

## V References

- Anderson, D.H., W.H. Stern, S.K. Fisher, P.A. Erikson, and G.A. Borgula (1981) The onset of pigment epithelial proliferation after retinal detachment. *Invest. Ophthalmol. Vis. Sci.* 21:10-16.
- Appleyard, M.E. (1992) Secreted acetylcholinesterase: Non-classical aspects of a classical enzyme. *Trends Neurosci.* 15:485-490.
- Araki, M. and H. Kimura (1991) GABA-like immunoreactivity in the developing chick retina: differentiation of GABAergic horizontal cell and its possible contacts with photoreceptors. *J. Neurocytol.* 20:345-355.
- Araki, C.M., R.S. Pires, L.R.G. Britto, J.M. Lindstrom, H.J. Karten, and D.E. Hamassaki Britto (1997) Differential co-localization of nicotinic acetylcholine receptor subunits with calcium-binding proteins in retinal ganglion cells. *Brain Res.* 774:250-255.
- Ball, A. (1987) Immunocytochemical and autoradiographic localization of GABAergic neurons in the goldfish retina. *J. Comp. Neurol.* 255:317-325.
- Ball, A.K. and D.H. Dickson (1983) Displaced amacrine and ganglion cells in the newt retina. *Exp. Eye Res.* 36:199-213.
- Bonaventure, N., B. Jardon, J. Sahel, and N. Wioland (1989) Neurotransmission in the frog retina: possible physiological and histological correlations. *Doc. Ophthalmol.* 72:71-82.
- Bonner, T.I., N.J. Buckley, A.C. Young, and M.R. Brann (1987) Identification of a family of muscarinic acetylcholine receptor genes. *Science* 237:527-532.
- Bonner, T.I., A.C. Young, M.R. Brann, and N.J. Buckley (1988) Cloning and expression of the human and rat m5 muscarinic acetylcholine receptor genes. *Neuron* 1:403-410.

- Bonnet, C. (1781) Sur les reproductions des salamandres. Oeuvres d'Histoire Naturelle et de Philosophie. Vol. II, Neuchatel, pp. 175-179.
- Brandon, C. (1987) Cholinergic neurons in the rabbit retina: Immunocytochemical localization, and relationship to GABAergic and cholinesterase-containing neurons. *Brain Res.* 401:385-391.
- Britto, L.R.G., D.E. Hamassaki-Britto, E.S. Ferro, K.T. Keyser, H.J. Karten, and J.M. Lindstrom (1992) Neurons of the chick brain and retina expressing both  $\alpha$ -bungarotoxin-sensitive and  $\alpha$ -bungarotoxin-insensitive nicotinic acetylcholin receptor: an immunohistochemical analysis. *Brain Res.* 590: 193-200.
- Bugra, K., E. Jacquemin, J.R. Ortiz, J.C. Jeanny, and D. Hicks (1992) Analysis of opsin mRNA and protein expression in adult and regenerating newt retina by immunology and hybridization. *J. Neurocytol.* 21:171-183.
- Chang, C.C. and C.Y. Lee (1963) Isolation of neurotoxins from the venom of *Bungarus multicinctus* and their modes of neuromuscular blocking action. *Arch. Int. Pharmacodyn.* 144:241-257.
- Cheon, E.W., Y. Kaneko, and T. Saito (1998) Regeneration of the newt retina: Order of appearance of photoreceptors and ganglion cells. *J. Comp. Neurol.* 396:267-274.
- Chiba, C., O. Matsushima, Y. Muneoka, and T. Saito (1997) Time course of appearance of GABA and GABA receptors during retinal regeneration in the adult newt. *Dev. Brain Res.* 98:204-210.
- Chiba, C. and T. Saito (1995) Development of responses to excitatory and inhibitory amino acids in spiking cells during retinal regeneration in the adult newt. *Jpn. J. Physiol.* 45:869-887.

- Chubb, I.W. and T.J. Millar (1984) Is intracellular acetylcholinesterase involved in the processing of peptide neurotransmitters? Clin. Exp. Hypertens. 6:79-89.
- Chubb, I. and A.D. Smith (1975) Isozymes of soluble and membrane-bound acetylcholinesterase in bovine splanchnic nerve and adrenal medulla. Proc. Roy. Soc. Lond. [Biol.] 191:245-261.
- Conley, M., D. Fitzpatrick, and E.A. Lachica (1986) Laminar asymmetry in the distribution of choline acetyltransferase-immunoreactive neurons in the retina of the tree shrew (*Tupaia belangeri*). Brain Res. 399:332-338.
- Coulombre, J.L. and A.J. Coulombre (1965) Regeneration of neural retina from the pigmented epithelium in the chick embryo. Dev. Biol. 12:79-92.
- Coulombre, J.L. and A.J. Coulombre (1970) Influence of mouse neural retina on regeneration of chick neural retina from chick embryonic pigmented epithelium. Nature 228:559-560.
- Crisanti-Combes, P., B. Pessac, and G. Calothy (1978) Choline acetyltransferase activity in chick embryo neuroretinas during development in ovo and in monolayer cultures. Dev. Biol. 65:228-232.
- Criswell, M.H. and C. Brandon (1992) Cholinergic and GABAergic neurons occur in both the distal and proximal turtle retina. Brain Res. 577:101-111.
- Criswell, M.H. and C. Brandon (1993) Acetylcholinesterase and choline acetyltransferase localization patterns do correspond in cat and rat retinas. Vision Res. 33:1747-1753.
- Cronly-Dillon, J. (1968) Pattern of retinotectal connections after retinal regeneration. J. Neurophysiol. 31:410-418.

