

DAFTAR PUSTAKA

1. Mohajeri MH. Nutrition for Brain Development. Vol. 14, Nutrients. NLM (Medline); 2022.
2. Kementerian Kesehatan RI. HASIL UTAMA RISKESDAS 2018. Jakarta; 2018.
3. Mattei D, Pietrobelli A. Micronutrients and Brain Development. Vol. 8, Current Nutrition Reports. Current Science Inc.; 2019. p. 99–107.
4. Ju IG and HSM and YSW and HE and KDH and KSY and OMS. CCL01, a novel formulation composed of Cuscuta seeds and Lactobacillus paracasei NK112, enhances memory function via nerve growth factor-mediated neurogenesis. *Food Funct.* 2021;12(21):10690–9.
5. Salat DrD, Mehta DrV. Effectiveness of vitamin D supplements in the patients suffering from Alzheimer disease. *International Journal of Advanced Research in Medicine.* 2021 Jul 1;3(2):95–7.
6. Kandezi N, Mohammadi M, Ghaffari M, Gholami M, Motaghinejad M, Safari S. I IJ JM MC CM M Novel Insight to Neuroprotective Potential of Curcumin: A Mechanistic Review of Possible Involvement of Mitochondrial Biogenesis and PI3/Akt/ GSK3 or PI3/Akt/CREB/BDNF Signaling Pathways.
7. Reddy AP, Sawant N, Morton H, Kshirsagar S, Bunquin LE, Yin X, et al. Selective serotonin reuptake inhibitor citalopram ameliorates cognitive decline and protects against amyloid beta-induced mitochondrial dynamics, biogenesis, autophagy, mitophagy and synaptic toxicities in a mouse model of Alzheimer's disease. *Hum Mol Genet.* 2021 May 1;30(9):789–810.
8. Muchtaridi M, Low K, Lestari K. The in silico study of nutmeg seeds (*Myristica fragrans* Houtt) as peroxisome proliferator activated receptor gamma activator using 3D-QSAR pharmacophore modelling. *J Appl Pharm Sci.* 2016;6(9):048–53.
9. Xu L, Long J, Su Z, Xu B, Lin M, Chen Y, et al. Restored presynaptic synaptophysin and cholinergic inputs contribute to the protective effects of physical running on spatial memory in aged mice. *Neurobiol Dis.* 2019 Dec 1;132.

10. Liu C, Kaeser PS. Mechanisms and regulation of dopamine release. Vol. 57, *Current Opinion in Neurobiology*. Elsevier Ltd; 2019. p. 46–53.
11. Cardanho-Ramos C, Morais VA. Mitochondrial biogenesis in neurons: How and where. Vol. 22, *International Journal of Molecular Sciences*. MDPI; 2021.
12. Quinn R. Comparing rat's to human's age: How old is my rat in people years? Vol. 21, *Nutrition*. 2005. p. 775–7.
13. Bear M, Connors B. *Neuroscience : Exploring the Brain*.
14. Carlson NRBMA,, .Birkett MA,, Physiology of Behavior. 12th Edition. Essex, England: Pearson Education Limited; 2017.
15. Sadler T W. Langman Embriologi Kedokteran. 12th ed. Jakarta: EGC;
16. Sanes DH, Reh TA, Harris WA. Development of the Nervous System. 3rd ed. Amsterdam: Academic Press – Elsevier; 2012. 1–341 p.
17. Wycoco V, Shroff M, Sudhakar S, Lee W. White Matter Anatomy What the Radiologist Needs to Know. . *Neuroimag Clin N Am* . 2013;23:197–216.
18. Mc Lean P. The Triune Brain in Evolution : Role in Paleocerebral Function. New York: Plenum Press ; 1990. 19–30 p.
19. Rolls ET. The cingulate cortex and limbic systems for action, emotion, and memory. In: *Handbook of Clinical Neurology*. Elsevier B.V.; 2019. p. 23–37.
20. Kino T. Stress, glucocorticoid hormones, and hippocampal neural progenitor cells: Implications to mood disorders. Vol. 6, *Frontiers in Physiology*. Frontiers Media S.A.; 2015. p. 230.
21. Chauhan P, Kinjal Jethwa •, Rathawa • Ashish, Chauhan G, Mehra S. The Anatomy of the Hippocampus.
22. Kamali A, Milosavljevic S, Gandhi A, Lano KR, Shobeiri P, Sherbaf FG, et al. The Cortico-Limbo-Thalamo-Cortical Circuits: An Update to the Original Papez Circuit of the Human Limbic System. *Brain Topography*. Springer; 2023.
23. Esteves IM, Chang H, Neumann AR, Sun J, Mohajerani MH, McNaughton BL. Spatial information encoding across multiple neocortical regions depends on an intact hippocampus. *Journal of Neuroscience*. 2021 Jan 13;41(2):307–19.
24. Hauser J, Luis H., López L. Small lesions of the dorsal or ventral hippocampus subregions are associated with distinct impairments in

