REFERENCES

Abdulla, M. A., Noor, S. M., Sabaratnam, V., Abdullah, N., Wong, K. H., & Ali, H. M. (2008). Effect of culinary-medicinal lion's mane mushroom, *Hericium erinaceus* (Bull.: Fr.) Pers. (Aphyllophoromycetideae), on ethanol-induced gastric ulcers in rats. *International Journal of Medicinal Mushrooms, 10*(4), 325-330. doi: 10.1615/IntJMedMushr.v10.i4.40

Abdullah, N., Ismail, S. M., Aminudin, N., Shuib, A. S., & Lau, B. F. (2012). Evaluation of selected culinary-medicinal mushrooms for antioxidant and ACE inhibitory activities. *Evidence-based Complementary and Alternative Medicine*(Article ID 464238). doi: 10.1155/2012/464238

Aggarwal, B. B., Harikumar, K. B., & Dey, S. (2009). Prevention and treatment of neurodegenerative diseases by spice-derived phytochemicals. In L. Packer, H. Sies, M. Eggerdorfer & E. Candenas (Eds.), *Micronutrients and Brain Health* (pp. 281-307). Florida: CRC Press.

Aloe, L., & Micera, A. (1999). Nerve growth factor: Basic findings and clinical trials. *Biomedical Reviews, 10*, 3-14.

Alzheimer's Association. (2010). Alzheimer's disease: Facts and figures 2010. Retrieved from http://www.alz.org/documents_custom/report_alzfactsfigures2010.pdf

Alzheimer's Disease International. (2006). Dementia in the Asia Pacific: The epidemic is here. Retrieved from http://www.alz.co.uk/research/asiapacificreport.html

Alzheimer's Disease International. (2009). World Alzheimer Report 2009. Retrieved from http://www.alz.co.uk/research/files/World%20Alzheimer%20Report.pdf

Amagase, H., Sun, B., & Borek, C. (2009). *Lycium barbarum* (goji) juice improves *in vivo* antioxidant biomarkers in serum of healthy adults. *Nutrition Research, 29*(1), 19-25. doi: 10.1016/j.nutres.2008.11.005

American Academy of Neurology. (2011). Eating berries may lower risk of Parkinson's. Retrieved from http://www.sciencedaily.com/releases/2011/02/110213162726.htm

Andersen, J. K. (2004). Oxidative stress in neurodegeneration: Cause or consequence? *Nature Reviews Neuroscience, 5*, S18-S25. doi: 10.1038/nrn1434

Arnone, A., Cardillo, R., Nasini, G., & DePava, O. V. (1994). Secondary mold metabolites: Part 46. Hericenes A-C and erinapyrone C, new metabolites produced by the fungus *Hericium erinaceus*. *Journal of Natural Products, 57*(5), 602-606. doi: 10.1021/np50107a006

Asatiani, M. D., Elisashvili, V., Songulashvili, G., Reznick, A. Z., & Wasser, S. P. (2010). Higher basidiomycetes mushrooms as a source of antioxidants. In M. Rai & G. Kövics (Eds.), *Progress in Mycology* (pp. 311-326). Jodhpur, India: Scientific Publishers (India).

Audesirk, G., & Audesirk, T. (1998). Neurite development. In W. J. Slikker & L. W. Chang (Eds.), *Handbook of Developmental Neurotoxicology* (pp. 61-86). San Diego, California, USA: Academic Press.

Auld, D. S., Kornecook, T. J., Bastianetto, S., & Quirion, R. (2002). Alzheimer's disease and the basal forebrain cholinergic system: Relations to β-amyloid peptides, cognition, and

treatment strategies. *Progress in Neurobiology, 68*(3), 209-245. doi: 10.1016/S0301-0082(02)00079-5

Barnham, K. J., Masters, C. L., & Bush, A. I. (2004). Neurodegenerative diseases and oxidative stress. *Nature Reviews Drug Discovery, 3*(3), 205-214. doi: 10.1038/nrd1330

Bibb, J. A., & Nestler, E. J. (2006). Serine and threonine phosphorylation In G. J. Siegel, R. W. Albers, S. T. Brady & D. L. Price (Eds.), *Basic Neurochemistry : Molecular, Cellular and Medical Aspects* (7th ed., pp. 391-413). London, UK: Elsevier Academic Press.

Bishop, K. M., Hofer, E. K., Mehta, A., Ramirez, A., Sun, L., Tuszynski, M., & Bartus, R. T. (2008). Therapeutic potential of CERE-110 (AAV2-NGF): Targeted, stable, and sustained NGF delivery and trophic activity on rodent basal forebrain cholinergic neurons. *Experimental Neurology, 211*(2), 574-584. doi: 10.1016/j.expneurol.2008.03.004

Blaylock, R. L. (1999). Neurodegeneration and aging of the central nervous system: Prevention and treatment by phytochemicals and metabolic nutrients. *Integrative Medicine, 1*(3), 117-133. doi: 10.1016/S1096-2190(98)00032-8

Boddy, L., Crockatt, M. E., & Ainsworth, A. M. (2011). Ecology of *Hericium cirrhatum*, *H. coralloides* and *H. erinaceus* in the UK. *Fungal Ecology, 4*(2), 163-173. doi: 10.1016/j.funeco.2010.10.001

Burton, J. D. (2005). The MTT assay to evaluate chemosensitivity. In R. D. Blumenthal (Ed.), *Chemosensitivity: Vol. 1: In vitro Assays* (Vol. 110, pp. 69-78). Totowa: Humana Press Inc.

Calabrese, E. J. (2008a). Dose-response features of neuroprotective agents: An integrative summary. *Critical Reviews in Toxicology, 38*(4), 253-348. doi: 10.1080/10408440801981965

Calabrese, E. J. (2008b). Enhancing and regulating neurite outgrowth. *Critical Reviews in Toxicology, 38*(4), 391-418. doi: 10.1080/10408440801981981

Cao, X., & Shoichet, M. S. (2003). Investigating the synergistic effect of combined neurotrophic factor concentration gradients to guide axonal growth. *Neuroscience, 122*(2), 381-389. doi: 10.1016/j.neuroscience.2003.08.018

Cargill, R. S., II, Dee, K. C., & Malcolm, S. (1999). An assessment of the strength of NG108-15 cell adhesion to chemically modified surfaces. *Biomaterials, 20*(23-24), 2417-2425. doi: 10.1016/S0142-9612(99)00169-6

Chandra, V., Pandav, R., Laxminarayan, R., Tanner, C., Manyam, B., Rajkumar, S., . . . Zhang, Z.-X. (2006). Neurological disorders. In D. T. Jamison, J. G. Breman, A. R. Measham, G. Alleyne, M. Claeson, D. B. Evans, P. Jha, A. Mills & P. Musgrove (Eds.), *Disease Control Priorities in Developing Countries* (2nd ed., pp. 627-644). New York: Oxford University Press.

Chang, S. T., & Buswell, J. A. (1996). Mushroom nutriceuticals. *World Journal of Microbiology and Biotechnology, 12*(5), 473-476. doi: 10.1007/BF00419460

Chang, S. T., & Miles, P. G. (2004). *Mushrooms: Cultivation, Nutritional Value, Medicinal Effect, and Environmental Impact* (2nd ed.). Florida, US: CRC Press.

Chanmahasathien, W., Li, Y., Satake, M., Oshima, Y., Ruangrungsi, N., & Ohizumi, Y. (2003). Prenylated xanthones with NGF-potentiating activity from *Garcinia xanthochymus*. *Phytochemistry, 64*(5), 981-986. doi: 10.1016/S0031-9422(03)00431-X

Chao, M. V., Rajagopal, R., & Lee, F. S. (2006). Neurotrophin signalling in health and disease. *Clinical Science, 110*(2), 167-173. doi: 10.1042/CS20050163

Chen, L. W., Wang, Y. Q., Wei, L. C., Shi, M., & Chan, Y. S. (2007). Chinese herbs and herbal extracts for neuroprotection of dopaminergic neurons and potential therapeutic treatment of Parkinson's disease. *CNS & Neurological Disorders - Drug Targets, 6*(4), 273-281.