- Dabagian, N.V. and R.O. Oganessian (1970) An electro-physiological study of restoration of the function in the regenerating retina of adult newts. *Ontogenesis* 2:327-329.
- Dann, J.F. (1989) Cholinergic amacrine cells in the developing cat retina. *J. Comp. Neurol.* 289:143-155.
- Deneris, E.S., J. Connolly, S.W. Rogers, and R. Duvoisin (1991) Pharmacological and functional diversity of neuronal nicotinic acetylcholine receptors. *Trends Pharmacol. Sci.* 12:34-40.
- Dickson, D.H., B.A. Flumerfelt, M.J. Hollenberg, and D.G. Gwyn (1971) Ultrastructural localization of cholinesterase activity in outer plexiform layer of the newt retina. *Brain Res.* 35:299-303.
- Dowling, J.E. (1987) *The retina. an approachable part of the brain.* Harvard, Belknap Press, Cambridge Massachusetts London.
- Eckenstein, F. and H. Thoenen (1982) Production of specific antisera and monoclonal antibodies to choline acetyltransferase: Characterization and use for identification of cholinergic neurones. *EMBO J.* 1:363-368.
- Famiglietti, E.V. (1983) "Starburst" amacrine cells and cholinergic neurons: Mirror-symmetric On and Off amacrine cells of rabbit retina. *Brain Res.* 261:138-144.
- Famiglietti, E.V. and N. Tumosa (1987) Immunocytochemical staining of cholinergic amacrine cells in rabbit retina. *Brain Res.* 413:398-403.
- Famiglietti, E.V., N. Tumosa, and R.P. Barrett (1986) Organization of ChAT-immunoreactive neurons in rabbit retina. *Invest. Ophthalmol. [Suppl.]* 27:184.
- Farber, D. and R. Adler (1986) *The retina. Issues and questions in cell biology of the retina.* Academic Press, pp. 1-16.

- Fertuck, H. and M. Salpeter (1974) Localization of acetylcholine receptor by <sup>125</sup>I-labeled  $\alpha$ -bungarotoxin binding at mouse motor end plates. *Proc. Natl. Acad. Sci. USA.* 71:1376-1378.
- Filogame, G. and P.C. Marchisio (1971) Acetylcholine system and neural development. *Neurosci. Res.* 4:29-64.
- Fischer, A.J., L.A. McKinnon, N.M. Nathanson, and W.K. Stell (1998) Identification and localization of muscarinic acetylcholine receptors in the ocular tissue of the chick. *J. Comp. Neurol.* 392:273-284.
- Fisher, S.K., P.A. Erikson, G.P. Lewis, and D.H. Anderson (1991) Intraretinal proliferation induced by retinal detachment. *Invest. Ophthalmol. Vis. Sci.* 32:1739-1748.
- Francis, C.M. (1953) Cholinesterase in the retina. *J. Physiol. (Lond.)* 120:435-439.
- Gadbut, A.P. and J.B. Galper (1994) A novel M3 muscarinic acetylcholine receptor is expressed in the chick atrium and ventricle. *J. Biol. Chem.* 269:25823-25829.
- Gahwiler, B.H. and F. Hefti (1984) Guidance of acetylcholinesterase-containing fibres by target tissue in co-cultured brain slices. *Neuroscience* 13:681-689.
- Goebel, D.J. and R.G. Pourcho (1992) Hydrolysis of substance P in the rabbit retina: I. Involvement of acetylcholine and acetylcholinesterase. An in vivo study. *Neuropeptides* 21:21-33.
- Grafstein, B. and A.S.V. Burgen (1964) Pattern of optic nerve connections following retinal regeneration. *Prog. Brain Res.* 6:126-138.
- Graham, L.T. (1974) Comparative aspects of neurotransmitters in the retina. In Davson, H. and L.T. Graham (Eds.), *The Eye*, Vol. 6, Academic Press, New York, pp. 283-342

