, P.**, and LEE, T.: Dopamine/neuroleptic receptors in basal hypothalamus and pituitary. *Endocrinology* 99: 1407-1410 (1976).
- 120.[82]. **SEEMAN, P.**, and SELLERS, E.M.: Editors, *Principles Of Medical Pharmacology*. Second Edition, 489 pages, University of Toronto Press, 1976. **Book**.
- 121.[83]. EZRIN-WATERS, C., MULLER, P., and **SEEMAN, P.**: Catalepsy induced by morphine or haloperidol: Effects of apomorphine and anticholinergic drugs. *Canadian Journal of Physiology and Pharmacology* 54: 516-519 (1976).
- 122.[84]. STAIMAN, A. and **SEEMAN, P.**: Conduction-blocking concentrations of anesthetics increase with nerve axon diameter: Studies with alcohol, lidocaine and tetrodotoxin on single myelinated fibers. *Journal of Pharmacology and Experimental Therapeutics* 201: 340-349 (1977).
- 123.[85]. **SEEMAN, P.**, LEE, T., CHAU-WONG, M., TEDESCO, J., and WONG, K.: Dopamine receptors in human and calf brains, using ^3H -apomorphine and an antipsychotic drug. *Proceedings of the National Academy of Sciences, U.S.A.* 73: 4354-4358 (1976).
- 124.[86]. EZRIN-WATERS, C., and **SEEMAN, P.**: Tolerance to haloperidol catalepsy. *European Journal of Pharmacology* 41: 321-327 (1977).
- 125.[87]. **SEEMAN, P.**: Anti-schizophrenic drugs: Membrane receptor sites of action. *Biochemical Pharmacology* 26: 1741-1748 (1977).
- 126.[88]. CURRAN, M., and **SEEMAN, P.**: Alcohol tolerance in a cholinergic nerve terminal. Relation to the membrane expansion-fluidization theory of ethanol action. *Science* 197: 910-911 (1977).
- 127.[89]. **SEEMAN, P.**: Anesthetics and pressure reversal of anesthesia: Expansion and recompression of membrane proteins, lipids and water. *Anesthesiology* 47: 1-3 (1977).
- 128.[90]. WHITAKER, P.M., and **SEEMAN, P.**: Hallucinogen binding to dopamine/neuroleptic receptors. *Journal of Pharmacy and Pharmacology* 29: 506-507 (1977).
- 129.[91]. FRIEND, W.C., BROWN, G.M., JAWAHIR, G., LEE, T., and **SEEMAN, P.**: Effect of haloperidol and apomorphine treatment on dopamine receptors in pituitary and striatum. *American Journal of Psychiatry* 135: 839-841 (1978).
- 130.[92]. **SEEMAN, P.**: Brain chemistry, schizophrenia and major tranquilizers. *Health Research Ontario*. Ministry of Health, Government of Ontario, Toronto, pp. 115-124 (1977).
- 131.[93]. **SEEMAN, P.**, TEDESCO, J.L., LEE, T., CHAU-WONG, M., MULLER, P., BOWLES, J., WHITAKER, P.M., McMANUS, C., TITTLER, M., WEINREICH, P., FRIEND, W.C., and BROWN, G.M.: Dopamine receptors in the central nervous system. *Federation Proceedings* 37: 130-136 (1978).
- 140.[94]. **SEEMAN, P.**, TITTLER, M., TEDESCO, J., and LEE, T.: Neuroleptic sites of membrane action: Nonspecific (anesthetic) and specific (dopamine receptors). In: *Biological Activity*

and Chemical Structure. International Symposium of the IUPHAR-IUPAC Medicinal Chemistry series, The Netherlands, Elsevier Publ. Co., pp. 131-145 (1977).

- 141.[95]. EZRIN-WATERS, C., and **SEEMAN, P.**: Haloperidol-induced tolerance to morphine catalepsy. *Life Sciences* 21: 419-422 (1977).
- 142.[96]. **SEEMAN, P.**, TITELER, M., TEDESCO, J., WEINREICH, P., and SINCLAIR, D.: Brain receptors for dopamine and neuroleptics. *Advances in Biochemical Psychopharmacology* 19: 167-176 (1978).
- 143.[97]. TITTLER, M., WEINREICH, P., and **SEEMAN, P.**: New detection of brain dopamine receptors with ^3H -dihydroergocryptine. *Proceedings of the National Academy of Sciences, U.S.A.* 74: 3750-3753 (1977).
- 144.[98]. MULLER, P., and **SEEMAN, P.**: Effect of long-term neuroleptic treatment on neurotransmitter receptors: Relation to tardive dyskinesia. In: *Tardive dyskinesia*, edited by J.M. Davis, W.E. Fann, E. Domino and R.C. Smith, Spectrum John Wiley Press, New York (1977), pp. 405-410.
- 145.[99]. MULLER, P., and **SEEMAN, P.**: Brain neurotransmitter receptors after long-term haloperidol: Dopamine, acetylcholine, serotonin, alpha-adrenergic and naloxone receptors. *Life Sciences* 21: 1751-1758 (1977).
- 146.[100]. LEE, T., **SEEMAN, P.**, TOURTELLOTTE, W.W., FARLEY, I.J., and HORNYKIEWICZ, O.: Binding of ^3H -neuroleptics and ^3H -apomorphine in schizophrenic brains. *Nature* 274: 897-900 (1978).
- 147.[101]. LEE, T., **SEEMAN, P.**, RAJPUT, A., FARLEY, I.J., and HORNYKIEWICZ, O.: Receptor basis for dopaminergic supersensitivity in Parkinson's disease. *Nature* 273: 59-61 (1978).
- 148.[102]. NAGY, J.I., LEE, T., **SEEMAN, P.**, and FIBIGER, H.C.: Direct evidence for presynaptic and postsynaptic dopamine receptors in brain. *Nature* 274: 278-281 (1978).
- 149.[103]. EZRIN-WATERS, C., and **SEEMAN, P.**: L-DOPA reversal of hyperdopaminergic behaviour. *Life Sciences* 22: 1027-1032 (1978).
- 150.[104]. TITELER, M., WEINREICH, P., SINCLAIR, D., and **SEEMAN, P.**: Multiple receptors for brain dopamine. *Proceedings of the National Academy of Sciences, U.S.A.* 75: 1153-1156 (1978).
- 151.[105]. WHITAKER, P.M., and **SEEMAN, P.**: Selective labeling of serotonin receptors by ^3H -LSD in calf caudate. *Proceedings of the National Academy of Sciences, U.S.A.* 75: 5783-5787 (1978).
- 152.[106]. McMANUS, C., HARTLEY, E.J., and **SEEMAN, P.**: Increased binding of ^3H -apomorphine in caudate membranes after dopamine pretreatment in vitro. *Journal of Pharmacy and Pharmacology* 30: 444-447 (1978).
- 153.[107]. MULLER, P., and **SEEMAN, P.**: Dopaminergic supersensitivity after neuroleptics: Time-course and specificity. *Psychopharmacology* 60: 1-11 (1978).
- 156.[108]. MULLER, P., BRITTON, R.S., and **SEEMAN, P.**: The effects of long-term ethanol on brain receptors for dopamine, acetylcholine, serotonin and noradrenaline. *European Journal of Pharmacology* 65: 31-37 (1980).

- 157.[109]. TITELER, M., and **SEEMAN, P.**: Selective labeling of alpha-adrenergic receptors in caudate nucleus by ^3H -dihydroergocryptine in the presence of spiperone-blocked dopamine receptors. *Proceedings of the National Academy of Sciences, U.S.A.* 75: 2249-2253 (1978).
- 158.[110]. **SEEMAN, P.**, TEDESCO, J., TITELER, M., and HARTLEY, E.J.: Anti-schizophrenic drugs: Membrane receptor sites of action. In: *Neuropsychopharmacology*, edited by C. Dumont, *Advances in Pharmacology and Therapeutics* 5: 3-20, Pergamon Press, Oxford, 1978.
- 159.[111]. TITELER, M., TEDESCO, J.L., and **SEEMAN, P.**: Selective labeling of presynaptic receptors by ^3H -dopamine, ^3H -apomorphine and ^3H -clonidine; labeling of postsynaptic sites by ^3H -neuroleptics. *Life Sciences* 23: 587-592 (1978).
- 160.[112]. HARTLEY, E.J., and **SEEMAN, P.**: The effect of varying ^3H -spiperone concentration on its binding parameters. *Life Sciences* 23: 513-518 (1978).
- 162.[113]. CURRAN, M., and **SEEMAN, P.**: Mechanisms of ethanol tolerance at a cholinergic nerve terminal. *Drug and Alcohol Dependence* 4: 167-172 (1978).
- 163.[114]. DIRENFELD, L., SPERO, L., MAROTTA, J., and **SEEMAN, P.**: The L-DOPA on-off effect in Parkinson disease: Treatment by transient drug withdrawal and dopamine receptor resensitization. *Annals of Neurology* 4: 573-575 (1978).
- 164.[115]. TITELER, M., and **SEEMAN, P.**: Antiparkinsonian drug doses and neuroleptic receptors. *Experientia* 34: 1491-1492 (1978).
- 166.[116]. MULLER, P., and **SEEMAN, P.**: Presynaptic subsensitivity as a possible basis of dopaminergic sensitization by long-term dopamine-mimetics. *European Journal of Pharmacology* 55: 149-157 (1979).
- 167.[117]. TEDESCO, J.L., **SEEMAN, P.**, and McDERMED, J.D.: The conformation of dopamine at its receptor: Binding of monohydroxy-2-aminotetralin enantiomers and positional isomers. *Molecular Pharmacology* 16: 369-381 (1979).
- 173.[118]. TITELER, M., **SEEMAN, P.**, and HENN, F.: Differential centrifugation of ^3H -apomorphine and ^3H -spiroperidol binding sites. *European Journal of Pharmacology* 51: 459-460 (1978).
- 174.[119]. **SEEMAN, P.**, WOODRUFF, G.N., and POAT, J.: Similar binding of ^3H -ADTN and ^3H -apomorphine to calf brain dopamine receptors. *European Journal of Pharmacology* 55: 137-142 (1979).
- 175.[120]. TAM, S., and **SEEMAN, P.**: Neuroleptic receptors in calf caudate: Solubilization by digitonin. *European Journal of Pharmacology* 52: 151-152 (1978).
- 176.[121]. EZRIN-WATERS, C., SEEMAN, M.V., and **SEEMAN, P.**: Tardive dyskinesia in schizophrenic outpatients: Prevalence and significant variables. *Journal of Clinical Psychiatry* 42: 16-22 (1981).
- 177.[122]. **SEEMAN, P.**, WESTMAN, K., PROTIVA, M., JILEK, J., JAIN, P.C., SAXENA, A.K., ANAND, N., HUMBER, L., and PHILIPP, A.: Neuroleptic receptors: Stereoselectivity for neuroleptic enantiomers. *European Journal of Pharmacology* 56: 247-251 (1979).
- 178.[123]. LIST, S., and **SEEMAN, P.**: Dopamine agonists reverse the elevated ^3H -neuroleptic binding in neuroleptic-pretreated rats. *Life Sciences* 24: 1447-1452 (1979).
- 179.[124]. WHITAKER, P.M., and **SEEMAN, P.**: High affinity ^3H -serotonin binding to caudate: Inhibition by hallucinogens and serotonergic drugs. *Psychopharmacology* 59: 1-5 (1978).

- 181.[125]. HARTLEY, E.J., SPUHLER, K., PRASAD, K.N., and **SEEMAN, P.**: A neuroblastoma clone which has dopamine-sensitive adenylate cyclase but which lacks stereospecific binding site for the neuroleptic ³H-spiperone. *Brain Research* 190: 574-577 (1980).
- 182.[126]. WHITAKER, P.M., and **SEEMAN, P.**: Selective labeling of apomorphine receptors by ³H-LSD. *European Journal of Pharmacology* 56: 269-271 (1979).
- 184.[127]. TITELER, M., and **SEEMAN, P.**: Ergot and catecholamine potencies at catecholamine receptors. In: *Ergot compounds and brain function: Neuroendocrine and neuropsychiatric aspects*. *Advances in Biochemical Psychopharmacology* 23: 35-40 (1980).
- 185.[128]. **SEEMAN, P.**, LEE, T., BIRD, E.D., and TOURTELLOTTE, W.W.: Elevation of brain neuroleptic/dopamine receptors in schizophrenia. In: *Perspectives in schizophrenia research*, edited by C. Baxter and T. Melnechuk, Raven Press, New York, 1980, pp. 195-202.
- 186.[129]. LIST, S., and **SEEMAN, P.**: Neuroleptic/dopamine receptors; elevation and reversal. In: *Long-term effects of neuroleptics*. *Advances in Biochemical Psychopharmacology* 24: 95-101 (1980).
- 187.[130]. LEE, T., and **SEEMAN, P.**: Elevation of brain neuroleptic/dopamine receptors in schizophrenia. *American Journal of Psychiatry* 137: 191-197 (1980).
- 188.[131]. DIRENFELD, L., SPERO, L., MAROTTA, J., and **SEEMAN, P.**: Chronic agonist-induced hypersensitivity and on-off hyperkinesia; Reply. *Annals of Neurology* 6: 277-279 (1979).
- 189.[132]. WEINREICH, P., and **SEEMAN, P.**: Effect of kainic acid on striatal dopamine receptors. *Brain Research* 198: 491-496 (1980).
- 190.[133]. **SEEMAN, P.**, WESTMAN, K., COSCINA, D., and WARSH, J.J.: Serotonin receptors in hippocampus and frontal cortex. *European Journal of Pharmacology* 66: 179-191 (1980).
- 192.[134]. TITELER, M., and **SEEMAN, P.**: In vitro measurement of brain receptors for dopamine and neuroleptics. In: *The neurobiology of dopamine*, edited by A.S. Horn, B.H.C. Westerink and J. Korf, Academic Press (1979), p. 179-195.
- 195.[135]. TITELER, M., and **SEEMAN, P.**: Selective labeling of different dopamine receptors by a new agonist ³H-ligand: ³H-N-propylnorapomorphine. *European Journal of Pharmacology* 56: 291-292 (1979).
- 196.[136]. TITELER, M., and **SEEMAN, P.**: Radioreceptor labeling of pre- and post-synaptic dopamine receptors. In: *Long-term effects of neuroleptics*. *Advances in Biochemical Psychopharmacology* 24: 159-165 (1980).
- 202.[137]. LEE, T., and **SEEMAN, P.**: Abnormal neuroleptic/dopamine receptors in schizophrenia. *Advances in Biochemical Psychopharmacology* 21: 435-442 (1980).
- 203.[138]. **SEEMAN, P.**, SELLERS, E.M., and ROSCHLAU, W.H.E.: Editors, *Principles of Medical Pharmacology*. Third Edition, 690 pages, 1980. **Book**.
- 204.[139]. TITELER, M., LIST, S., and **SEEMAN, P.**: High-affinity dopamine receptors (D₃) in rat brain. *Communications in Psychopharmacology* 3: 411-420 (1979).
- 205.[140]. TANG, S.W., and **SEEMAN, P.**: Effect of antidepressant drugs on serotonergic and adrenergic receptors. *Naunyn-Schmiedeberg's Archives of Pharmacology* 311: 255-261 (1980).