- working memory and reference memory retrieval, and combining them attenuates the acquisition rate of spatial reference memory. *Hippocampus*. 2020;1–20.
25. Sakai J. How synaptic pruning shapes neural wiring during development and, possibly, in disease. *Proc Natl Acad Sci U S A*. 2020 Jul 14;117(28):16096–9.
 26. Seralynne D. Vann, Andrew J.D. Nelson. The mammillary bodies and memory: more than a hippocampal relay. *Prog Brain Res*. 2015;
 27. Young P.A, Young P.H, Tolbert D.A. Basic Clinical Neuroscience. 3 ed. Wolters Kluwer; 2015.
 28. Mescher A, editor. Junqueira "s Basic Histology Text and Atlas. 15 ed. Lange, Mc Graw Hill; 2018.
 29. Teleanu RI, Niculescu AG, Roza E, Vladâncenco O, Grumezescu AM, Teleanu DM. Neurotransmitters—Key Factors in Neurological and Neurodegenerative Disorders of the Central Nervous System. Vol. 23, International Journal of Molecular Sciences. MDPI; 2022.
 30. Binotti B, Jahn R, Pérez-Lara Á. An overview of the synaptic vesicle lipid composition. Vol. 709, Archives of Biochemistry and Biophysics. Academic Press Inc.; 2021.
 31. Liu C, Kaeser PS. Mechanisms and regulation of dopamine release. Vol. 57, Current Opinion in Neurobiology. Elsevier Ltd; 2019. p. 46–53.
 32. Thiel G. Synapsin I, Synapsin II, and Synaptophysin: Marker Proteins of Synaptic Vesicles. Vol. 3, Brain Pathology. 1993.
 33. Sauvola CW, Littleton JT. SNARE Regulatory Proteins in Synaptic Vesicle Fusion and Recycling. Vol. 14, Frontiers in Molecular Neuroscience. Frontiers Media S.A.; 2021.
 34. Chanaday NL, Cousin MA, Milosevic I, Watanabe S, Morgan JR. The synaptic vesicle cycle revisited: New insights into the modes and mechanisms. In: *Journal of Neuroscience*. Society for Neuroscience; 2019. p. 8209–16.
 35. Gemmel M, Rayen I, Lotus T, van Donkelaar E, Steinbusch HW, de Lacalle S, et al. Developmental fluoxetine and prenatal stress effects on serotonin, dopamine, and synaptophysin density in the PFC and hippocampus of offspring at weaning. *Dev Psychobiol*. 2016 Apr 1;58(3):315–27.