- Greenfield, S.A. (1984) Acetylcholinesterase may have novel functions in the brain. *Trends Neurosci.* 7:364-368.
- Greenfield, S.A. (1991) A non-cholinergic action of acetylcholinesterase (AChE) in the brain: from neuronal secretion to the generation of movement. *Cell. Mol. Neurobiol.* 11:55-77.
- Greenfield, S.A. (1992) Acetylcholinesterase as a modulatory neuroprotein and its influence on motor control. In Shafferman, A., and B. Velan, (Eds.), *Multidisciplinary Approaches to Cholinesterase Function*. Plenum Press, New York, pp. 233-242.
- Guiloff, G.D. and H. Kolb (1992) Neurons immunoreactive to choline acetyltransferase in the turtle retina. *Vision Res.* 32:2023-2030.
- Hamassaki-Britto, D.E., A. Brzozowska-Prechtl, H.J. Karten, and J.M. Lindstrom (1994a) Bipolar cells of chick retina containing  $\alpha$ -bungarotoxin-sensitive nicotinic acetylcholine receptors. *Visual Neurosci.* 11:63-70.
- Hamassaki-Britto, D.E., P.F. Gardino, J.N. Hokoç, K.T. Keyser, H.J. Karten, J.M. Lindstrom, and L.R.G. Britto (1994b) Differential development of  $\alpha$ -bungarotoxin-sensitive and  $\alpha$ -bungarotoxin-insensitive nicotinic acetylcholine receptors in the chick retina. *J. Comp. Neurol.* 347:161-170.
- Hanley, M.R. (1989) Mitogenic neurotransmitters. *Nature* 340:97.
- Harkins, J., M. Arsenault, K. Schlesinger, and J. Kates (1972) Induction of neuronal functions: acetylcholine-induced acetylcholinesterase activity in mouse neuroblastoma cells. *Proc. Natl. Acad. Sci. USA.* 69:3161-3164.
- Hasegawa, M. (1958) Restitution of the eye after removal of the retina and lens in the newt, *Triturus pyrrhogaster*. *Embryologia* 4: 1-32.
- Henderson, Z. and S.A. Greenfield (1987) Does the substantia nigra have a cholinergic innervation? *Neurosci. Lett.* 73:109-113.

- Hitchcock, P.F. and P.A. Raymond (1992) Retinal regeneration. *Trends Neurosci.* 15:103-108.
- Holmes, C., S.A. Jones, T.C. Budd, and S.A. Greenfield (1997) Non-cholinergic, trophic action of recombinant acetylcholinesterase on mid-brain dopaminergic neuron. *J. Neurosci. Res.* 49:207-218.
- Hughes, W.F. and A. LaVelle (1974) On the synaptogenic sequence in the chick retina. *Anat. Rec.* 179:297-302.
- Hutchins, J.B. (1987) Review: Acetylcholine as a neurotransmitter in the vertebrate retina. *Exp. Eye Res.* 45:1-38.
- Hutchins, J.B. (1994) Development of muscarinic acetylcholine receptors in the ferret retina. *Dev. Brain Res.* 82:45-61.
- Hutchins, J.B. and J.G. Hollyfield (1987) Acetylcholinesterase activity in the human retina. *Brain Res.* 400:300-311.
- Hutchins, J.B., J.M. Bernanke, and V.E. Jefferson (1995) Acetylcholinesterase in the developing ferret retina. *Exp. Eye Res.* 60:113-125.
- Ichikawa, M. and T. Kajishima (1965) Development of newt. In: *Embryology in Vertebrate (in Japanese)*. In M. Kume, (Eds.), Baifukan, Tokyo, pp. 242-245.
- Jardon, B., N. Bonaventure, and E. Scherrer (1992) Possible involvement of cholinergic and glycinergic amacrine cells in the inhibition exerted by the ON retinal channel on the OFF retinal channel. *Eur. J. Pharmacol.* 210:201-207.
- Johns, P.R. (1977) Growth of adult goldfish eye. III. Source of the new retinal cells. *J. Comp. Neurol.* 176:343-345.
- Johns, P.R. (1982) The formation of photoreceptors in the growing retinas of larval and adult goldfish. *J. Neurosci.* 2:179-198.
- Johns, P.R. and R.D. Fernald (1981) Genesis of rods in teleost fish retina. *Nature* 325:529-531.

- Jones, S.A., C. Holmes, T.C. Budd, and S.A. Greenfield (1995) The effect of acetylcholinesterase on outgrowth of dopaminergic neurons in organotypic slice culture of rat mid-brain. *Cell Tissue Res.* 279:323-330.
- Kaneko, Y. and T. Saito (1992) Appearance and maturation of voltage-dependent conductances in solitary spiking cells during retinal regeneration in the adult newt. *J. Comp. Physiol. A* 170:411-425.
- Kaneko, Y., H. Sakai, C. Chiba, and T. Saito (1993) Development of voltage-gated currents in newt retinal neuroblasts in culture. *Neuroreport* 4:775-778.
- Karnovsky, M.J. and L. Roots (1964) A 'direct coloring' thiocholine method for cholinesterase. *J. Histochem. Cytochem.* 12:219-221.
- Kater, S.B. and L.R. Mills (1990) Neurotransmitter activation of second messenger pathways for the control of growth cone behaviors. In *Molecular Aspects of Development and Aging of the Nervous System*, In Lauder, J.M. (Eds.), New York: Plenum Publishing Corp. pp. 217-225.
- Keefe, J.R. (1973a) An analysis of urodelian retinal regeneration: I. Studies of cellular source of retinal regeneration in *Notophthalmus viridescens* utilizing  $^3\text{H}$ -thymidine and colchicine. *J. Exp. Zool.* 184: 185-206.
- Keefe, J.R. (1973b) An analysis of urodelian retinal regeneration: II. Ultrastructural features of retinal regeneration in *Notophthalmus viridescens*. *J. Exp. Zool.* 184:207-232.