- 206.[141]. LIST, S., TITELER, M., and **SEEMAN, P.**: High-affinity ^3H -dopamine receptors (D_3 sites) in human and rat brain. *Biochemical Pharmacology* 29: 1621-1622 (1980).
- 207.[142]. WEINREICH, P., DECK, J., and **SEEMAN, P.**: Multiple binding sites in human brain for ^3H -clonidine and ^3H -WB-4101. *Biochemical Pharmacology* 29: 1869-1870 (1980).
- 208.[143]. TITELER, M., and **SEEMAN, P.**: Presynaptically acting catecholamines bind to α_2 -adrenoceptors labelled by ^3H -clonidine. *European Journal of Pharmacology* 67: 187-192 (1980).
- 209.[144]. FIRNAU, G., GARNETT, S., MARSHALL, A.M., **SEEMAN, P.**, TEDESCO, J., and KIRK, K.L.: Effects of fluoro-dopamines on dopamine receptors (D_1 , D_2 , D_3 sites). *Biochemical Pharmacology* 30: 2927-2930 (1980).
- 214.[145]. MADRAS, B., DAVIS, A., KUNASHKO, P., and **SEEMAN, P.**: Solubilization of dopamine receptors from human and dog brain. In: *Psychopharmacology and biochemistry of neurotransmitter receptors*, edited by H. Yamamura, R. Olsen and E. Usdin, Elsevier North Holland, New York, pp. 411-419, 1980.
- 215.[146]. LIST, S., and **SEEMAN, P.**: Dopamine receptors in human brain: Comparison with rat and calf brain. In: *Transmitter biochemistry of human brain tissue*, edited by E. Usdin and P. Riederer, Macmillan, London, pp. 195-202, 1980.
- 216.[147]. HELMESTE, D.M., **SEEMAN, P.**, and COSCINA, D.V.: Relation between brain catecholamine receptors and dopaminergic stereotypy in rat strains. *European Journal of Pharmacology* 69: 465-470 (1981).
- 223.[148]. **SEEMAN, P.**: Current biochemical research (on schizophrenia). *Montage (Clarke Institute)* 5(2): 1-4 (1979).
- 224.[149]. **SEEMAN, P.**: Dopamine and schizophrenia. *Canadian Psychiatric Association Bulletin*, Sept. 9-1 (1979).
- 225.[150]. DUMBRILLE-ROSS, A., TANG, S.W., and **SEEMAN, P.**: High-affinity binding of ^3H -mianserin to rat cerebral cortex. *European Journal of Pharmacology* 68: 395-396 (1980).
- 226.[151]. LEE, T., **SEEMAN, P.**, HORNYKIEWICZ, O., BILBAO, J., DECK, J., and TOURTELLOTTE, W.: Parkinson's disease: Low density and presynaptic location of D_3 dopamine receptor sites. *Brain Research* 212: 494-498 (1981).
- 227.[152]. DAVIS, A., MADRAS, B., and **SEEMAN, P.**: Solubilization of neuroleptic/dopamine receptors of human brain striatum. *European Journal of Pharmacology* 70: 321-329 (1981).
- 228.[153]. LIST, S.J., and **SEEMAN, P.**: Resolution of the dopamine and serotonin receptor components of ^3H -spiperone binding to rat brain regions. *Proceedings of the National Academy of Sciences, U.S.A.* 78: 2620-2624 (1981).
- 229.[154]. WEINREICH, P., CHIU, A., WARSH, J., and **SEEMAN, P.**: Multiple binding sites for ^3H -clonidine and ^3H -WB-4101 in rat brain. *Canadian Journal of Physiology and Pharmacology* 59: 1170-1177 (1981).
- 230.[155]. TANG, S.W., **SEEMAN, P.**, and KWAN, S.: Differential effect of chronic desipramine and amitriptyline treatment on rat brain adrenergic and serotonergic receptors. *Psychiatry Research* 4: 129-138 (1981).

- 231.[156]. DAVIS, A., MADRAS, B.K., and **SEEMAN, P.**: Solubilized receptors for ³H-dopamine (D₃ binding sites) from canine brain. *Biochemical Pharmacology* 31: 1183-1187 (1982).
- 232.[157]. WEINREICH, P., and **SEEMAN, P.**: Binding of adrenergic ligands ([³H]clonidine and [³H]WB-4101) to multiple sites in human brain. *Biochemical Pharmacology* 30: 3115-3120 (1981).
- 233.[158]. TITELER, M., VAN LOON, G.R., **SEEMAN, P.**, and BROWN, G.M.: D₂ but no D₃ dopamine receptors detected in the anterior pituitary. *European Journal of Pharmacology* 71: 143-146 (1981).
- 234.[159]. LEE, T., and **SEEMAN, P.**: Brain dopamine receptors in schizophrenia. In: *Biological markers in psychiatry and neurology*, E. Usdin and I. Hanin (Eds.), Pergamon Press, New York, pp. 219-226, 1982.
- 235.[160]. **SEEMAN, P.**, TITELER, M., and LIST, S.: Dopamine receptors in brain and pituitary. In: *Brain peptides and hormones*, edited by R. Collu, J.R. Ducharme, A. Barbeau and G. Tolis, Raven Press, New York, pp. 31-42, 1982.
- 236.[161]. CHAN, B., MADRAS, B.K., DAVIS, A., and **SEEMAN, P.**: Assay for soluble dopamine receptors by the precipitation method. *European Journal of Pharmacology* 74: 53-59 (1981).
- 238.[161]. **SEEMAN, P.**, and LIST, S.: Dopamine receptors and dopaminergic supersensitivity. In: *Neurotransmitter Receptors, Advances in Pharmacology and Therapeutics II, 2*, edited by H. Yoshida, Y. Hagihara and S. Ebashi, Pergamon Press, New York, pp. 41-49, 1982.
- 239.[163]. **SEEMAN, P.**, and LEE, T.: Dopamine receptors in the schizophrenic brain. In: *Psychobiology of Schizophrenia (C.u.O. Vogt and M. Hayashi symposium, Gifu, Japan, 1981)*, edited by M. Namba and H. Kaiya, Pergamon Press, pp. 241-247, 1982.
- 240.[164]. **SEEMAN, P.**, and LIST, S.: Multiple receptors for dopamine (D₂, D₃, D₄). In: *Advances in Dopamine Research. Advances in the Biosciences 37*, M. Kohsaka, edited by G.N. Woodruff, T. Shohmori and Y. Tsukada, Pergamon Press, New York, pp. 61-70, 1982.
- 243.[165]. **SEEMAN, P.**: Dopamine receptors in post-mortem schizophrenic brains. *Lancet* i: 1103 (1981).
- 244.[166]. MADRAS, B.K., DAVIS, A., and **SEEMAN, P.**: Comparison of soluble dopamine D₂-receptors from three species. *European Journal of Pharmacology* 78: 431-438 (1982).
- 252.[167]. MADRAS, B.K., DAVIS, A., CHAN, B., and **SEEMAN, P.**: Solubilized dopamine/neuroleptic receptors (D₂-type). *Progress in Neuropsychopharmacology* 5(3): 543-548 (1981).
- 257.[168]. HARTLEY, E.J., and **SEEMAN, P.**: Development of receptors for dopamine and noradrenaline in rat brain. *European Journal of Pharmacology* 91: 391-398 (1983).
- 260.[169]. CHAN, B., **SEEMAN, P.**, DAVIS, A., and MADRAS, B.K.: Ascorbate injury and EDTA (or manganese) protection of dopamine receptors. *European Journal of Pharmacology* 81: 111-116 (1982).
- 261.[170]. HELMESTE, D.M., and **SEEMAN, P.**: Amphetamine-induced hypolocomotion in mice with more brain D₂ dopamine receptors. *Psychiatry Research* 7: 351-360 (1982).
- 262.[171]. HELMESTE, D.M., and **SEEMAN, P.**: ³H-Haloperidol binds to more than one site in rat brain striatum. *Biochem. Pharmacol.* 32: 741-744 (1983).

- 263.[172]. TITELER, M. and **SEEMAN, P.**: Effects of anti-hypertensive clonidine congeners on alpha-adrenergic receptors. *Canadian Journal of Physiology and Pharmacology* 60: 342-344 (1982).
- 264.[173]. LIST, S.J., WREGGETT, K.A., and **SEEMAN, P.**: Striatal binding of ^3H -ADTN to two dopaminergic sites distinguished by their low and high affinity for neuroleptics. *Journal of Neuroscience* 2: 895-906 (1982).
- 265.[174]. LILLY, L., DAVIS, A., FRASER, C.M., **SEEMAN, P.**, and VENTER, J.C.: Characterization of brain D₂ dopamine receptors. *Neurochemistry International* 7: 363-368 (1985).
- 266.[175]. LIST, S., and **SEEMAN, P.**: ^3H -Dopamine labelling of D₃ dopaminergic sites in human, rat and calf brain. *Journal of Neurochemistry* 39: 1363-1373 (1982).
- 267.[176]. **SEEMAN, P.**: Nomenclature of central and peripheral dopaminergic sites and receptors. *Biochemical Pharmacology* 31: 2563-2568 (1982).
- 268.[177]. **SEEMAN, P.**, and SEEMAN, M.V.: Schizophrenia and dopamine receptors. *Psychiatry Newsletter, University of Toronto*, 1: p. 1 (1981).
- 269.[178]. **SEEMAN, P.**, ULPIAN, C., WREGGETT, K.A., and WELLS, J.: Dopamine receptor parameters detected by ^3H -spiperone depend on tissue concentration: analysis and examples. *Journal of Neurochemistry* 43: 221-235 (1984).
- 270.[179]. **SEEMAN, P.**: Dopamine receptor measurement with ^3H -ligands. In: *Methods in Biogenic Amine Research*, edited by S. Parvez, T. Nagatsu and H. Parvez, Elsevier Science, B.V., Amsterdam, 1983, pp. 591-622.
- 271.[180]. **SEEMAN, P.**: Schizophrenia and dopamine receptors. In: *A method of psychiatry*, edited by S.E. Greben, V.M. Rakoff, G. Voineskos, Lea & Febiger, Philadelphia, 1985, pp. 70-77.
- 272.[181]. WREGGETT, K., and **SEEMAN, P.**: Classification and agonist requirements of dopamine receptors. In: *Dopamine Receptor Agonists*, edited by A. Carlsson and J.L.G. Nilsson, Swedish Pharmaceutical Press, Stockholm, 1983, pp. 30-40; *Acta Pharmaceutica Suecica Suppl.* 1: 30-40 (1983).
- 273.[182]. **SEEMAN, P.**: Dopamine receptors in brain. In: *Brain receptor methodologies, Part A*, edited by P.J. Marangos, I.C. Campbell, and R.M. Cohen, Academic Press, 1984, pp. 285-307.
- 278.[183]. OTTON, S.V., KALOW, W., and **SEEMAN, P.**: High affinity of quinidine for a stereoselective microsomal binding site as determined by a radioreceptor assay. *Experientia* 40: 973-974 (1984).
- 279.[184]. GEORGE, S., BINKLEY, K., and **SEEMAN, P.**: Dopamine receptor sites and states in human brain. *Journal of Neural Transmission, Suppl.* 18: 149-156 (1983).
- 280.[185]. GEORGE, S., WATANABE, M., and **SEEMAN, P.**: Commentary: The dopamine receptor of the anterior pituitary gland. In: *Dopamine Receptors*, edited by C. Kaiser and J. Keabian, American Chemical Society Symposium 224, American Chemical Society, Washington, pp. 93-99, 1983.
- 282.[186]. WREGGETT, K.A., and **SEEMAN, P.**: Agonist high- and low-affinity states of the D₂ dopamine receptor in calf brain: partial conversion by guanine nucleotide. *Molecular Pharmacology* 25: 10-17 (1984).

- 284.[187]. RAJPUT, A.H., ROZDILSKY, B., HORNYKIEWICZ, O., SHANNAK, K., LEE, T., and **SEEMAN, P.**: Reversible drug-induced Parkinsonism. Clinicopathologic study of two cases. *Archives of Neurology* 39: 644-646 (1982).
- 285.[188]. LILLY, L., FRASER, C.M., JUNG, C., **SEEMAN, P.**, and VENTER, J.C.: Molecular size of the canine and human brain D₂ dopamine receptor as determined by radiation inactivation. *Molecular Pharmacology* 24: 10-14 (1983).
- 288.[189]. GRIGORIADIS, D., and **SEEMAN, P.**: Complete conversion of brain D₂ dopamine receptors from the high- to the low-affinity state for dopamine agonists, using sodium ions and guanine nucleotide. *Journal of Neurochemistry* 44: 1925-1935 (1985).
- 289.[190]. GEORGE, S.R., WATANABE, M., and **SEEMAN, P.**: Dopamine D₂ receptors in the anterior pituitary: A single population without reciprocal agonist/antagonist states. *Journal of Neurochemistry* 44: 1168-1177 (1985).
- 291.[191]. WATANABE, S., and **SEEMAN, P.**: Dopamine receptor density in rat striatum over 24 hours: Lack of detectable changes. *Biological Psychiatry* 19: 1249-1253 (1984).
- 292.[192]. **SEEMAN, P.**, and ULPIAN, C: Neuroleptics have identical potencies in human brain limbic and putamen regions. *European Journal of Pharmacology* 94: 145-148 (1983).
- 294.[193]. GUAN, J.-H., NEUMEYER, J.L., FILER, C.N., AHERN, D.G., LILLY, L., WATANABE, M., GRIGORIADIS, D. and **SEEMAN, P.**: Aporphines. 58. N-(2-Chloroethyl)-[8,9-²H]norapomorphine, an irreversible ligand for dopamine receptors: synthesis and application. *Journal of Medicinal Chemistry* 27: 806-809 (1984).
- 295.[194]. VENTER, J.C., FRASER, C.M., LILLY, L., **SEEMAN, P.**, EDDY, B., and SCHABER, J.: The structure of neurotransmitter receptors (adrenergic, dopaminergic and muscarinic cholinergic). In: *Catecholamine Research (5th Int. Catecholamine Symp., Goteborg)*, edited by E. Usdin, A. Carlsson, A. Dahlstrom and J. Engel, Pergamon, Oxford, (1984); *Progress in Neuro-psychopharmacology and Biological Psychiatry, Suppl.* (1983), (Abstr. 506: p. 307).
- 300.[195]. **SEEMAN, P.**: Brain dopamine receptors. *Pharmacological Reviews* 32: 229-313 (1980).
- 302.[196]. MADRAS, B.K., and **SEEMAN, P.**: Drug potencies on partially purified brain D₂ dopamine receptors. *Journal of Neurochemistry* 44: 856-861 (1985).
- 304.[197]. GRIGORIADIS, D., and **SEEMAN, P.**: The dopamine/neuroleptic receptor. *Canadian Journal of Neurological Science* 11: 108-113 (1984).
- 306.[198]. TANG, S.W., GLAISTER, J., DAVIDSON, L., TOTH, R., JEFFRIES, J.J., and **SEEMAN, P.**: Total and free plasma neuroleptic levels in schizophrenic patients. *Psychiatry Research* 13: 285-293 (1984).
- 307.[199]. **SEEMAN, P.**, ULPIAN, C., BERGERON, C., RIEDERER, P., JELLINGER, K., GABRIEL, E., REYNOLDS, G.P., and TOURTELLOTTE, W.W.: Bimodal distribution of dopamine receptor densities in brains of schizophrenics. *Science* 225: 728-731 (1984).
- 308.[200]. **SEEMAN, P.**: Brain dopamine receptors in schizophrenia. In: *New Perspectives in Schizophrenia*. M.N. Menuck and M.V. Seeman (Eds.), Macmillan Publ. Co., New York, 1985, pp. 71-79.
- 309.[201]. **SEEMAN, P.**: Dopamine receptors. In: *Discussions in Neuroscience* 2: 56-58 (1985), *Brain metabolism and imaging*, edited by W. Feindel, R.S.J. Frackowiak, D. Gadian, P.L.