36. Beaulieu JM, Gainetdinov RR. The physiology, signaling, and pharmacology of dopamine receptors. Vol. 63, Pharmacological Reviews. 2011. p. 182–217.
37. Kurzina NP, Aristova IY, Volnova AB, Gainetdinov RR. Deficit in working memory and abnormal behavioral tactics in dopamine transporter knockout rats during training in the 8-arm maze. Behavioural Brain Research. 2020 Jul 15;390.
38. Anastasiades PG, Boada C, Carter AG. Cell-Type-Specific D1 Dopamine Receptor Modulation of Projection Neurons and Interneurons in the Prefrontal Cortex. Cerebral Cortex. 2019 Jul 1;29(7):3224–42.
39. Wang M, Datta D, Enwright J, Galvin V, Yang ST, Paspalas C, et al. A novel dopamine D1 receptor agonist excites delay-dependent working memory-related neuronal firing in primate dorsolateral prefrontal cortex. Neuropharmacology. 2019 May 15;150:46–58.
40. Oda S, Funato H. D1- and D2-type dopamine receptors are immunolocalized in pial and layer I astrocytes in the rat cerebral cortex. Front Neuroanat. 2023;17.
41. Cardanho-Ramos C, Morais VA. Mitochondrial biogenesis in neurons: How and where. Vol. 22, International Journal of Molecular Sciences. MDPI; 2021.
42. Dedov VN, Dedova I V., Armati PJ. Transport of mitochondria during axonogenesis. IUBMB Life. 2000;49(6):549–52.
43. Wang J, Liu WJ, Shi HZ, Zhai HR, Qian JJ, Zhang WN. A Role for PGC-1 α in the Control of Abnormal Mitochondrial Dynamics in Alzheimer’s Disease. Cells. 2022 Sep 1;11(18).
44. Wenz T. Mitochondria and PGC-1 α in aging and age-associated diseases. Vol. 2011, Journal of Aging Research. 2011.
45. Kuczynska Z, Metin E, Liput M, Buzanska L. Covering the role of pgc-1 α in the central nervous system. Vol. 11, Cells. MDPI; 2022.
46. Luo JS, Ning JQ, Chen ZY, Li WJ, Zhou RL, Yan RY, et al. The Role of Mitochondrial Quality Control in Cognitive Dysfunction in Diabetes. Vol. 47, Neurochemical Research. Springer; 2022. p. 2158–72.
47. Ló Pez-Lluch G, Hunt N, Jones B, Zhu M, Jamieson H, Hilmer S, et al. Calorie restriction induces mitochondrial biogenesis and bioenergetic efficiency [Internet]. 2005. Available from: www.pnas.org/cgi/doi/10.1073/pnas.0510452103

48. Park J, Kim J, Mikami T. Exercise-Induced Lactate Release Mediates Mitochondrial Biogenesis in the Hippocampus of Mice via Monocarboxylate Transporters. *Front Physiol.* 2021 Sep 16;12.
49. McCann RF, Ross DA. A Fragile Balance: Dendritic Spines, Learning, and Memory. Vol. 82, *Biological Psychiatry*. Elsevier USA; 2017. p. e11–3.
50. Cheng A, Wan R, Yang JL, Kamimura N, Son TG, Ouyang X, et al. Involvement of PGC-1 α in the formation and maintenance of neuronal dendritic spines. *Nat Commun.* 2012;3.
51. Basilotta R, Lanza M, Casili G, Chisari G, Munao S, Colarossi L, et al. Potential Therapeutic Effects of PPAR Ligands in Glioblastoma. Vol. 11, *Cells*. MDPI; 2022.
52. Mirza AZ, Althagafi II, Shamshad H. Role of PPAR receptor in different diseases and their ligands: Physiological importance and clinical implications. Vol. 166, *European Journal of Medicinal Chemistry*. Elsevier Masson s.r.l.; 2019. p. 502–13.
53. Prashantha Kumar BR, Kumar AP, Jose JA, Prabitha P, Yuvaraj S, Chipurupalli S, et al. Minutes of PPAR- γ agonism and neuroprotection. Vol. 140, *Neurochemistry International*. Elsevier Ltd; 2020.
54. Heneka MT, Landreth GE. PPARs in the brain. Vol. 1771, *Biochimica et Biophysica Acta - Molecular and Cell Biology of Lipids*. 2007. p. 1031–45.
55. Pa P, Justin A, Ananda Kumar TD, Chinaswamy M, Kumar BRP. Glitazones Activate PGC-1 α Signaling via PPAR- γ : A Promising Strategy for Antiparkinsonism Therapeutics. Vol. 12, *ACS Chemical Neuroscience*. American Chemical Society; 2021. p. 2261–72.
56. Binder DK, Scharfman HE. Brain-derived Neurotrophic Factor.
57. De Vincenti AP, Ríos AS, Paratcha G, Ledda F. Mechanisms that modulate and diversify BDNF functions: Implications for hippocampal synaptic plasticity. Vol. 13, *Frontiers in Cellular Neuroscience*. Frontiers Media S.A.; 2019.
58. Nikolic V, Nikolic L, Dinic A, Gajic I, Urosevic M, Stanojevic L, et al. Chemical Composition, Antioxidant and Antimicrobial Activity of Nutmeg (*Myristica fragrans* Houtt.) Seed Essential Oil. *Journal of Essential Oil-Bearing Plants*. 2021;24(2):218–27.
59. Ha MT, Vu NK, Tran TH, Kim JA, Woo MH, Min BS. Phytochemical and pharmacological properties of *Myristica fragrans* Houtt.: an updated review. Vol. 43, *Archives of Pharmacal Research*. Pharmaceutical Society of Korea; 2020. p. 1067–92.