- Keyser, K.T., L.R.G. Britto, R. Schoepfer, P. Whiting, J. Cooper, W. Conroy, A. Brozowska-Prechtel, H.J. Karten, and J. Lindstrom (1993) Three subtypes of  $\alpha$ -bungarotoxin-sensitive nicotinic acetylcholine receptor *ara* expressed in chick retina. *J. Neurosci.* 13:442-454.
- Keyser, K.T., T.E. Hughes, P.J. Whiting, J.m. Lindstrom, and H.J. Karten (1988) Cholinoceptive neurons in the retina of the chick: An immunohistochemical study of the nicotinic acetylcholine receptors. *Vis. Neurosci.* 1:349-366.
- Kim, I.B., D.K. Park, S.J. Oh, and M.H. Chun (1998) Horizontal cells of the rat retina show choline acetyltransferase and vesicular acetylcholine transporter-like immunoreactivities during early postnatal developmental stages. *Neurosci. Lett.* 253:83-86.
- Klein, L.R., P.R. MacLeish, and T.N. Wiesel (1990) Immunolabelling by a newt retinal pigment epithelium antibody during retinal development and regeneration. *J. Comp. Neurol.* 293:331-339.
- Kristt, D.A. (1989) Acetylcholinesterase in immature thalamic neurons: Relation to afferentiation, development, regulation and cellular distribution. *Neuroscience* 29:27-43.
- Lam, D.M.K. (1972) Biosynthesis of acetylcholine in turtle photoreceptors. *Proc. Natl. Acad. Sci. USA.* 69:1987-1991.
- Lam, D.M.K. (1977) Electroretinogram of the newt during regeneration. *Brain Res.* 136:148-153.
- Langdon, R.B. and J.A. Freeman (1987) Pharmacology of retinotectal transmission in the goldfish: effects of nicotinic ligands, strychnine, and kynurenic acid. *J. Neurosci.* 7:760-773.
- Large, T.H., N.J. Cho, F.G. DeMell, and W.L. Klein (1985) Molecular alteration of a muscarinic acetylcholine receptor system during synaptogenesis. *J. Biol. Chem.* 260:8873-8881.

- Lauder, J.M. (1993) Neurotransmitters as growth regulatory signals: role of receptors and second messengers. *Trends Neurosci.* 16:233-240.
- Layer, P.G. (1990) Cholinesterase preceding major tracts in vertebrate neurogenesis. *Bioessays* 12:415-420.
- Layer, P.G. (1991) Cholinesterase during development of the avian nervous system. *Cell Mol. Neurobiol.* 11:7-33.
- Layer, P.G., J. Berger, and N. Kinkl (1997) Cholinesterase precede 'ON-OFF' channel dichotomy in the embryonic chick retina before onset of synaptogenesis. *Cell Tissue Res.* 288:407-416.
- Layer, P.G., T. Weikert, and R. Alber (1993) Cholinesterase regulate neurite growth of chick nerve cells in vitro by means of a non-enzymatic mechanism. *Cell Tissue Res.* 273:219-226.
- Layer, P.G. and E. Willbold (1994) Cholinesterase in avian neurogenesis. *Int. Rev. Cytol.* 151:139-181.
- Layer, P.G. and E. Willbold (1995) Novel functions of cholinesterase in development, physiology and disease. *Prog. Histochem. Cytochem.* 29:1-94.
- Lehmann, J. and H.C. Fibiger (1979) Acetylcholinesterase and the cholinergic neuron. *Life Sci.* 24:1-9.
- Lentz, T.L. and J. Chester (1977) Localization of acetylcholine receptors in central synapses. *J. Cell. Biol.* 75:258-267.
- Lentz, T.L., J.E. Mazurkiewicz, and J. Rosenthal (1977) Cytochemical localization of acetylcholine receptors at the neuromuscular junction by means of horseradish peroxidase-labeled alpha-bungarotoxin. *Brain Res.* 132:423-442.
- Levey, A.I., B.H. Wainer, E.J. Mufson, and M.M. Mesulam (1983) Co-localization of acetylcholinesterase and choline acetyltransferase in the rat cerebrum. *Neuroscience* 9:2-22.