Cheung, W. M., Hui, W. S., Chu, P. W., Chiu, S. W., & Ip, N. Y. (2000). Ganoderma extract activates MAP kinases and induces the neuronal differentiation of rat pheochromocytoma PC12 cells. *FEBS Letters, 486*(3), 291-296. doi: 10.1016/S0014-5793(00)02317-6

Choi, J. G., Moon, M., Jeong, H. U., Kim, M. C., Kim, S. Y., & Oh, M. S. (2011). *Cistanches* Herba enhances learning and memory by inducing nerve growth factor. *Behavioural Brain Research, 216*(2), 652-658. doi: 10.1016/j.bbr.2010.09.008

Choong, Y. K., Rashid, B. A. A., Young, S. I., & Ismail, Z. (2007). Quantification and identification of polysaccharide contents in *Hericium erinaceus*. *Nutrition and Food Science, 37*(4), 260-271. doi: 10.1108/00346650710774631

Ciani, E., Severi, S., Contestabile, A., Bartesaghi, R., & Contestabile, A. (2004). Nitric oxide negatively regulates proliferation and promotes neuronal differentiation through N-Myc downregulation. *Journal of Cell Science, 117*, 4727-4737. doi: 10.1242/jcs.01348

Coder, D. M. (1997). Assessment of cell viability. *Current Protocols in Cytometry, Unit 9.2*(Supplement 15), 9.2.1-9.2.14. doi: 10.1002/0471142956.cy0902s15

Conner, J. M., Franks, K. M., Titterness, A. K., Russell, K., Merrill, D. A., Christie, B. R., . . . Tuszynski, M. H. (2009). NGF is essential for hippocampal plasticity and learning. *The Journal of Neuroscience, 29*(35), 10883-10889. doi: 10.1523/JNEUROSCI.2594-09.2009

Connor, B., & Dragunow, M. (1998). The role of neuronal growth factors in neurodegenerative disorders of the human brain. *Brain Research Reviews, 27*(1), 1-39. doi: 10.1016/s0165-0173(98)00004-6

Conti, A. M., Brimijoin, S., Miller, L. J., & Windebank, A. J. (2004). Suppression of neurite outgrowth by high-dose nerve growth factor is independent of functional p75NTR receptors. *Neurobiology of Disease, 15*(1), 106-114. doi: 10.1016/j.nbd.2003.09.009

Danton, G. H., & Dietrich, W. D. (2005). Neuroprotection: Where are we going? In S. Waxman (Ed.), From Neuroscience to Neurology: Neuroscience, Molecular Medicine and the Therapeutic Transformation of Neurology (pp. 237-265). London, UK: Elsevier Academic Press.

Davies, K. J. A. (1999). The broad spectrum of responses to oxidants in proliferating cells: A new paradigm for oxidative stress. *IUBMB life, 48*(1), 41-47. doi: 10.1080/713803463

Deister, C., & Schmidt, C. E. (2006). Optimizing neurotrophic factor combinations for neurite outgrowth. *Journal of Neural Engineering, 3*(2), 172-179. doi: 10.1088/1741-2560/3/2/011

Dotti, C. G., Sullivan, C. A., & Banker, G. A. (1988). The establishment of polarity by hippocampal neurons in culture. *The Journal of Neuroscience, 8*(4), 1454-1468.

Edmondson, J. M., Armstrong, L. S., & Martinez, A. O. (1988). A rapid and simple MTT-based spectrophotometric assay for determining drug sensitivity in monolayer cultures. *Methods in Cell Science, 11*(1), 15-17.

Elmore, S. (2007). Apoptosis: A review of programmed cell death. *Toxicologic Pathology, 35*(4), 495-516. doi: 10.1080/01926230701320337

Finkel, T., & Holbrook, N. J. (2000). Oxidants, oxidative stress and the biology of ageing. *Nature, 408*(6809), 239-247. doi: 10.1038/35041687

Fried, G., Han, H. Q., Meister, B., Hokfelt, T., & Greengard, P. (1995). Laminin and neuropeptide Y are increased by synapsin transfection in cultured NG108-15 neuroblastoma/glioma hybrid cells. *Journal of Neurochemistry, 64*, 2674-2680. doi: 10.1046/j.1471-4159.1995.64062674.x

Gallego, D., Rojas, M., & Orozco, C. (2011). Free radicals, neuronal death and neuroprotection. In R. C. C. Chang (Ed.), Neurodegenerative Diseases: Processes, Prevention, Protection and Monitoring (pp. 165-198). Retrieved from http://www.intechopen.com/articles/show/title/free-radicals-neuronal-death-and-neuroprotection#reference.

Gao, L., Li, J., & Qi, J. (2010a). Gentisides A and B, two new neuritogenic compounds from the traditional Chinese medicine *Gentiana rigescens* Franch. *Bioorganic and Medicinal Chemistry, 18*(6), 2131-2134. doi: 10.1016/j.bmc.2010.02.004

Gao, L., Xiang, L., Luo, Y., Wang, G., Li, J., & Qi, J. (2010b). Gentisides C-K: Nine new neuritogenic compounds from the traditional Chinese medicine *Gentiana rigescens* Franch. *Bioorganic and Medicinal Chemistry, 18*(19), 6995-7000. doi: 10.1016/j.bmc.2010.08.020

Gavett, B. E., Stern, R. A., & McKee, A. C. (2011). Chronic traumatic encephalopathy: A potential late effect of sport-related concussive and subconcussive head trauma. *Clinics in Sports Medicine, 30*(1), 179-188. doi: 10.1016/j.csm.2010.09.007

Goldberg, J. L. (2004). Intrinsic neuronal regulation of axon and dendrite growth. *Current Opinion in Neurobiology, 14*(5), 551-557. doi: 10.1016/j.conb.2004.08.012

Gomes, N. G. M., Campos, M. G., Órfão, J., & Ribeiro, C. A. F. (2009). Plants with neurobiological activity as potential targets for drug discovery. *Progress in Neuro-Psychopharmacology and Biological Psychiatry, 33*(8), 1372-1389. doi: 10.1016/j.pnpbp.2009.07.033

Gorman, A. M., McGowan, A., O'Neill, C., & Cotter, T. (1996). Oxidative stress and apoptosis in neurodegeneration. *Journal of the Neurological Sciences, 139* (Supplement), 45-52. doi: 10.1016/0022-510X(96)00097-4

Gülden, M., Jess, A., Kammann, J., Maser, E., & Seibert, H. (2010). Cytotoxic potency of H_2O_2 in cell cultures: Impact of cell concentration and exposure time. *Free Radical Biology and Medicine, 49*(8), 1298-1305. doi: 10.1016/j.freeradbiomed.2010.07.015

Guo, Y., Li, Y., Xu, J., Li, N., Yamakuni, T., & Ohizumi, Y. (2007). Clerodane diterpenoids and flavonoids with NGF-potentiating activity from the aerial parts of *Baccharis*

gaudichaudiana. *Chemical and Pharmaceutical Bulletin, 55*(10), 1532-1534. doi: 10.1248/cpb.55.1532

Gurib-Fakim, A. (2006). Medicinal plants: Traditions of yesterday and drugs of tomorrow. *Molecular Aspects of Medicine, 27*, 1-93. doi: 10.1016/j.mam.2005.07.008

Hacker, G. (2000). The morphology of apoptosis. *Cell Tissue Research, 301*, 5-17. doi: 10.1007/s004410000193

Halpern, G. M. (2007). *Healing Mushrooms: Effective Treatments for Today's Illnesses*. New York, USA: Square One Publishers.

Hamprecht, B. (1977). Structural, electrophysiological, biochemical, and pharmacological properties of neuroblastoma-glioma cell hybrids in cell culture. *International Review of Cytology, 49*, 99-170. doi: 10.1016/S0074-7696(08)61948-8

Hazekawa, M., Kataoka, A., Hayakawa, K., Uchimasu, T., Furuta, R., Irie, K., . . . Egashira, N. (2010). Neuroprotective effect of repeated treatment with *Hericium erinaceum* in mice subjected to middle cerebral artery occlusion. *Journal of Health Science, 56*(3), 296-303. doi: 10.1248/jhs.56.296

Hefti, F. (1997). Pharmacology of neurotrophic factors. *Annual Review of Pharmacology and Toxicology, 37*, 239-267. doi: 10.1146/annurev.pharmtox.37.1.239

Hiwatashi, K., Kosaka, Y., Suzuki, N., Hata, K., Mukaiyama, T., Sakamoto, K., . . . Komai, M. (2010). Yamabushitake mushroom (*Hericium erinaceus*) improved lipid metabolism in mice fed a high-fat diet. *Bioscience, Biotechnology, and Biochemistry, 74*(7), 1447-1451. doi: 10.1271/bbb.100130

Hökfelt, T., Stanic, D., Sanford, S. D., Gatlin, J. C., Nilsson, I., Paratcha, G., . . . Pfenninger, K. H. (2008). NPY and its involvement in axon guidance, neurogenesis, and feeding. *Nutrition, 24*(9), 860-868. doi: 10.1016/j.nut.2008.06.010

Horner, P. J., & Gage, F. H. (2000). Regenerating the damaged central nervous system. *Nature, 407*(6807), 963-970. doi: 10.1038/35039559

Houghton, P. J., & Raman, A. (1998). *Laboratory Handbook for the Fractionation of Natural Extracts*. London, UK: Chapman & Hall.