Magistretti and M.R. Zalutsky, Fondation pour l'Etude du Systeme Nerveux Central et Peripherique, Geneva.

- 311.[202]. **SEEMAN, P.**: Brain dopamine receptors in schizophrenia. In: Neuroreceptor Mechanisms in Human Diseases, edited by B.M. Conti-Tronconi, M. Fanciullacci, F. Sicuteri and L. Terenius, Menarini Foundation, Florence, March 1984.
- 312.[203]. GEORGE, S.R., WATANABE, M., DI PAOLO, T., FALARDEAU, P., LABRIE, F., & **SEEMAN, P.**: The functional state of the dopamine receptor in the anterior pituitary is in the high-affinity form. *Endocrinology* 117: 690-697 (1985).
- 314.[204]. HELMESTE, D.M., and **SEEMAN, P.**: Genetic differences in brain dopamine receptors and amphetamine response: Possible model for hyperkinetic children. In: Developmental Pharmacology, edited by S.M. MacLeod, A.B. Okey and S.P. Spielberg, Alan R. Liss, Inc., New York, pp. 401-403 (1983).
- 315.[205]. **SEEMAN, P.**, GRIGORIADIS, D., GEORGE, S.R., WATANABE, M., and ULPIAN, C.: Functional states of dopamine receptors. In: Dopaminergic Systems and Their Regulation, edited by G.N. Woodruff, J.A. Poat and P.J. Roberts, Macmillan Press, London (1986), pp. 97-109.
- 316.[206]. **SEEMAN, P.**: Brain dopamine receptors in schizophrenia and tardive dyskinesia. In: Dyskinesia, Research and Treatment, edited by D. Casey, T. Chase, A.V. Christensen and J. Gerlach, Psychopharmacology Supplementum series, Vol. 2, Springer-Verlag Berlin (1985), pp. 2-8.
- 318.[207]. NIZNIK, H.B., GUAN, J.H., NEUMEYER, J.L., and **SEEMAN, P.**: A dopamine D₂ receptor photolabel: azidocleboipride. *European Journal of Pharmacology* 104: 389-390 (1984).
- 319.[208]. DUMBRILLE-ROSS, A., and **SEEMAN, P.**: Dopamine receptor elevation by cholecystokinin. *Peptides* 5: 1207-1212 (1985).
- 320.[209]. **SEEMAN, P.**: Dopamine/neuroleptic receptors in schizophrenia. In: Handbook of Studies in Schizophrenia, Part 2, edited by G.D. Burrows, T.R. Norman and G. Rubinstein, Elsevier Science B.V. (Biomedica Div.), Amsterdam, 1986, pp. 251-259.
- 326.[210]. WATANABE, M., GEORGE, S.R., and **SEEMAN, P.**: Dependence of dopamine receptor conversion from agonist high- to low-affinity state on temperature and sodium ions. *Biochemical Pharmacology* 34: 2459-2463 (1985).
- 328.[211]. NIZNIK, H.B., GUAN, J.H., NEUMEYER, J.L., and **SEEMAN, P.**: A photoaffinity ligand for dopamine D₂ receptors: azidocleboipride. *Molecular Pharmacology* 27: 193-199 (1985).
- 329.[212]. **SEEMAN, P.**, ULPIAN, C., GRIGORIADIS, D., PRI-BAR, I., and BUCHMAN, O.: Conversion of dopamine D₁ receptors from high to low affinity for dopamine. *Biochemical Pharmacology* 34: 151-154 (1985).
- 330.[213]. NIZNIK, H.B., GRIGORIADIS, D.E., PRI-BAR, I., BUCHMAN, O., and **SEEMAN, P.**: Dopamine D₂ receptors are selectively labeled by a benzamide neuroleptic: ³H-YM-09151-2. *Naunyn-Schmiedeberg's Archives of Pharmacology* 329: 333-343 (1985).
- 331.[214]. NIZNIK, H.B., DUMBRILLE-ROSS, A., GUAN, J.H., NEUMEYER, J.L., and **SEEMAN, P.**: Dopamine D₂ receptors photolabeled by iodo-azido-cleboipride. *Neuroscience Letters* 55: 267-272 (1985).

- 332.[215]. GEORGE, S.R., WATANABE, M., and **SEEMAN, P.**: Dopamine D₂ receptors in brain and anterior pituitary recognize agonist and antagonist actions of (-)-3-PPP. *Journal of Neural Transmission* 64: 13-33 (1985).
- 334.[216]. SEEMAN, M.V., and **SEEMAN, P.**: Molecular Psychiatry, Receptor density and Receptor sensitivity states. *Integrative Psychiatry* 4: 41-43 (1986).
- 335.[217]. NEUMEYER, J.L., GUAN, J.-H., NIZNIK, H.B. DUMBRILLE-ROSS, A., **SEEMAN, P.**, PADMAN-ABHAN, S., and ELMALEH, D.: Novel photoaffinity label for the dopamine D₂ receptor: synthesis of 4-azido-5-iodo-2-methoxy-N-[1-(phenylmethyl)-4-piperidinyl]benzamide (Iodoazidoclebopride, IAC) and the corresponding ¹²⁵I-labelled analogue. *Journal of Medicinal Chemistry* 28: 405-407 (1985).
- 336.[218]. **SEEMAN, P.** and GRIGORIADIS, D.: Dopamine receptors in brain and periphery. *Neurochemistry International* 10: 1-25 (1987).
- 337.[219]. DUMBRILLE-ROSS, A., & **SEEMAN, P.**: Dopamine agonist high-affinity state in solubilized D₂ receptors in striatum, but not in anterior pituitary. *Biochemical Pharmacology* 36: 2095-2099 (1987).
- 339.[220]. GUTTMAN, M., and **SEEMAN, P.**: Dopamine D₂ receptor density in Parkinsonian brain is constant for duration of disease, age and duration of L-DOPA therapy. *Advances in Neurology* 45: 51-57 (1986).
- 342.[221]. WATANABE, M., GEORGE, S.R., and **SEEMAN, P.**: Regulation of anterior pituitary D₂ dopamine receptors by magnesium and sodium ions. *Journal of Neurochemistry* 45: 1842-1849 (1985).
- 343.[222]. **SEEMAN, P.**, WATANABE, M., GRIGORIADIS, D., TEDESCO, J.L., GEORGE, S.R., SVENSSON, U., NILSSON, J.L.G., and NEUMEYER J.L.: Dopamine D₂ receptor binding sites for agonists: A tetrahedral model. *Molecular Pharmacology* 28: 391-399 (1985).
- 345.[223]. DUMBRILLE-ROSS, A. NIZNIK, H., and **SEEMAN, P.**: Separation of dopamine D₁ and D₂ receptors. *European Journal of Pharmacology* 110: 151-152 (1985).
- 346.[224]. GUTTMAN, M., **SEEMAN, P.**, BERGERON, C., RIEDERER, P., JELLINGER, K., and TOURTELLOTTE, W.W.: Dopamine D₂ receptor density remains constant in treated Parkinson's disease. *Annals of Neurology* 19: 487-492 (1986).
- 347.[225]. **SEEMAN, P.**, and GRIGORIADIS, D.: Dopamine D₂ receptor dissociation constant for spiperone: Identical values using ³H-labeled agonist or ³H-labeled antagonist. *Biochemical Pharmacology* 34: 4065-4066 (1985).
- 348.[226]. HORN, A.S., TEPPER, P., VAN DER WEIDE, J., WATANABE, M., GRIGORIADIS, D., and **SEEMAN, P.**: Synthesis and radioreceptor binding activity of N-0437, a new, extremely potent and selective D₂ dopamine receptor agonist. *Pharmaceutisch Weekblad Science Edition* 7: 208-211 (1985).
- 349.[227]. NIZNIK, H.B., OTSUKA, N.Y., DUMBRILLE-ROSS, A., GRIGORIADIS, D., TIRPAK, A., and **SEEMAN, P.**: Dopamine D₁ receptors characterized with [³H]-SCH-23390. Solubilization of a guanine nucleotide-sensitive form of the receptor. *Journal of Biological Chemistry* 261: 8397-8406 (1986).
- 350.[228]. GUTTMAN, M., and **SEEMAN, P.**: L-DOPA reverses the elevated D₂ dopamine receptor density in Parkinson's diseased striatum. *Journal of Neural Transmission* 64: 93-103 (1985).

- 352.[229]. GRIGORIADIS, D., and **SEEMAN, P.**: ³H-Domperidone labels only a single population of receptors which convert from high to low affinity for dopamine in rat brain. *Naunyn-Schmiedeberg's Archives of Pharmacology* 332: 21-25 (1986).
- 355.[230]. **SEEMAN, P.**: Dopamine receptors in human brain diseases. In: *Structure and function of dopamine receptors*, edited by I. Creese and C.M. Fraser, vol. 9 of *Receptor Biochemistry and Methodology*, Alan R. Liss, New York, 1987, pp. 233-245.
- 356.[231]. KOHNO, A., **SEEMAN, P.**, and CINADER, B.: Age-related changes of beta-adrenoceptors in aging inbred mice. *Journal of Gerontology* 41: 439-444 (1986).
- 357.[232]. **SEEMAN, P.**: Schizophrenia and dopamine receptors. In: *New Perspectives in Treatment of Schizophrenia*, edited by D.A.W. Johnson, Symposium of World Psychiatric Association (1985), H. Lundbeck A/S, Copenhagen, 1986, pp. 8-14.
- 358.[233]. ELMALEH, D.R., PADMANABHAN, S., NIZNIK, H.B., **SEEMAN, P.**, GUAN, J.-H., and NEUMEYER, J.L.: In vivo evaluation of ¹²⁵I-labeled iodocelebopride and iodoazidoclebopride binding to the dopamine D₂ receptor. In: *Alzheimer's and Parkinson's Disease*, edited by A. Fisher, I. Hanin and C. Lachman. Plenum publishing Corp., New York, 1986, pp. 645-653.
- 359.[234]. **SEEMAN, P.**: The absolute density of neurotransmitter receptors in brain: example for dopamine receptors. *Journal of Pharmacological Methods* 17: 347-360 (1987).
- 360.[235]. NIZNIK, H.B., GRIGORIADIS, D.E., OTSUKA, N.Y., DUMBRILLE-ROSS, A., and **SEEMAN, P.**: The dopamine D₁ receptor: Partial purification of a digitonin-solubilized receptor-guanine nucleotide binding complex. *Biochemical Pharmacology* 35: 2974-2977 (1986).
- 361.[236]. **SEEMAN, P.**, GRIGORIADIS, D., and NIZNIK, H.B.: Selectivity of agonists and antagonists at D₂ dopamine receptors compared to D₁ and S₂ receptors. *Drug Development Research* 9: 63-69 (1986).
- 363.[237]. **SEEMAN, P.**: Dopamine receptors and the dopamine hypothesis of schizophrenia. *Synapse* 1: 133-152 (1987).
- 364.[238]. KOHNO, A., **SEEMAN, P.**, and CINADER, B.: Age-related changes in beta-adrenoceptors of lymphocytes. *Immunology Letters* 13: 79-82 (1986).
- 365.[239]. **SEEMAN, P.**, and NIZNIK, H.B.: Dopamine D₂ receptors photolabelled by [³H]-azido-methylspiperone. *European Journal of Pharmacology* 127: 297-299 (1986).
- 366.[240]. NIZNIK, H.B., GRIGORIADIS, D.E., and **SEEMAN, P.**: Photoaffinity labelling of dopamine D₂ receptors by [³H]azidomethylspiperone. *FEBS (Federation of Biological Societies) Letters* 209: 71-76 (1986).
- 368.[241]. **SEEMAN, P.**, and GUTTMAN, M.: Dopamine receptor elevation in denervated tissues. *Annals of Neurology* 21: 412-413 (1987).
- 369.[242]. KOHNO, A., CINADER, B., and **SEEMAN, P.**: Age-related changes of beta-adrenoceptors in spleen lymphocytes and cerebral cortex of NZB/BIN mice. *Immunology Letters* 14: 75-78 (1986/1987).
- 370.[243]. **SEEMAN, P.**, BZOWEJ, N.H., GUAN, H.-C., BERGERON, C., BECKER, L.E., REYNOLDS, G.P., BIRD, E.D., RIEDERER, P., JELLINGER, K., WATANABE, S., and TOURTELLOTTE, W.W.: Human brain dopamine receptors in children and aging adults. *Synapse* 1: 399-404 (1987).

- 373.[244]. EL-AWAR, M., FREEDMAN, M., **SEEMAN, P.**, GOLDENBERG, L., LITTLE, J., and SOLOMON, P.: Response of tardive and L-DOPA-induced dyskinesias to antidepressants. *Canadian Journal of Neurological Sciences* 14: 629-631 (1987).
- 374.[245]. BZOWEJ, N.H., NIZNIK, H.B., and **SEEMAN, P.**: Dopamine D₁ receptors with enhanced agonist affinity and reduced antagonist affinity revealed by chemical modification. *Biochemical and Biophysical Research Communications* 152: 933-939 (1988).
- 375.[246]. GRIGORIADIS, D.E., NIZNIK, H.B., JARVIE, K.R., and **SEEMAN, P.**: Glycoprotein nature of D₂ dopamine receptors. *FEBS (Federation of Biological Societies) Letters* 227: 220-224 (1988).
- 376.[247]. REYNOLDS, G.P., CZUDEK, D., BZOWEJ, N., and **SEEMAN, P.**: Dopamine receptor asymmetry in schizophrenia. *Lancet* i: 979 (1987). Issue 8539.
- 377.[248]. **SEEMAN, P.**, BZOWEJ, N.H., GUAN, H.-C., BERGERON, C., REYNOLDS, G.P., BIRD, E.D., RIEDERER, P., JELLINGER, K., and TOURTELLOTTE, W.W.: Human brain D₁ and D₂ dopamine receptors in schizophrenia, Alzheimer's, Parkinson's and Huntington's diseases. *Neuropsychopharmacology* 1: 5-15 (1987).
- 378.[249]. NIZNIK, H.B., FOGEL, E.L., CHEN, C.J., CONGO, D., BROWN, E.M., and **SEEMAN, P.**: Dopamine D₁ receptors of the calf parathyroid gland: Identification and characterization. *Molecular Pharmacology* 34: 29-36 (1988).
- 379.[250]. **SEEMAN, P.**, and GUAN, H.-C.: Dopamine D₁ and D₂ receptors are sensitive to the cationic form of apomorphine. *Molecular Pharmacology* 32: 760-763 (1987).
- 380.[251]. **SEEMAN, P.** and ULPIAN, C.: Dopamine D₁ and D₂ receptor selectivities of agonists and antagonists. In: *Central D₁ Dopamine Receptors*, edited by M. Goldstein, K. Fuxe, and I. Tabachnick. Plenum Publ. Corp., New York, pp. 55-63 (1988).
- 381.[252]. JARVIE, K.R., NIZNIK, H.B., and **SEEMAN, P.**: Brain dopamine D₂ receptors: ionic effects on [³H]neuroleptic binding. *European Journal of Pharmacology* 144: 163-171 (1987).
- 387.[253]. SEEMAN, M.V., and **SEEMAN, P.**: Psychosis and positron tomography. *Canadian Journal of Psychiatry* 33: 299-306 (1988).
- 388.[254]. **SEEMAN, P.**: Tardive dyskinesia, dopamine receptors, and neuroleptic damage to cell membranes. *Journal of Clinical Psychopharmacology* 8: 3S-9S (1988).
- 389.[255]. **SEEMAN, P.**, and NIZNIK, H.B.: Dopamine D₁ receptor pharmacology. *ISI (Institute for Science Information) Atlas of Science, Pharmacology* 2: 161-170 (1988).
- 391.[256]. JARVIE, K.R., NIZNIK, H.B., and **SEEMAN, P.**: Dopamine D₂ receptor binding subunits of Mr 140 000 and 94 000 in brain: Deglycosylation yields a common unit of Mr 44 000. *Molecular Pharmacology* 34: 91-97 (1988).
- 392.[257]. NEUMEYER, J.L., BAINBUR, N., YUAN, J., BOOTH, G., **SEEMAN, P.**, and NIZNIK, H.B.: Development of high affinity and stereoselective photoaffinity label for the D-1 dopamine receptor: Synthesis and resolution of IMAB and [¹²⁵I]I-MAB. *Journal of Medicinal Chemistry* 33: 521-526 (1990).
- 396.[258]. JARVIE, K.R., NIZNIK, H.B., BZOWEJ, N.H., and **SEEMAN, P.**: Dopamine D₂ receptors retain agonist high-affinity form and guanine nucleotide sensitivity after removal of sialic acid. *Journal of Biochemistry* 104: 791-794 (1988).