- Lindstrom, J., R. Schoepfer, and P. Whiting (1987) Molecular studies of the neuronal nicotinic acetylcholine receptor family. *Mol. Neurobiol.* 1:218-337.
- Lipton, S.A., E. Aizenman, and R.H. Loring (1987) Neuronal nicotinic acetylcholine response in solitary mammalian retinal ganglion cells. *Pflügers Archives* 410:37-43.
- Lipton, S.A. and S.B. Kater (1989) Neurotransmitter regulation of neuronal outgrowth, plasticity and survival. *Trends Neurosci.* 12:265-270.
- Lopashov, G.V. and A.A. Sologub (1972) Artificial metaplasia of the pigmented epithelium into retina in tadpoles and adult frogs. *J. Embryol. Exp. Morphol.* 28:521-546.
- Ma, P.M. and P. Grant (1978) Ontogeny of ACh and GABA synthesis during development of the *Xenopus* retina. *Brain Res.* 140:368-373.
- Ma, P.M. and P. Grant (1984) Choline acetyltransferase and cholinesterase in the developing *Xenopus* retina. *J. Neurochem.* 42: 1328-1337.
- Machemer, R. and E.W.D. Norton (1968) Experimental retinal detachment in the owl monkey. I. Methods of the production and clinical picture. *Am. J. Ophthalmol.* 66:388-396.
- Marchisio, A.M., M. Palomba, M.L. Mulas, and F. Gremo (1985) Heterogeneity of muscarinic cholinergic receptors in the developing chick embryo retina. *Brain Res.* 325:381-384.
- Masland, R.H. and A. Ames III (1976) Responses to acetylcholine of ganglion cells in an isolated mammalian retina. *J. Neurophysiol.* 39:1220-1235.

- Masland, R.H., J.W. Mills, and S.A. Hayden (1984) Acetylcholine-synthesizing amacrine cells: identification and selective staining by using radioautography and fluorescent markers. *Proc. Roy. Soc. Lond. [Biol.]* 223:79-100.
- Masland, R.H. and M. Tauchi (1986) The cholinergic amacrine cell. *Trends neurosci.* 9:218-223.
- Massey, S.C. and D.A. Redburn (1987) Transmitter circuits in the vertebrate retina. *Prog. Neurobiol.* 28:55-96.
- Massoulié, J., L. Pezzementi, S. Bon, E. Krejci, and F.M. Vallette (1993) Molecular and cellular biology of cholinesterase. *Prog. Neurobiol.* 41:31-91.
- Mattson, M.P. (1988) Neurotransmitters in the regulation of neural cytoarchitecture. *Brain Res. Rev.* 13:179-212.
- McDonald, J.W. and M.V. Johnston (1990) Physiological and pathophysiological roles of excitatory amino acids during central nervous system development. *Brain Res. Rev.* 15:41-70.
- McKinnon, L.A., E.C. Gunther, and N.M. Nathanson (1998) Developmental regulation of the cm2 muscarinic acetylcholine receptor gene: selective induction by a secreted factor produced by embryonic chick retinal cells. *J. Neurosci.* 18:59-69.
- McKinnon, L.A. and N.M. Nathanson (1995) Tissue-specific regulation of muscarinic acetylcholine receptor expression during embryonic development. *J. Biol. Chem.* 270:20636-20642.
- Millar, T.J., I. Ishimoto, I.W. Chubb, M.L. Epstein, C.D. Johnson, and I.G. Morgan (1987) Cholinergic amacrine cells of the chicken retina: A light and electron microscope immunocytochemical study. *Neuroscience* 21:725-743.

- Millar, T., I. Ishimoto, C.D. Johnson, M.L. Epstein, I.W. Chubb, and I.G. Morgan (1985) Cholinergic and acetylcholinesterase-containing neurons of the chicken retina. *Neurosci. Lett.* 61:311-316.
- Mitashov, V. (1996) Mechanisms of retina regeneration in urodeles. *Int. J. Dev. Biol.* 40:833-844.
- Neal, M.J. (1983) Cholinergic mechanism in the vertebrate retina. In Osborne, N.N. and G.J. Chader (Eds.), *Progress in Retinal Research*. Vol. 2, Pergamon Press, Oxford, pp. 191-212.
- Negishi, K., S. Shinagawa, M. Ushijima, Y. Kaneko, and T. Saito (1992) An immunohistochemical study of regenerating newt retinas. *Dev. Brain Res.* 68:255-264.
- Negishi, K., W.K. Stell, and Y. Takasaki (1990) Early histogenesis of the teleostean retina: studies using a novel immunochemical marker, proliferating cell nuclear antigen (PCNA/cyclin). *Dev. Brain Res.* 55:121-125.
- Nichols, C.W., J. Hewitt, and A.M. Laties (1972) Localization of acetylcholinesterase in the teleost retina. *J. Histochem. Cytochem.* 20:130-136.
- Niino, M. (1993) Morphological and electrophysiological identifications of retinal neurons in newt. (in Japanese) A thesis for a Mastorate, Tsukuba University, Ibaraki, Japan
- Oettling, G., H. Schmidt, A. Show-Klett, and U. Drews (1988) Expression of the Ca<sup>2+</sup> mobilizing muscarinic system in the chick embryo correlates with morphogenesis. *Cell Differ.* 23:77-86.
- Papke, R.L., R.M. Duvoisin, and S. Heinemann (1993) The amino terminal half of the nicotinic  $\beta$  subunit extracellular domain regulates the kinetics of inhibition by neuronal bungarotixin. *Proc. Roy. Soc. Lond. [Biol.]* 252:141-148.