Howe, C. L., & Mobley, W. C. (2005). Long-distance retrograde neurotrophic signaling. *Current Opinion in Neurobiology, 15*(1), 40-48. doi: 10.1016/j.conb.2005.01.010

Huang, E. J., & Reichardt, L. F. (2001). Neurotrophins: Roles in neuronal development and function. *Annual Review of Neuroscience, 24*(1), 677-736. doi: 10.1146/annurev.neuro.24.1.677

Huang, E. J., & Reichardt, L. F. (2003). Trk receptors: Roles in neuronal signal transduction. *Annual Review of Biochemistry, 72*(1), 609-642. doi: 10.1146/annurev.biochem.72.121801.161629

Hur, J., Lee, P., Kim, J., Kim, A. J., Kim, H., & Kim, S. Y. (2004). Induction of nerve growth factor by butanol fraction of *Liriope platyphylla* in C6 and primary astrocyte cells. *Biological and Pharmaceutical Bulletin, 27*(8), 1257-1260. doi: 10.1248/bpb.27.1257

Ina, A., Hayashi, K., Nozaki, H., & Kamei, Y. (2007). Pheophytin a, a low molecular weight compound found in the marine brown alga *Sargassum fulvellum*, promotes the differentiation of PC12 cells. *International Journal of Developmental Neuroscience, 25*(1), 63-68. doi: 10.1016/j.ijdevneu.2006.09.323

International Conference on Harmonisation. (2008). S2(R1) Genotoxicity testing and data interpretation for pharmaceuticals intended for human use. Retrieved from U.S. Food and Drug Administration (FDA) website: http://www.fda.gov/downloads/RegulatoryInformation/Guidances/ucm129117.pdf

Ischiropoulos, H., & Beckman, J. S. (2003). Oxidative stress and nitration in neurodegeneration: Cause, effect, or association? *The Journal of Clinical Investigation, 111*(2), 163-169. doi: 10.1172/JCI200317638

Jiang, H., Luo, X., & Bai, D. (2003). Progress in clinical, pharmacological, chemical and structural biological studies of huperzine A: A drug of traditional chinese medicine origin for the treatment of Alzheimer's disease. *Current Medicinal Chemistry, 10*(21), 2231-2252. doi: 10.2174/0929867033456747

Johnson, E. M., & Tuszynski, M. H. (1999). Neurotrophic factors. In M. H. Tuszynski & J. H. Kordower (Eds.), *CNS Regeneration: Basic Science and Clinical Advances* (pp. 95-144). San Diego: Academic Press.

Johnson, G. L., & Lapadat, R. (2002). Mitogen-activated protein kinase pathways mediated by ERK, JNK, and p38 protein kinases. *Science, 298*, 1911-1912. doi: 10.1126/science.1072682

Johnson, M. L., Bengtson, V. L., Coleman, P. G., & Kirkwood, T. B. L. (2005). *The Cambridge Handbook of Age and Ageing*. New York: Cambridge University Press.

Jonhagen, M. E. (2000). Nerve growth factor treatment in dementia. *Alzheimer Disease and Associated Disorders, 14* (Supplement 1), S31-S38.

Kato, A. C., & Lindsay, R. M. (1994). Overlapping and additive effects of neurotrophins and CNTF on cultured human spinal cord neurons. *Experimental Neurology, 130*(2), 196-201. doi: 10.1006/exnr.1994.1198

Kawagishi, H. (2005). Anti-MRSA compounds from *Hericium erinaceus* (Bull.: Fr.) Pers. *International Journal of Medicinal Mushrooms, 7*(3), 350. doi: 10.1615/IntJMedMushr.v7.i3.130

Kawagishi, H., Ando, M., & Mizuno, T. (1990). Hericenone A and B as cytotoxic principles from the mushroom *Hericium erinaceum*. *Tetrahedron Letters, 31*(3), 373-376. doi: 10.1016/S0040-4039(00)94558-1

Kawagishi, H., Ando, M., Sakamoto, H., Yoshida, S., Ojima, F., Ishiguro, Y., . . . Furukawa, S. (1991). Hericenones C, D and E, stimulators of nerve growth factor (NGF)-synthesis, from the mushroom *Hericium erinaceum*. *Tetrahedron Letters, 32*(35), 4561-4564. doi: 10.1016/0040-4039(91)80039-9

Kawagishi, H., Ando, M., Shinba, K., Sakamoto, H., Yoshida, S., Ojima, F., . . . Furukawa, S. (1993). Chromans, hericenones F, G and H from the mushroom *Hericium erinaceum*. *Phytochemistry, 32*(1), 175-178. doi: 10.1016/0031-9422(92)80127-Z

Kawagishi, H., Ishiyama, D., Mori, H., Sakamoto, H., Ishiguro, Y., Furukawa, S., & Li, J. (1997). Dictyophorines A and B, two stimulators of NGF-synthesis from the mushroom *Dictyophora indusiata*. *Phytochemistry, 45*(6), 1203-1205. doi: 10.1016/S0031-9422(97)00144-1

Kawagishi, H., Masui, A., Tokuyama, S., & Nakamura, T. (2006). Erinacines J and K from the mycelia of *Hericium erinaceum*. *Tetrahedron, 62*(36), 8463-8466. doi: 10.1016/j.tet.2006.06.091

Kawagishi, H., Mori, H., Uno, A., Kimura, A., & Chiba, S. (1994a). A sialic acid-binding lectin from the mushroom *Hericium erinaceum*. *FEBS Letters, 340*(1-2), 56-58. doi: 10.1016/0014-5793(94)80172-X

Kawagishi, H., Shimada, A., Hosokawa, S., Mori, H., Sakamoto, H., Ishiguro, Y., . . . Furukawa, S. (1996a). Erinacines E, F, and G, stimulators of nerve growth factor (NGF)-synthesis, from the mycelia of *Hericium erinaceum*. *Tetrahedron Letters, 37*(41), 7399-7402. doi: 10.1016/0040-4039(96)01687-5

Kawagishi, H., Shimada, A., Shirai, R., Okamoto, K., Ojima, F., Sakamoto, H., . . . Furukawa, S. (1994b). Erinacines A, B and C, strong stimulators of nerve growth factor (NGF)-synthesis, from the mycelia of *Hericium erinaceum*. *Tetrahedron Letters, 35*(10), 1569-1572. doi: 10.1016/S0040-4039(00)76760-8

Kawagishi, H., Shimada, A., Shizuki, K., Mori, H., Okamoto, K., Sakamoto, H., & Furukawa, S. (1996b). Erinacine D, a stimulator of NGF-synthesis, from the mycelia of *Hericium erinaceum*. *Heterocyclic Communications, 2*(1), 51-54. doi: 10.1515/HC.1996.2.1.51

Kawagishi, H., Shirai, R., Sakamoto, H., Yoshida, S., Ojima, F., & Ishiguro, Y. (1992). Erinapyrones A and B from the cultured mycelia of *Hericium erinaceum*. *Chemistry Letters, 21*(12), 2475. doi: 10.1246/cl.1992.2475

Kawahara, K., Saitoh, M., Nakajima, T., Sato, H., Tanaka, M., Tojima, T., & Ito, E. (2002). Increased resistance to nitric oxide cytotoxicity associated with differentiation of neuroblastoma-glioma hybrid (NG108-15) cells. *Free Radical Research, 36*(5), 545 - 554. doi: 10.1080/10715760290025924

Kenmoku, H., Sassa, T., & Kato, N. (2000). Isolation of erinacine P, a new parental metabolite of cyathane-xylosides, from *Hericium erinaceum* and its biomimetic conversion into erinacines A and B. *Tetrahedron Letters, 41*(22), 4389-4393. doi: 10.1016/S0040-4039(00)00601-8

Kenmoku, H., Shimai, T., Toyomasu, T., Kato, N., & Sassa, T. (2002). Erinacine Q, a new erinacine from *Hericium erinaceum*, and its biosynthetic route to erinacine C in the basidiomycete. *Bioscience, Biotechnology, and Biochemistry, 66*(3), 571-575. doi: 10.1271/bbb.66.571

Kenmoku, H., Tanaka, K., Okada, K., Kato, N., & Sassa, T. (2004). Erinacol (cyatha-3,12-dien-14β-ol) and 11-*O*-acetylcyathin A_3, new cyathane metabolites from an erinacine Q-producing *Hericium erinaceum*. *Bioscience, Biotechnology, and Biochemistry, 68*(8), 1786-1789. doi: 10.1271/bbb.68.1786

Kerr, J. F. R., Wyllie, A. H., & Currie, A. R. (1972). Apoptosis: A basic biological phenomenon with wide-ranging implications in tissue kinetics. *British Journal of Cancer, 26*(4), 239-257.

Kim, J. H., Ha, H. C., Lee, M. S., Kang, J. I., Kim, H. S., Lee, S. Y., . . . Shim, I. (2007). Effect of *Tremella fuciformis* on the neurite outgrowth of PC12h cells and the improvement of memory in rats. *Biological and Pharmaceutical Bulletin, 30*(4), 708-714. doi: 10.1248/bpb.30.708

Kim, S. K., Son, C. G., Yun, C. H., & Han, S. H. (2010). *Hericium erinaceum* induces maturation of dendritic cells derived from human peripheral blood monocytes. *Phytotherapy Research, 24*(1), 14-19. doi: 10.1002/ptr.2849

Kim, S. P., Kang, M. Y., Kim, J. H., Nam, S. H., & Friedman, M. (2011a). Composition and mechanism of antitumor effects of *Hericium erinaceus* mushroom extracts in tumor-bearing mice. *Journal of Agricultural and Food Chemistry, 59*(18), 9861-9869. doi: 10.1021/jf201944n

Kim, Y. S., Jeon, J. H., Im, J., Kang, S. S., Choi, J. N., Ju, H. R., . . . Han, S. H. (2011b). Induction of intercellular adhesion molecule-1 by water-soluble components of *Hericium erinaceum* in human monocytes. *Journal of Ethnopharmacology, 133*(2), 874-880. doi: 10.1016/j.jep.2010.11.027

Kirk, P. M., Cannon, P. F., Minter, D. W., & Stalpers, J. A. (Eds.). (2008) Ainsworth & Bisby's Dictionary of the Fungi (10th ed.). Wallingford, UK: CAB International

Kita, T., Takaya, Y., Oshima, Y., Ohta, T., Aizawa, K., Hirano, T., & Inakuma, T. (1998). Scabronines B, C, D, E and F, novel diterpenoids showing stimulating activity of nerve growth factor-synthesis, from the mushroom *Sarcodon scabrosus*. *Tetrahedron, 54*(39), 11877-11886. doi: 10.1016/S0040-4020(98)83045-7

Kittur, S., Wilasrusmee, S., Pedersen, W., Mattson, M., Straube-West, K., Wilasrusmee, C., . . . Kittur, D. (2002). Neurotrophic and neuroprotective effects of milk thistle (*Silybum marianum*) on neurons in culture. *Journal of Molecular Neuroscience, 18*(3), 265-269. doi: 10.1385/JMN:18:3:265

Ko, H. G., Park, H. G., Park, S. H., Choi, C. W., Kim, S. H., & Park, W. M. (2005). Comparative study of mycelial growth and basidiomata formation in seven different species of the edible mushroom genus *Hericium*. *Bioresource Technology, 96*(13), 1439-1444. doi: 10.1016/j.biortech.2004.12.009

Kolotushkina, E. V., Moldavan, M. G., Voronin, K. Y., & Skibo, G. G. (2003). The influence of *Hericium erinaceus* extract on myelination process in vitro. *Fiziologicheskii Zhurnal, 49*(1), 38-45.