60. SCREENING FOR PPAR γ AGONIST FROM MYRISTICA FRAGRANS HOUTT SEEDS FOR THE TREATMENT OF TYPE 2 DIABETES BY IN VITRO AND IN VIVO [Internet]. 2012. Available from: www.pradec.eu
61. Fitri YA, Priambodo D, Lestari K. FORMULASI TABLET DARI EKSTRAK BIJI PALA (Myristica fragrans Houtt.) BEBAS MIRISTISIN DAN SAFROL DENGAN METODE GRANULASI BASAH. Vol. V, JSTFI Indonesian Journal of Pharmaceutical Science and Technology. 2016.
62. Lestari K, Hwang J, Kariadi S, Wijaya A, Trihanggono A, Subarnas A, et al. Screening for Ppar Γ Agonist From M Yristica Fragrans H Outt Seeds for the Treatment of T Ype 2 Diabetes By in. Medical and Health Science Journal. 2012;12:7–15.
63. Gu L, Cai N, Li M, Bi D, Yao L, Fang W, et al. Inhibitory Effects of Macelignan on Tau Phosphorylation and A β Aggregation in the Cell Model of Alzheimer's Disease. *Front Nutr.* 2022 May 18;9.
64. Whishaw IQ, Kolb B. Analysis of behavior in laboratory rats. In: *The Laboratory Rat*. Elsevier; 2019. p. 215–42.
65. MAN0011792_NPER_Neuronal_Protein_Extract_Reag_UG.
66. Symbiosis SG, Mercer LP. *Nutritional Epigenetics*.
67. Park LK, Friso S, Choi SW. Nutritional influences on epigenetics and age-related disease. *Proceedings of the Nutrition Society*. 2012;71(1):75–83.
68. Smith MA, Scholey AB. Nutritional influences on human neurocognitive functioning. *Front Hum Neurosci.* 2014;8(May):1–2.
69. Sugii S, Evans RM. Epigenetic codes of PPAR c in metabolic disease. 2011;585(13):2121–8.
70. TH H, BP K, Razmovski V, BD R. - Herbal or natural medicines as modulators of peroxisome. *Basic Clin Pharmacol Toxicol.* 2005;96(1):3–14.
71. Brown JD, Plutzky J. Peroxisome proliferator-activated receptors as transcriptional nodal points and therapeutic targets. *Circulation*. 2007;115(4):518–33.
72. Moreno S, Farioli-vecchioli S, Cerù MP. Immunolocalization of peroxisome proliferator-activated receptors and retinoid X receptors in the adult rat CNS. *Neuroscience*. 2004;123(1):131–45.
73. Cheng A, Hou Y, Mattson MP. Mitochondria and Neuroplasticity. *ASN Neuro*. 2010;2(5):AN20100019.