- Peralta, E.G., A. Ashkenazi, J.W. Winslow, D.H. Smith, J. Ramachandran, and D.J. Capon (1987) Distinct primary structures, ligand-binding properties and tissue-specific expression of four human muscarinic acetylcholine receptor. *EMBO J.* 6:3923-3929.
- Peralta, E.G., A. Ashkenazi, J.W. Winslow, J. Ramachandran, and D.J. Capon (1988) Differential regulation of PI hydrolysis and adenylyl cyclase by muscarinic receptor subtypes. *Nature* 334:434-437.
- Polz-Tejera, G., J. Schmidt, and J.H. Karten (1975) Autoradiographic localization of  $\alpha$ -bungarotoxin-binding sites in the central nervous system. *Nature* 258:349-351.
- Polz-Tejera, G., S.P. Hunt, and J. Schmidt (1980) Nicotinic receptors in sensory ganglia. *Brain Res.* 195:223-230.
- Pourcho, R.G. (1979) Localization of cholinergic synapses in mammalian retina with peroxidase-conjugated  $\alpha$ -bungarotoxin. *Vision Res.* 19:287-292.
- Pourcho, R.G. and K. Osman (1986a) Cytochemical identification of cholinergic amacrine cells in the cat retina. *J. Comp. Neurol.* 247:497-504.
- Pourcho, R.G. and K. Osman (1986b) Acetylcholinesterase localization in cat retina: a comparison with choline acetyltransferase. *Exp. Eye Res.* 43:585-594.
- Pourcho, R.G. and M.T. Owczarzak (1991) Connectivity of glycine immunoreactive amacrine cells in the cat retina. *J. Comp. Neurol.* 307:549-561.
- Puro, D., B.A. Batelle, and K.E. Hansmann (1982) Development of cholinergic neurons of the rat retina. *Dev. Biol.* 91:138-148.

- Ramón y Cajal S. (1892) La rétine des vertébrés. *La cellule*. 9:119-257.  
For English translations, see Thorpe S.A., and M. Glickstein (1982). *The structure of the retina*. Thomas, Springfield.
- Raymond, P.A. and P.F. Hitchcock (1997) Retinal regeneration: common principles but a diversity of mechanisms. *Adv. Neurol.* 72:171-184.
- Raymond, P.A. and P.K. Rivlin (1987) Germinal cells in the goldfish retina that produce rod photoreceptors. *Dev. Biol.* 122:120-138.
- Raymond, P.A., M.J. Reifler, and P.K. Rivlin (1988) Regeneration of goldfish retina: Rod precursors are a likely source of regenerated cells. *J. Neurobiol.* 19:431-463.
- Reale, E., L. Luciano, and M. Spitznas (1971) The fine structural localization of acetylcholinesterase activity in the retina and optic nerve of rabbits. *J. Histochem. Cytochem.* 19:85-96.
- Reh, T.A., T. Nagy, and H. Gretton (1987) Retinal pigment epithelial cells induced to transdifferentiate to neurons by laminin. *Nature* 330:68-71.
- Reiss, Y., S. Kröger, J. Grassi, W.k. Tsim, E. Willbold, and P.G. Layer (1996) Extracellular and asymmetric forms of acetylcholinesterase are expressed on cholinergic and noncholinergic terminal neuropil of the developing chick retina. *Cell Tissue Res.* 286:13-22.
- Reyer, R.W. (1977) The amphibian eye: development and regeneration. In Crescitelli, F. (Eds.), *The visual system in vertebrates*. (Handbook of sensory physiology, vol, VII/5) Springer, Berlin Heidelberg New York, pp. 309-390.

- Robertson, R.T., F. Mostamand, G.H. Kageyama, K.A. Gallardo, and J. Yu (1991) Primary auditory cortex in the rat: transient expression of acetylcholinesterase activity in developing geniculocortical projections. *Dev. Brain Res.* 58:81-95.
- Rodieck, R.W. (1998) *The first steps in seeing: Principles of the structure and function.* Freeman, W.H. San Francisco
- Ross, C.D. and D.B. McDougal (1976) The distribution of choline acetyltransferase activity in the vertebrate retina. *J. Neurochem.* 26:521-526.
- Ross, C.D., D.D. Dunning, L.I. Juengel, and D.A. Godfrey (1985) Laminar distributions of choline acetyltransferase and acetylcholinesterase activities in the inner plexiform layer of rat retina. *J. Neurochem.* 44:1091-1099.
- Saito, T., Y. Kaneko, F. Maruo, M. Niino, and Y. Sakaki (1994) Study of the regenerating newt retina by electrophysiology and immunohistochemistry (bipolar- and cone-specific antigen localization). *J. Exp. Zool.* 270:491-500.
- Sakai, H. and T. Saito (1997) Na<sup>+</sup> and Ca<sup>2+</sup> channel expression in cultured newt pigment epithelial cells: Comparison with neuronal types of ion channels. *J. Neural Biol.* 32:377-390.
- Sandmann, D., R. Engelmann, and L. Peichl (1997) Starburst cholinergic amacrine cells in the tree shrew retina. *J. Comp. Neurol.* 389:161-176.
- Sandy, J.M. and J.H.S. Blaxter (1980) A study of retinal development in larval herring and sole. *J. Mar. Biol. Assoc. UK.* 60:59-71.
- Sargent, P.B., S.H. Pike, D.B. Nadel, and J.M. Lindstrom (1989) Nicotinic acetylcholine receptor-like molecules in the retina, retinotectal pathway, and optic tectum of the frog. *J. Neurosci.* 9:565-573.



- Sarthy, P.V. and D.M.K. Lam (1979) Endogenous levels of neurotransmitter candidates in photoreceptor cells of the turtle retina. *J. Neurochem.* 32:455-461.
- Sarthy, P.V. and D.M.K. Lam (1983) Retinal regeneration in the adult newt, *Notophthalmus viridescens*: Appearance of neurotransmitter synthesis and the electroretinogram. *Dev. Brain Res.* 6:99-105.
- Schechter, N., I.C. Handy, L. Pezzementi, and J. Schmidt (1978) Distribution of alpha-bungarotoxin binding sites in the central nervous system and peripheral organs of the rat. *Toxicol.* 16:245-251.
- Scheller, R.H. and Z.W. Hall (1992) Chemical messengers at synapses. In Hall, Z.W. (Eds.): *An introduction to molecular neurobiology.* Sunderland, Massachusetts, pp. 119-147.
- Schmidt, H. (1981) Muscarinic acetylcholine receptor in chick limb bud during morphogenesis. *Histochemistry* 71:89-98.
- Schmidt, M., H. Wässle, and M. Humphrey (1985) Number and distribution of putative cholinergic neurons in the cat retina. *Neurosci. Lett.* 59:235-240.
- Schmidt, M., M.F.Humphrey, and H. Wässle (1987) Action and localization of acetylcholine in the cat retina. *J. Neurophysiol.* 58:997-1015.
- Schwartz, I.R. and D. Bok (1979) Electron microscopic localization of [<sup>125</sup>I] α-bungarotoxin binding sites in the outer plexiform layer of the goldfish retina. *J. Neurocytol.* 8:53-66.
- Sheffield, J.B. and D.A. Fischman (1970) Intercellular junctions in the developing neural retina of the chick embryo. *Z. Zellforsch.* 104:405-418.

- Sheffield, J.B. and A.A. Moscona (1970) Electron microscopic analysis of aggregation of embryonic cells: the structure and differentiation of aggregates of neural retina cells. *Dev. Biol.* 23:36-61.
- Shen, S.C., P. Greenfield, and E.J. Boell (1956) Localization of acetylcholinesterase in chick retina during histogenesis. *J. Comp. Neurol.* 106:433-461
- Silver, A. (1974) "The biology of cholinesterase." North-Holland, Amsterdam.
- Skorupa, A.F. and W.L. Klein (1993) Developmentally regulated secreted factors control expression of muscarinic receptor subtypes in embryonic chick retina. *J. Neurochem.* 60:2087-2097.
- Spira, A.W., T.J. Millar, I. Ishimoto, M.L. Epstein, C.D. Johnson, J.L. Dahl, and I.G. Morgan (1987) Localization of choline acetyltransferase-like immunoreactivity in the embryonic chick retina. *J. Comp. Neurol.* 260:526-538.
- Spitzes, N.C., E. Olson, and X. Gu (1995) Spontaneous calcium transients regulate neuronal plasticity in developing neurons. *J. Neurobiol.* 26:316-324.
- Stefanelli, A., A.M. Zacchei, S. Caravita, A. Catoldi, and L.A. Ieradi (1967) New-forming retinal synapses in vitro. *Experientia* 23:199-200.
- Stone, L.S. (1950a) Neural retina degeneration followed by regeneration from surviving retinal pigment cells in grafted adult salamander eyes. *Anat. Rec.* 106:89-110.
- Stone, L.S. (1950b) The role of retinal pigment cells in regenerating neural retinae of adult salamander eyes. *J. Exp. Zool.* 113:9-32.
- Stroeva, O.G. (1960) Experimental analysis of the eye morphogenesis in mammals. *J. Embryol. Exp. Morphol.* 8:349-368.

- Sugiyama, H., M.P. Daniels, and M. Nirenberg (1977) Muscarinic acetylcholine receptor of the developing retina. *Proc. Natl. Acad. Sci. USA.* 74:5524-5528.
- Tauchi, M. and R.H.Masland (1984) The shape and arrangement of the cholinergic neurons in the rabbit retina. *Proc. Roy. Soc. Lond. [Biol.]* 223:101-119.
- Tauchi, M. and R.H.Masland (1985) Local order among the dendrites of an amacrine cell population. *J. Neurosci.* 5:2494-2501.
- Tietje, K.M., P.S. Goldman, and N.M. Nathanson (1990) Cloning and functional analysis of a gene encoding a novel muscarinic acetylcholine receptor expressed in chick heart and brain. *J. Biol. Chem.* 265:2828-2834.
- Tietje, K.M. and N.M. Nathanson (1991) Embryonic chick heart expresses multiple muscarinic acetylcholine receptor subtypes: Isolation and characterization of a gene encoding a novel m2 muscarinic acetylcholine receptor with high affinity for pirenzepine. *J. Biol. Chem.* 266:17382-17387.
- Tombran-Tink, J., A. Li, M.A. Johnson, L.V. Johnson, and G.J. Chader (1992) Neurotrophic activity of interphotoreceptor matrix on human Y79 retinoblastoma cells. *J. Comp. Neurol.* 317:175-186.
- Townes-Anderson, E. and B.A. Vogt (1989) Distribution of muscarinic acetylcholine receptors on processes of isolated retinal cells. *J. Comp. Neurol.* 290:369-383.
- Tumosa, N., F. Eckenstein, and W.K. Stell (1984) Immunocytochemical localization of putative cholinergic neurons in the goldfish retina. *Neurosci. Lett.* 48:255-259.
- Vaney, D.I. (1984) "Coronate" amacrine cells in the rabbit retina have the "starburst" dendritic morphology. *Proc. Roy. Soc. Lond. [Biol.]* 220:501-508.

- Vaughm, J.E., E.V. Famiglietti, R.P. Barber, K. Saito, E. Robert, and C.E. Ribak (1981) GABAergic amacrine cells in rat retina: Immunocytochemical identification and synaptic connectivity. *J. Comp. Neurol.* 197:113-127.
- Vogel, Z., G.J. Maloney, A. Ling, and M.P. Daniels (1977) Identification of synaptic acetylcholine receptor sites in retina with peroxidase labeled  $\alpha$ -bungarotoxin. *Proc. Nat. Acad. Sci. USA.* 74:3268-3272.
- Vogel, Z. and M. Nirenberg (1976) Localization of acetylcholine receptors during synaptogenesis in retina. *Proc. Nat. Acad. Sci. USA.* 73:1806-1810.
- Voigt, T. (1986) Cholinergic amacrine cell in the rat retina. *J. Comp. Neurol.* 248:19-35.
- von Bartheld, C.S., J.G. Heuer, and M. Bothwell (1991) Expression of nerve growth factor (NGF) receptor in the brain and retina of chick embryos: Comparison with cholinergic development. *J. Comp. Neurol.* 310:103-109.
- Wachs, H. (1920) Restitution des Auges nach Extirpation von Retina und Linse bei Tritonen (Neue Versuche zur Wolff'schen Linsenregeneration, II. Teil) *Arch. Entw-Mech.* 46:328-390.
- Wassélius, J., K. Johansson, A. Bruun, C. Zucker, and B. Ehinger (1998) Correlations between cholinergic neurons and muscarinic m2 receptors in the rat retina. *Neuroreport* 9:1799-1802.
- Werblin, F.S. and J.E. Dowling (1969) Organization of the retina of the mudpuppy, *Necturus maculosus*. II. Intracellular recording. *J. Neurophysiol.* 32:339-355.
- White, L.E., C.D. Ross, and D.A. Godfrey (1990) Distribution of choline acetyltransferase and acetylcholinesterase activities in the retinal layers of pigeon red and yellow fields. *Vision Res.* 30: 215-223.

- White, L.E., C.D. Ross, and D.A. Godfrey (1991) Distribution of choline acetyltransferase and acetylcholinesterase activities in the retinal layers of the red-tailed hawk and road runner. *J. Comp. Neurol.* 303:53-62.
- Whiting, P., R. Schoepfer, W.G. Conroy, M.J. Gore, K.T. Keyser, S. Shimasaki, F. Esch, and J.M. Lindstrom (1991) Differential expression of nicotinic acetylcholine receptor subtypes in brain and retina. *Mol. Brain Res.* 10:61-70.
- Xie, Y., S. Gerald, J.R. Jones, and R.H. Loring (1992) Effects of oxidizing and reducing analogs of acetylcholine on neuronal nicotinic receptors. *Mol. Pharmacol.* 42:356-363.
- Yamashita, M. and Y. Fukuda (1993) Incurvation of early embryonic neural retina by acetylcholine through muscarinic receptors. *Neurosci. Lett.* 163:215-218.
- Yamashita, M., Y. Yoshimoto, and Y. Fukuda (1994) Muscarinic acetylcholine responses in the early embryonic chick retina. *J. Neurobiol.* 25:1144-1153.
- Yang, C.-Y. and S. Yazulla (1988) Localization of putative GABAergic neurons in the larval tiger salamander retina by immunocytochemical and autoradiographic methods. *J. Comp. Neural.* 277 96-108,
- Yazajian, B. and G.L. Fain (1993) Whole-cell currents activated at nicotinic acetylcholine receptors on ganglion cells isolated from goldfish retina. *Visual Neurosci.* 10:353-361.
- Yazulla, S. and J. Schmidt (1976) Radioautographic localization of  $^{125}\text{I}$   $\alpha$ -bungarotoxin binding sites in the retinas of goldfish and turtle. *Vision Res.* 16:878-880.

- Yazulla, S. and J. Schmidt (1977) Two types of receptors for  $\alpha$ -bungarotoxin in the synaptic layers of the pigeon retina. *Brain Res.* 138:45-57.
- Zinn, K.M. and M.F. Marmor (1979) *The retinal pigment epithelium.* Harvard Univ. Cambridge, MA.
- Zucker, C. and S. Yazulla (1982) Localization of synaptic and nonsynaptic nicotinic-acetylcholine receptors in the goldfish retina. *J. Comp. Neurol.* 204:188-195.