Kozireski-Chuback, D., Wu, G., & Ledeen, R. W. (1999). Upregulation of nuclear GM1 accomopanies axon-like, but not dendrite-like, outgrowth in NG108-15 cells. *Journal of Neuroscience Research, 55*, 107-118. doi: 10.1002/(SICI)1097-4547(19990101)55:1<107::AID-JNR12>3.0.CO;2-E

Krzyczkowski, W., Malinowska, E., Suchocki, P., Kleps, J., Olejnik, M., & Herold, F. (2009). Isolation and quantitative determination of ergosterol peroxide in various edible mushroom species. *Food Chemistry, 113*(1), 351-355. doi: 10.1016/j.foodchem.2008.06.075

Kubo, M., Kishimoto, Y., Harada, K., Hioki, H., & Fukuyama, Y. (2010). NGF-potentiating vibsane-type diterpenoids from *Viburnum sieboldii*. *Bioorganic and Medicinal Chemistry Letters, 20*(8), 2566-2571. doi: 10.1016/j.bmcl.2010.02.085

Kulkarni, S. K., & Dhir, A. (2008). *Withania somnifera*: An Indian ginseng. *Progress in Neuro-Psychopharmacology and Biological Psychiatry, 32*(5), 1093-1105. doi: 10.1016/j.pnpbp.2007.09.011

Kushi, L. H., Byers, T., Doyle, C., Bandera, E. V., McCullough, M., McTiernan, A., . . . Thun, M. J. (2006). American Cancer Society guidelines on nutrition and physical activity for cancer prevention: Reducing the risk of cancer with healthy food choices and physical activity. *CA: A Cancer Journal for Clinicians, 56*(5), 254-281. doi: 10.3322/canjclin.56.5.254

Landreth, G. E. (2006). Growth factors. In G. J. Siegel, R. W. Albers, S. T. Brady & D. L. Price (Eds.), *Basic Neurochemistry : Molecular, Cellular and Medical Aspects* (7th ed., pp. 471-484). London, UK: Elsevier Academic Press.

Lara, J., Kusano, K., House, S., & Gainer, H. (2003). Interactions of cyclic adenosine monophosphate, brain-derived neurotrophic factor, and glial cell line-derived neurotrophic factor treatment on the survival and growth of postnatal mesencephalic dopamine neurons *in vitro*. *Experimental Neurology, 180*(1), 32-45. doi: 10.1016/S0014-4886(02)00028-6

Lau, L. F., & Huganir, R. (2006). Tyrosine phosphorylation. In G. J. Siegel, R. W. Albers, S. T. Brady & D. L. Price (Eds.), *Basic Neurochemistry : Molecular, Cellular and Medical Aspects* (7th ed., pp. 415-433). London, UK: Elsevier Academic Press.

Lee, E. W., Shizuki, K., Hosokawa, S., Suzuki, M., Suganuma, H., Inakuma, T., . . . Kawagish, H. (2000). Two novel diterpenoids, erinacines H and I from the mycelia of *Hericium erinaceum*. *Bioscience, Biotechnology, and Biochemistry, 64*(11), 2402-2405. doi: 10.1271/bbb.64.2402

Lee, J. S., Cho, J. Y., & Hong, E. K. (2009a). Study on macrophage activation and structural characteristics of purified polysaccharides from the liquid culture broth of *Hericium erinaceus*. *Carbohydrate Polymers, 78*(1), 162-168. doi: 10.1016/j.carbpol.2009.04.036

Lee, J. S., & Hong, E. K. (2010). *Hericium erinaceus* enhances doxorubicin-induced apoptosis in human hepatocellular carcinoma cells. *Cancer Letters, 297*(2), 144-154. doi: 10.1016/j.canlet.2010.05.006

Lee, J. S., Min, K. M., Cho, J. Y., & Hong, E. K. (2009b). Study of macrophage activation and structural characteristics of purified polysaccharides from the fruiting body of *Hericium erinaceus*. *Journal of Microbiology and Biotechnology, 19*(9), 951-959. doi: 10.4014/jmb.0901.013

Lee, S. J., Kim, E. K., Hwang, J. W., Kim, C., Choi, D., Lim, B., . . . Park, P. J. (2010). Neuroprotective effect of *Hericium erinaceum* against oxidative stress on PC12 cells. *Journal of the Korean Society for Applied Biological Chemistry, 53*(3), 283-289. doi: 10.3839/jksabc.2010.044

Lefebvre, P. P., Van De Water, T. R., Weber, T., Rogister, B., & Moonen, G. (1991). Growth factor interactions in cultures of dissociated adult acoustic ganglia: Neuronotrophic effects. *Brain Research, 567*(2), 306-312. doi: 10.1016/0006-8993(91)90809-A

Lessmann, V., Gottmann, K., & Malcangio, M. (2003). Neurotrophin secretion: Current facts and future prospects. *Progress in Neurobiology, 69*(5), 341-374. doi: 10.1016/s0301-0082(03)00019-4

Letourneau, P. C., Condic, M. L., & Snow, D. M. (1994). Interactions of developing neurons with the extracellular matrix. *The Journal of Neuroscience, 14*(3), 915-928.

Levi-Montalcini, R. (1987). The nerve growth factor: Thirty-five years later. *Bioscience Reports, 7*(9), 681-699. doi: 10.1007/BF01116861

Li, P., Matsunaga, K., & Ohizumi, Y. (2000). Nerve growth factor-potentiating compounds from Picrorhizae Rhizoma. *Biological and Pharmaceutical Bulletin, 23*(7), 890-892. doi: 10.1248/bpb.23.890

Li, Y., Zhang, G., Ng, T. B., & Wang, H. (2010). A novel lectin with antiproliferative and HIV-1 reverse transcriptase inhibitory activities from dried fruiting bodies of the monkey head mushroom *Hericium erinaceum*. *Journal of Biomedicine and Biotechnology, 2010*(Article ID 716515). doi: 10.1155/2010/716515

Lim, S. T., Airavaara, M., & Harvey, B. K. (2010). Viral vectors for neurotrophic factor delivery: A gene therapy approach for neurodegenerative diseases of the CNS. *Pharmacological Research, 61*(1), 14-26. doi: 10.1016/j.phrs.2009.10.002

Liu, R. H. (2003). Health benefits of fruit and vegetables are from additive and synergistic combinations of phytochemicals. *American Journal of Clinical Nutrition, 78*(3), 517S-520S.

Liu, S., Lee, I. M., Ajani, U., Cole, S. R., Buring, J. E., & Manson, J. E. (2001). Intake of vegetables rich in carotenoids and risk of coronary heart disease in men: The Physicians' Health Study. *International Journal of Epidemiology, 30*(1), 130-135. doi: 10.1093/ije/30.1.130

Logan, A., Ahmed, Z., Baird, A., Gonzalez, A. M., & Berry, M. (2006). Neurotrophic factor synergy is required for neuronal survival and disinhibited axon regeneration after CNS injury. *Brain, 129*(2), 490-502. doi: 10.1093/brain/awh706

Lu, M. C., Yao, C. H., Wang, S. H., Lai, Y. L., Tsai, C. C., & Chen, Y. S. (2010). Effect of *Astragalus membranaceus* in rats on peripheral nerve regeneration: *In vitro* and *in vivo* studies. *The Journal of Trauma, 68*(2), 434-440. doi: 10.1097/TA.0b013e31819adb38

Luo, Y., Sun, K., Li, L., Gao, L., Wang, G., Qu, Y., . . . Qi, J. (2011). Structure–activity relationships of neuritogenic gentiside derivatives. *ChemMedChem, 6*(11), 1986-1989. doi: 10.1002/cmdc.201100348

Ma, B. J., Shen, J. W., Yu, H. Y., Ruan, Y., Wu, T. T., & Zhao, X. (2010). Hericenones and erinacines: Stimulators of nerve growth factor (NGF) biosynthesis in *Hericium erinaceus*. *Mycology, 1*(2), 92-98. doi: 10.1080/21501201003735556

Ma, B. J., Zhou, Y., Li, L. Z., Li, H. M., Gao, Z. M., & Ruan, Y. (2006). A new cyathane-xyloside from the mycelia of *Hericium erinaceum* [Abstract]. *Zeitschrift für Naturforschung, 63b*, 1241-1242.