- 397.[259]. **SEEMAN, P.**: Atypical neuroleptics: role of multiple receptors, endogenous dopamine, and receptor linkage. *Acta Psychiatrica Scandinavica* 82 (Suppl. 358): 14-20 (1990).
- 398.[260]. NIZNIK, H.B., JARVIE, K.R., BZOWEJ, N.H., **SEEMAN, P.**, GARLICK, R.K., MILLER, JR., J.J., BAINDUR, N., and NEUMEYER, J.L.: Photoaffinity labeling of dopamine D1 receptors. *Biochemistry* 27: 7594-7599 (1988).
- 399.[261]. RAMSBY, S., NEUMEYER, J.L., GRIGORIADIS, D., and **SEEMAN, P.**: 2-Haloaporphines as potent dopamine agonists. *Journal of Medicinal Chemistry* 32: 1198-1201 (1989).
- 400.[262]. BAINDUR, N., NEUMEYER, J.L., NIZNIK, H.B., BZOWEJ, N.H., JARVIE, K.R., and **SEEMAN, P.**: A photoaffinity label for the D-1 dopamine receptor: (RS)7-[¹²⁵I]iodo-8-hydroxy-3-methyl-1-(4'-azidophenyl)-2,3,4,5-tetrahydro-1H-3-benzazepine ([¹²⁵I]IMAB), selectively identifies the ligand binding subunits of the receptor. *Journal of Medicinal Chemistry* 31: 2069-2071 (1988).
- 401.[263]. NEUMEYER, J.L., NIZNIK, H.B., BZOWEJ, N.H., JARVIE, K.R., **SEEMAN, P.**, and BAINDUR, N.: Recent studies in the development of photoaffinity probes for dopamine receptors. In: *Trends in Medicinal Chemistry '88*, edited by H. van der Goot, G. Domany, L. Pallos and H. Timmerman. Elsevier Science Publishers B.V., Amsterdam, pp. 543-554 (1989).
- 402.[264]. **SEEMAN, P.**, GUAN, H.-C., and NIZNIK, H.B.: Endogenous dopamine lowers the dopamine D2 receptor density as measured by [³H]raclopride: Implications for positron emission tomography of the human brain. *Synapse* 3: 96-97 (1989).
- 405.[265]. **SEEMAN, P.**, NIZNIK, H.B., GUAN, H.-C., BOOTH, G., and ULPIAN, C.: Link between D1 and D2 dopamine receptors is reduced in schizophrenia and Huntington diseased brain. *Proceedings of the National Academy of Sciences, U.S.A.* 86: 10156-10160 (1989).
- 406.[266]. WAGNER, JR., H.N., WEINBERGER, D.R., KLEINMAN, J.E., CASANOVA, M.F., GIBBS, JR., C.J., GUR, R.E., HORNYKIEWICZ, O., KUHAR, M. J., PETTEGREW, J.W., and **SEEMAN, P.**: Neuroimaging and neuropathology. *Schizophrenia Bulletin* 14: 383-397 (1988).
- 407.[267]. PEARCE, R.K.B., **SEEMAN, P.**, JELLINGER, K., and TOURTELLOTTE, W.W.: Dopamine uptake sites and dopamine receptors in Parkinson's disease and schizophrenia. *European Neurology* 30 (Suppl. 1): 9-14 (1989).
- 408.[268]. **SEEMAN, P.**: Schizophrenia and neurotransmission: Background and current status. *Psychiatry (Toronto)* 3: 38-42 (1989).
- 411.[269]. O'DOWD, B.F., NGUYEN, T., TIRPAK, A., JARVIE, K.R., ISRAEL, Y., **SEEMAN, P.**, and NIZNIK, H.B.: Cloning of two additional catecholamine receptors from rat brain. *FEBS (Federation of European Biological Societies) Letters* 262: 8-12 (1990).
- 412.[270]. **SEEMAN, P.**, and NIZNIK, H.B.: Dopamine receptors and transporters in Parkinson's disease and schizophrenia. *FASEB Journal (Federation of American Societies for Experimental Biology Journal)* 4: 2737-2744 (1990).
- 414.[271]. **SEEMAN, P.**, NIZNIK, H.B., and GUAN, H.-C.: Elevation of D2 dopamine receptors in schizophrenia is underestimated by radioactive raclopride. *Archives of General Psychiatry* 47: 1170-1172 (1990).

- 415.[272]. **SEEMAN, P.**: Multiple D2 dopamine receptors. *Clinical Neuropharmacology* 13: 124-125 (1990).
- 416.[273]. **SEEMAN, P.**: Dopamine receptors. In: *Receptor data for Biological Experiments*, edited by H.N. Doods, J.C.A. Van Meel and H. Doods, Ellis Horwood Ltd., Chichester, 1991, pp. 42-46.
- 417.[274]. **SEEMAN, P.**: Elevated D2 in schizophrenia: Role of endogenous dopamine and cerebellum. *Neuropsychopharmacology* 7: 55-57 (1992).
- 418.[275]. NIZNIK, H. B., FOGEL, E. F., FASSOS, F. F., and **SEEMAN, P.**: The dopamine transporter is absent in Parkinsonian putamen and reduced in the caudate nucleus. *Journal of Neurochemistry* 56: 192-193 (1991).
- 419.[276]. **SEEMAN, P.**: Brain dopamine receptors (Citation Classic). *Current Contents, Life Sciences* 33 (Nos. 52-53): 13 (1990).
- 420.[277]. SUNAHARA, R.K., NIZNIK, H.B., WEINER, D.M., STORMANN, T.M., BRANN, M.R., KENNEDY, J.L., GELERNTER, J.E., ROZMAHEL, R., YANG, Y., ISRAEL, Y., **SEEMAN, P.**, and O'DOWD, B.F.: Human dopamine D₁ receptor encoded by an intronless gene on chromosome 5. *Nature* 347: 80-83 (1990).
- 421.[278]. O'DOWD, B.F., NIZNIK, H.B., SUNAHARA, R., **SEEMAN, P.**, and ISRAEL, Y.: Cloning of a human receptor with amino acid sequence homology to the rat D2-dopamine receptor. In "The Molecular Pathology of Alcoholism", NATO Advanced Study Institute (1990).
- 422.[279]. WEINER, D.M., LEVEY, A.I., SUNAHARA, R.K., NIZNIK, H.B., O'DOWD, B.F., **SEEMAN, P.**, and BRANN, M.R.: Dopamine D1 and D2 receptor mRNA in rat brain. *Proceedings of the National Academy of Sciences, U.S.A.* 88: 1859-1863 (1991).
- 426.[280]. MENGOD, G., VILARO, M.T., NIZNIK, H.B., SUNAHARA, R.K., **SEEMAN, P.**, O'DOWD, B.F., and PALACIOS, J.M.: Visualization of a dopamine D1 receptor mRNA in human and rat brain. *Molecular Brain Research* 10: 185-191 (1990).
- 428.[281]. **SEEMAN, P.**, and SCHAUS, J.: Dopamine receptors labelled by [³H]quinpirole. *European Journal of Pharmacology* 203: 105-109 (1991).
- 429.[282]. SEEMAN, M.V., and **SEEMAN, P.**: Future schizophrenia medicines. In: *The mental hospital in the 21st century*. Edited by E. Persad, S.S. Kazarian and L.W. Joseph. Wall & Emerson, Inc., Toronto, 1992 pp. 168-172.
- 430.[283]. VAN TOL, H.H.M., BUNZOW, J.R., GUAN, H.-C., SUNAHARA, R.K., **SEEMAN, P.**, NIZNIK, H.B., and CIVELLI, O.: Cloning of the gene for a human dopamine D₄ receptor with high affinity for the antipsychotic clozapine. *Nature* 350: 610-614 (1991).
- 431.[284]. SUNAHARA, R.K., GUAN, H.-C., O'DOWD, B., **SEEMAN, P.**, LAURIER, L.G., NG, G., GEORGE, S., TORCHIA, J., VAN TOL, H.H.M., and NIZNIK, H.B.: Cloning of the gene for a human dopamine D₅ receptor with higher affinity for dopamine than D₁. *Nature* 350: 614-619 (1991).
- 432.[285]. **SEEMAN, P.**: Receptor selectivities of atypical neuroleptics. In: *Novel Antipsychotic Drugs*, edited by H.Y. Meltzer, Raven Press Ltd., New York, 1992, pp. 145-154.
- 435.[286]. NIZNIK, H.B., SUNAHARA, R.K., VAN TOL, H.H.M., **SEEMAN, P.**, WEINER, D.M., STORMANN, T.M., BRANN, M.R., and O'DOWD, B.F.: The dopamine D1 receptor. In: *G-linked Receptors*, edited by M.R. Brann (1991).

- 438.[287]. NEUMEYER, J.L., BAINBUR, N., NIZNIK, H.B., GUAN, H.-C., and **SEEMAN, P.**: (\pm)-3-Allyl-6-bromo-7,8-dihydroxy-1-phenyl-2,3,4,5-tetrahydro-1*H*-3-benzazepine, a new high affinity D1 dopamine receptor ligand: Synthesis and structure-activity relationship. *Journal of Medicinal Chemistry* 34: 3366-3371 (1991).
- 440.[288]. BAINBUR, N., TRAN, M., NIZNIK, H.B., GUAN, H.C., **SEEMAN, P.**, and NEUMEYER, J.L.: (\pm)-3-Allyl-7-halo-8-hydroxy-1-phenyl-2,3,4,5-tetrahydro-1*H*-3-benzazepines as selective high affinity D1 dopamine receptor antagonists: Synthesis and structure-activity relationship. *Journal of Medicinal Chemistry* 35: 67-72 (1992).
- 441.[289]. **SEEMAN, P.**: Cloned dopamine receptors: Targets in therapy of drug abuse. In: *Molecular Approaches to Drug Abuse Research*. Vol. II, Nat. Inst. Drug Abuse Monograph 126. Edited by T.N.H. Lee, U.S. Dept. Health Human Services. National Institute on Drug Abuse (1992) pp. 35-47.
- 442.[290]. NGUYEN, T., JIN, H., TARUSCIO, D., WARD, D., KENNEDY, J.L., **SEEMAN, P.**, and O'DOWD, B.F.: Human dopamine D5 receptor human pseudogenes. *Gene* 109: 211-218 (1991).
- 443.[291]. GEHLERT, D.R., GACKENHEIMER, S.L., **SEEMAN, P.**, and SCHAUS, J.: Autoradiographic localization of [3 H]-quinpirole binding to D2 and D3 receptors in rat brain. *Eur. J. Pharmacol.* 211: 189-194 (1992).
- 444.[292]. NGUYEN, T., SUNAHARA, R., VAN TOL, H.H.M., **SEEMAN, P.**, and O'DOWD, B.F.: Transcription of a human dopamine D5 pseudogene. *Biochemical Biophysical Research Communications* 181: 16-21 (1991).
- 445.[293]. OHARA, K., ULPIAN, C., **SEEMAN, P.**, SUNAHARA, R.K., VAN TOL, H.H.M., and NIZNIK, H.B.: Schizophrenia: Dopamine D1 receptor sequence is normal, but has DNA polymorphisms. *Neuropsychopharmacology* 8: 131-135 (1993).
- 446.[294]. **SEEMAN, P.**, OHARA, K., ULPIAN, C., SEEMAN, M.V., JELLINGER, K., VAN TOL, H.H.M., and NIZNIK, H.B.: Schizophrenia: Normal sequence in the dopamine D2 receptor region which couples to G proteins. DNA polymorphisms in D2. *Neuropsychopharmacology* 8: 137-142 (1993).
- 448.[295]. GELERNTER, J., KENNEDY, J.L., GRANDY, D.K., ZHOU, Q.-Y., CIVELLI, O., PAULS, D.L., PAKSTIS, A., KURLAN, R., SUNAHARA, R.K., NIZNIK, H.B., O'DOWD, B., **SEEMAN, P.**, and KIDD, K.K.: Exclusion of close linkage of Tourette's syndrome to D1 dopamine receptor. *American Journal of Psychiatry* 150: 449-453 (1993).
- 450.[296]. DEMCHYSHYN, L., SUNAHARA, R.K., MILLER, K., TEITLER, M., HOFFMAN, B.J., KENNEDY, J.L., **SEEMAN, P.**, VAN TOL, H.H.M., and NIZNIK, H.B.: A human serotonin 1D receptor variant (5HT1D β) encoded by an intronless gene on chromosome 6. *Proceedings of the National Academy of Sciences, U.S.A.* 89: 5522-5526 (1992).
- 453.[297]. SUNAHARA, R., **SEEMAN, P.**, VAN TOL, H.H.M, and NIZNIK, H.B.: Dopamine receptors and antipsychotic drug response. *British Journal of Psychiatry* 163 (Suppl. 22): 31-38 (1993).
- 455.[298]. **SEEMAN, P.**: Dopamine receptor sequences. Therapeutic levels of neuroleptics occupy D2, clozapine occupies D4. *Neuropsychopharmacology* 7: 261-284 (1992).
- 456.[299]. **SEEMAN, P.**, GUAN, H.-C., CIVELLI, O., VAN TOL, H.H.M., SUNAHARA, R.K., and NIZNIK, H.B.: The cloned dopamine D2 receptor reveals different densities for dopamine

