

DAFTAR PUSTAKA

- Abd El-Kader, S. M., & El-Den Ashmawy, E. M. S. 2015. Non-alcoholic fatty liver disease: The diagnosis and management. *World Journal of Hepatology*, 7(6), 846–858. <https://doi.org/10.4254/wjh.v7.i6.846>
- Abdel-Misih, S. R. Z., & Bloomston, M. 2010. Liver Anatomy. *Surgical Clinics of North America*, 90(4), 643–653. <https://doi.org/10.1016/j.suc.2010.04.017>
- Ahmed, M. 2015. Non-alcoholic fatty liver disease in 2015. *World Journal of Hepatology*, 7(11), 1450–1459. <https://doi.org/10.4254/wjh.v7.i11.1450>
- Allen SE. 2002. *The liver: Anatomy, Physiology, Disease and Treatment*. North Eastern University Press, USA.
- Aravinthan, A., Verma, S., Coleman, N., Davies, S., Allison, M., & Alexander, G. 2012. Vacuolation in hepatocyte nuclei is a marker of senescence. *Journal of Clinical Pathology*, 65(6), 557–560. <https://doi.org/10.1136/jclinpath-2011-200641>
- Aravinthan, A., Scarpini, C., Tachtatzis, P., Verma, S., Penrhyn-Lowe, S., Harvey, R., Davies, S. E., Allison, M., Coleman, N., & Alexander, G. 2013. Hepatocyte senescence predicts progression in non-alcohol-related fatty liver disease. *Journal of Hepatology*, 58(3), 549–556. <https://doi.org/10.1016/j.jhep.2012.10.031>
- Baumans V. 2007. The welfare of laboratory mice. In: Kaliste E. (eds) *The Welfare of Laboratory Animals. Animal Welfare*, vol 2. Springer, Dordrecht. https://doi.org/10.1007/978-1-4020-2271-5_7
- Bellentani, S., & Marino, M. 2009. Epidemiology and natural history of non-alcoholic fatty liver disease (NAFLD). *Annals of Hepatology*,

8(SUPPL. 1), S4–S8. [https://doi.org/10.1016/s1665-2681\(19\)31820-4](https://doi.org/10.1016/s1665-2681(19)31820-4)

- Bellentani, S., Scaglioni, F., Marino, M., & Bedogni, G. 2010. Epidemiology of non-alcoholic fatty liver disease. *Digestive Diseases*, 28(1), 155–161. <https://doi.org/10.1159/000282080>
- Bentz, A. B. 2017. A review of Quercetin: chemistry, Antioxident properties, and bioavailability. *Journal of young investigators*.
- Ble-Castillo, J. L., Aparicio-Trapala, M. A., Juárez-Rojop, I. E., Torres-Lopez, J. E., Mendez, J. D., Aguilar-Mariscal, H., Olvera-Hernández, V., Palma-Cordova, L. C., & Diaz-Zagoya, J. C. 2012. Differential effects of high-carbohydrate and high-fat diet composition on metabolic control and insulin resistance in normal rats. *International Journal of Environmental Research and Public Health*, 9(5), 1663–1676. <https://doi.org/10.3390/ijerph9051663>
- Bleby, J., & Festing, M., 1974. The Selection and Supply of Laboratory Animals. In: C.W. Hume (Eds.). *The UFAW Handbook on the Care and Management of Laboratory Animal*, Ed. 4th, pp. 47-4.
- Boesch-Saadatmandi, C., Wagner, A. E., Wolfram, S., & Rimbach, G. 2012. Effect of quercetin on inflammatory gene expression in mice liver in vivo—role of redox factor 1, miRNA-122 and miRNA-125b. *Pharmacological Research*, 65(5), 523-530.
- Brunt EM, Janney CG, Di Bisceglie AM, Neuschwander-Tetri BA, Bacon BR. 1999. Nonalcoholic steatohepatitis: a proposal for grading and staging the histological lesions. *Am J Gastroenterol* 94(9): 2467-2474. PMID: 10484010
- Brunt, E. M., Kleiner, D. E., Wilson, L. A., Belt, P., & Neuschwander-Tetri, B. A. 2011. Nonalcoholic fatty liver disease (NAFLD) activity score and the histopathologic diagnosis in NAFLD: Distinct