74. Finck BN, Kelly DP. PGC-1 coactivators: Inducible regulators of energy metabolism in health and disease. *Journal of Clinical Investigation.* 2006;116(3):615–22.
75. Onyango IG, Lu J, Rodova M, Lezi E, Crafter AB, Swerdlow RH. Regulation of neuron mitochondrial biogenesis and relevance to brain health. *Biochim Biophys Acta Mol Basis Dis.* 2010;1802(1):228–34.
76. Sumiyoshi T, Kunugi H, Nakagome K. Serotonin and dopamine receptors in motivational and cognitive disturbances of schizophrenia. *Front Neurosci.* 2014;8(DEC):1–5.
77. Kiyofuji K, Kurauchi Y, Hisatsune A, Seki T, Mishima S, Katsuki H. A natural compound macelignan protects midbrain dopaminergic neurons from inflammatory degeneration via microglial arginase-1 expression. *Eur J Pharmacol.* 2015;760:129–35.
78. Kuroiwa M, Bateup HS, Shuto T, Higashi H, Tanaka M, Nishi A. Regulation of DARPP-32 phosphorylation by three distinct dopamine D 1-like receptor signaling pathways in the neostriatum. *J Neurochem.* 2008;107(4):1014–26.
79. Hyman C, Hofer M, al et. BDNF Is a Neurotrophic Factor for Dopaminergic Neurons of the Substantia Nigra. Vol. 350, *Nature.* 1991. p. 230–2.
80. Steiner JL, Angela Murphy E, McClellan JL, Carmichael MD, Mark Davis J. Exercise training increases mitochondrial biogenesis in the brain. *J Appl Physiol [Internet].* 2011;111:1066–71. Available from: <http://www.jap.org>
81. Zeng H, Sanes JR. Neuronal cell-type classification: Challenges, opportunities and the path forward. Vol. 18, *Nature Reviews Neuroscience.* Nature Publishing Group; 2017. p. 530–46.
82. McMeekin LJ, Bartley AF, Bohannon AS, Adlaf EW, van Groen T, Boas SM, et al. A Role for PGC-1 α in Transcription and Excitability of Neocortical and Hippocampal Excitatory Neurons. *Neuroscience.* 2020 May 21;435:73–94.
83. Muchtaridi M, Low K, Lestari K. The in silico study of nutmeg seeds (*Myristica fragrans* Houtt) as peroxisome proliferator activated receptor gamma activator using 3D-QSAR pharmacophore modelling. *J Appl Pharm Sci.* 2016;6(9):048–53.
84. Rossignoli CP, Dechandt CRP, Souza AO, Sampaio IH, Vicentini TM, Teodoro BG, et al. Effects of intermittent dietary supplementation with conjugated linoleic acid and fish oil (EPA/DHA) on body metabolism and mitochondrial energetics in mice. *Journal of Nutritional Biochemistry.* 2018 Oct 1;60:16–23.

85. McNamara CG, Dupret D. Two sources of dopamine for the hippocampus. Vol. 40, Trends in Neurosciences. Elsevier Ltd; 2017. p. 383–4.
86. Seaman KL, Smith CT, Juarez EJ, Dang LC, Castrellon JJ, Burgess LL, et al. Differential regional decline in dopamine receptor availability across adulthood: Linear and nonlinear effects of age. *Hum Brain Mapp*. 2019 Jul 1;40(10):3125–38.
87. Veronica F, Lubis L, Fitri L et al., A preliminary study of the effect of PPAR- γ agonist from Myristica fragrans houtt seed extract on the biogenesis of rat infant brain mitochondria and D1 dopamine receptor. *Bali medical Journal*. 2018. 7(3)
88. Muchtaridi M, Lestari K., In Silico Evaluation of Poten for PPAR- γ agonist of Lignan derivatives from Myristica fragrans Houtt Seeds. *Int J Pharm Pharm Sci*. 2014. Vol 6, Issue 1, 795-800.
89. Jaiswal P., Kumar P., Biological Effects of Muristica fragrans. *Annual Review of Biomedical Sciences*. 2009. 11:21-29
90. Zong K., Liu X., Macelignan inhibits the inflammatory respons of microglia and regulates neuronal survival. *Journal of neuroimmunology*. 2020. 339-345