- antagonist ligands. Implications for human brain positron emission tomography. *European Journal of Pharmacology, Molecular Pharmacology Section* 227: 139-146 (1992).
- 457.[300] LAROSA, G., ARMSTRONG, P.W., **SEEMAN, P.**, and FORSTER, C.: β -Adrenoceptor recovery after heart failure in the dog. *Cardiovascular Research* 27: 489-493 (1993).
- 458.[301] VAN TOL, H.H.M., WU, C.M., GUAN, H.-C., OHARA, K., BUNZOW, J.R., CIVELLI, O., KENNEDY, J., **SEEMAN, P.**, NIZNIK, H.B., and JOVANOVIĆ, V.: Multiple dopamine D4 receptor variants in the human population. *Nature* 358: 149-152 (1992).
- 466.[302] MENGOD, G., VILLARO, M.T., LANDWEHRMEYER, G.B., MARTINEZMIR, M.I., NIZNIK, H.B., SUNAHARA, R.K., **SEEMAN, P.**, ODOWD, B.F., PROBST, A. and PALACIOS, J.M.: Visualization of dopamine D1, D2 and D3 receptor mRNAs in human and rat brain. *Neurochemistry International* 20 (Suppl.): 33S-43S (1992).
- 467.[303] SUGAMORI, K.S., SUNAHARA, R.K., GUAN, H.-C., BULLOCH, A.G.M., TENSEN, C.P., **SEEMAN, P.**, NIZNIK, H.B., and VAN TOL, H.H.M.: Serotonin receptor cDNA cloned from *Lymnea stagnalis*. *Proceedings of the National Academy of Sciences, U.S.A.* 90: 11-15 (1993).
- 469.[304] CORNESS, J., DEMCHYSHYN, L.L., **SEEMAN, P.**, VAN TOL, H.H.M., SRIKANT, C.B., KENT, G., PATEL, Y.C., and NIZNIK, H.B.: A human somatostatin receptor (SSTR 3), located on chromosome 22, displays preferential affinity for somatostatin-14 like peptides. *FEBS (Federation of European Biological Societies) Letters*. 321: 279-284 (1993).
- 470.[305] **SEEMAN, P.**: Schizophrenia as a brain disease: The dopamine receptor story. *Archives of Neurology* 50: 1093-1096 (1993).
- 471.[306] **SEEMAN, P.**, GUAN, H.-C., VAN TOL, H.H.M., and NIZNIK, H.B.: Low density of dopamine D4 receptors in Parkinson's, schizophrenia and control brain striata. *Synapse* 14: 247-253 (1993).
- 472.[307] **SEEMAN, P.**, ULPIAN, C., LARSEN, R.D., and ANDERSON, P.S.: Dopamine receptors labelled by PHNO. *Synapse* 14: 254-262 (1993).
- 474.[308] O'DOWD, B.F., **SEEMAN, P.**, and GEORGE, S.R.: Dopamine Receptors. In: *Handbook of Receptors and Channels, G Protein-coupled Receptors*, edited by S.J. Peroutka. CRC Press Inc., Boca Raton, Florida, 1994, pp. 95-123.
- 475.[309] **SEEMAN, P.**: Dopamine receptors in schizophrenia. In: *Dopamine Receptors*, edited by H.B. Niznik. Marcel Dekker, Inc., New York, 1993, pp. 541-549.
- 477.[310] TOMIC, M., **SEEMAN, P.**, GEORGE, S.R., and O'DOWD, B.F.: Dopamine D1 receptor mutagenesis: *Biochemical Biophysical Research Communications* 191: 1020-1027 (1993).
- 478.[311] **SEEMAN, P.**, GUAN, H.-C. and VAN TOL, H.H.M.: Dopamine D4 receptors elevated in schizophrenia. *Nature* 365: 441-445 (1993).
- 479.[312] **SEEMAN, P.**, and VAN TOL, H.H.M.: Dopamine D4 receptors bind inactive (+)-aporphines, suggesting neuroleptic role. Sulpiride not stereoselective. *European Journal of Pharmacology* 233: 173-174 (1993).
- 480.[313] **SEEMAN, P.**: Dopamine Receptors, Clinical correlates. In: *Neuropsychopharmacology: The Fourth Generation of Progress*. Edited by F. E. Bloom and D. J. Kupfer, Raven Press, New York, 1995, pp. 295-302.

- 481.[314]. **SEEMAN, P.**, and VAN TOL, H.H.M.: Dopamine Receptor Pharmacology. *Current Opinion In Neurology and Neurosurgery* 6: 602-608 (1993).
- 483.[315]. **SEEMAN, P.**, SUNAHARA, R.K., and NIZNIK, H.B.: Receptor-receptor link in membranes revealed by ligand competition: Example for dopamine D1 and D2 receptors. *Synapse* 17: 62-64 (1994).
- 484.[316]. DASILVA, J.N., WILSON, A.A., **SEEMAN, P.**, and HOULE, S.: Synthesis of [¹¹C]SKF 75670 as a potential dopamine D1 receptor agonist imaging agent for PET. *Journal of Labelled Compounds and Radiopharmaceuticals* 35: 460-461 (1994).
- 485.[317]. **SEEMAN, P.**, and VAN TOL, H.H.M.: Dopamine receptor pharmacology. *Trends in Pharmacological Science* 15: 264-270 (1994).
- 486.[318]. DEMCHYSHYN, L.L., SRIKANT, C.B., SUNAHARA, R.K., KENT, G., **SEEMAN, P.**, VAN TOL, H.H.M., PANETTA, R., PATEL, Y.C., and NIZNIK, H.B.: Cloning and expression of a human somatostatin-14-selective receptor variant (Somatostatin receptor 4) located on chromosome 20. *Molecular Pharmacology* 43: 894-901 (1993).
- 487.[319]. **SEEMAN, P.**, and VAN TOL, H.H.M.: Deriving the therapeutic concentrations for clozapine and haloperidol: The apparent dissociation constant of a neuroleptic at the dopamine D2 or D4 receptor varies with the affinity of the competing radioligand. *European Journal of Pharmacology - Molecular Pharmacology Section* 291: 59-66 (1995).
- 488.[320]. NOBREGA, J.N., and **SEEMAN, P.**: Dopamine D2 receptors mapped in rat brain with [³H](+)PHNO. *Synapse* 17: 167-172 (1994).
- 489.[321]. PHILLIPS, S.T., DE PAULIS, T., BARRON, B.M., SIEGEL, B.W., **SEEMAN, P.**, VAN TOL, H.H.M., GUAN, H.-C., and SMITH, H.E.: Binding of 5*H*-dibenzo[*b,e*][1,4]diazepine and chiral 5*H*-dibenzo[*a,d*]cyclo-heptene analogues of clozapine to dopamine and serotonin receptors. *Journal of Medicinal Chemistry* 37: 2686-2696 (1994).
- 491.[322]. **SEEMAN, P.**, ULPAN, C., CHOUINARD, G., VAN TOL, H.H.M., DWOSH, H., LIEBERMAN, J.A., SIMINOVITCH, K., LIU, I.S.C., WAYE, J., VORUGANTI, P., HUDSON, C., SERJEANT, G.R., MASIBAY, A.S., and SEEMAN, M.V.: Dopamine D4 receptor variant, D4GLYCINE194, in Africans, but not in Caucasians. No association with schizophrenia. *American Journal of Medical Genetics (Neuropsychiatric Genetics)*: 54: 384-390 (1994).
- 494.[323]. BYMASTER, F.P., CALLIGARO, D.O., FALCONE, J.F., MARSH, R.D., MOORE, N.A., TYE, N.C., **SEEMAN, P.**, and WONG, D.T.: Radioreceptor binding profile of the atypical antipsychotic olanzapine. *Neuropsychopharmacology* 14: 87-96 (1996).
- 496.[324]. SCHOOTS, O., **SEEMAN, P.**, GUAN, H.-C., PATERSON, A., and VAN TOL, H.H.M.: Long-term haloperidol elevates dopamine D4 receptors by two-fold in rats. *European Journal of Pharmacology, Molecular Pharmacology Section* 289: 67-72 (1995).
- 497.[325]. BEISCHLAG, T.V., MARCHESE, A., MEADOR-WOODRUFF, J.H., DAMASK, S.P., O'DOWD, B.F., TYNDALE, R.F., VAN TOL, H.H.M., **SEEMAN, P.**, and NIZNIK, H.B.: The human dopamine D5 receptor: Cloning and characterization of the 5'-flanking and promoter region. *Biochemistry* 34: 5960-5970 (1995).
- 498.[326]. **SEEMAN, P.**: Therapeutic receptor-blocking concentrations of neuroleptics. *International Clinical Psychopharmacology* 10 (Suppl. 3): 5-13 (1995).

- 499.[327]. PHILLIPS, S.T., DE PAULIS, T., NEERGAARD, J.R., BARON, B.M., SIEGEL, B.W., **SEEMAN, P.**, VAN TOL, H.H.M., GUAN, H.-C., and SMITH, H.E.: Binding of 5H-dibenzo[*a,d*]cycloheptene and dibenzo[*b,f*]oxepin analogues of clozapine to dopamine and serotonin receptors. *Journal of Medicinal Chemistry* 38: 708-714 (1995).
- 500.[328]. **SEEMAN, P.**, and VAN TOL, H.H.M.: Dopamine D4-like receptor elevation in schizophrenia: Cloned D2 and D4 receptors cannot be discriminated by raclopride competition against [³H]nemonapride. *Journal of Neurochemistry* 64: 1413-1415 (1995).
- 502.[329]. LIU, I.S.C., **SEEMAN, P.**, SANYAL, S., ULPIAN, C., RODGERS-JOHNSON, P.E.B., SERJEANT, G.R., and VAN TOL, H.H.M.: The dopamine D4 receptor variant in Africans, D4Valine194Glycine, is insensitive to dopamine and clozapine. Report of a homozygous individual. *American Journal of Medical Genetics* 61: 277-282 (1996).
- 503.[330]. SCHWARTZ, J.-C., CARLSSON, A., CARON, M., SCATTON, B., CIVELLI, O., KEBABIAN, J.W., LANGER, S.Z., SEDVALL, G., **SEEMAN, P.**, SPANO, P.F., SOKOLOFF, P., and VAN TOL, H.H.M.: Dopamine receptors. IUPHAR (International Union of Pharmacology) Compendium of Receptor Characterization and Classification, 2nd edition, IUPHAR (2000), pp. 171-181.
- 504.[331]. **SEEMAN, P.**, GUAN, H.-C., NOBREGA, J., JIWA, D., MARKSTEIN, R., BALK, J.-H., PICETTI, R., BORELLI, E., and VAN TOL, H.H.M.: Dopamine D2-like sites in schizophrenia, but not in Huntington's, Alzheimer's or control brains, for [³H]benzquinoline. *Synapse* 25: 137-146 (1997).
- 505.[332]. **SEEMAN, P.**: Dopamine receptors as new targets for novel drugs. *Current Approaches to Psychoses: Diagnosis and Management*, 4: 8-9. Edited by S.R. Marder, Excerpta Medica, Princeton, April 1995.
- 506.[333]. **SEEMAN, P.**: Dopamine receptors and psychosis. [*Scientific American*] *Science and Medicine* 2(5): 28-37, (Sept.-Oct., 1995).
- 507.[334]. **SEEMAN, P.**, GUAN, H.-C., and VAN TOL, H.H.M.: Schizophrenia: Elevation of dopamine D4-like sites, using [³H]nemonapride and [¹²⁵I]epidepride. *European Journal of Pharmacology* 286: R3-R5 (1995).
- 509.[335]. BEISCHLAG, T.V., NAM, D., ULPIAN, C., **SEEMAN, P.**, and NIZNIK, H.B.: A polymorphic dinucleotide repeat in the human dopamine D5 receptor gene promoter. *Neuroscience Letters* 205: 173-176 (1996).
- 515.[336]. **SEEMAN, P.**, CORBETT, R., and VAN TOL, H.H.M.: Atypical neuroleptics have low affinity for dopamine D2 receptors or are selective for D4. *Neuropsychopharmacology* 16: 93-110 and 16: 127-135 (1997).
- 516.[337]. **SEEMAN, P.**, CORBETT, R., NAM, D., and VAN TOL, H.H.M.: Dopamine and serotonin receptors: Amino acid sequences, and clinical role in neuroleptic Parkinsonism. *Japanese Journal of Pharmacology* 71: 187-204 (1996).
- 517.[339]. **SEEMAN, P.**, and KAPUR, S.: Clozapine occupies high levels of dopamine D2 receptors. *Life Science* 60: 207-216 (1997).
- 518.[340]. **SEEMAN, P.**: Clozapine withdrawal: serotonergic or dopaminergic mechanisms? *Archives of General Psychiatry* 54: 762-763 (1997).
- 520.[341]. **SEEMAN, P.**, CORBETT, R., and VAN TOL, H.H.M.: Dopamine D4 receptors may alleviate antipsychotic-induced Parkinsonism. *Advances in Pharmacology* 42: 478-482

- (1997). [Catecholamines, edited by Goldstein, D.S., Eisenhofer, G., and McCarty, R., Academic Press, San Diego, 1997]. (Eighth Int. Catecholamine Symposium, Asilomar, USA).
- 521.[342]. QIAN, I.H.-P., KUSUMI, I., ULPIAN, C., TALLERICO, T., NAM, D., LIU, I., SEEMAN, M.V., and **SEEMAN, P.**: A human serotonin-7 receptor pseudogene. *Molecular Brain Research* 53: 339-343 (1998).
- 522.[343]. **SEEMAN, P.**, TALLERICO, T., CORBETT, R., VAN TOL, H.H.M., and KAMBOJ, R.K.: Commentary: Role of dopamine D2, D4, and serotonin 2A receptors in antipsychotic action and anticataleptic action. *Journal of Psychopharmacology* 11: 15-17 (1997).
- 524.[344]. NG, G., O'DOWD, B.F., LEE, S.P., CHUNG, H.T., BRANN, M.R., **SEEMAN, P.**, and GEORGE, S.R.: Dopamine D2 receptor dimers and receptor-blocking peptides. *Biochemical and Biophysical Research Communications* 227: 200-204 (1996).
- 527.[345]. **SEEMAN, P.**, and VAN TOL, H.H.M.: Opening the dopamine D4 door. *NeuroReport* 7: R1-R2 (1996).
- 528.[346]. **SEEMAN, P.**: Schizophrenia and brain dopamine receptors. *Journal of the California Alliance Mentally Ill*. 7: 23-25 (1996).
- 530.[347]. **SEEMAN, P.**: Dopamine receptors - Clinical correlates. In: *Psychopharmacology: The Fourth Generation of Progress*. CD ROM edited by S.J. Watson, F.E. Bloom and D.J. Kupfer, Lippincott-Raven, Hagerstown, MD, 1998.
- 532.[348]. NAM, D., QIAN, I.H.-P., KUSUMI, I., ULPIAN, C., TALLERICO, T., LIU, I.S.C., and **SEEMAN, P.**: The human serotonin-7 receptor pseudogene: variation and chromosome location. *Journal of Psychiatry and Neuroscience* 23: 214-216 (1998).
- 533.[349]. LIU, I.S.C., KUSUMI, I., ULPIAN, C., TALLERICO, T., and **SEEMAN, P.**: A serotonin-4-receptor-like pseudogene in humans. *Molecular Brain Research* 53: 98-103 (1998).
- 534.[350]. **SEEMAN, P.**, and TALLERICO, T.: Antipsychotic drugs which elicit little or no Parkinsonism bind more loosely than dopamine to brain D2 receptors, yet occupy high levels of these receptors. *Molecular Psychiatry* 3: 123-134 (1998).
- 535.[351]. **SEEMAN, P.**, and MADRAS, B.K.: Anti-hyperactivity medication: methylphenidate and amphetamine. *Molecular Psychiatry* 3: 386-396 (1998).
- 540.[352]. NG, G.Y.K., VARGHESE, G., CHUNG, H.T., TROGADIS, J., **SEEMAN, P.**, O'DOWD, B.F., and GEORGE, S.R.: Resistance of the dopamine D2L receptor to desensitization accompanies the up-regulation of receptors on to the surface of Sf9 cells. *Endocrinology* 138: 4199-4206 (1997).
- 541.[353]. **SEEMAN, P.**: Comment on "Positron emission tomography finding of a high striatal D2 receptor occupancy in olanzapine-treated patients.", by A.-L. Nordström, S. Nyberg, H. Olsson and L. Farde. *Archives of General Psychiatry* 55: 284 (1998).
- 543.[354]. **SEEMAN, P.**, and TAMMINGA, C.: Pruning during development. *American Journal of Psychiatry* 156: 168 (1999).
- 548.[355]. **SEEMAN, P.**, and TALLERICO, T.: Rapid release of antipsychotic drugs from dopamine D2 receptors: An explanation for low receptor occupancy and early clinical relapse upon drug withdrawal of clozapine or quetiapine. *American Journal of Psychiatry* 156: 876-884 (1999).

- 549.[356]. ZAWARYNSKI, P., TALLERICO, T., **SEEMAN, P.**, LEE, S.P., O'DOWD, B.F., and GEORGE, S.R.: Dopamine D2 receptor dimers in human and rat brain. *FEBS Letters* (Federation of European Biological Societies). 441: 383-386 (1998).
- 550.[357]. GEORGE, S.R., LEE, S.P., VARGHESE, G., ZEMAN, P.R., **SEEMAN, P.**, NG, G.Y.K., and O'DOWD, B.F.: A transmembrane domain-derived peptide inhibits D1 dopamine receptor function without affecting receptor oligomerization. *Journal of Biological Chemistry* 273: 30244-30248 (1998).
- 551.[358]. FITZGERALD, P., KAPUR, S., and **SEEMAN, P.**: Neuroreceptor Studies in Psychotic Disorders in the Elderly: Potential for Understanding Antipsychotic Effects. In: *Late Onset Schizophrenia*. Edited by R. Howard, P.V. Rabins, and D.J. Castle, Wrightson Biomedical Publishing Ltd., Petersfield, U.K. (1999) pp. 205-214.
- 552.[359]. **SEEMAN, P.**: Antipsychotic drugs, dopamine receptors, and schizophrenia. *Clinical Neuroscience Research* 1: 53-60 (2001).
- 553.[360]. **SEEMAN, P.**: Antipsychotic drugs, dopamine receptors, and schizophrenia. In: *Neurotransmitter receptors in actions of antipsychotic medications*, edited by M.S. Lidow, CRC Press LLC, Philadelphia, 2000, pp. 43-63.
- 554.[361]. **SEEMAN, P.**, NAM, D., ULIPIAN, C., LIU, I.S.C., and TALLERICO, T.: A new dopamine receptor, D2Longer, with a unique TG splice site, in human brain. *Molecular Brain Research* 76: 132-141 (2000).
- 555.[362]. **SEEMAN, P.**, and KAPUR, S.: Olanzapine binding to dopamine receptors *in vitro* and *in vivo*. in: *Olanzapine (Zyprexa) — A Novel Antipsychotic*. Edited by Tran, P.V., Bymaster, F., Tye, N., Herrera, J., Breier, A., and Tollefson, G., Eli Lilly & Co., Lippincott Williams & Wilkins, Philadelphia, 2000, pp. 3-24.
- 556.[363]. **SEEMAN, P.**, and KAPUR, S.: The dopamine receptor basis of psychosis. in: *Current issues in the Psychopharmacology of Schizophrenia*. Edited by Breier, A., Tran, P.V., Herrera, J., Bymaster, F., and Tollefson, G., Eli Lilly & Co., Lippincott Williams & Wilkins, Philadelphia, 2001, pp. 73-84.
- 558.[364]. WADENBERG, M.-L., and **SEEMAN, P.**: Clozapine pretreatment enhances raclopride catalepsy. *European Journal of Pharmacology* 377: R1-R2 (1999).
- 561.[365]. KAPUR, S., ZIPURSKY, R., JONES, C., SHAMMI, C.S., REMINGTON, G., and **SEEMAN, P.**: A positron emission tomography study of quetiapine in schizophrenia - A preliminary finding of an antipsychotic effect with only transiently high dopamine D2 receptor occupancy. *Archives of General Psychiatry* 57: 553-559 (2000).
- 562.[366]. KAPUR, S., and **SEEMAN, P.**: Antipsychotic agents differ in how fast they come off the dopamine D2 receptors. Implications for atypical antipsychotic action. *Journal of Psychiatry and Neuroscience* 25: 161-166 (2000).
- 563.[367]. SILVESTRI, S., SEEMAN, M.V., NEGRETE, J.-C., HOULE, S., SHAMMI, C.M., REMINGTON, G.J., KAPUR, S., ZIPURSKY, R.B., WILSON, A.A., CHRISTENSEN, B.K., and **SEEMAN, P.**: Increased dopamine D2 receptor binding following long-term treatment with antipsychotics in humans: A clinical PET study. *Psychopharmacology* 152: 174-180 (2000).
- 565.[369]. KAPUR, S., and **SEEMAN, P.**: Does Fast Dissociation From the Dopamine D2 receptor Explain the Action of Atypical Antipsychotics? - A New Hypothesis. *American Journal of Psychiatry* 158: 360-369 (2001).

- 567.[370]. LIU, I.S.C., GEORGE, S.R., and **SEEMAN, P.**: The dopamine D2 receptor has a high-affinity state and inhibits adenylate cyclase. *Molecular Brain Research* 77: 281-284 (2000).
- 569.[371]. LEE, D.K., LYNCH, K.R., NGUYEN, T., IM, D.-S., CHENG, R., SALDIVA, V.R., LIU, Y., HENG, H.H.Q., **SEEMAN, P.**, GEORGE, S.R., O'DOWD, B.F., and MARCHESE, A.: Cloning and characterization of additional members of the G protein-coupled receptor family. *Biochimica Et Biophysica Acta* 1490: 311-323 (2000).
- 571.[372]. **SEEMAN, P.**, and KAPUR, S.: Schizophrenia: More dopamine, more D2 receptors. *Proceedings of the National Academy of Sciences, U.S.A.* 97: 7673-7675 (2000).
- 573.[373]. BINKLEY, K., KING, N., POONAI, N., **SEEMAN, P.**, ULPIAN, C., and KENNEDY, J.: Idiopathic Environmental Intolerance: Increased prevalence of panic-disorder-associated cholecystokinin B receptor allele 7. *Journal of Allergy and Clinical Immunology* 107: 887-890 (2001).
- 574.[374]. TALLERICO, T., NOVAK, G., LIU, I.S.C., ULPIAN, C., and **SEEMAN, P.**: Schizophrenia: Elevated mRNA for dopamine D2 receptor in frontal cortex. *Molecular Brain Research* 87: 160-165 (2001).
- 575.[375]. NOVAK, G., **SEEMAN, P.**, and TALLERICO, T.: Schizophrenia: elevated mRNA for calcium-calmodulin-dependent protein kinase II in frontal cortex. *Molecular Brain Research* 82: 95-100 (2000).
- 580.[377]. KAPUR, S., BARSOUM, S.C., and **SEEMAN, P.**: Dopamine D2 blockade by haloperidol: ³H-raclopride reveals much higher occupancy than EEDQ. *Neuropsychopharmacology* 23: 595-598 (2000).
- 581.[378]. KAPUR, S., and **SEEMAN, P.**: Ketamine has equal affinity for NMDA receptors and the high-affinity state of the dopamine D2 receptor. *Biological Psychiatry* 49: 954-957 (2001).
- 582.[379]. KAPUR, S., and **SEEMAN, P.**: NMDA antagonists ketamine and PCP have direct effects on the dopamine D2 and serotonin 5-HT2 receptors - implications for models of schizophrenia. *Molecular Psychiatry* 7: 837-844 (2002).
- 584.[380]. KAPUR, S., McCLELLAND, R.A., VANDERSPECK, S.C., WADENBERG, M.-L.G., BAKER, G., NOBREGA, J., ZIPURSKY, R., and **SEEMAN, P.**: Increasing D2 affinity results in the loss of clozapine's atypical antipsychotic action. *Neuroreport* 13(6): 831-835 (2002)
- 585.[381]. KAPUR, S., and **SEEMAN, P.**: Reply: Does Fast Dissociation From the Dopamine D2 Receptor Explain the Action of Atypical Antipsychotics?: - A New hypothesis. *American Journal Psychiatry* 159: 154-155 (2002).
- 586.[382]. **SEEMAN, P.** and KAPUR, S.: Results without regrets – Mechanism of Action of Atypical Antipsychotics. *European College Neuropsychopharmacology, Istanbul, Oct. 14* (2001).
- 587.[383]. **SEEMAN, P.** and MADRAS, B.K.: Methylphenidate elevates resting dopamine which lowers impulse-triggered release of dopamine: a hypothesis. *Behavioural Brain Research* 130: 79-83 (2002).
- 588.[384]. **SEEMAN, P.**: Atypical antipsychotics: Mechanism of action. *Excerpta Medica Japan*. (Oct., 2001).

- 590.[385]. **SEEMAN, P.**: Atypical Antipsychotics: Mechanism of Action. *Canadian Journal of Psychiatry* 47: 27-38 (2002).
- 591.[386]. NOVAK, G., KIM, D., **SEEMAN, P.**, and TALLERICO, T.: Schizophrenia and Nogo: elevated mRNA in frontal cortex and higher prevalence of a homozygous CAA insert polymorphism. *Molecular Brain Research* 107: 183-189 (2002).
- 592.[387]. SUN, W., GINOVRT N, KO, F., **SEEMAN, P.**, and KAPUR, S.: In vivo evidence for dopamine-mediated internalization of D2 receptors after amphetamine: Differential findings with [³H]raclopride versus [³H]spiperone. *Molecular Pharmacology* 63: 456-462 (2003).
- 593.[388]. KAPUR, S., and **SEEMAN, P.**: Reply to Comment by J.H. Krystal and D.C. D'Souza on "Ketamine has equal affinity for NMDA receptors and the high-affinity state of the dopamine D2 receptor." *Biological Psychiatry* 50: 555 (2001).
- 594.[389]. KAPUR, S., and **SEEMAN, P.**: Atypical antipsychotics, cortical D2 receptors and sensitivity to endogenous dopamine. *British Journal of Psychiatry* 180: 465-466 (2002).
- 595.[390]. KO, F., **SEEMAN, P.**, SUN, W.S., AND KAPUR, S.: Dopamine D2 receptors internalize in their low-affinity state. *Neuroreport* 13(8, June): 1017-1020 (2002).
- 596.[391] **SEEMAN, P.**, TALLERICO, T., KO, F., TENN, C. AND KAPUR, S.: Amphetamine-sensitized animals show a marked increase in dopamine D2High receptors occupied by endogenous dopamine – even in the absence of acute challenges. *Synapse* 46: 235-239 (2002).
- 597.[392] **SEEMAN, P.**, TALLERICO, T.: Link between dopamine D1 and D2 receptors in rat and human striatal tissues. *Synapse* 47: 250-254 (2003).
- 598.[393] SEEMAN, M.V., and **SEEMAN, P.**: Choosing an antipsychotic and why. *Medscape*, Wed., Sept. 18, 2002.
- 600.[394] **SEEMAN, P.**: The Creation of Psychopharmacology, by David Healy, Harvard University Press, Cambridge, MA, 2002, pp. 469. *Nature Medicine*, October 15, 2002. (Book Review).
- 601.[395] **SEEMAN, P.**: Atypical antipsychotics: Mechanism of action. Reply to Dr. J.H. Friedman. *Canadian Journal of Psychiatry* 48: 62-64 (2003).
- 603.[396] **SEEMAN, P.**, KO, F., and TALLERICO, T.: Dopamine receptor contribution to the action of PCP, LSD, and ketamine psychotomimetics. *Molecular Psychiatry* 10: 877-883 (2005).
- 604.[397] CHUNG, C., TALLERICO, T., and **SEEMAN, P.**: Schizophrenia hippocampus has elevated expression of chondrex glycoprotein gene. *Synapse* 50: 29-34 (2003).
- 605.[398] AGID, O., **SEEMAN, P.** and KAPUR, S.: The 'delayed onset' of antipsychotic action - an idea whose time has come and gone. *Journal of Psychiatry and Neuroscience* 31: 93-100 (2006).
- 606.[399] **SEEMAN, P.**, and KAPUR, S.: Anesthetics inhibit high-affinity states of dopamine D2 and other G-linked receptors. *Synapse* 50: 35-40 (2003).
- 608.[400] **SEEMAN, P.**, TALLERICO, T., and KO, F.: Dopamine displaces [³H]domperidone from high-affinity sites of the dopamine D2 receptor, but not [³H]raclopride or [³H]spiperone in isotonic medium: Implications for human positron emission tomography. *Synapse* 49: 209-215 (2003).

- 609.[401] **SEEMAN, P.**, and SEEMAN, M.V.: The dopamine hypothesis of schizophrenia. In: Handbook of Medical Psychiatry, edited by J.C. Soares and S. Gershon, Marcel Dekker, New York, 2003, pp. 259-266.
- 610.[402] SILVESTRI, S., NEGRETE, J.C., SEEMAN, M., SHAMMI, C.M., and **SEEMAN, P.**: Does nicotine affect D2 receptor upregulation? A case-control study. *Acta Psychiatrica Scandinavica* 109: 313-317 (2004).
- 611.[403] GEORGE, S.R., NG, G.Y.K., LEE, S.P., FAN, T., VARGHESE, G., WANG, C., DEBER, C.M., **SEEMAN, P.**, and O'DOWD, B.F.: Blockade of G protein-coupled receptors and the dopamine transporter by a transmembrane domain peptide: Novel strategy for functional inhibition of membrane proteins in vivo. *Journal of Pharmacology and Experimental Therapeutics* 307: 481-489 (2003).
- 612.[404] **SEEMAN, P.**, TALLERICO, T., and KO, F.: Alcohol-withdrawn animals have a prolonged increase in dopamine D2^{High} receptors, reversed by general anesthesia: relation to relapse? *Synapse* 52: 77-83 (2004).
- 613.[405] **SEEMAN, P.**, WEINSHENKER, D., QUIRION, R., SRIVASTAVA, L., BHARDWAJ, S.K., GRANDY, D.K., PREMONT, R., SOTNIKOVA, T., BOKSA, P., EL-GHUNDI, M., O'DOWD B.F., GEORGE S.R., PERREAULT, M.L., MANNISTO, P.T., ROBINSON, S., PALMITER, R.D., and TALLERICO, T.: Dopamine supersensitivity correlates with D2^{High} states, implying many paths to psychosis. *Proceedings of the National Academy of Science U.S.A.* 102: 3513-3518 (2005).
- 614.[406] **SEEMAN, P.**: Comment: Diverse psychotomimetics act through a common signaling pathway. *Science* 305: 180 (2004).
- 617.[407] **SEEMAN, P.**, and SEEMAN, M.V.: Schizophrenia research in Canada, 1964-2004. In: History of Canadian College of Neuropsychopharmacology, P. Hrdina and Y. Lapiere, eds. (2005; see later).
- 618.[408] **SEEMAN, P.**: Atypical antipsychotics: Mechanism of action. *Focus* 2: 48-58 (2004).
- 619.[409] SCHANK, J.R., VENTURA, R., PUGLISI-ALLEGRA, S., ALCARO, A., COLE, C.D., LILES, L.C., **SEEMAN, P.**, and WEINSHENKER, D.: Dopamine β -hydroxylase knockout mice have alterations in dopamine signaling and are hypersensitive to cocaine. *Neuropsychopharmacology* 31: 2221-2230 (2006)..
- 620.[410]. **SEEMAN, P.**, SCHWARZ, J., CHEN, J.-F., SZECHTMAN, H., PERREAULT, M., McKNIGHT, G.S., RODER, J.C., QUIRION, R., BOKSA, P., SRIVASTAVA, L.K., YANAI, K., WEINSHENKER, D., and SUMIYOSHI, T., Psychosis pathways converge via D2^{High} dopamine receptors. *Synapse* 60: 319-346 (2006).
- 621.[411]. REMINGTON, G., **SEEMAN, P.**, SHAMMI, C., MANN, S., and KAPUR, S.: "Extended" Antipsychotic Dosing. Rationale and pilot data. *Journal of Clinical Psychopharmacology* 25: 611-613 (2005).
- 623.[412]. **SEEMAN, P.**: An update on fast-off-D2 Atypical Antipsychotics. *American Journal of Psychiatry* 162: 1984-1985 (2005).
- 626.[413]. **SEEMAN, P.**: Dopamine and Dopamine Receptors. In: The Neurotransmitter era in Neuropsychopharmacology, edited by T. Ban and R.U. Udabe, Collegium Int. Neuropsychopharmacologicum, Polemos press, pp. 79-94 (2006).

- 627.[414]. SUMIYOSHI, T., **SEEMAN, P.**, UEHARA, T., ITOH, H., TSUNODA, M., and KURACHI, M.: Increased proportion of high-affinity dopamine D2 receptors in rats with excitotoxic damage of the entorhinal cortex, an animal model of schizophrenia. *Molecular Brain Research* 140: 116-119 (2005).
- 628.[415]. **SEEMAN, P.**, and LASAGA, M.: Dopamine agonist action of phencyclidine. *Synapse* 58: 275-277 (2005).
- 629.[416]. **SEEMAN, P.**, KO, F., WILLEIT, M., MCCORMICK, P., GINOVRT, N.: Anti-Parkinson concentrations of pramipexole and PHNO occupy dopamine D2^{High} and D3^{High} receptors. *Synapse* 58: 122-128 (2005).
- 630.[417]. WILSON, A.A., McCORMICK, P., KAPUR, S., WILLEIT, M., GARCIA, A., HUSSEY, D., HOULE, S., **SEEMAN, P.**, and GINOVRT, N.: Radiosynthesis and evaluation of [¹¹C]-(+)-4-propyl-3,4,4a,5,6,10b-hexahydro-2H-naphtho[1,2-b][1,4]oxazin-9-ol as a potential radiotracer for in vivo imaging of the dopamine D2 high-affinity state with positron emission tomography. *Journal of Medicinal Chemistry* 48:4153-4160 (2005).
- 631.[418]. WILLEIT, M., GINOVRT, N., KAPUR, S., HOULE, S., HUSSEY, D., **SEEMAN, P.**, and WILSON, A.A.: High-affinity states of human brain dopamine D2/3 receptors imaged by the agonist [¹¹C]-(+)-PHNO. *Biological Psychiatry* 59: 389-394 (2006).
- 632.[419]. NOVAK, G., **SEEMAN, P.**, and TALLERICO, T.: Increased expression of calcium/calmodulin-dependent protein kinase II β in frontal cortex in schizophrenia and depression. *Synapse* 59: 61-68 (2005).
- 633.[420] **SEEMAN, P.**: Dopamine receptors, schizophrenia and antipsychotics. *Canadian Journal of Diagnosis*, Special edition pp. 1-7 (2006).
- 634.[421]. VASDEV, N, **SEEMAN, P.**, GARCIA, A., STABLEFORD, W.T., NOBREGA, J., HOULE, S., and WILSON, A.A.: Syntheses and in vitro evaluation of fluorinated naphthoxazines as dopamine D2/D3 receptor agonists; Radiosynthesis, ex vivo biodistribution and autoradiography of [¹⁸F]F-PHNO congeners. *Nuclear Medicine Biology* 334: 195-203 (2007).
- 636.[422]. GINOVRT, N., KAPUR, S., GALINEAU L., WILLEIT, M., MIZRAHI, R., **SEEMAN, P.**, HOULE, S., and WILSON, A.A.: Binding characteristics and sensitivity to endogenous dopamine of [¹¹C]-(+)-PHNO, a new agonist radiotracer for imaging the high-affinity state of D2-receptors in vivo using positron emission tomography. *Journal of Neurochemistry* 97: 1089-1103 (2006).
- 637.[423]. VASDEV, N., NATESAN, S., GALINEAU, L., GARCIA, A., STABLEFORD, W.T., McCORMICK, P., **SEEMAN, P.**, HOULE, S., and WILSON, AA: Radiosynthesis, in vivo and ex vivo evaluation of carbon-11 labelled (S)-(-)propyl-3-(3-hydroxyphenyl)piperidine ([¹¹C]Preclamol) as a partial dopamine D2 receptor agonist for PET. *Synapse* 60: 314-318 (2006).
- 638.[424]. **SEEMAN, P.**: In session with Philip Seeman. Role of dopamine in psychopharmacology. *Primary Psychiatry* 13: 37-40 (2006).
- 639.[425]. **SEEMAN, P.**: Targeting the dopamine D2 receptor in schizophrenia. *Expert Opinion on Therapeutic Targets* 10: 515-531 (2006).
- 640.[426]. **SEEMAN, P.**, WILSON, A, GMEINER, P., and KAPUR, S.: Dopamine D2 and D3 receptors in human putamen, caudate nucleus, and globus pallidus. *Synapse* 60: 205-211 (2006).

- 641.[427]. KO, F., TALLERICO, T., and **SEEMAN, P.**: Antipsychotic pathway genes with expression altered in opposite direction by antipsychotics and amphetamine. *Synapse* 60: 141-151 (2006).
- 643.[428]. **SEEMAN, P.**: Dopamine receptors and antipsychotic drugs in health and disease. In *Encyclopedia of Neuroscience*. Vol. 3 (L.R. Squire, Editor) Oxford: Academic press. 2009, pp. 579-596.
- 644.[429]. **SEEMAN, P.**, KO, F., JACK, E., GREENSTEIN, R., and DEAN, B.: Consistent with dopamine supersensitivity, RGS9 expression is diminished in the amphetamine-treated animal model of schizophrenia and in post-mortem schizophrenia brain. *Synapse* 61: 303-309 (2007).
- 645.[430]. WOLINSKY, T., SWANSON, C.J., SMITH, K., ZHONG, H., BOROWSKY, B., **SEEMAN, P.**, BRANCHEK, T., and GERALD, C.P.: The Trace Amine receptor-1 knockout mouse: an animal model with relevance to schizophrenia. *Genes, Brain and Behavior* 6: 628-639 (2007).
- 646.[431] GREENSTEIN R, NOVAK, G., and **SEEMAN, P.**: Amphetamine sensitization elevates CaMKII β mRNA. *Synapse* 61: 827-834 (2007).
- 651.[432]. **SEEMAN, P.**, HALL, F.S. and UHL, G.: Increased dopamine D2^{High} receptors in knockouts of the dopamine transporter and the vesicular monoamine transporter may contribute to spontaneous hyperactivity and dopamine supersensitivity *Synapse* 61: 573-576 (2007).
- 652.[433]. WILLEIT, M., GINOVART N., GRAFF, A., RUSJAN, P., VITCU, I., HOULE, S., **SEEMAN, P.**, WILSON, A.A., and KAPUR, S.: First human evidence of d-amphetamine induced displacement of a D_{2/3} agonist radioligand: A [¹¹C]-(+)-PHNO positron emission tomography study. *Neuropsychopharmacology* 33(2): 279-289 (2008).
- 653.[434]. **SEEMAN, P.**, McCORMICK, P., and KAPUR, S.: Increased dopamine D2^{High} receptors in amphetamine-sensitized rats, measured by the agonist [³H](+)PHNO. *Synapse* 61: 263-267 (2007).
- 654.[435]. **SEEMAN, P.**: Anti-Parkinson therapeutic potencies correlate with their affinities for dopamine D2^{High} receptors. *Synapse* 61: 1013-1018 (2007).
- 655.[436]. **SEEMAN, P.**, CARUSO, C., M. LASAGA: Memantine agonist action at dopamine D2^{High} receptors. *Synapse* 62: 149-153 (2008).
- 657.[437]. SHUTO, T., **SEEMAN, P.**, KUROIWA, M., NISHI, A.: Repeated administration of a dopamine D1 receptor agonist reverses the increased proportions of striatal dopamine D1^{High} and D2^{High} receptors in methamphetamine-sensitized rats. *European Journal of Neuroscience* 27: 2551-2557 (2008).
- 658.[438]. GRAFF-GUERRO, A., WILLEIT, M., GINOVART, N., MAMO, D., MIZRAHI, R., RUSJAN, P., VITCU, I., **SEEMAN, P.**, WILSON, A.A., and KAPUR, S.: Brain region binding of the D_{2/3} agonist [¹¹C]-(+)-PHNO and the D_{2/3} antagonist [¹¹C]raclopride in healthy humans. *Human Brain Mapping* 29(4): 400-410 (2008).
- 659.[439]. **SEEMAN, P.**, and GUAN, H.-C.: Dopamine partial agonist action of (-)OSU6162 is consistent with dopamine hyperactivity in psychosis. *European Journal of Pharmacology* 557: 151-153 (2007).
- 660.[440]. TASSIN, J.-P., TORRENS, Y., SALOMON, L., LANTERI, C., and **SEEMAN, P.**: Elevated dopamine D2^{High} receptors in alpha-1beta-adrenoceptor knockout supersensitive mice. *Synapse* 61: 569-572 (2007).

- 661.[441]. **SEEMAN, P.**, CARUSO, C., and LASAGA, M.: Dopamine partial agonist actions of the glutamate receptor agonists LY 354,740 and LY 379,268. *Synapse* 62: 154-158 (2008).
- 662.[442]. PERREAULT, M.L, **SEEMAN, P.** and SZECHTMAN, H.: Kappa-opioid receptor stimulation quickens pathogenesis of compulsive checking in the quinpirole sensitization model of obsessive-compulsive disorder (OCD). *Behavioural Neuroscience* 121: 976-991 (2007).
- 663.[443]. SAMAHA, A.-N., **SEEMAN, P.**, STEWART, J., RAJABI, H., and KAPUR, S.: “Breakthrough” dopamine supersensitivity during ongoing antipsychotic treatment leads to failure over time. *Journal of Neuroscience* 27: 2979-2986 (2007).
- 667.[444]. **SEEMAN, P.**: Dopamine D2^{High} receptors moderately elevated by sertindole. *Synapse* 62: 389-393 (2008).
- 668.[445]. McCORMICK, P.N., KAPUR, S., **SEEMAN, P.**, and WILSON, A.A.: Dopamine D2 receptor radiotracers, [¹¹C]-(+)-PHNO and [³H]-raclopride, are indistinguishably inhibited by D2 agonists or antagonists *ex vivo*. *Nuclear Medicine Biology* 35: 11-17 (2008).
- 671.[446]. **SEEMAN, P.**: http://www.scholarpedia.org/article/Dopamine_and_schizophrenia. *Scholarpedia* 2(10): 3634 (2007).
- 674.[447]. **SEEMAN, P.**: All psychotic roads lead to increased D2^{High} dopamine receptors. A perspective. *Clinical Schizophrenia and Related Psychoses* Jan.: 351-355 (2008).
- 675.[448]. SIMOLA, N., MORELLI, M., and **SEEMAN, P.**: Increase of dopamine D2^{High} receptors in the striatum of rats sensitized to caffeine motor effects. *Synapse* 62: 394-397 (2008).
- 676.[449] **SEEMAN, P.**: Dopamine D2^{High} receptors on intact cells. *Synapse* 62: 314-318 (2008).
- 677.[450]. BRIAND, L.A., FLAGEL, S.B, **SEEMAN, P.**, ROBINSON, T.E.: Cocaine self-administration produces a persistent increase in dopamine D2^{High} receptors. *European Journal of Neuropsychopharmacology* 18: 551-556 (2008).
- 679.[452]. **SEEMAN, P.**: Dopamine D2^{High} receptors moderately elevated by bifeprunox and aripiprazole. *Synapse* 62: 902-908 (2008).
- 681.[453]. **SEEMAN, P.**: Dopamine D2^{High} receptors measured *ex vivo* are elevated in amphetamine-sensitized animals. *Synapse* 63: 186-192 (2009).
- 682.[454]. **SEEMAN, P.**: Glutamate agonists for schizophrenia stimulate dopamine D2^{High} receptors *Schizophrenia Research* 99 (1-3): 373-374 (2008).
- 683.[455]. **SEEMAN, P.**: Historical Introduction to The Dopamine Receptors. In: *The Dopamine Receptors*, 2nd edition, edited by K.A. Neve, Humana Press, New York, pp. 1-21 (2010).
- 685.[456]. SAMAHA, A.-N., RECKLESS, G., **SEEMAN, P.**, DIWAN, M., NOBREGA, J.N., KAPUR, S.: Less is More: Antipsychotic drug effects are greater with transient rather than continuous delivery. *Biological Psychiatry* 64: 145-152 (2008).
- 687.[457]. KING, M.V., **SEEMAN, P.**, MARSDEN, C.A., FONE, K.C.F.: Increased dopamine D2^{High} receptors in rats reared in social isolation. *Synapse* 63: 476-483 (2009).
- 688.[458]. NOVAK, G., and **SEEMAN, P.**: Hyperactive mice show elevated D2^{High} receptors, a model for schizophrenia: calcium/calmodulin-dependent kinase II alpha knockouts. *Synapse* 64(10): 794-800 (2010).

- 689.[459]. **SEEMAN, P.** and GUAN, H.-C.: Phencyclidine and glutamate agonist LY379268 stimulate dopamine D2^{High} receptors: D2 basis for schizophrenia. *Synapse* 62: 819-828 (2008).
- 690.[460]. **SEEMAN, P.**: Commentary: Glutamate and dopamine components in schizophrenia. *Journal of Psychiatry and Neuroscience* 34(2): 143-149 (2009).
- 691.[461]. LIPINA, T.V., NIWA, M., JAARO-PELED, H., FLETCHER, P.J., **SEEMAN, P.**, SAWA, A., and RODER, J.C.: Enhanced dopamine function in mutant DISC1-L100P mutant: Implications for schizophrenia. *Genes, Brain & Behaviour* 9(7): 777-789 (2010).
- 692.[462]. PERREAULT, M.L., HASBI, A., ALIJANIARAM, M., FAN, T., VARGHESE, G., FLETCHER, P.J., **SEEMAN, P.**, O'DOWD, B.F., GEORGE, S.R.: The dopamine D1-D2 receptor heteromer localizes in dynorphin/enkephalin neurons: increased high affinity state following amphetamine and in schizophrenia. *Journal of Biological Chemistry* 285: 36625-36634 (2010).
- 693.[463]. **SEEMAN, P.**, BATTAGLIA, G., CORTI, C., NICOLETTI, F., BRUNO, V.: Glutamate receptor mGlu2 and mGlu3 knockout striata are dopamine supersensitive, with elevated D2^{High} receptors and marked supersensitivity to the dopamine agonist (+)PHNO. *Synapse* 63: 247-251 (2009).
- 694.[464]. **SEEMAN, P.**, TOKITA K, MATSUMOTO M, MATSUO A, SASAMATA, M, MIYATA K: The dopaminergic stabilizer ASP2314/ACR16 selectively interacts with D2^{High} receptors. *Synapse* 63: 930-934 (2009).
- 695.[465]. ALTTUA, A, **SEEMAN, P.**, KÖIV, K, ELLER, M, HARRO, J.: Rats with persistently high exploratory activity have both higher extracellular dopamine levels and higher proportion of D₂^{High} receptors in the striatum. *Synapse* 63: 443-446 (2009).
- 697.[466] WANG, M., PEI, L., FLETCHER, P.J., KAPUR, S., **SEEMAN, P.**, LIU, F.: Schizophrenia, amphetamine-induced sensitized state and acute amphetamine exposure all show a common alteration: Increased dopamine D2 receptor dimerization. *Molecular Brain* 3(1): 25-34 (2010).
- 698.[467] FLAGEL, S. B., ROBINSON, T.E., CLARK, J.J., CLINTON, S.M., WATSON, S.J., **SEEMAN, P.**, PHILLIPS, P.E.M., AKIL, H.: An animal model of genetic vulnerability to behavioral disinhibition and responsiveness to reward-related cues: Implications for addiction. *Neuropsychopharmacology* 35: 388-400 (2010).
- 699.[468] SROMEK, A., YU-GUI, S., ZHANG, T., GEORGE, S., **SEEMAN, P.**, NEUMEYER, J.L.: Synthesis and biological evaluation of *N*-fluoroalkyl and 2-fluoroalkoxy substituted aporphines: Potential PET ligands for dopamine D₂ receptors. *American Chemical Society Medicinal Chemistry Letters* 2(3): 189-194 (2011).
- 700.[469] **SEEMAN, P.**, GUAN, H.-C. and HIRBEC, H.: Dopamine D2^{High} receptors stimulated by phencyclidines, LSD, salvinorin A, and modafinil. *Synapse* 63(8): 698-704 (2009).
- 701.[470] **SEEMAN, P.**: Schizophrenia model of elevated D2^{High} receptors: Haloperidol reverses the amphetamine-induced elevation in dopamine D2^{High}. *Schizophrenia Research* 91: 191-192 (2009).
- 702.[471]. **SEEMAN, P.**: Glutamate agonists for treating schizophrenia have affinity for dopamine D2^{High} and D3 receptors. *Synapse* 63(8): 705-709 (2009)
- 703.[472]. SIMOLA, N.A.P., TRONCI, E., **SEEMAN, P.**, MORELLI, M.: Caffeine Consumption and Changes in the Function of Dopaminergic Transmission: Evidence of a Hyperdopaminergic

- State in Rats Subchronically Treated with Caffeine. In: *Advances in Psychology Research*, Volume 60, Chapter 5, pp. 107-125 (2009). Editor: A.M. Columbus. Publisher: Nova Science Publishers, Hauppauge, NY, U.S.A. ISBN: 978-1-60741-853-5.
- 705.[473]. **SEEMAN, P.** and GUAN, H-C.: Glutamate agonist LY 404,039 for treating schizophrenia has affinity for the dopamine D2^{High} receptor. *Synapse* 63: 935-939 (2009).
- 706.[474]. **SEEMAN, P.:** Dopamine D2 Receptors as Treatment Targets in Schizophrenia. *Translational Medicine Review. Clinical Schizophrenia & Related Psychoses* April: 56-73 (2010).
708. Book SEEMAN, N.: and **SEEMAN, P.:** *Psychosis: Discovery of the antipsychotic receptor*. SZ Publications, Toronto. 148 pages. March 12, 2009.
- 710.[475]. FRANCO, R., **SEEMAN, P.**, BARRERA C., AYMERICH, M.: Cocaine self-administration markedly increases dopamine D2 receptor negative cooperativity for dopamine binding: A receptor dimer-based analysis. *Synapse* 64: 566-569 (2010).
- 711.[476]. NOVAK, G., **SEEMAN, P.**, LE FOLL, B.: Exposure to nicotine produces an increase in dopamine D2^{High} receptors: a possible mechanism for dopamine hypersensitivity. *International Journal of Neuroscience* 691-697 (2010).
714. [477]. **SEEMAN, P.** , SEEMAN, M.V.: Schizophrenia and the supersensitive synapse. *Neuropsychiatry* 1(3): 233-242 (2011).
- 717.[478]. **SEEMAN, P.** : All roads to schizophrenia lead to dopamine supersensitivity and elevated dopamine D2^{High} receptors. *CNS Neuroscience and therapeutics*. 17(2): 118-132 (2011).
- 718.[479]. REMINGTON, G., **SEEMAN, P.**, FEINGOLD, A., MANN, S., SHAMMI, C., KAPUR, S.: "Extended" antipsychotic dosing in the maintenance treatment of schizophrenia: A double-blind, placebo-controlled trial. *Journal of Clinical Psychiatry* 72(8): 1042-1048 (2010).
- 720.[479.1]. **SEEMAN, P.:** Dopamine agonist radioligand binds to both D2^{High} and D2^{Low} receptors, explaining why alterations in D2^{High} are not detected in human brain scans. *Synapse* 66(1): 88-93 (2012). Epub Nov. 12, 2011.
- 721.[480]. CHEN, S., **SEEMAN, P.**, LIU, F.: Antipsychotic drug binding in the substantia nigra: An examination of high metoclopramide binding in the brains of normal, Alzheimer's Disease, Huntington's Disease, and Multiple Sclerosis patients, and its relation to tardive dyskinesia. *Synapse* 65(2): 119-124 (2011).
- 726.[481]. **SEEMAN, P.:** All roads to schizophrenia go through dopamine supersensitivity. *Canadian Psychiatry Aujourd'hui*. Winter, p. 11 (2011).
- 727.[482] VAUQUELIN, G., BOSTOEN. S., VANDERHEYDEN, P., and **SEEMAN, P.:** Clozapine, atypical antipsychotics, and the benefits of fast-off D₂ dopamine receptor antagonism. *Naunyn-Schmeideberg's Archives of Pharmacology* 385(4): 337-372 (2012).
- 728.[483]. **SEEMAN, P.:** Schizophrenia diagnosis and treatment. *CNS Neuroscience and Therapeutics*. 17(2): 81-82 (2011).
- 731.[484]. **SEEMAN, P.**, Remington, G: Antipsychotic dosing: Extended, and Transient. *Clinical Schizophrenia & Related Psychoses* July: 86-87 (2012).
- 736.[485]. **SEEMAN, P.**, SEEMAN, N.: Alzheimer's disease: β -amyloid plaque formation in human brain. *Synapse* 65: 1289-1297 (2011).

- 737.[486]. **SEEMAN, P.**: Letter to the Editor: Comment on: “A multicenter, inpatient, phase 2, double-blind, placebo-controlled dose-ranging study of LY2140023 monohydrate in patients with DSM-IV schizophrenia” (Journal of Clinical Psychopharmacology 2011;31:349-355). Journal of Clinical Psychopharmacology 32(2): 291-292 (2012).
- 739.[487]. **SEEMAN, P.**, and MADRAS, B.K., Editors, *Imaging of the Human Brain in Health and Disease* (2012). Neuroscience-Net, neuroscience.com (2012).
<http://books.google.ca/books?hl=en&lr=&id=ZYtqAAAAQBAJ&oi=fnd&pg=PA361&dq=mv+seeman&ots=P8mhkft3TI&sig=4mgATDXZ60d77bNGMozUyeYpoGE#v=onepage&q=mv%20seeman&f=false>
- 740.[488]. LAI, T.K.Y., **SEEMAN, P.**, LIU, F.: Cell membrane lytic action of metoclopramide and its relation to tardive dyskinesia. *Synapse* 66: 273-276 (2012).
743. SROMEK, A.W., NEUMEYER, J.L., SI, Y.-G., ZHANG, T., **SEEMAN, P.**, GEORGE, S.R., STEPANOV, V., FINNEMA, S., FARDE, L., HALLDIN, C.: Development of high affinity, highly selective agonist ligands for positron emission tomography imaging of the dopamine D2 receptor. 243rd American Chemical Society meeting, San Diego, CA (2011).
- 744.[489] KOPRICH, J.B., HUOT, P., FOX, S.H., JARVIE, K., LANG, A.E., **SEEMAN, P.**, BROTCHE, J.M.: Fast-off-D2 receptor antagonism reduces dyskinesia and psychosis but compromises the anti-parkinsonian benefits of L-DOPA. (*Progress in Neuro-Psychopharmacology and Biological Psychiatry* (2013).
- 746.[490] SEEMAN, N., **SEEMAN, P.**, WATANABE, M. (2011): *Psychosis. Discovery of the antipsychotic receptor*. Japanese edition, Tokyo, Seiwa Shoten Publishers, pp 267.
- 748.[491] CHEN, S., LU, F.F., **SEEMAN, P.**, LIU, F.: Quantitative proteomic analysis of human substantia nigra in Alzheimer’s disease, Huntington’s disease and Multiple Sclerosis. *Neurochemical Research* Dec. 37 (12): 2805-2813 (2012).
- 749.[492] **SEEMAN, P.**: Comment on: “Effects of a novel mGlu_{2/3} receptor agonist prodrug, LY2140023 monohydrate, on central monoamine turnover as determined in human and rat cerebrospinal fluid” (Lowe S, Dean R, Ackermann B, Jackson K, Natanegara F, Anderson S, Eckstein J, Yuen E, Ayan-Oshodi M, Ho M, McKinzie D, Perry K, Svensson K, *Psychopharmacology*, 2012). Letter to Editor, *Psychopharmacology* (Berlin) May 221: 355-356 (2012).
- 753.[493] SEEMAN, M.V., **SEEMAN, P.**: Is schizophrenia a dopamine supersensitivity psychotic reaction? *Progress in Neuro-psychopharmacology and Biological Psychiatry* 48: 155-160 (2014).
- 754.[494] LAPIERRE, Y., SOURKES, T., CHOUINARD, G., AWAD, G., BAKER, G., **SEEMAN, P.**, SEEMAN, M. History of the Canadian College of Neuropsychopharmacology, the first 25 years (April, 2012).
- 756.[495] **SEEMAN, P.**: Comment on: “Adverse events in healthy subjects exposed to single and multiple doses of LY2140023 monohydrate” by Ayan-Oshodi et al. (*Journal of Clinical Psychopharmacology* 2012;32(3):408-411), *Journal of Clinical Psychopharmacology* 33(2): 280 (2013).
- 758.[496] **SEEMAN, P.**: Schizophrenia and dopamine receptors. *European Neuropsychopharmacology* 23: 999-1009 (2013).

- 761.[497] **SEEMAN, P.:** An agonist at glutamate and dopamine D2 receptors, LY404039. *Neuropharmacology* 66: 87-88 (2013).
- 762.[498] **SEEMAN, P., TINAZZI, M.:** Loss of dopamine neuron terminals in antipsychotic-treated schizophrenia; relation to tardive dyskinesia. *Progress in Neuro-Psychopharmacology and Biological Psychiatry* 44: 178-183 (2013).
- 771.[499] **SEEMAN, P.:** Psychosis and dopamine D2High receptors. *The Biochemist* (June, 2013): 20-23.
- 772.[500] **SEEMAN, P.:** Discovery of why acute lymphoblastic leukemia cells are killed by asparaginase. *Adventures of a young post-doctoral student, Bertha K. Madras. Journal of Medical Biography* May 22: 90-92 (2014).
- 773.[501] **SEEMAN, P.:** Are dopamine D2 receptors out of control in psychosis? *Progress in Neuro-psychopharmacology and Biological Psychiatry* 46: 146-152 (2013).
- 777.[502] **SEEMAN, P.:** Schizophrenia thalamus imaging: Low benzamide binding to dopamine D2 receptors suggests fewer D2Short receptors and less presynaptic terminals. *Psychiatry Research: Neuroimaging* 214: 175-180 (2013).
- 778.[503] KENNEDY, S.H., PLACENZA, F., HUDSON, C.J., **SEEMAN, P.**, SEEMAN, M.V.: Depression treatment by withdrawal of short-term low-dose antipsychotic, a proof-of-concept randomised double-blind study. *J. Affective Disorders* 166: 139-143 (2014).
- 779.[504] NORTH, C., LIU, F., **SEEMAN, P.**, et al.: Dopamine D2High receptors in Disc 1-lesioned rats. (in progress, 2014).
- 781.[504] **SEEMAN, P.:** Clozapine, a fast-off-D2 antipsychotic. *Amer. Chem. Soc. Chemical Neuroscience* 5(1): 24-29 (2014).
- 782.[505] Finnema S.J., Stepanov, V., Nakao, R., Sromek, A.W., Zhang, T., Neumeier, J.L., George, S.R., **SEEMAN, P.**, Stabin, M.G., Jonsson, C., Farde, L., Halldin, C.: [¹⁸F]MCL-524, an ¹⁸F-Labeled Dopamine D2/D3 Receptor Agonist Sensitive to Dopamine – A Preliminary PET Study. *Journal of Nuclear Medicine* 55: DOI 10.2967/jnumed. 113.133876 (2014).
- 784.[506] **SEEMAN, P.:** Yes, breast is best, but taper domperidone when stopping. *eLetter, Brit. J. General Practice*, 64 (Jan. 15, 2014).
- 787.[507] HUDSON, C.J., **SEEMAN, P.**, SEEMAN, M.V.: Parkinson's disease: Low dose haloperidol increases dopamine receptor sensitivity and clinical response. *Parkinson's Disease (Journal)* (2014). ID 684973
- 788.[508] **SEEMAN, P.:** Therapeutic occupation of dopamine D2 antipsychotic receptors in Alzheimer's disease. *Int. J. Geriatric Psychiat.* 29: 1096 (2014)
DOI: 10.1002/gps.4133.
- 790.[509] **SEEMAN, P.:** Parkinson's disease treatment may cause impulse-control disorder via dopamine D3 receptors. *Synapse* 69: 183-189 (2015).

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