- clinicopathologic meanings. *Hepatology*, 53(3), 810–820.
<https://doi.org/10.1002/hep.24127>
- Campbell, M. S., & Reddy, K. R. 2004. Review article: The evolving role of liver biopsy. *Alimentary Pharmacology and Therapeutics*, 20(3), 249–259. <https://doi.org/10.1111/j.1365-2036.2004.02071.x>
- Chen, S. H., He, F., Zhou, H. L., Wu, H. R., Xia, C., & Li, Y. M. 2011. Relationship between nonalcoholic fatty liver disease and metabolic syndrome. *Journal of Digestive Diseases*, 12(2), 125–130.
<https://doi.org/10.1111/j.1751-2980.2011.00487.x>
- D’Andrea, G. 2015. Quercetin: A flavonol with multifaceted therapeutic applications? *Fitoterapia*, 106, 256–271.
<https://doi.org/10.1016/j.fitote.2015.09.018>.
- Dajas, F., Abin-Carriquiry, J. A., Arredondo, F., Blasina, F., Echeverry, C., Martínez, M., Vaamonde, L. 2015. Quercetin in brain diseases: Potential and limits. *Neurochemistry International*, 89, 140–148.
<https://doi.org/10.1016/j.neuint.2015.07.002>
- Dowman, J. K., Farrell, G. C., & Philip Newsome. 2016. NAFLD: A worldwide problem. *Clinical Dilemmas in Non-Alcoholic Fatty Liver Disease*, 8–14.
- Du, Z., Yang, Y., Hu, Y., Sun, Y., Zhang, S., Peng, W. Kong, W. 2012. A long-term high-fat diet increases oxidative stress, mitochondrial damage and apoptosis in the inner ear of d-galactose-induced aging rats. *Hearing Research*, 287(1–2), 15–24.
<https://doi.org/10.1016/j.heares.2012.04.012>
- Dyson, J. K., Anstee, Q. M., & McPherson, S. 2015. Non-alcoholic fatty liver disease: A practical approach to treatment. *Postgraduate Medical Journal*, 91(1072), 92–101.
<https://doi.org/10.1136/postgradmedj-2013-100404rep>

- Eroschenko, V. P. 2017. *Atlas of Histology with Functional Correlations*. Wolters Kluwer.
<https://books.google.co.id/books?id=X3wajwEACAAJ>
- Esler, W. P., & Bence, K. K. 2019. Metabolic targets in nonalcoholic fatty liver disease. *Cellular and molecular gastroenterology and hepatology*, 8(2), 247-267.
- Farrell, G. C., Wong, V. W. S., & Chitturi, S. 2013. NAFLD in Asia -As common and important as in the West. *Nature Reviews Gastroenterology and Hepatology*, 10(5), 307–318.
<https://doi.org/10.1038/nrgastro.2013.34>
- Ferramosca, A., Di Giacomo, M., & Zara, V. 2017. Antioxidant dietary approach in treatment of fatty liver: New insights and updates. *World Journal of Gastroenterology*, 23(23), 4146–4157.
<https://doi.org/10.3748/wjg.v23.i23.4146>
- Gaggini, M., Morelli, M., Buzzigoli, E., DeFronzo, R. A., Bugianesi, E., & Gastaldelli, A. 2013. Non-alcoholic fatty liver disease (NAFLD) and its connection with insulin resistance, dyslipidemia, atherosclerosis and coronary heart disease. *Nutrients*, 5(5), 1544-1560.
- Gelen, V., Şengül, E., Gedikli, S., Atila, G., Uslu, H., & Makav, M. 2017. The protective effect of rutin and quercetin on 5-FU-induced hepatotoxicity in rats. *Asian Pacific Journal of Tropical Biomedicine*, 7(7), 647–653.
<https://doi.org/10.1016/j.apjtb.2017.06.013>
- Hashimoto, E., Taniai, M., & Tokushige, K. 2013. Characteristics and diagnosis of NAFLD/NASH. *Journal of Gastroenterology and Hepatology (Australia)*, 28(S4), 64–70.
<https://doi.org/10.1111/jgh.12271>
- Hermanto, S., Muawanah, A., & Harahap, R. 2008. Profil dan Karakteristik Lemak Hewani (Ayam, Sapi dan Babi) Hasil Analisa FTIR dan

- GCMS. *Jurnal Kimia VALENSI*, 1(3), 102–109.
<https://doi.org/10.15408/jkv.v1i3.219>
- Hoek-van Den Hil, E. F., Van Schothorst, E. M., Van Der Stelt, I., Swarts, H. J. M., Venema, D., Sailer, M., Vervoort, J. J. M., Hollman, P. C. H., Rietjens, I. M. C. M., & Keijer, J. 2014. Quercetin decreases high-fat diet induced body weight gain and accumulation of hepatic and circulating lipids in mice. *Genes and Nutrition*, 9(5).
<https://doi.org/10.1007/s12263-014-0418-2>
- Huang, X., Sun, M., Li, D., Liu, J., Guo, H., Dong, Y., ... Li, J. 2011. Augmented NADPH oxidase activity and p22phox expression in monocytes underlie oxidative stress of patients with type 2 diabetes mellitus. *Diabetes Research and Clinical Practice*, 91(3), 371–380.
<https://doi.org/10.1016/j.diabres.2010.12.026>
- Hübscher, S. G. 2006. Histological assessment of non-alcoholic fatty liver disease. *Histopathology*, 49(5), 450–465.
<https://doi.org/10.1111/j.1365-2559.2006.02416.x>
- Ipsen, D. H., Lykkesfeldt, J., & Tveden-Nyborg, P. 2018. Molecular mechanisms of hepatic lipid accumulation in non-alcoholic fatty liver disease. *Cellular and Molecular Life Sciences*, 75(18), 3313–3327.
<https://doi.org/10.1007/s00018-018-2860-6>
- Iqbal, U., Perumpail, B., Akhtar, D., Kim, D., & Ahmed, A. 2019. The Epidemiology, Risk Profiling and Diagnostic Challenges of Nonalcoholic Fatty Liver Disease. *Medicines*, 6(1), 41.
<https://doi.org/10.3390/medicines6010041>
- Ishizawa, K., Yoshizumi, M., Kawai, Y., Terao, J., Kihira, Y., Ikeda, Y., Tomita, S., Minakuchi, K., Tsuchiya, K., & Tamaki, T. 2011. Pharmacology in health food: Metabolism of quercetin in vivo and its protective effect against arteriosclerosis. *Journal of*

- Pharmacological Sciences*, 115(4), 466–470.
<https://doi.org/10.1254/jphs.10R38FM>
- Jornayvaz, F. R., Jurczak, M. J., Lee, H. Y., Birkenfeld, A. L., Frederick, D. W., Zhang, D., Zhang, X. M., Samuel, V. T., & Shulman, G. I. 2010. A high-fat, ketogenic diet causes hepatic insulin resistance in mice, despite increasing energy expenditure and preventing weight gain. *American Journal of Physiology - Endocrinology and Metabolism*, 299(5), 808–815. <https://doi.org/10.1152/ajpendo.00361.2010>
- Jornayvaz, F. R., & Shulman, G. I. 2010. Regulation of mitochondrial biogenesis. *Essays in Biochemistry*, 47, 69–84. <https://doi.org/10.1042/BSE0470069>
- Jung, C. H., Cho, I., Ahn, J., Jeon, T. Il, & Ha, T. Y. 2013. Quercetin reduces high-fat diet-induced fat accumulation in the liver by regulating lipid metabolism genes. *Phytotherapy Research*, 27(1), 139–143. <https://doi.org/10.1002/ptr.4687>
- Jurnalis, Y. D., Sayoeti, Y., & Elfitrimelly. 2014. Peran Antioksidan pada Non-Alcoholic Fatty Liver Disease (NAFLD). *Jurnal Kesehatan Andalas*, 3(1), 15–20.
- Kammoun, H. L. et al. 2009 ‘GR 78 e ressiion inhibits insulin and ER stress induced SREB 1c activation and reduces hepatic steatosis in mice’, *The Journal of Clinical investigation*, 119(5), pp. 1201–1215. doi: 10.1172/JCI37007DS1.
- Kaplan J.B., Kalra A., Biggins S.W. 2017 Liver Anatomy and Function. In: Meyer J., Schefter T. (eds) *Radiation Therapy for Liver Tumors*. Springer, Cham. https://doi.org/10.1007/978-3-319-54531-8_1
- Ke, M., & Raju, S. 2014. Comparative histology of human and cow, goat and sheep liver. *Journal of Surgical Academia*, 4(1), 10–13.
- Kelly, G. S. 2009. Quercitin. *Dictionary of Gems and Gemology*, 16(2), 708–708. https://doi.org/10.1007/978-3-540-72816-0_17927

- Kleiner, D. E., Brunt, E. M., Van Natta, M., Behling, C., Contos, M. J., Cummings, O. W., ... Sanyal, A. J. 2005. Design and validation of a histological scoring system for nonalcoholic fatty liver disease. *Hepatology*, 41(6), 1313–1321. <https://doi.org/10.1002/hep.20701>
- Kobori M, Masumoto S, Akimoto Y, Oike H. 2011. Chronic dietary intake of quercetin alleviates hepatic fat accumulation associated with consumption of a Western-style diet in C57/BL6J mice. *Mol Nutr Food Res* 55: 530–540.
- Koo, S. H. 2013. Nonalcoholic fatty liver disease: molecular mechanisms for the hepatic steatosis. *Clinical and Molecular Hepatology*, 19(3), 210–215. <https://doi.org/10.3350/cmh.2013.19.3.210>
- Kwon, Y. M., Oh, S. W., Hwang, S. S., Lee, C., Kwon, H., & Chung, G. E. 2012. Association of nonalcoholic fatty liver disease with components of metabolic syndrome according to body mass index in Korean adults. *American Journal of Gastroenterology*, 107(12), 1852–1858. <https://doi.org/10.1038/ajg.2012.314>
- Lackner, C. 2011. Hepatocellular ballooning in nonalcoholic steatohepatitis: The pathologist's perspective. *Expert Review of Gastroenterology and Hepatology*, 5(2), 223–231. <https://doi.org/10.1586/egh.11.8>
- Lakhanpal, P., & Rai, D. K. 2007. Quercetin: A Versatile Flavonoid. *Internet Journal of Medical Update - EJOURNAL*, 2(2), 22–37. <https://doi.org/10.4314/ijmu.v2i2.39851>
- Lefkowitz, J. H. 2018. Chapter 1 Anatomy and Function. *Sherlock's Diseases of the Liver and Biliary System*, 12th Edition, 1–19.
- Levene, A. P., & Goldin, R. D. 2010. Physiological hepatic nuclear vacuolation - How long does it persist? *Histopathology*, 56(4), 426–429. <https://doi.org/10.1111/j.1365-2559.2010.03501.x>

- Levene, A. P., & Goldin, R. D. 2012. The epidemiology, pathogenesis and histopathology of fatty liver disease. *Histopathology*, 61(2), 141–152. <https://doi.org/10.1111/j.1365-2559.2011.04145.x>
- LI, X., WANG, R., ZHOU, N., WANG, X., LIU, Q., BAI, Y., ... SHI, T. 2013. Quercetin improves insulin resistance and hepatic lipid accumulation in vitro in a NAFLD cell model. *Biomedical Reports*, 1(1), 71–76. <https://doi.org/10.3892/br.2012.27>
- Licholai, J. A., Nguyen, K. P., Fobbs, W. C., Schuster, C. J., Ali, M. A., & Kravitz, A. V. 2018. Why Do Mice Overeat High-Fat Diets? How High-Fat Diet Alters the Regulation of Daily Caloric Intake in Mice. *Obesity*, 26(6), 1026–1033. <https://doi.org/10.1002/oby.22195>
- Lin, S. Y., Wang, Y. Y., Chen, W. Y., Chuang, Y. H., Pan, P. H., & Chen, C. J. 2014. Beneficial effect of quercetin on cholestatic liver injury. *Journal of Nutritional Biochemistry*, 25(11), 1183–1195. <https://doi.org/10.1016/j.jnutbio.2014.06.003>
- Liu, C. J. 2012. Prevalence and risk factors for non-alcoholic fatty liver disease in Asian people who are not obese. *Journal of Gastroenterology and Hepatology (Australia)*, 27(10), 1555–1560. <https://doi.org/10.1111/j.1440-1746.2012.07222.x>
- Liu, P., Lin, H., Xu, Y., Zhou, F., Wang, J., Liu, J., Zhu, X., Guo, X., Tang, Y., & Yao, P. 2018. Frataxin-Mediated PINK1–Parkin-Dependent Mitophagy in Hepatic Steatosis: The Protective Effects of Quercetin. *Molecular Nutrition and Food Research*, 62(16), 1–40. <https://doi.org/10.1002/mnfr.201800164>
- Lonardo, A., Nascimbeni, F., Maurantonio, M., Marrazzo, A., Rinaldi, L., & Adinolfi, L. E. 2017. Nonalcoholic fatty liver disease: Evolving paradigms. *World Journal of Gastroenterology*, 23(36), 6571–6592. <https://doi.org/10.3748/wjg.v23.i36.6571>

- Loomba, R., & Sanyal, A. J. 2013. The global NAFLD epidemic. *Nature Reviews Gastroenterology and Hepatology*, 10(11), 686–690. <https://doi.org/10.1038/nrgastro.2013.171>
- Machado, M. V., & Cortez-Pinto, H. 2014. Non-alcoholic fatty liver disease: What the clinician needs to know. *World Journal of Gastroenterology*, 20(36), 12956–12980. <https://doi.org/10.3748/wjg.v20.i36.12956>
- Macotela, Y., Boucher, J., Tran, T. T., & Kahn, C. R. 2009. Sex and depot differences in adipocyte insulin sensitivity and glucose. *Diabetes*, 58(4), 803–812. <https://doi.org/10.2337/db08-1054>
- Malarkey, D. E., Johnson, K., Ryan, L., Boorman, G., & Maronpot, R. R. 2005. New Insights into Functional Aspects of Liver Morphology. *Toxicologic Pathology*, 33(1), 27–34. <https://doi.org/10.1080/01926230590881826>
- Manco, M. 2017. Insulin Resistance and NAFLD: A Dangerous Liaison beyond the Genetics. *Children*, 4(8), 74. <https://doi.org/10.3390/children4080074>
- Mariani, C et al. 2008. Flavonoid characterization and in vitro antioxidant activity of Aconitum anthora L. (Ranunculaceae). *Phytochemistry* 69: 1220-1226.
- Masarone, M., Rosato, V., Dallio, M., & Gravina, A. G. 2018. Role of oxidative stress in pathophysiology of nonalcoholic fatty liver disease. *Oxidative Medicine and Cellular Longevity*, 2018, 9547613. <https://doi.org/10.1155/2018/9547613>
- Matteoni, C. A., Younossi, Z. M., Gramlich, T., Boparai, N., Yao Chang Liu, & McCullough, A. J. 1999. Nonalcoholic fatty liver disease: A spectrum of clinical and pathological severity. *Gastroenterology*, 116(6), 1413–1419. [https://doi.org/10.1016/S0016-5085\(99\)70506-8](https://doi.org/10.1016/S0016-5085(99)70506-8)

- Mescher, Anthony. 2016. *Junqueira's Basic Histology Text & Atlas* (14th ed.). McGraw-Hill Medical
- Michalopoulos, G. K., & DeFrances, M. 2005. Liver regeneration. *Advances in Biochemical Engineering/Biotechnology*, 93, 101–134. <https://doi.org/10.1007/b99968>
- Michalopoulos, G. K. 2017. Hepatostat: Liver regeneration and normal liver tissue maintenance. *Hepatology*, 65(4), 1384–1392. <https://doi.org/10.1002/hep.28988>
- Miltonprabu, S., Tomczyk, M., Skalicka-Woźniak, K., Rastrelli, L., Daglia, M., Nabavi, S. F., ... Nabavi, S. M. 2016. Hepatoprotective effect of quercetin: From chemistry to medicine. *Food and Chemical Toxicology*, 108, 365–374. <https://doi.org/10.1016/j.fct.2016.08.034>
- Mishra, A., & Younossi, Z. M. 2012. Epidemiology and Natural History of Non-alcoholic Fatty Liver Disease. *Journal of Clinical and Experimental Hepatology*, 2(2), 135–144. [https://doi.org/10.1016/S0973-6883\(12\)60102-9](https://doi.org/10.1016/S0973-6883(12)60102-9)
- Miura, S., & Suzuki, A. 2020. Induction of Steatohepatitis and Liver Tumorigenesis by Enforced Snail Expression in Hepatocytes. *American Journal of Pathology*, 190(6), 1271–1283. <https://doi.org/10.1016/j.ajpath.2020.02.005>
- Mori, T., Imaida, K., Tamano, S., Sano, M., Takahashi, S., Asamoto, M., ... Shirai, T. 2001. Beef tallow, but not perilla or corn oil, promotion of rat prostate and intestinal carcinogenesis by 3,2-dimethyl-4-aminobiphenyl. *Japanese Journal of Cancer Research*, 92(10), 1026–1033. <https://doi.org/10.1111/j.1349-7006.2001.tb01056.x>
- Nalbantoglu, I., & Brunt, E. M. 2014. Role of liver biopsy in nonalcoholic fatty liver disease. *World Journal of Gastroenterology*, 20(27), 9026–9037. <https://doi.org/10.3748/wjg.v20.i27.9026>

- O'Brien, M. A., & Kirby, R. 2008. Apoptosis: A review of pro-apoptotic and anti-apoptotic pathways and dysregulation in disease. *Journal of Veterinary Emergency and Critical Care*, 18(6), 572–585. <https://doi.org/10.1111/j.1476-4431.2008.00363.x>
- Paradies, G., Paradies, V., Ruggiero, F. M., & Petrosillo, G. 2014. Oxidative stress, cardiolipin and mitochondrial dysfunction in nonalcoholic fatty liver disease. *World Journal of Gastroenterology*, 20(39), 14205–14218. <https://doi.org/10.3748/wjg.v20.i39.14205>
- Porras, D., Nistal, E., Martínez-Flórez, S., Pisonero-Vaquero, S., Olcoz, J. L., Jover, R., González-Gallego, J., García-Mediavilla, M. V., & Sánchez-Campos, S. 2017. Protective effect of quercetin on high-fat diet-induced non-alcoholic fatty liver disease in mice is mediated by modulating intestinal microbiota imbalance and related gut-liver axis activation. *Free Radical Biology and Medicine*, 102 (November 2016), 188–202. <https://doi.org/10.1016/j.freeradbiomed.2016.11.037>
- Piacentini, M., Baiocchi, A., Del Nonno, F., Melino, G., Barlev, N. A., Rossin, F., D'Eletto, M., & Falasca, L. 2018. Non-alcoholic fatty liver disease severity is modulated by transglutaminase type 2 article. *Cell Death and Disease*, 9(3). <https://doi.org/10.1038/s41419-018-0292-8>
- