

BIBLIOGRAPHY

- Acuno-Castroviejo D., Reiter R.J., Menendez-Pelaez A., Pablos M.I., Burgos A. (1994). Characterization of high-affinity melatonin binding sites in purified cell nuclei of rat liver. *J. Pineal Res.*, 16: 100-112.
- Alcozer, G., G. Giordino and D. Masciocco. (1956). Studi sull'epifisi: influenza dell'estrato acquoso de pineale su alcuni aspetti del metabolismo glicidico in sogetti sani ed euerinici. *Arch.E. Maragliano Patol. Clin.*, 12: 1105-1113.
- Allain C. C., Poon L. S., Chan C. S., Richmond W. and Fu P. C. (1974). Enzymatic determination of total serum cholesterol. *Clin. Chem.*, 20: 470-475.
- Allain D., Rougeot J. (1980). Induction of autumn moult in mink (*Mustela vison* Peale and Beauvis) with melatonin. *Reprod. Nutr. Dev.*, 20: 197-201.
- Amanda E. Hunt, Walid M. Al-Ghoul, Martha V. Gillette and Margarita L. Dubocovich (2001). Activation of MT₂ melatonin receptor in the rat suprachiasmatic nucleus phase advances the circadian clock. *Am. J. Physiol. Cell Physiol.*, 280: 110-118.

- Anderson A. K., Sandler S. (2001). Melatonin protects against streptozotocin, but not interleukin-1B-induced damage of rodent pancreatic B-cells. *J. Pineal Res.*, 30: 157-165.
- Anderwald C, Bernroider E, Krssak M. (2002). Effects of insulin treatment in type 2 diabetic patients on intracellular lipid content in liver and skeletal muscle. *Diabetes.*, 51: 3025-3032.
- Anwar, M.M., and Abdel-Rahiem M. A. Meki (2003). Oxidative stress in streptozotocin induced diabetic rats: effects of garlic oil and melatonin. *Comp. Biochem. Physiol-Part A: Mol. Integr Physiol.*, 135(4): 539-547.
- Aoyama, H., Mori, N., Mori, W. (1988). Effects of melatonin on genetic hypercholesterolemia in rats. *Atherosclerosis.*, 69: 269.
- Arendt, J. (1995). Melatonin and the mammalian pineal gland. Chapman and Hall, Cambridge, p: 72.
- Armstrong, S. M. (1989) Melatonin and circadian control in mammals. *Experientia.*, 45: 932-938.
- Arulmozhi, D. K., Veeranjanyulu A, Bodhankar S. L. (2004). Neonatal streptozotocin-induced rat model of type 2 diabetes mellitus: A glance. *Ind. J. Pharmacol.*, 36(4): 217-221.
- Bailey C.J., Atkins T.W., Matty A.J.(1974). Melatonin inhibition of insulin secretion in the rat and mouse. *Horm. Res.*, 5: 21-28.
- Balasubramaniam, S, Szanto, A and Roach, P.D. (1994). Circadian rhythm in hepatic low-density-lipoprotein (LDL)-receptor expression and plasma LDL levels. *Biochemical Journal.*, 298-39-43.

- Balon, T. W., Jerry L. Nadler. (1997). Evidence that nitric oxide increases glucose transport in skeletal muscle. *J. Appl. Physiol.*, 82: 359-363.
- Banerjee, S, Paul Saenger, Meizhu Hu, Wei Chen and Nir Barzilai. (1997). Fat accretion and the regulation of insulin mediated glycogen synthesis after puberty in rats. *Am J Physiol Regul Integr Comp Physiol.*, 273: R1534-R1539.
- Barlow-Walden L R, Reiter R J, Abe M, Pablos M, Menendez-Pelaez A, Chen L D, Poeggeler B. (1995). Melatonin stimulates brain glutathione peroxidase activity. *Neurochem Int.*, 26: 447-502.
- Bartness, T. J. (1995). Short day-induced depletion of lipid stores is fat pad and gender specific in Siberian hamsters. *Physiol. Behav.*, 58: 539-550.
- Bartness, T. J. and Wade, G. N. (1985). Photoperiodic control of seasonal body weight cycles in hamsters. *Neurosci. Biobehav. Rev.*, 9: 599-612.
- Bartness, T.J., B. Powers, M.H. Hastings, E.L. Bittman, B.D. Goldman (1993). The timed infusion paradigm for melatonin delivery: What has it taught us about the melatonin signal, its reception, and the photoperiodic control of seasonal responses? *J. Pineal Res.*, 15: 161-190.
- Baynes, J. W. (1991). Role of oxidative stress in development of complications in diabetes. *Diabetes.*, 40: 405-412.

- Becker Andre, M, Wiesenberg, I, Schaeren-Wiemers, N, Adre, E, Missibach, M, Saurat, JH, Carlber, C. (1994). Pineal gland hormone melatonin binds and activates an orphan of the nuclear receptor superfamily. *J. Biol. Chem.*, 269: 28531-28534.
- Bergman R N. (2000). Non-esterified fatty acids and the liver: Why is insulin secreted into the portal vein? *Diabetologia.*, 43: 946-952.
- Blask, D. E., S. T. Wilson, F. Zalatan (1997). Physiological melatonin inhibition of human breast cancer cell growth *in vitro*: Evidence for a glutathione mediated pathway. *Cancer Res.*, 57: 1909-1914.
- Blazquez, E, Lopez Gil A, Alvarez E, and Munoz Barragan L. (1989). Biochemical and ultrastructural approaches to the onset of the pineal melatonin rhythm in the rat. *Neuroendocrinology.*, 50: 500-505.
- Blondel O, Bailbe D, Portha B. (1990). Insulin resistance in rats with non-insulin-dependent diabetes induced by neonatal (5 days) streptozotocin: evidence for reversal following phlorizin treatment. *Metabolism.*, 39(8): 787-793.
- Bonner-Weir, S. (2000). Islet growth and development in the adult. *Journal of Molecular Endocrinology*, 24: 297-302.
- Bonner-Weir, S. (2000). Perspective: Postnatal pancreatic B cell growth. *Endocrinology*, 141(6): 1926-1929.

- Boquist, L., Nelson, L., Lorentzon, R. (1983). Uptake of labeled alloxan in mouse organs and mitochondria *in vivo* and *in vitro*. *Endocrinology.*, 113: 943-948.
- Borkman M, Storlien L H, Pan D A. (1993). The relation between insulin sensitivity and the fatty-acid composition of skeletal-muscle phospholipids. *N Engl J Med.*, 328: 238-244.
- Bouwens L, Kloppel G (1996). Islet cell neogenesis in the pancreas. *Virchows Arch.*, 427: 553-560.
- Bouwens L. (1998). Transdifferentiation versus stem cell hypothesis for the regeneration of islet beta-cell in the pancreas. *Micros. Res. Tech.*, 43: 332-336.
- Boylan, J. M., Brautigan, D. L., Madden, J., Raven, T., Ellis, L., Gruppuso, P. A. (1992). Differential regulation of multiple hepatic protein tyrosine phosphatases in alloxan diabetic rats. *J. Clin. Invest.*, 90: 174-179.
- Bromme H. J., Morke W., Peschke E, Peschke D. (2000). Scavenging effect of melatonin on hydroxyl radicals generated by alloxan. *J. Pineal Res.*, 29: 201-208.
- Bromme, H. J., H. Ebel, D. Peschke, E. Peschke. (1999). Alloxan acts as a prooxidant under reducing conditions: Influence of melatonin. *Cell. Mol. Life Sci.*, 55: 487-493.
- Brown, G. M. (1992). Day-night rhythm disturbance, pineal function and human disease. *Horm. Res.*, 37(3): 105-111.
- Brown, G. M. (1995). Melatonin in psychiatric and sleep disorders: Therapeutic implications. *CNS Drug.*, 3: 209-226.

- Bucolo G. and David H. (1973). Quantitative determination of serum triglycerides by the use of enzymes. *J. Clin. Pathol.*, 22(2): 246
- Cahill, G. F. Jr., Ashmore, J., Zottu, S. and Hastings, A. B. (1957). Studies on carbohydrate metabolism in rat liver slices. IX. Ionic and hormonal effects on phosphorylase and glycogen. *J. Biol. Chem.*, 224: 237-250.
- Carneiro, R. C., Cipolla-Neto, J., Markus, R.P. (1991). Diurnal variation of the rat vas deference contraction induced by stimulation of presynaptic nicotine receptors and pineal functions. *J. Pharmacol. Exp. ther.*, 259: 614-619.
- Carneiro, R.C., and R.J. Reiter. (1998). Melatonin protects against lipid peroxidation induced by δ -aminolevulinic acid in rat cerebellum, cortex and hippocampus. *Neuroscience.*, 82: 293-299.
- Carneiro, R.C.G., O. Toffoletto, J. Cipolla-Neto, and R. P. Markus.(1994) Sympathetic neurotransmission modulation by melatonin . *Eur. J. Pharmacol.*, 257: 73-77.
- Chapman C. (1997). The effects of diet and gastrointestinal hormones on lipoprotein lipase activity and gene expression. PhD. Thesis, University of Surrey, Guldford, UK.
- Cipolla-Neto, J., D.S.P Abdalla, R.P. Markus, and A. Campa (1991). Temporal profile of superoxide dismutase activity in the pineal gland and the liver In: Role of melatonin and pineal

peptides in neuroimmunomodulation, edited by F. Fraschini, and R. J. Reiter. New York : Plenum, 181-184.

- Conti A, Maestroni G J. (1996). Role of pineal gland and melatonin in the development of autoimmune diabetes in non-obese diabetic mice. *J. Pineal Res.*, 20: 164-172.
- Cori, C. F., Cori, C. T. and Green, A. (1943). Crystalline muscle phosphorylase III. Kinetics. *J. Biol. Chem.*, 151: 39-55.
- Crawford, N. (1958). An improved method for determination of free and total cholesterol using ferric chloride reaction. *Clin. Chem. Acta.*, 3: 357-367.
- Csaba, G., Barath (1971) Are langerhans islets influenced by pineal body? *Experientia.*, 27: 962.
- Damasceno, D. C., G. E. Volpato, N. Paranhos-Calderon and M. V. Cunha-Rudge. (2002). Oxidative stress and diabetes in pregnant rats. *Anim. Reprod. Sci.*, 15(72): 235-244.
- Damian E, Ianas O, Badescu I. (1979). Effect of pinealectomy on testosterone, cholesterol and ascorbic acid in the rat testis. *Endocrinologie.*, 17: 35-37.
- Dawson, D. and C.J. Van Den Heuvel. (1998). Intergating the actions of melatonin on human physiology. *Ann. Med.*, 30: 95-102.
- Delahunty G., Bauer G., Prack M., de Vlaming V.(1978). Effects of pinealectomy and melatonin treatment on liver and plasma metabolites in the Gold Fish, *Carassius auratus*. *Gen. Comp. Endocrinol.*, 35: 99-109.

- deVlaming V. L., Sage M., Charlton C. B., Tiegs B. (1974). The effects of melatonin on lipid deposition in cyprinodontid fishes and on pituitary prolactin activity in *Fundulus similis*. *J. Comp. Physiol.*, 94: 309-319.
- Dhar M., Dayal S.S., Ramesh-Babu C.S., Arora S.R.(1983). Effect of melatonin on glucose tolerance and blood glucose circadian rhythms in rabbits. *Ind. J. Physiol. Pharmacol.*, 27: 109-117.
- Diaz B., and Blazquez E.(1986). Effect of pinealectomy on plasma glucose, insulin and glucagon levels in the rat. *Horm. Metab. Res.*, 24: 225-229.
- Docherty, K. and Clark, A. R. (1994). Nutrient regulation of insulin gene expression. *FASEB J.*, 8: 20-27.
- Doux S P, Woodley S E, Palton N J, Wilson G L. (1986). Mechanism of nitrosourea induced? Cell damage: alterations in DNA. *Diabetes.*, 35: 866-872.
- Dubocovich, M. L., Kenneth Yun, Walid M. Al-Ghoul, Susan Benloucif and Monica I. Masana (1998). Selective MT₂ melatonin receptor antagonists block melatonin-mediated phase advances of circadian rhythms. *The FASEB Journal.*, 12: 1211-1220.
- Dubocovich, M. L., Masana, M.I., Jacob, S. and Sauri, D.M.(1997). Melatonin receptor antagonists that differentiate between the human Mel_{1a} and Mel_{1b} recombinant subtypes are used to assess the pharmacological profile of the rabbit retina

ML₁ presynaptic hetero receptor. Naunyn Schmiedeberg Arch Pharmacol., 355: 365-375.

- Dubocovich, M.L.(1988). Luzindole(N-0774): a novel melatonin receptor antagonist. J. Pharmacol. Exp. Ther., 246: 902-910.
- Dunn, J. S., Sheehan, H. L. and McLethie, N. G. B. (1943). Necrosis of islets of langerhans produced experimentally. Lancet., 1: 484-487.
- Earl, CR, D'Occhio MJ, and Reppert SM. (1985). Serum melatonin profiles and endocrine responses of ewes exposed to a pulse of light late in the dark phase. Endocrinology., 117: 226-230.
- Ebadi M., Govitrapong P., Phansuwan-Pujito P., Nelson F., Reiter R.J. (1998). Pineal opioid receptors and analgesic action of melatonin. J. Pineal Res., 24: 193-200.
- Ebelt H., Peschke D., Bromme H. J., Morke W., Blume R., Peschke E. (2000). Influence of melatonin on free radical-induced changes in rat pancreatic beta-cells *in vitro*. J. Pineal Res., 28: 65-72.
- Esquifino A., Agrasal C., Velazquez E., Villanua M. A., Cardinali D. P. (1997). Effect of melatonin on serum cholesterol and phospholipid levels, and on prolactin, thyroid-stimulating hormone and thyroid hormone levels, in hyperprolactinemic rats. Life Sci., 61: 1051-1058.

- Fabis M., Ewa Pruszyńska and Paweł Mackowiak (2002). *In vivo and In Situ* action of melatonin on insulin secretion and some metabolic implications in the rat. *Pancreas.*, 25(2): 166-169.
- Feldman, J.M., Lebovitz, H.E. (1972). Structural determinants of indole amine actions on *in vitro* insulin release. *Endocrinology.*, 91: 809-816.
- Fernandes, A., L. C. King, Y. Guz, R. Stein, C.V.E. Wright and G. Teitelman (1997). Differentiation of new insulin-producing cells is induced by injury in adult pancreatic islets. *Endocrinology*, 138(4): 1750-1762.
- Finegood D T, Scaglia L and Bonner-Weir S (1995) (Perspective). Dynamics of B-cell mass in the growing rat pancreas: estimation with a simple mathematical model. *Diabetes.*, 44: 249-256.
- Fiske, C. H. and Subbarow, P. (1925). The colorimetric determination of phosphorous. *J. Biol. Chem.*, 66: 375-400.
- Folch, J., Lees, M. and Slootman, G. H. (1957). A simple method for the isolation and purification of total lipids from animal tissues. *J. Biol. Chem.*, 226: 497-509.
- Frankel B.J. and Trandberg M.J.(1991). Insulin release from isolated mouse islets *in vitro*: No effects on physiological levels of melatonin or arginine vasotocin. *J. Pineal Res.*, 11: 145-148.
- Frerichs, H. and W. Creutzfeldt. (1971). Der experimentelle chemische Diabetes. In: *Handbuch der Experimentellen*

Pharmakologie, H. Dorzbach, ed, Vol. 32/1 Insulin 1. Springer, Berlin, pp: 159-202.

- Ginsberg H, Grundy S. M. (1982). Very low density lipoprotein metabolism is non-ketotic diabetes mellitus: Effect of dietary restriction. *Diabetologia.*, 23: 421-425.
- Goodridge, A.G. (1968). Metabolism of glucose-U-C¹⁴ *in vitro* in adipose tissue from embryonic and growing chicks. *Ameraiacan J. Physiol.*, 214(4): 897-901.
- Gorgun, F. M., Z. Ozturk, M. K. Gumustas and E. Kokogu (2002). Melatonin administration affects plasma total sialic acid and lipid peroxidation levels in streptozotocin induced diabetic rats. *J. Toxicol. Environ. Health A.*, 24(65): 695-700.
- Gorray, K.C., W.B. Quay, R.B.L. Ewart. (1979). Effects of pinealectomy and pineal incubation medium and sonicates on insulin release by isolated pancreatic islets *in vitro*. *Horm. Metab. Res.*, 11: 432-436.
- Grankvist, K. (1981). Alloxan-induced luminal luminescence as a tool for investigating mechanisms of radical-mediated diabetogenicity. *Biochem. J.*, 200: 685-690.
- Grankvist, K., Marklund, S., Sehlin, J., Taljedal, I. B. (1979). Superoxide dismutase, catalase and scavengers of hydroxyl radical protect against the toxic action of alloxan on pancreatic islet cells *in vitro*. *Biochem. J.*, 182: 17-25.

- Griesmacher, A., M. Kindhauser, E. S. Andert. (1995). Enhanced serum levels of thiobarbituric acid reactive substances in diabetes mellitus. *Am J. Med.*, 98: 467-475.
- Gruppuso, P. A., Boylan, J. M., Posner, B. I., Faure, R, Brautigan, D. L. (1990). Hepatic protein phosphotyrosine phosphatase. Dephosphorylation of insulin receptor and epidermal growth factor receptors in normal and alloxan diabetic rats. *J. Clin. Invest.*, 85: 1754-1760.
- Gul, M., D. E. Laaksonen, M. Atalay, L. Vider and O. Hanninen. (2002). Effects of endurance training on tissue glutathione homeostasis and lipid peroxidation in streptozotocin-induced diabetic rats. *Scand J. Med. Sci. Sports.*, 12: 163-170.
- Halban, P. A. (1990). Proinsulin trafficking and processing in the pancreatic B-cell. *Trends Endocrinol. Metab.*, 1: 261-265.
- Hampton, S. M., Morgan, L. M., Lawrence, N., Anastasiadou, T., Norris, F., Deacon, S., Riberio, D. and Arendt, J. (1996). Postprandial hormone and metabolic responses in simulated shift work. *J. Endocrinol.*, 151: 259-267.
- Harper, A. E. (1963). Glucose-6-phosphatase. In: *Methods of enzymatic analysis*. (Eds) H. U. Bergmeyer Acad. Press, NY and London, pp: 788-792.
- Heikkila, R. E., Winston, B., Cohen, G., Barden, H. (1976). Alloxan induced diabetes, evidence for hydroxyl radicals as a cytotoxic intermediate. *Biochem. Pharmacol.*, 25: 1085-1092.

- Hellerstrom C, Andersson A, Swenne I, Welsh M, Welsh N, Sjöholm A. (1988). Replication of B-cells in the normal and diabetic pancreas In: Efendic S, Grill V, eds Nobel Symposium- Pathogenesis of Non-Insulin Diabetes Mellitus New York, NY: Raven Press: 79-91.
- Hellerstrom C, Swenne I. (1985). Growth pattern of pancreatic islets in animals. In: Volk BW, Arquilla ER, eds. The Diabetic Pancreas. New York NY: Plenum Press: 53-79.
- Himms-Hagen, J. (1984). Nonshivering thermogenesis. Brain Res. Bull., 12: 151-160.
- Howell, S. L. and Bird, G. S. J. (1989). Biosynthesis and secretion of insulin gene expression. Br. Med. Bull., 45: 19-36.
- Hoyos, M., Guerrero, J. M., Perez-Cano, R., *et al.* (2000). Serum cholesterol and lipid peroxidation are decreased by melatonin in diet-induced hypercholesterolemic rats. J. Pineal Res., 28: 150-155.
- Hron, W. P. and Menahan, L. A. (1981). A sensitive method for the determination of free fatty acids in plasma. J. Lipid. Res., 22: 377-381
- Iizuka Y. (1996). Effect of melatonin on serum glucose and insulin levels in rats. Medicine and Biology., 133: 65-67.
- Illernova, H, Buresova M, and Presi J. (1993). Melatonin rhythm in human milk. J. Clin Endo Metab., 77: 838-841.
- Iwase M, Kikuchi M, Nunoi K, Wakisaka M, Maki Y, Sadoshima S, Fujishima M. (1987). Diabetes induced by neonatal

streptozotocin treatment in spontaneously hypertensive and normotensive rats. *Metabolism.*, 36(7): 654-657.

- Iwase M, Nunoi K, Himeno H, Yoshinari M, Kikuchi M, Maki Y, Fujishima M. (1994). Susceptibility to neonatal streptozotocin-induced diabetes in spontaneously hypertensive rats. *Pancreas.*, 9(3): 344-348.
- Iwase M, Nunoi K, Kikuchi M, Maki Y, Kodama T, Sadoshima S, Fujishima M. (1989). Morphometrical and biochemical differences of endocrine pancreata between spontaneously hypertensive and normotensive rats with or without neonatal streptozotocin-induced diabetes. *Lab. Invest.*, 60(1): 102-105.
- Iwase M, Nunoi K, Wakisaka M, Kikuchi M, Maki Y, Sadoshima S, Fujishima M. (1991). Spontaneous recovery from non-insulin-dependent diabetes mellitus induced by neonatal streptozotocin treatment in spontaneously hypertensive rats. *Metabolism.*, 40(1): 10-40.
- Iwase M. (1991). A new animal model of non-insulin-dependent diabetes mellitus with hypertension: neonatal streptozotocin treatment in spontaneously hypertensive rats. *Fukuoka Igaku Zasshi.*, 82(7): 415-427.
- Jani, J. R. (2004). Effect of induced neonatal hypermelatonemia on adult carbohydrate and lipid metabolism, pancreatic function and alloxan induced diabetes. Ph.D. Thesis submitted to the M. S. University of Baroda.

- John T.M., Viswanathan M., George J.C., Scanes C.G. (1990). Influence of chronic melatonin implantation on circulating levels of catecholamines, growth hormone, thyroid hormones, glucose and free fatty acids in the pigeon. *Gen. Comp. Endocrinol.*, 79: 226-232.
- Johnson A. D. and Turner P. C. (1971). Epididymal carbohydrate metabolism. I. Glucose-1-¹⁴C and glucose-6-¹⁴C metabolism by mouse, rat and rabbit tissues. *Comp. Biochem. Physiol.*, 39(A): 599-604.
- Jorns, A., M. Tiedge, S. Lenzen, R. Munday. (1999). Effects of superoxide dismutase, catalase, chelating agents, and free radical scavengers on the toxicity of alloxan to isolated pancreatic islets *in vitro*. *Free Radic. Biol. Med.*, 26: 1300-1304.
- Katsumata, K., Katsumata, K. Jr., Katsumata, Y. (1992). Protective effect of diltiazem hydrochloride on the occurrence of alloxan or streptozotocin induced diabetes in rats. *Horm. Metab. Res.*, 24: 508-510.
- Katsumata, K., Katsumata, Y., Ozawa, T., Katsumata, K. Jr. (1993). Potentiating effects of combined usage of three sulfonylurea drugs on the occurrence of alloxan diabetes in rats. *Horm. Metab. Res.*, 25: 125-126.
- Keen H, Ng Tang Fui S. (1982). The identification and classification of diabetes mellitus. *Clin Endocrinol Metab.*, 11: 279-305.

- Kennaway, DJ, Matthews CD, and Seamark RF. (1981). Pineal function in pregnancy: studies in sheep and man. In: Pineal Function, edited by Mathews CD, and Seamark RF. Amsterdam: Elsevier/North Holland, 123-136.
- Klein, DC. (1972). Evidence for the placental transfer of ^3H -acetyl-melatonin. *Nature New Biol.*, 237: 117-118.
- Kodama T., Iwase H., Nunoi K., Maki Y., Yoshinari M., Fujishima M. (1993). A new diabetes model induced by neonatal alloxan treatment in rats. *Diabetes Res. Clin. Pract.*, 20(3): 183-189.
- Kraft, L. A. and A. D. Johnson (1972). Epididymal carbohydrate metabolism-II substrates and pathway utilization of caput and cauda epididymal tissue from the rabbit, rat and mouse. *Comp. Biochem. Physiol.*, 42B: 451-461.
- Kuriyama H, Yamashita S, Shimomura I. (1998). Enhanced expression of hepatic acyl-coenzyme A synthetase and microsomal triglyceride transfer protein messenger RNAs in the obese and hypertriglyceridemic rat with visceral fat accumulation. *Hepatology.*, 27: 557-562.
- La Fleur S.E. (2001). The Sprachiasmatic Nucleus Generated Rhythm in Blood Glucose. Ponsen and Looijen, Amsterdam.
- La Fleur. S.E., Kalsbeek A., Wortel J., Vliet Van Der J., Buijs R.M.(2001). Role for the pineal and melatonin in glucose homeostasis: Pinealectomy increases night-time glucose concentrations. *J. Neuroendocrinol.*, 13: 1025-1032.

- Laakso, ML, Alila A, Hatonen T, and Mustanoja SM. (1996). Ontogeny of pineal melatonin rhythm in rats under 12:12-hr and 14:14-hr light dark conditions. *J. Pineal Res.*, 21: 155-164.
- Lagneux C., Joyeux M., Demenge P.(2000). Protective effects of melatonin against ischemia-reperfusion injury in the isolated rat heart. *Life Sci.*, 66: 503-509.
- Le Doux, S. P., Hall, C. R., Forbes, P. M., Patton, N. J., Wilson, G. L. (1988). Mechanisms of nicotinamide and thymidine protection from alloxan and streptozotocin toxicity. *Diabetes.*, 37: 1015-1019.
- Le Gouic S., Delagrang, P., Atgie C., *et al.* (1996). Effects of both a melatonin agonist and antagonist on seasonal changes in body mass and energy intake in the garden dormouse. *Int. J. Obes. Relat. Metab. Disord.*, 20: 661-667.
- Leloir, L. F. and Goldemberg, S. H. (1962). Glycogen synthetase from rat liver. In: *Methods of enzymology*. (Eds) S. P. Colowick and N. O. Kaplanvol, V. Acad. Press, pp: 145-157.
- Lenzen, S. and Munday, R. (1991). Thiol-group reactivity, hydrophilicity and stability of alloxan, its reduction products and its N-methyl derivatives and a comparison with ninhydrin. *Biochem. Pharmacol.*, 42: 1385-1391.
- Lenzen, S. and Panten, U. (1988). Alloxan: history and mechanism of action. *Diabetologia.*, 31: 337-342.
- Lima, F.B. Machado, U. F., Bartol, J. (1998). Pinealectomy causes glucose intolerance and decreases adipose cell

responsiveness to insulin in rats, *Am. J. Physiol.*, 275: E934-E941.

- Lima, F.B., Matsushita, D.H., Hell, N.S.(1994). The regulation of insulin action in isolated adipocytes: Role of the periodicity of food intake, time of day and melatonin. *Braz. J. Med. Biol. Res.*, 27: 995-1000.
- Lima, L.M.B. de, Reis, L.C. dos and Lima, M.A. de (2001). Influence of the pineal gland on the physiology, morphology and morphometry of the pancreatic islets in the rats. *Rev. Bras. Biol.*, 61(2):
- Lipsett. M. and Diane T. Finegood (2002). B-cell neogenesis during prolonged hyperglycemia in rats. *Diabetes*, 51: 1834-1841.
- Lown J N, Mc Laughlin L W, Chang Y. (1979). Mechanisms of action of 2-halo ethyl nitrosoureas on DNA and its relation to there anti-leukemic properties. *Bioorg Chem.*, 7: 97-110.
- Lowry, D. H., Rosenberg, N. J., Farr, A. and Randell, J. (1951). Protein measurement with the Folin phenol reagent. *J. Biol. Chem.*, 193: 265-275.
- Lu, Y. and G.Y.Hu, (2002), Huperzine A, a nootropic agent, which inhibits slow potassium current in rats dissociated hippocampal neurons, *Neurosci, Lett.*, 324: 25-28
- Mahata S.K., Mandal A., Ghosh A. (1988). Influence of age and splanchnic nerve on the action of melatonin in the

adrenomedullary catecholamine content and blood glucose level in the avian group. *J. Comp. Physiol.*, 158: 601-607.

- Maitra, S.K., M. Dey, R. Dey, S. Bhattacharya and A. Sengupta.(2000). Influence of photoperiods on glycemic and adrenal catecholaminergic responses to melatonin administrations in adult male roseringed parakeets, *Psittacula krameri* Neumann. *Ind. J. Expt. Biol.*, 38: 1111-1116.
- Malaisse, W. J. (1982). Alloxan toxicity to pancreatic B-cell. *Biochem. Pharmacol.*, 22: 3527-3534.
- Malaisse, W. J., F. Malaisse-Lagae, A. Sener, D. G. Pipeleers. (1982). Determinants of the selective toxicity of alloxan to the pancreatic B-cell. *Proc. Natl. Acad. Sci. USA.*, 79: 927-930.
- Manzato, E., L. Braghetto, A. Zanon. (1993). Lipoprotein abnormalities in well-treated type II diabetic patients. *Diabetes Care.*, 16: 469-475.
- Markova, M., E. Adamekova, P. Kubatka, B. Bojkova, E. Ahlersova, I. Ahlers (2003). Effect of prolonged melatonin administration on metabolic parameters and organ weights in young male and female Sprague-Dawley rats. *Acta. Vet. Brno.*, 72: 163-172.
- Martin M.T., Azpiroz F., Malagelada J.R.(1998). Melatonin and the gastrointestinal tract. *Therapie*, 53: 453-458.
- Mazepa, R.C., Cuevas, M.J., Collado, P.S.(2000). Melatonin increases muscle and liver glycogen content in nonexercised and exercised rats. *Life Sci.*, 66: 153-160.

- McArthur, J.J., Hunt, A.E., and Gillete, M.U. (1997). Melatonin action and signal transduction in the rat suprachiasmatic circadian clock: activation of protein kinase C at dusk and dawn. *Endocrinology.*, 138: 627-634.
- McKeown B A., John T. A., George, J. C. (1975). Diurnal variation of effects of melatonin on plasma growth hormone and glucose in the pigeon. *Endocrinol. Exp.*, 4: 263.
- Mellado, C., Rodriguez, V., Diego, J. G. (1986). Effect of pinealectomy and of diabetes on liver and glucagon receptor concentration in rats. *J. Pineal Res.*, 6: 295-306.
- Mellado, C., V. Rodriguez, J. G. De Diego, E. Alvarez, E. Blazquez. (1989). Effect of pinealectomy and of diabetes on liver and glucagon receptor concentrations in the rat. *J. Pineal Res.*, 6: 295-306.
- Merzouk, H., S. Madani, D. Chabane, J. Prost, M. Bouchenak and J. Billeville. (2000). Time course of changes in serum glucose, insulin, lipids and tissue lipase activities in macrosomic offsprings of rats with streptozotocin-induced diabetes. *Clin Sci.*, 98: 21-30.
- Mihail, N. and Giurgea, R. (1979). Aspects of carbohydrate metabolism after pinealectomy in normal and pinealectomized pigeon (*Columba livia*). *Rev. Roum. Med. Endocrinol.*, 17: 255-258.

- Milcu, I., Nanu, L. and Marcean, R.(1957). Del existence dune hormone hypoglycemiante epidhysaire synergique de l' insulin. Ann. Endocrinol., 18: 612-620.
- Milcu, I., Nanu, L., Marcean, R. and Sitaru, S.(1963). L. action de l' extrait pineal et de la pinealectomie sur le glycogene hepatic et. musculaire après infusion prolongee de glucose. Etudes et. Rech. d' endocrinol. Acas. Repub. Pop. Rom., 14: 651-655.
- Milcu, S.M., I. Milcu.(1958). Ube rein hypoglykamisch whirkendes Hormon in der Zirbeldruse. Medizinische., 17: 711-715.
- Milcu, S.M., Nanu, L. and Milcu, I.(1971). The effect of pinealectomy on plasma insulin in rats. In "The pineal gland". (G.E.W. Wolstenholme and F. Night Eds.) Churchill-Livingstone, London., 345-360.
- Mondon, C.E. and Burton, S.D.(1971). Factors modifying carbohydrate metabolism and effect of insulin in perfused rat liver. Am. J. Physiol., 220: 724-734.
- Montilla P. L., J. F. Vargas, I. F. Tunez, M. C. Munoz de Aqueda, M. E. Valdelvira and E. S. Cabrera. (1998). Oxidative stress in diabetic rats induced by streptozotocin: protective effects of melatonin. J. Pineal Res., 25: 94-100.
- Moore, RY. (1991). Development of the suprachiasmatic nucleus. In: Suprachiasmatic Nucleus: The mind's clock, edited

by Klein DC, Moore RY, and Reppert SM. New York: Oxford University Press, 391-404.

- Morgan, P. J., P. Barrett, D. Hazlerigg, G. Milligan, W. Lawson, W. Maclean, G. Davidson. (1995). Melatonin receptors couple through a cholera toxin sensitive mechanism to inhibit cAMP in the ovine pituitary. *J. Neuroendocrinol.*, 7: 361-369.
- Mori, N., Aoyama, H., Murase, T., Mori, W. (1989). Anti-hypercholesterolemic effect of melatonin in rats. *Acta Pathol. Jpn.*, 39: 613-618.
- Mori, W., H. Aoyama, and N. Mori. (1984). Melatonin protects rat from injurious effects of glucocorticoid, dexamethasone. *Jpn. J. Exp. Med.*, 54: 225-261.
- Muller-Wieland, D. Behnke B., Koopman, K. and Krone, W. (1994). Melatonin inhibits LPL receptor activity and cholesterol synthesis in freshly isolated human mononuclear leukocytes. *Biochemistry and Biophysics Research Communications.*, 203: 416-421.
- Munday, R. (1988). Dialuric acid autoxidation. Effects of transition metals on the reaction rate and on the generation of "active oxygen" species. *Biochem. Pharmacol.*, 37: 409-413.
- Muralidhar, S. S., Dayal. C. S., Ramesh babu and Arora S. R. (1983). Effect of melatonin on glucose tolerance and blood glucose circadian rhythm in rabbits. *Ind. J. Physiol. Pharmacol.*, 27(2): 209-217.

- Mustonen, A-M., P. Nieminen and H. Hyvarinen (2002). Effects of continuous light and melatonin treatment on energy metabolism of the rat. *J. Endocrinol. Invest.*, 25:716-723.
- Nishida S, Ryuichiro Sato, Ichiro Murai and Shigeki Nagakawa. (2003). Effect of pinealectomy on plasma levels of insulin and leptin and on hepatic lipids in type 2 diabetic rats. *J. Pineal Res.*, 35(4): 251.
- Nishida S, Segawa T, Murai I, Nagakawa S. (2002). Long term melatonin administration reduces hyperinsulinemia and improves the altered fatty-acid compositions in type 2 diabetic rats via the restoration of δ^5 -desaturase activity. *J. Pineal Res.*, 32: 26-33.
- Nonno, R., Pannacci, M., Lucini, V., Angeloni, D., Fraschini, F., and Stankob, B.M.(1999). Ligand efficacy and potency at recombinant human MT₂ receptors: evidence for antagonist activity of some MT₁ antagonist. *Br. J. Pharmacol.*, 127: 1288-1294.
- Notario, A. (1956). Comportamento istologico di alcuni organi endocrine dell cavia adulta dopo prolungata somministrazione di un estratto episario. *Arch. De, Vecchi Anat. Patol Med. Clin. (Firenze)*, 24: 305-318.
- Nowak, J.Z. and J. B. Zawilska. (1998). Melatonin and its physiological and therapeutic properties. *Pharm. World. Sci.*, 20: 18-27.

- O'Rahilly, S., Krook, A., Morgan, R., Rees, A., Flier, J. S., Moller, D. E. (1992). Insulin receptor and insulin-responsive glucose transporter (GLUT-4) mutations and polymorphisms in a Welsh type 2 (non-insulin-dependent) diabetic population. *Diabetologia.*, 35: 486-489.
- Okamoto H. (1981). Regulation of pro insulin synthesis in pancreatic islet and a new aspect to insulin dependent diabetes. *Mol Cell Biochem.*, 37: 43-61.
- Pagliassotti, M., J. Ellis, C. Gayles., Deborah, A. Podlin, Yuren Wei, and Catherine I. Morin. (2000). Developmental stage modifies diet-induced peripheral insulin resistance in rats. *Am. J. Physiol. Regul. Integr. Comp. Physiol.*, 278(1): R66-R73.
- Pang, S. F., C.S. Pang, A.M.S. Poon, S.Y.W. Shiu, Y. Song, P.P.N. Lee, Y. Zhao, Z.M. Liu (1996). Recent development of pineal melatonin and its receptors in humans. In: *Melatonin: A universal photoperiodic signal with diverse actions*, P.L. Tang, S. F. Pang, R.J. Reiter, eds, *Front. Horm. Res. Karger.*, 21: 133-146.
- Pang, S. F., P.P.N. Lee, Y. S. Chan, E. A. Ayre (1992). Melatonin secretion and its rhythms in biological fluids. In: *Melatonin: Biosynthesis, Physiological Effects, and Clinical Applications*, H.H. Yu, R.J. Reiter, eds. *CRC Press, Boca Raton.*, 129-153.

- Parinandi N. L., E. O. W. Thompson and H. O. H. Schmid. (1990). Diabetes heart and kidney exhibit increased resistance to lipid peroxidation. *Biochem. Biophys. Acta.*, 1047: 63-69.
- Paris M., Catherine Bernard-Kargar, Marie-France Berthault, Luc Bouwens and Alain Ktorza (2003). Specific and combined effects of insulin and glucose on functional pancreatic B-cell mass *in vivo* in adult rats. *Endocrinology*, 144(6): 2717-2727.
- Patel C.D., Ramachandran, A. V., Asnani, M. V. and Shah, R.V. (1985). Seasonal histological alterations in thyroid and adrenal glands of normal & pinealectomized wild pigeons, (*Columba livia*). *J. Animal. Morphol. Physiol.*, 32: 153-160.
- Patel, C.D., Asnani, M.V., Ramachandran, A.V. and Shah, R.V. (1982). Seasonal variation of certain blood parameters in normal and pinealectomised Feral Blue rock pigeon *Columba livia*. *J. Anim. Morphol. Physiol.*, 30: 208-216.
- Patel, C.D., Mehan, S.P., Shah, R.V., Ramachandran, A.V. (1988). Seasonal alteration in the glycogen content of liver, muscle and gonads and blood glucose levels in intact and pinealctomised wild pigeons, *Columba livia*. *Comp. Endocrinol. (Life Sci. Adv.)*, 7: 75-79.
- Patel, M.M. and Ramachandran, A.V. (1983). Seasonal alterations in the weights of pancreas, spleen and uropygeal gland in normal and pinealectomised domestic pigeons, *Columba livia*. *PAVO.*, 22: 87-92.

- Patel, M.M. and Ramachandran, A.V.(1992). *In vitro* influence of hormones on transport of glucose and glycogen in liver and muscle of pinealectomized pigeons, *Columba livia*. Gmelin. Ind. J. Expt. Biol., 30: 211-213.
- Peschke E, Fautek J-D, MuBhoff U, Schmidt F, Beckmann A, Peschke D.(2000). Evidence for a melatonin receptor within pancreatic islets of neonate rats: functional, autoradiographic and molecular investigations. *J. Pineal. Res.*, 28:156-164.
- Peschke E., Peschke D., Hammer T., Csernus V.(1997). Influence of melatonin and serotonin on glucose-stimulated insulin release from perfused rat pancreatic islets *in vitro*. *J. Pineal Res.*, 23: 156-163.
- Peschke, E., D. Peschke (1998). Evidence for a circadian rhythm of insulin release form perfused rat pancreatic islets. *Dibetologia.*, 41: 1085-1092.
- Petronio, I. and Tavazza, D.(1958). Effetti isotomorfologici della prolungata somministrazipne di un estratto epidisario acquoso in ratti ipotisectomizzati. *Arch. E. Maragliano. Patol. Clin.*, 14: 1761-1777.
- Pfeifer M-A, Brunzell J D, Best J D. (1983). The response of plasma triglyceride, cholesterol, and lipoprotein lipase to treatment in non-insulin-dependent diabetic subjects without familial hypertriglyceridemia. *Diabetes.*, 32: 525-531.
- Picinato, M.C., Haber, E.P., Carpinelli, A.R. (2002). Daily rhythm of glucose-induced insulin secretion by isolated islets

from intact and pinealectomized rat. J. Pineal Res., 33: 172-177.

- Pickup, J. C. and Williams G. (2003). Textbook of Diabetes. Blackwell Science Ltd. U.S.A. (3rd Ed).
- Pictet, R. and Rutter, W. J. (1972). Development of the embryonic pancreas. In: Steiner, D. F., Frenkel, N. (Eds). Handbook of Physiology, Section 7. American Physiology Society, Washington, DC, pp: 25-66.
- Poeggeler, B., R. J. Reiter, R. Hardeland, D. X. Tan, L. R. Barlow-Walden. (1996). Melatonin and structurally related endogenous indoles act as potent electron donors and radical scavengers *in vitro*. Redox Report., 2: 179-184.
- Portha, B., Blondel O, Serradas P, Mc Evoy R, Girox M H, Kergoat. (1989). The rat models of non-insulin dependent diabetes induced by neonatal streptozotocin. Diabete Metab., 15: 61-75.
- Pozo, D., Reiter, R.J., Calvo, J.R., Gurrero, J.M. (1994). Physiologically concentrations of melatonin inhibit nitric oxide synthase in rat cerebellum. Life Sci., 55: PL455-PL460.
- Prunet-Marcassus B, Ambid L, Viguerie-Bascands N, Penicaud L, Casteilla L. (2001). Evidence for a direct effect of melatonin on mitochondrial genome expression of Siberian hamster brown adipocytes. J. Pineal Res., 30: 108-115.
- Puy, H., Deybach, J-Ch., Bogdan, A., et al. (1996). Increased delta-aminolevulinic acid and decreased pineal melatonin

production: a common event in acute porphyria studies in the rat. J. Clin. Invest., 97: 104-110.

- Rakieten, N., Rakieten, M. L. and Nadkarni M. V. (1963). Studies on diabetogenic action of streptozotocin (NSC-37917). Cancer Chemother. Rep., 29: 91-98.
- Ramachandran A.V. (2002). Pineal and glucoregulation in vertebrates with special emphasis on aves. In "Treatise on pineal gland and melatonin". Science Publishers Inc (Enfield (NH), USA, Plymouth, UK)., 13: 239-266.
- Ramachandran, A. V. and Patel, M.M. (1989). Seasonal differencec in glucose tolerance and insulin response of pinealectomised pigeons (*Columba livia*). J. Pineal Res., 6: 209.
- Ramachandran, A.V. and Patel, M.M. (1986). Seasonal histomorphological alterations of adrenal and thyroid in normal and pinealectomized domestic pigeons, *Columbia livia*. Indian J. Expt. Biol., 24: 755-759.
- Rasmussen D D, Boldt B M, Wilkinson C W. (1999). Daily melatonin administration at middle age suppresses male rat visceral fat, plasma leptin and plasma insulin to youthful levels. Endocrinology., 140: 1009-1012.
- Rasmussen, H. (1975). Mechanism of hormone action, In: Endocrinology and Diabetes. Kryston, L.3. and Shaw, R.A. Published by Grune and Stratton publishers, New York, San Francisco, London.

- Reiter R. J., Tan D. X., Acuna-Castroviejo D., Burkhardt S., Kabrownik M. (2000). Melatonin: Mechanism and action as an antioxidant. *Curr. Top. Biophys.*, 24: 171-183.
- Reiter R. J., Tang L., Garcia J. J., Munoz-Hyos A. (1997). Pharmacological actions of melatonin in oxygen radical pathophysiology. *Life Sci.*, 60: 2255-2271.
- Reiter, R. J. (1992). The aging pineal gland and its physiological consequences. *BioEssays.*, 14: 169-175.
- Reiter, R. J., C. S. Oh, O. Fujimori (1996). Melatonin-its intracellular and genomic actions. *Trends Endocrinol. Metab.*, 1: 22-27.
- Reiter, R. J., D. X. Tan, B. Poeggeler, A. Menendez-Pelaez, L. D. Chen, S. Saarela (1994). Melatonin as a free radical scavenger: Implications for aging and age-related diseases. *Ann. N. Y. Acad. Sci.*, 719: 1-12.
- Reiter, R. J., Melchiorri, D., Seweryneck, E., Poeggeler, B., Barlow-Walden, L., Chuang, J., Ortiz, G. G. and Acuna-Castroviejo, D. (1995). A review of the evidence supporting melatonins role as an antioxidant. *J. Pineal Res.*, 18: 1-11.
- Reiter, R.J. (1973) Pineal control of a seasonal reproductive rhythm in male golden hamsters exposed to natural daylight and temperature. *Endocrinology.*, 92(2):423-430.
- Reiter, R.J. (1991). Pineal melatonin: cell biology of its synthesis and its physiological interactions. *Endocr. Rev.*, 12: 151-180.

- Reiter, R.J. (1993). Interactions of the pineal hormone melatonin with oxygen-centered free radical: A brief review. *Braz. J. Med. Biol. Res.*, 26(11): 11141-11155.
- Reiter, R.J. (1997). Antioxidant activities of melatonin. *Adv. Pharmacol.*, 38: 103-117.
- Reiter, R.J. (1999). Oxidative damage to nuclear DNA; Amelioration by melatonin. *Neuroendocrinol. Lett.*, 20: 145-149.
- Reppert, S. M. (1997). Melatonin receptors, molecular biology of a new family of G protein-coupled receptors. *J. Biol. Rhythms.*, 12: 528-531.
- Reppert, S. M. and Klein, D. C. (1978). Transport of maternal [³H] melatonin to suckling rats and the fate of [³H] melatonin in the neonatal rat. *Endocrinology.*, 102: 582-588.
- Reppert, S. M. D. R. Weaver, T. Ebisawa. (1994). Cloning and characterization of a mammalian melatonin receptor that mediates reproductive and circadian responses. *Neuron.*, 13: 1177-1185.
- Reppert, S. M., C. Godson, C. D. Mahle, D. R. Weaver, S. A. Slaugenhaupt, J. F. Gusella. (1995a). Molecular characterization of a second melatonin receptor expressed in human retina and brain: The Mel 1b melatonin receptor. *Proc. Natl. Acad. Sci. USA.*, 92: 8734-8738.
- Reppert, S. M., D. R. Weaver, C. Godson (1996b). Melatonin receptors step into the light: Cloning and classification of subtypes. *Trends Pharmacol. Sci.*, 17: 100-102.

- Reppert, S. M., D. R. Weaver, T. Ebisawa, C. D. Mahle, L. F. JR. Kolakowski (1996a). Cloning of melatonin related receptor from human pituitary. *FEBS Lett.*, 386: 219-224.
- Reppert, S. M., D. R. Weaver, V. M. Cassone, C. Godson, L. F. Kolakowski JR. (1995b). Melatonin receptors are for the birds: Molecular analysis of two receptor subtypes differentially expressed in chick brain. *Neuron.*, 15: 1003-1015.
- Reppert, SM and Klein DC. (1978). Transport of maternal [³H] melatonin to suckling rats and the fate of [³H] melatonin in the neonatal rat. *Endocrinology.*, 102: 1763-1767.
- Reppert, SM, and Weaver DR. (1991). A biological clock is oscillating in the fetal suprachiasmatic nucleus. In: *Suprachiasmatic Nucleus: The Mind's Clock*, edited by Klein DC, Moore RY, and Reppert SM. New York: Oxford University Press, 405-418.
- Rodriguez V., Mellado C., Alvarez E., De Diego J.G., Blazquez E.(1989). Effect of pinealectomy on liver insulin and glucagon receptor concentrations in the rat. *J. Pineal Res.*, 6: 77-88.
- Rorsman, P., Berggren, P-O., Bokvist, K., Efendic, S. (1990). ATP-regulated K⁺ channels and diabetes mellitus. *News Physiol. Sci.*, 5: 143-147
- Rosenberg L (1995). *In vivo* cell transformation: neogenesis of B cells from pancreatic ductal cells. *Cell Transplant.*, 4: 371-383.
- Rowe, S. A. and David J. Kenanway (2002). Melatonin in rat milk and the likelihood of its role in postnatal maternal

entrainment of rhythms. Am. J. Physiol. Regul. Integr. Comp. Physiol., 282: 797-804.

- Ryysy L, Hakkinen A M, Goto T. (2000). Hepatic fat content and insulin action on free fatty acids and glucose metabolism rather than insulin absorption are associated with insulin requirements during insulin therapy in type 2 diabetes patients. Diabetes., 49: 749-758.
- Saarela S., Reiter R.J. (1994). Function of melatonin in thermoregulatory processes. Life Sci., 54: 295-311.
- Sakurai, K. and Ogiso, T. (1995). Effect of ferritin on λ DNA strand breaks in the reaction system of alloxan plus NADPH-cytochrome P450 reductase: ferritin's role in diabetogenic action of alloxan. Biol. Pharm. Bull., 18: 262-265.
- Sakurai, K. and T. Miura. (1989). Generation of free radicals by alloxan in the presence of bovine albumin: A role of sulfhydryl groups in alloxan cytotoxicity. Biochem. Int., 19: 405-412.
- Sandler, S. and Swenne, I. (1983). Streptozotocin, but not alloxan, induces DNA repair synthesis in mouse pancreatic islets *in vitro*. Diabetologia., 25: 444-447.
- Santer, R., Schneppenheim, R., Dombrowski, A., Gotze, H., Steinmann, B., Schaub, J. (1998). Mutations in GLUT-2, the gene for the liver-type glucose transporter, in patients with Fanconi-Bickel syndrome. Nat Genet., 18: 298.
- Sauer, L A, Dauchy R T, Blask D E. (2001). Melatonin inhibits fatty acid transport in inguinal fat pads of hepatoma 7288CTC –

bearing and normal Buffalo rats via receptor-mediated signal transduction. *Life Sci.*, 68: 2835-2844.

- Seidner, G., Alvarez, M. G., Yeh, J. I. (1998). GLUT-I deficiency syndrome caused by haploinsufficiency of the blood brain barrier hexose carrier. *Nat. Genet.*, 18: 188-191.
- Seifter, S., Dayton, S., Novic, B. and Muntywler, V. (1950). The estimation of glycogen with anthrone reagent. *Arch. Biochem.*, 25: 191-200.
- Seraphim, P.M., I. Bartol, J. Cipolla-Neto, and U.F. Machado. (1997). Quantification of GLUT-4 transporters in insulin sensitive tissues from pinealectomized rats. In: *Pineal update. From molecular mechanisms to clinical implications*, edited by S.M. Webb, M. Puig-Domingo, M. Moller and P. Pevet. Wertbury, NY: PJD publications. 99-106.
- Sjöholm A. (1993) (Invited review). Role of polyamines in the regulation of proliferation and hormone production by insulin secreting cells. *Am J. Physiol.*, 264: C501-C518.
- Sjöholm, A., Arkhammar, P., Welsh, N., Bokvist, K., Rorsman, P., Hallberg, A. *et al.* (1993). Enhanced stimulation-secretion coupling in polyamine-depleted insulinoma cells. An effect involving increased cytoplasmic Ca^{++} inositol phosphate generation and forbol ester sensitivity. *J. Clin. Invest.*, 92: 1910-1917.
- Smith, P. H. and Porte, D. Jr. (1976). Neuropharmacology of the pancreatic islets. *Ann. Rev. Pharm. Toxicol.*, 16: 269-285.

- Song, Y., Tam P.C., Poon A.M.S., Brown G.M., Pang S.F. (1995). 2-(¹²⁵I) Iodomelatonin-binding sites in the human kidney and the effect of guanosine 5'-O-(3-thiotriphosphate). J. Clin. Endocrinol. Metab., 80: 1560-1565.
- Starkey, S.J., Walker, M.P., Beresford, I.J.M., and Hagen, R.M.(1995). Modulation of rat suprachiasmatic circadian clock by melatonin *in vitro*. Neuro. Report., 6: 1947-1951.
- Stefinova, V., L. Smetanova, V. Grossmann and P. Anzenbacher (2002). *In vitro* and *In vivo* assessment of the antioxidant activity of melatonin and related indole derivatives. Gen. Physiol. Biophys., 21: 153-162.
- Stehle, JH, Foulkes NS, Pevet P, and Sassone Corsi P. (1995). Developmental maturation of pineal gland function: synchronized CREM inducibility and adrenergic stimulation. Mol Endocrinol., 9:706-716.
- Storlien, L H, Jenkins A B, Chisholm D J. (1991). Influence of dietary fat composition on development of insulin resistance in rats. Diabetes., 40: 280-289.
- Szkudelski, T. (2001). The mechanism of alloxan and streptozotocin action in B cells of the rat pancreas. Physiol. Res., 50: 536-546.
- Takasu, N., I. Komiya, T. Asawa. Y. Nagasawa, T. Yamada. (1991). Streptozotocin-and-alloxan-induced H₂O₂ generation and DNA fragmentation in pancreatic islets. H₂O₂ as a mediator for DNA fragmentation. Diabetes. 40: 1141-1145.

- Tamarkin L., Baird C.J., Almeida O.F.X. (1985). Melatonin-a coordinating signal for mammalian reproduction? *Science*, 227: 714-720.
- Tang, PL, and Pang SF(1988). The ontogeny of pineal and serum melatonin in male at mid-light and mid-dark. *J. Neural Transm.*, 72: 43-53.
- Taskinen M-R, Beltz W F, Harper I. (1986). Effects of NIDDM on very-low-density lipoprotein triglyceride and apolipoprotein B metabolism. Studies before and after sulfonylurea therapy. *Diabetes.*, 35: 1268-1277.
- Trinder, P. (1969). Determination of blood glucose using 4-amino phenazone as oxygen acceptor. *J. Clin. Pathol.*, 22(2): 246.
- Trinder, P. (1969). Glucose estimation by glucose oxidase method using phenol and 4-aminophenazone. *Ann. Clin. Biochem.*, 6: 24-31.
- Valtonen M., Vakkuri C., Blomstedt L. (1995). Autumnal timing of photoperiodic manipulation critical via melatonin to winter pelage development in mink. *Anim. Sci.*, 61: 589-596.
- Van Cauter E.(1998). Putative roles of melatonin in glucose regulation. *Therapie.*, 53: 467-472.
- Van Cauter E., Desir, D., Decoster, C., Pery, P, and Balasse, F. O. (1989). Nocturnal decrease in glucose tolerance during constant glucose infusion. *J. Clin. Invest.*, 88: 934-942.

- Van Cauter F., Blackman, J.D., Roland, D. (1991). Modulation of glucose regulation and insulin secretion by circadian rhythmicity and sleep. *J. Clin. Invest.*, 88: 934—942.
- Vanecek Jiri (1998). Cellular mechanism of melatonin action. *Physiol. Rev.*, 78: 687-721.
- Vaughan, M. K., Richardson, B. A., Craft, C. M., Powanda, M. C., Reiter, R. J. (1982). Interaction of ageing, photoperiod and melatonin on plasma thyroid hormones and cholesterol levels in female Syrian hamsters. *Gerontology.*, 28: 345.
- Velazquez, E, Esquifino AI, Zueco JA, Ruiz-Albusac JM, and Blazquez E. (1992). Evidence that circadian variation of circulating melatonin levels in fetal and suckling rats are dependent on maternal melatonin transfer. *Neuroendocrinology.*, 55: 321-326.
- Vergese, B. (1991). Lipid abnormalities in diabetes mellitus. *Rev. Med. Intern.*, 12: 277-280.
- Vessby B, Tengblad S, Lithell H. (1994). Insulin sensitivity is related to the fatty acid composition of serum lipids and skeletal muscle phospholipids in 70-year-old men. *Diabetologia.*, 37: 1044-1050.
- Viswanathan, N, Weaver DR, Reppert SM, and Davis FC. (1994). Entrainment of the fetal hamster circadian pacemaker by prenatal injections of the dopamine agonist SKF 38393. *J. Neurosci.*, 14: 5393-5398.

- Wade G.N., Bartness T.J.(1984). Seasonal obesity in Syrian hamsters: Effects of age, diet, photoperiod and melatonin. *Am. J. Physiol.*, 247: R328-R334.
- Weaver, D. C., M. L. McDaniel, P. E. Lacy. (1978). Alloxan uptake by isolated islets of langerhans. *Endocrinology.*, 102: 1847-1855.
- Weaver, DR, and Reppert SM. (1989). Periodic feeding of SCN-lesioned pregnant rats entrains the fetal biological clock. *Brain Res. Dev. Brain Res.*, 46: 291-296.
- Weaver, DR, Namboodiri MA, and Reppert SM. (1988). Iodinated melatonin mimics melatonin action and reveals discrete binding sites in fetal brain. *FEBS Lett.*, 228: 123-127.
- Welsh, M. (1989). Glucose regulation of insulin gene expression. *Diabete Metab.*, 15: 367-371.
- Wichlow, M. J., R. A. Sturge, H. Keen, R.J. Jarret, L. Stimmler, and S. Grainger. (1974). Diurnal variations in response to intravenous glucose. *Br. Med. J.*, 1: 488-491.
- Williams L.M., Hannah L.T., Adam C.L., Bourke D.A.(1997). Melatonin receptors in red deer fetuses (*Cervus elaphus*). *J. Reprod. Fert.*, 110: 145-151.
- Winterbourn, C. C., W. B. Cowden, H. C. Sutton. (1989). Auto-oxidation of dialuric acid, divicine and isouramil. Superoxide dependent and independent mechanism. *Biochem. Pharmacol.*, 38: 271-277.

- Witt-Enderby, P.A. and P.K. Li. (2000). Melatonin receptors and ligands. *Vit. Hor.*, 58: 321-354.
- Wolden-Hanson, T, Mitton, Dr, McCants, RL, Yellon, SM, Wilkinson, CW, Matsumoto, AM, Rasmussen, DD. (2000). Daily melatonin administration to middle-aged rats suppresses body weight, intraabdominal adiposity, and plasma leptin and insulin independent of food intake and total body fat. *Endocrinology.*, 2: 487-497.
- Wollheim, D. B. and Sharp, G. W. G. (1981). Regulation of insulin release by calcium. *Physiol. Rev.*, 61: 914-973.
- Wright, E. M., Turk, E., Zabel, B., Mundlos, S., Dyer, J. (1991). Molecular genetics of intestinal glucose transport. *J. Clin. Invest.*, 88: 1435-1440.
- Youngstrom TG, Bartness TJ.(1995)..Catecholaminergic innervation of white adipose tissue in Siberian hamsters. *Am. J. Physiol.*, 268: R744-R751.
- Zanquetta M. M., Patricia M. Seraphim, Doris H. Sumida, Jose Cipolla-Neto and Ubiratan F. Machado (2003). Calorie restriction reduces pinealectomy-induced insulin resistance by improving GLUT-4 gene expression and its translocation to the plasma membrane. *J. Pineal. Res.*, 35: 141-148.
- Zemdegs, IZ, McMillen IC, Walker DW, Thorburn GD, and Nowak R. (1988). Diurnal rhythms in plasma melatonin concentrations in the fetal sheep and pregnant ewe during late gestation. *Endocrinology.*, 123: 284-289.

- Zemen M., Vyboh P., Jurani M., Lamosova D., Kostal L., Bilcik B., Blazicek P., Juraniova E.(1993). Effect of exogenous melatonin on some endocrine, behavioral and metabolic parameters in Japanese quail (*Coturnix coturnix japonica*). *Comp. Biochem. Physiol. Comp. Physiol.*, 105: 323-328.
- Zhang, H., G. Gao, U. T. Brunk. (1992). Extracellular reduction of alloxan results in oxygen radical-mediated attack on plasma and lysosomal membranes. *Acta. Pathol. Microbiol. Immunol. Scand.*, 100: 317-325.
- Zhou, Mi-Ou., Song Jiao, Zheng Liu, Zhi-Hong Zhang and Yan-Ai Mei (2003). Luzindole, a melatonin receptor antagonist, inhibits the transient outward K^+ current in rat cerebellar granule cells. *Brain Research*, 970: 169-177.
- Ziv E, Shafrir E, Kalman R, Galer S, Bar-On H. (1999). Changing patterns of prevalence of insulin resistance in *Psammomys obesus*, a model of nutritionally-induced type 2 diabetes. *Metabolism.*, 48: 1549-1554.