Madduri, S., Papaloïzos, M., & Gander, B. (2009). Synergistic effect of GDNF and NGF on axonal branching and elongation in vitro. *Neuroscience Research, 65*(1), 88-97. doi: 10.1016/j.neures.2009.06.003

Maiese, K., Chong, Z. Z., Hou, J., & Shang, Y. C. (2010). Oxidative stress: Biomarkers and novel therapeutic pathways. *Experimental Gerontology, 45*, 217-234. doi: 10.1016/j.exger.2010.01.004

Mak, N. K., Li, W. K., Zhang, M., Wong, R. N., Tai, L. S., Yung, K. K., & Leung, H. W. (2000). Effects of euxanthone on neuronal differentiation. *Life Sciences, 66*(4), 347-354. doi: 10.1016/S0024-3205(99)00596-2

Malinowska, E., Krzyczkowski, W., Herold, F., Łapienis, G., Ślusarczyk, J., Suchocki, P., . . . Turło, J. (2009). Biosynthesis of selenium-containing polysaccharides with antioxidant activity in liquid culture of *Hericium erinaceum*. *Enzyme and Microbial Technology, 44*(5), 334-343. doi: 10.1016/j.enzmictec.2008.12.003

Manadas, B., Melo, C., Gomes, J., & Duarte, C. (2007). Neurotrophin signaling and cell survival. In J. Malva, A. C. Rego, R. Cunha & C. R. Oliveira (Eds.), *Interaction Between Neurons and Glia in Aging and Disease* (pp. 137-172). New York, USA: Springer Science+Business Media.

Matteo, V. D., Pierucci, M., Giovanni, G. D., & Esposito, E. (2007). Prevention and therapy of neurodegenerative disorders: Role of nutritional antioxidants. In G. A. Qureshi & S. H. Parvez (Eds.), Oxidative Stress and Neurodegenerative Disorders (pp. 621-661). (n.p): Elsevier.

Mau, J. L., Lin, H. C., & Song, S. F. (2002). Antioxidant properties of several specialty mushrooms. *Food Research International, 35*(6), 519-526. doi: 10.1016/S0963-9969(01)00150-8

McKee, A. C., Cantu, R. C., Nowinski, C. J., Hedley-Whyte, E. T., Gavett, B. E., Budson, A. E., . . . Stern, R. A. (2009). Chronic traumatic encephalopathy in athletes: Progressive tauopathy after repetitive head injury. *Journal of Neuropathology and Experimental Neurology, 68*(7), 709-735. doi: 10.1097/NEN.0b013e3181a9d503

McMahon, S., & Murinson, B. (2005). Therapeutic potential of neurotrophic factors In S. Waxman (Ed.), From Neuroscience to Neurology: Neuroscience, Molecular Medicine and the Therapeutic Transformation of Neurology (pp. 419-431). London, UK: Elsevier Academic Press.

Meyer, M., Matarredona, E. R., Seiler, R. W., Zimmer, J., & Widmer, H. R. (2001). Additive effect of glial cell line-derived neurotrophic factor and neurotrophin-4/5 on rat fetal nigral explant cultures. *Neuroscience, 108*(2), 273-284. doi: 10.1016/S0306-4522(01)00418-3

Millipore Corporation. (2007). TUNEL Apoptosis Detection Kit (DNA Fragmentation/Fluorescence Staining). (Catalog# 17-141). Temecula, California.

Mizuno, T. (1999). Bioactive substances in *Hericium erinaceus* (Bull.: Fr.) Pers.(Yamabushitake), and its medicinal utilization. *International Journal of Medicinal Mushrooms, 1*, 105-119.

Mizuno, T., Wasa, T., Ito, H., Suzuki, C., & Ukai, N. (1992). Antitumor-active polysaccharides isolated from the fruiting body of *Hericium erinaceum*, an edible and medicinal mushroom called yamabushitake or houtou. *Bioscience, Biotechnology, and Biochemistry, 56*(2), 347-348. doi: 10.1271/bbb.56.347

Moldavan, M. G., Grygansky, A. P., Kolotushkina, O. V., Kirchhoff, B., Skibo, G. G., & Pedarzani, P. (2007). Neurotropic and trophic action of lion's mane mushroom *Hericium erinaceus*(Bull.: Fr.) Pers.(Aphyllophoromycetideae) extracts on nerve cells *in vitro*. *International Journal of Medicinal Mushrooms, 9*(1), 15-28. doi: 10.1615/IntJMedMushr.v9.i1.30

Mori, K., Inatomi, S., Ouchi, K., Azumi, Y., & Tuchida, T. (2009). Improving effects of the mushroom Yamabushitake (*Hericium erinaceus*) on mild cognitive impairment: A double-blind placebo-controlled clinical trial. *Phytotherapy Research, 23*(3), 367-372. doi: 10.1002/ptr.2634

Mori, K., Obara, Y., Hirota, M., Azumi, Y., Kinugasa, S., Inatomi, S., & Nakahata, N. (2008). Nerve growth factor-inducing activity of *Hericium erinaceus* in 1321N1 human astrocytoma cells. *Biological and Pharmaceutical Bulletin, 31*(9), 1727-1732. doi: 10.1248/bpb.31.1727

Mori, K., Obara, Y., Moriya, T., Inatomi, S., & Nakahata, N. (2011). Effects of *Hericium erinaceus* on amyloid β(25-35) peptide-induced learning and memory deficits in mice. *Biomedical Research, 32*(1), 67-72. doi: 10.2220/biomedres.32.67

Mufson, E. J., Kroin, J. S., Sendera, T. J., & Sobreviela, T. (1999). Distribution and retrograde transport of trophic factors in the central nervous system: Functional implications for the treatment of neurodegenerative diseases. *Progress in Neurobiology, 57*(4), 451-484. doi: 10.1016/s0301-0082(98)00059-8

Nagai, K., Chiba, A., Nishino, T., Kubota, T., & Kawagishi, H. (2006). Dilinoleoyl-phosphatidylethanolamine from *Hericium erinaceum* protects against ER stress-dependent Neuro2a cell death via protein kinase C pathway. *Journal of Nutritional Biochemistry, 17*(8), 525-530. doi: 10.1016/j.jnutbio.2005.09.007

Nagano, M., Shimizu, K., Kondo, R., Hayashi, C., Sato, D., Kitagawa, K., & Ohnuki, K. (2010). Reduction of depression and anxiety by 4 weeks *Hericium erinaceus* intake. *Biomedical Research (Tokyo, Japan), 31*(4), 231-237. doi: 10.2220/biomedres.31.231

Naidu, M., Kuan, C. Y., Lo, W. L., Raza, M., Tolkovsky, A., Mak, N. K., . . . Keynes, R. (2007). Analysis of the action of euxanthone, a plant-derived compound that stimulates neurite outgrowth. *Neuroscience, 148*(4), 915-924. doi: 10.1016/j.neuroscience.2007.07.037

National Center for Complementary and Alternative Medicine. (2008, Updated July 2011). What is Complementary and Alternative Medicine? Publication No. D347. Retrieved from http://nccam.nih.gov/health/whatiscam/

National Institute for Health and Clinical Excellence. (2011). Final appraisal determination - Donepezil, galantamine, rivastigmine and memantine for the treatment of Alzhemer's disease (review of NICE technology appraisal guidance 111). 84. Retrieved from http://www.nice.org.uk/nicemedia/live/12248/52515/52515.pdf

Naval, M. V., Gomez-Serranillos, M. P., Carretero, M. E., & Villar, A. M. (2007). Neuroprotective effect of a ginseng (*Panax ginseng*) root extract on astrocytes primary culture. *Journal of Ethnopharmacology, 112*(2), 262-270. doi: 10.1016/j.jep.2007.03.010

Niewiadomska, G., Mietelska-Porowska, A., & Mazurkiewicz, M. (2011). The cholinergic system, nerve growth factor and the cytoskeleton. *Behavioural Brain Research, 221*(2), 515-526. doi: 10.1016/j.bbr.2010.02.024

Obara, Y., Hoshino, T., Marcotullio, M. C., Pagiotti, R., & Nakahata, N. (2007). A novel cyathane diterpene, cyrneine A, induces neurite outgrowth in a Rac1-dependent mechanism in PC12 cells. *Life Sciences, 80*(18), 1669-1677. doi: 10.1016/j.lfs.2007.01.057

Obara, Y., Kobayashi, H., Ohta, T., Ohizumi, Y., & Nakahata, N. (2001). Scabronine G-methylester enhances secretion of neurotrophic factors mediated by an activation of protein kinase C-ζ. *Molecular Pharmacology, 59*(5), 1287.

Obara, Y., & Nakahata, N. (2002). The signaling pathway of neurotrophic factor biosynthesis. *Drug News Perspect, 15*(5), 290-298. doi: 10.1358/dnp.2002.15.5.840042

Obara, Y., Nakahata, N., Kita, T., Takaya, Y., Kobayashi, H., Hosoi, S., . . . Ohizumi, Y. (1999). Stimulation of neurotrophic factor secretion from 1321N1 human astrocytoma cells by novel diterpenoids, scabronines A and G. *European Journal of Pharmacology, 370*(1), 79-84. doi: 10.1016/S0014-2999(99)00077-1

Okamoto, K., Shimada, A., Shirai, R., Sakamoto, H., Yoshida, S., Ojima, F., . . . Kawagishi, H. (1993). Antimicrobial chlorinated orcinol derivatives from myceilia of *Hericium erinaceum*. *Phytochemistry, 34*(5), 1445-1446. doi: 10.1016/0031-9422(91)80050-B

Oke, F., & Aslim, B. (2011). Protective effect of two edible mushrooms against oxidative cell damage and their phenolic composition. *Food Chemistry, 128*, 613-619. doi: 10.1016/j.foodchem.2011.03.036

Okuyama, S., Terashima, T., Kawamura, Y., & Yokogoshi, H. (2004). Enhancing effect of *Mycoleptodonoides aitchisonii* on synthesis of nerve growth factor and releasing dopamine in the rat brain. *Nutritional Neuroscience, 7*(1), 41-47. doi: 10.1080/10284150310001653613

Oliva, A. A., Jr., Atkins, C. M., Copenagle, L., & Banker, G. A. (2006). Activated c-Jun N-terminal kinase is required for axon formation. *The Journal of Neuroscience, 26*(37), 9462-9470. doi: 10.1523/JNEUROSCI.2625-06.2006

Park, I. D., Yoo, H. S., Lee, Y. W., Son, C. G., Kwon, M., Sung, H. J., & Cho, C. K. (2008). Toxicological study on MUNOPHIL, water extract of Panax ginseng and *Hericium erinaceum* in rats. *Journal of acupuncture and meridian studies, 1*(2), 121-127. doi: 10.1016/S2005-2901(09)60032-7

Park, K. J., Lee, S. Y., Kim, H. S., Yamazaki, M., Chiba, K., & Ha, H. C. (2007). The neuroprotective and neurotrophic effects of *Tremella fuciformis* in PC12h cells. *Mycobiology, 35*(1), 11-15.

Park, Y. S., Lee, H. S., Won, M. H., Lee, J. H., Lee, S. Y., & Lee, H. Y. (2002). Effect of an exo-polysaccharide from the culture broth of *Hericium erinaceus* on enhancement of growth and differentiation of rat adrenal nerve cells. *Cytotechnology, 39*(3), 155-162. doi: 10.1023/A:1023963509393

Pegler, D. N. (2003). Useful fungi of the world: The monkey head fungus. *Mycologist, 17*(Part 3), 120-121. doi: 10.1017/S0269915X03003069

Perez-Polo, J. R. (2010). The neurotrophin factors. In A. B. Ralph & A. D. Edward (Eds.), *Handbook of Cell Signaling* (2nd ed., pp. 2631-2645). San Diego: Academic Press.

Peunova, N., & Enikolopov, G. (1995). Nitric oxide triggers a switch to growth arrest during differentiation of neuronal cells. *Nature, 375*, 68-73. doi: 10.1038/375068a0

Pigino, G., Kirkpatrick, L. L., & Brady, S. T. (2006). The cytoskeleton of neurons and glia. In G. J. Siegel, R. W. Albers, S. T. Brady & D. L. Price (Eds.), Basic Neurochemistry: Molecular, Cellular and Medical Aspects (7th ed., pp. 123-137). London, UK: Elsevier Academic Press.

Plumb, J. A. (1999). Cell sensitivity assays: The MTT assay. In R. Brown & U. Boger-Brown (Eds.), *Cytotoxic Drug Resistance Mechanisms* (Vol. 28, pp. 25-30). Totowa: Humana Press Inc.

Poluha, W., Schonhoff, C. M., Harrington, K. S., Lachyankar, M. B., Crosbie, N. E., Bulseco, D. A., & Ross, A. H. (1997). A novel, nerve growth factor-activated pathway involving nitric oxide, p53, and $p21^{WAF1}$ regulates neuronal differentiation of PC12 cells. *Journal of Biological Chemistry, 272*(38), 24002-24007. doi: 10.1074/jbc.272.38.24002

Poucheret, P., Fons, F., & Rapior, S. (2006). Biological and pharmacological activity of higher fungi: 20-year retrospective analysis. *Cryptogamie, Mycologie, 27*(4), 311-333.

Price, R. D., Milne, S. A., Sharkey, J., & Matsuoka, N. (2007). Advances in small molecules promoting neurotrophic function. *Pharmacology & Therapeutics, 115*(2), 292-306. doi: 10.1016/j.pharmthera.2007.03.005

Qi, J., Ojika, M., & Sakagami, Y. (2000). Termitomycesphins A-D, novel neuritogenic cerebrosides from the edible chinese mushroom *Termitomyces albuminosus*. *Tetrahedron, 56*, 5835-5841. doi: 10.1016/S0040-4020(00)00548-2

Qi, J., Ojika, M., & Sakagami, Y. (2001). Neuritogenic cerebrosides from an edible Chinese mushroom. Part 2: Structures of two additional termitomycesphins and activity enhancement of an inactive cerebroside by hydroxylation. *Bioorganic and Medicinal Chemistry, 9*(8), 2171-2177. doi: 10.1016/S0968-0896(01)00125-0

Radio, N. M., & Mundy, W. R. (2008). Developmental neurotoxicity testing *in vitro*: Models for assessing chemical effects on neurite outgrowth. *NeuroToxicology, 29*(3), 361-376. doi: 10.1016/j.neuro.2008.02.011

Raman, M., Chen, W., & Cobb, M. H. (2007). Differential regulation and properties of MAPKs. *Oncogene, 26*(22), 3100-3112. doi: 10.1038/sj.onc.1210392

Rausch, W. D., Liu, S., Gille, G., & Radad, K. (2006). Neuroprotective effects of ginsenosides. *Acta Neurobiologiae Experimentalis, 66*(4), 369-375.

Repici, M., Mariani, J., & Borsello, T. (2007). Neuronal death and neuroprotection: A review. *Methods in Molecular Biology, 399*, 1-14. doi: 10.1007/978-1-59745-504-6_1

Rottkamp, C. A., Nunomura, A., Raina, A. K., Sayre, L. M., Perry, G., & Smith, M. A. (2000). Oxidative stress, antioxidants, and Alzheimer disease. *Alzheimer Disease and Associated Disorders, 14* (Supplement 1), S62-S66. doi: 10.1097/00002093-200000001-00010

Sabaratnam, V., Abdullah, N., Ibrahim, N., Tan, Y. H., Daud, F., & Jones, E. B. G. (2007). Edible and medicinal mushroom. In E. B. G. Jones, K. D. Hyde & V. Sabaratnam (Eds.), *Malaysian Fungal Diversity* (pp. 287-305). Malaysia: Mushroom Research Centre, University of Malaya and Ministry of Natural Resources and Environment Malaysia.

Saito, T., Aoki, F., Hirai, H., Inagaki, T., Matsunaga, Y., Sakakibara, T., . . . Kojima, N. (1998). Erinacine E as a kappa opioid receptor agonist and its new analogs from a basidiomycete,

Hericium ramosum. *Journal of Antibiotics, 51*(11), 983-990. doi: 10.7164/antibiotics.51.983

Schliebs, R., & Arendt, T. (2011). The cholinergic system in aging and neuronal degeneration. *Behavioural Brain Research, 221*(2), 555-563. doi: 10.1016/j.bbr.2010.11.058

Schulze-Osthoff, K., Ferrari, D., Los, M., Wesselborg, S., & E. Peter, M. (1998). Apoptosis signaling by death receptors. *European Journal of Biochemistry, 254*, 439-459. doi: 10.1046/j.1432-1327.1998.2540439.x

Seiger, A., Nordberg, A., von Holst, H., Backman, L., Ebendal, T., Alafuzoff, I., . . . et al. (1993). Intracranial infusion of purified nerve growth factor to an Alzheimer patient: The first attempt of a possible future treatment strategy. *Behavioural Brain Research, 57*(2), 255-261. doi: 10.1016/0166-4328(93)90141-C

Semkova, I., & Krieglstein, J. (1999). Neuroprotection mediated via neurotrophic factors and induction of neurotrophic factors. *Brain Research Reviews, 30*(2), 176-188. doi: 10.1016/s0165-0173(99)00013-2

Semkova, I., Schilling, M., Henrich-Noack, P., Rami, A., & Krieglstein, J. (1996). Clenbuterol protects mouse cerebral cortex and rat hippocampus from ischemic damage and attenuates glutamate neurotoxicity in cultured hippocampal neurons by induction of NGF. *Brain Research, 717*, 44-54. doi: 10.1016/0006-8993(95)01567-1

Sharma, H. S. (2007). Neurotrophic factors in combination: A possible new therapeutic strategy to influence pathophysiology of spinal cord injury and repair mechanisms. *Current Pharmaceutical Design, 13*(18), 1841-1874.

Shigeta, K., Ootaki, K., Tatemoto, H., Nakanishi, T., Inada, A., & Muto, N. (2002). Potentiation of nerve growth factor-induced neurite outgrowth in PC12 cells by a Coptidis Rhizoma extract and protoberberine alkaloids. *Bioscience, Biotechnology, and Biochemistry, 66*(11), 2491-2494. doi: 10.1271/bbb.66.2491

Shimbo, M., Kawagishi, H., & Yokogoshi, H. (2005). Erinacine A increases catecholamine and nerve growth factor content in the central nervous system of rats. *Nutrition Research, 25*(6), 617-623. doi: 10.1016/j.nutres.2005.06.001

Shukla, V., Mishra, S. K., & Pant, H. C. (2011). Oxidative stress in neurodegeneration. *Advances in pharmacological sciences, Volume 2011*(Article ID 572634). doi: 10.1155/2011/572634

Siegel, G. J., & Chauhan, N. B. (2000). Neurotrophic factors in Alzheimer's and Parkinson's disease brain. *Brain Research Reviews, 33*(2-3), 199-227. doi: 10.1016/S0165-0173(00)00030-8

Smalheiser, N. R. (1989a). Analysis of slow-onset neurite formation in NG108-15 cells: Implications for a unified model of neurite elongation. *Developmental Brain Research, 45*(1), 49-57. doi: 10.1016/0165-3806(89)90006-0

Smalheiser, N. R. (1989b). Morphologic plasticity of rapid-onset neurites in NG108-15 cells stimulated by substratum-bound laminin. *Developmental Brain Research, 45*(1), 39-47. doi: 10.1016/0165-3806(89)90005-9

Smalheiser, N. R. (1990). Neuronal growth cones: An extended view. *Neuroscience, 38*(1), 1-11. doi: 10.1016/0306-4522(90)90369-f

Smalheiser, N. R. (1991). Role of laminin in stimulating rapid-onset neurites in NG108-15 cells: Relative contribution of attachment and motility responses. *Developmental Brain Research, 62*(1), 81-89. doi: 10.1016/0165-3806(91)90192-L

Smalheiser, N. R., & Schwartz, N. B. (1987). Kinetic analysis of 'rapid onset' neurite formation in NG108-15 cells reveals a dual role for substratum-bound laminin. *Developmental Brain Research, 431*(1), 111-121. doi: 10.1016/0165-3806(87)90200-8

Smith, J. E., Rowan, N. J., & Sullivan, R. (2002). Medicinal mushrooms: A rapidly developing area of biotechnology for cancer therapy and other bioactivities. *Biotechnology Letters, 24*(22), 1839-1845. doi: 10.1023/A:1020994628109

Sofroniew, M. V., Howe, C. L., & Mobley, W. C. (2001). Nerve growth factor signaling, neuroprotection, and neural repair. *Annual Review of Neuroscience, 24*, 1217-1281. doi: 10.1146/annurev.neuro.24.1.1217

Soumyanath, A., Zhong, Y. P., Gold, S. A., Yu, X., Koop, D. R., Bourdette, D., & Gold, B. G. (2005). *Centella asiatica* accelerates nerve regeneration upon oral administration and contains multiple active fractions increasing neurite elongation *in-vitro*. *Journal of Pharmacy and Pharmacology, 57*, 1221-1229. doi: 10.1211/jpp.57.9.0018

Stamets, P. (2000). *Growing Gourmet and Medicinal Mushrooms: Shokuy Oyobi Yakuy Kinoko No Saibai* (3rd ed.). Berkeley, California: Ten Speed Press.

Supino, R. (1995). MTT assays. In S. O'Hare & C. K. Atterwill (Eds.), *In vitro Toxicity Testing Protocols* (Vol. 43, pp. 137-149). Totowa: Humana Press Inc.

Tang, W., Kubo, M., Harada, K., Hioki, H., & Fukuyama, Y. (2009). Novel NGF-potentiating diterpenoids from a Brazilian medicinal plant, *Ptychopetalum olacoides*. *Bioorganic and Medicinal Chemistry Letters, 19*(3), 882-886. doi: 10.1016/j.bmcl.2008.11.100

Terenghi, G. (1999). Peripheral nerve regeneration and neurotrophic factors. *Journal of Anatomy, 194*(1), 1-14. doi: 10.1046/j.1469-7580.1999.19410001.x

Tessier-Lavigne, M., & Goodman, C. S. (1996). The molecular biology of axon guidance. *Science, 274*(5290), 1123-1133. doi: 10.1126/science.274.5290.1123

Tian, J. (2005). Dementia in an Asian context. In M. L. Johnson, V. L. Bengtson, P. G. Coleman & T. B. L. Kirkwood (Eds.), *The Cambridge Handbook of Age and Ageing* (pp. 261-272). Cambridge, UK: Cambridge University Press.

Tohda, C., Komatsu, K., & Kuboyama, T. (2005). Scientific basis for the anti-dementia drugs of constituents from Ashwagandha (*Withania somnifera*). *Journal of Traditional Medicines, 22*(Supplement 1), 176-182.

Tojima, T., Yamane, Y., Takahashi, M., & Ito, E. (2000). Acquisition of neuronal proteins during differentiation of NG108-15 cells. *Neuroscience Research, 37*, 153-161. doi: 10.1016/S0168-0102(00)00110-3

Tsang, C. K., Ina, A., Goto, T., & Kamei, Y. (2005). Sargachromenol, a novel nerve growth factor-potentiating substance isolated from *Sargassum macrocarpum*, promotes neurite outgrowth and survival via distinct signaling pathways in PC12D cells. *Neuroscience, 132*(3), 633-643. doi: 10.1016/j.neuroscience.2005.01.028

Tsang, C. K., & Kamei, Y. (2004). Sargaquinoic acid supports the survival of neuronal PC12D cells in a nerve growth factor-independent manner. *European Journal of Pharmacology, 488*(1-3), 11-18. doi: 10.1016/j.ejphar.2004.01.033

Tsukamoto, S., Macabalang, A. D., Nakatani, K., Obara, Y., Nakahata, N., & Ohta, T. (2003). Tricholomalides A-C, new neurotrophic diterpenes from the mushroom *Tricholoma* sp. *Journal of Natural Products, 66*(12), 1578-1581. doi: 10.1021/np030140x

Ueda, K., Kodani, S., Kubo, M., Masuno, K., Sekiya, A., Nagai, K., & Kawagishi, H. (2009). Endoplasmic reticulum (ER) stress-suppressive compounds from scrap cultivation beds of the mushroom *Hericium erinaceum*. *Bioscience, Biotechnology, and Biochemistry, 73*(8), 1908-1910. doi: 10.1271/bbb.90279

Ueda, K., Tsujimori, M., Kodani, S., Chiba, A., Kubo, M., Masuno, K., . . . Kawagishi, H. (2008). An endoplasmic reticulum (ER) stress-suppressive compound and its analogues from the mushroom *Hericium erinaceum*. *Bioorganic and Medicinal Chemistry, 16*(21), 9467-9470. doi: 10.1016/j.bmc.2008.09.044

United Nations, Department of Economic and Social Affairs, Population Division. (2010). World Population Ageing 2009. Retrieved from http://unpopulation.org

Van Cruchten, S., & Van Den Broeck, W. (2002). Morphological and biochemical aspects of apoptosis, oncosis and necrosis. *Anatomia, Histologia, Embryologia, 31*(4), 214-223. doi: 10.1046/j.1439-0264.2002.00398.x

Van Ooyen, A., Van Pelt, J., & Corner, M. A. (1995). Implications of activity dependent neurite outgrowth for neuronal morphology and network development. *Journal of Theoretical Biology, 172*(1), 63-82. doi: 10.1006/jtbi.1995.0005

Waetzig, V., Loose, K., Haeusgen, W., & Herdegen, T. (2008). c-Jun N-terminal kinases mediate Fas-induced neurite regeneration in PC12 cells. *Biochemical Pharmacology, 76*, 1476-1484. doi: 10.1016/j.bcp.2008.07.014

Waetzig, V., Zhao, Y., & Herdegen, T. (2006). The bright side of JNKs - Multitalented mediators in neuronal sprouting, brain development and nerve fiber regeneration. *Progress in Neurobiology, 80*, 84-97. doi: 10.1016/j.pneurobio.2006.08.002

Walker, N. I., Harmon, B. V., Gobe, G. C., & Kerr, J. F. R. (1988). Patterns of cell death. *Methods and Achievements in Experimental Pathology, 13*, 18-54.

Wang, J., Hecimovic, S., & Goate, A. (2007). Alzheimer's disease. In R. A. Meyers (Ed.), *Proteins : From Analytics to Structural Genomics* (Vol. 1, pp. 1217). Weinheim: Wiley-VCH Verlag GmbH & Co. KGaA.

Wang, J. C., Hu, S. H., Wang, J. T., Chen, K. S., & Chia, Y. C. (2005). Hypoglycemic effect of extract of *Hericium erinaceus*. *Journal of the Science of Food and Agriculture, 85*(4), 641-646. doi: 10.1002/jsfa.1928

Wang, Z., Min, S. J., & Danishefsky, S. J. (2009). Total synthesis and structural revision of (+/-)-tricholomalides A and B. *Journal of the American Chemical Society, 131*(31), 10848-10849. doi: 10.1021/ja9049433

Wasser, S. P. (2002). Medicinal mushrooms as a source of antitumor and immunomodulating polysaccharides. *Applied Microbiology and Biotechnology, 60*(3), 258-274. doi: 10.1007/s00253-002-1076-7

Wasser, S. P., & Weis, A. L. (1999). Medicinal properties of substances occurring in higher basidiomycetes mushrooms: Current perspectives (Review). *International Journal of Medicinal Mushrooms, 1*, 31-62.

Weisenhorn, D. M. V., Roback, J., Young, A. N., & Wainer, B. H. (1999). Cellular aspects of trophic actions in the nervous system. *International Review of Cytology, 189*, 177-265.

White, D. M. (1998). Contribution of neurotrophin-3 to the neuropeptide Y-induced increase in neurite outgrowth of rat dorsal root ganglion cells. *Neuroscience, 86*(1), 257-263. doi: 10.1016/s0306-4522(98)00034-7

White, D. M., & Mansfield, K. (1996). Vasoactive intestinal polypeptide and neuropeptide Y act indirectly to increase neurite outgrowth of dissociated dorsal root ganglion cells. *Neuroscience, 73*(3), 881-887. doi: 10.1016/0306-4522(96)00055-3

Wiese, A. G., Pacifici, R. E., & Davies, K. J. A. (1995). Transient adaptation to oxidative stress in mammalian cells. *Archives of Biochemistry and Biophysics, 318*(1), 231-240. doi: 10.1006/abbi.1995.1225

Williams, B. J., Eriksdotter-Jonhagen, M., & Granholm, A.-C. (2006). Nerve growth factor in treatment and pathogenesis of Alzheimer's disease. *Progress in Neurobiology, 80*(3), 114-128. doi: 10.1016/j.pneurobio.2006.09.001

Windebank, A. J., & McDonald, E. S. (2005). Neurotrophic factors in the peripheral nervous system. In J. D. Peter & P. K. Thomas (Eds.), *Peripheral Neuropathy* (4th ed., Vol. 1, pp. 377-386). Philadelphia: W.B. Saunders.

Wong, K. H., Naidu, M., David, R. P., Abdulla, M. A., Abdullah, N., Kuppusamy, U. R., & Sabaratnam, V. (2009a). Functional recovery enhancement following injury to rodent peroneal nerve by lion's mane mushroom, *Hericium erinaceus* (Bull.: Fr.) Pers. (Aphyllophoromycetideae). *International Journal of Medicinal Mushrooms, 11*(3), 225-236. doi: 10.1615/IntJMedMushr.v11.i3.20

Wong, K. H., Naidu, M., David, R. P., Abdulla, M. A., Abdullah, N., Kuppusamy, U. R., & Sabaratnam, V. (2011). Peripheral nerve regeneration following crush injury to rat peroneal nerve by aqueous extract of medicinal mushroom *Hericium erinaceus* (Bull.: Fr) Pers. (Aphyllophoromycetideae). *Evidence-based Complementary and Alternative Medicine*(Article ID 580752). doi: 10.1093/ecam/neq062

Wong, K. H., Sabaratnam, V., Abdullah, N., Kuppusamy, U. R., & Naidu, M. (2009b). Effects of cultivation techniques and processing on antimicrobial and antioxidant activities of *Hericium erinaceus* (Bull.: Fr.) Pers. extracts. *Food Technology and Biotechnology, 47*(1), 47-55.

Wong, K. H., Sabaratnam, V., Abdullah, N., Naidu, M., & Keynes, R. (2007). Activity of aqueous extracts of lion's mane mushroom *Hericium erinaceus* (Bull.: Fr.) Pers. (Aphyllophoromycetideae) on the neural cell line NG108-15. *International Journal of Medicinal Mushrooms, 9*(1), 57-65. doi: 10.1615/IntJMedMushr.v9.i1.70

World Health Organization. (2000). General guidelines for methodologies on research and evaluation of traditional medicine. Retrieved 24 October 2009, from http://whqlibdoc.who.int/hq/2000/WHO_EDM_TRM_2000.1.pdf

World Health Organization. (2008). Traditional medicine. *Fact sheet N˚134*. Retrieved from http://www.who.int/mediacentre/factsheets/fs134/en/#

Wu, G., Fang, Y., Lu, Z. H., & Ledeen, R. W. (1998). Induction of axon-like and dendrite-like processes in neuroblastoma cells. *Journal of Neurocytology, 27*(1), 1-14. doi: 10.1023/A:1006910001869

Xiao, J., Pradhan, A., & Liu, Y. (2006). Functional role of JNK in neuritogenesis of PC12-N1 cells. *Neuroscience Letters, 392*, 231-234. doi: 10.1016/j.neulet.2005.09.024

Xie, K., & Harvey, A. L. (1993). Evaluation of nerve cell toxicity in vitro by electrophysiological and biochemical methods. *Toxicology In Vitro, 7*(3), 275-279. doi: 10.1016/0887-2333(93)90012-T

Xu, H., Wu, P. R., Shen, Z. Y., & Chen, X. D. (2010). Chemical analysis of *Hericium erinaceum* polysaccharides and effect of the polysaccharides on derma antioxidant enzymes, MMP-1 and TIMP-1 activities. *International Journal of Biological Macromolecules, 47*(1), 33-36. doi: 10.1016/j.ijbiomac.2010.03.024

Xu, X. H., Zhou, J. F., Li, T. Z., Zhang, Z. H., Shan, L., Xiang, Z. H., . . . He, C. (2009). Polygalasaponin G promotes neurite outgrowth of cultured neuron on myelin. *Neuroscience Letters, 460*(1), 41-46. doi: 10.1016/j.neulet.2009.05.020

Yang, B. K., Park, J. B., & Song, C. H. (2002). Hypolipidemic effect of exo-polymer produced in submerged mycelial culture of five different mushrooms. *Journal of Microbiology and Biotechnology, 12*(6), 957-961.

Yang, B. K., Park, J. B., & Song, C. H. (2003). Hypolipidemic effect of an exo-biopolymer produced from a submerged mycelial culture of *Hericium erinaceus*. *Bioscience, Biotechnology, and Biochemistry, 67*(6), 1292-1298. doi: 10.1271/bbb.67.1292

Yang, Y. J., Park, J. I., Lee, H. J., Seo, S. M., Lee, O. K., Choi, D. H., . . . Lee, M. K. (2006). Effects of (+)-eudesmin from the stem bark of *Magnolia kobus* DC. var. *borealis* Sarg. on neurite outgrowth in PC12 cells. *Archives of Pharmacal Research, 29*(12), 1114-1118.

Yaoita, Y., Danbara, K., & Kikuchi, M. (2005). Two new aromatic compounds from *Hericium erinaceum* (Bull.: Fr.) Pers. *Chemical and Pharmaceutical Bulletin, 53*(9), 1202-1203. doi: 10.1248/cpb.53.1202

Yavin, E., & Yavin, Z. (1974). Attachment and culture of dissociated cells from rat embryo cerebral hemispheres on polylysine-coated surface. *The Journal of Cell Biology, 62*(2), 540-546. doi: 10.1083/jcb.62.2.540

Yeats, J. C., Allen, J. M., Bloom, S. R., Leigh, P. J., & MacDermot, J. (1983). Neuropeptide Y in neuroblastoma x glioma hybrid cells: Response to dexamethasone and nerve growth factor. *FEBS Letters, 163*(1), 57-61. doi: 10.1016/0014-5793(83)81162-4

Yu, L. M. Y., Leipzig, N. D., & Shoichet, M. S. (2008). Promoting neuron adhesion and growth. *Materials Today, 11*(5), 36-43. doi: 10.1016/S1369-7021(08)70088-9

Yu, M. S., Ho, Y. S., So, K. F., Yuen, W. H., & Chang, R. C. (2006). Cytoprotective effects of *Lycium barbarum* against reducing stress on endoplasmic reticulum. *International Journal of Molecular Medicine, 17*(6), 1157-1161.

Yu, M. S., Leung, S. K., Lai, S. W., Che, C. M., Zee, S. Y., So, K. F., . . . Chang, R. C. (2005). Neuroprotective effects of anti-aging oriental medicine *Lycium barbarum* against β-amyloid peptide neurotoxicity. *Experimental Gerontology, 40*(8-9), 716-727. doi: 10.1016/j.exger.2005.06.010

Yuen, E. C., Howe, C. L., Li, Y., Holtzman, D. M., & Mobley, W. C. (1996). Nerve growth factor and the neurotrophic factor hypothesis. *Brain and Development, 18*(5), 362-368. doi: 10.1016/0387-7604(96)00051-4

Zhivotovsky, B., & Orrenius, S. (2001). Assessment of apoptosis and necrosis by DNA fragmentation and morphological criteria. *Cellular Aging and Death, Unit 18.3*(Supplement 12), 18.13.11-18.13.23.

Zhuang, C., Kawagishi, H., Zhang, L., & Anzai, H. (2009). U.S. Patent No. 20090274720 (A1). Washington, DC: U.S. Patent and Trademark Office.

Zurn, A. D., Winkel, L., Menoud, A., Djabali, K., & Aebischer, P. (1996). Combined effects of GDNF, BDNF, and CNTF on motoneuron differentiation *in vitro*. *Journal of Neuroscience Research, 44*(2), 133-141. doi: 10.1002/(SICI)1097-4547(19960415)44:2<133::AID-JNR5>3.0.CO;2-E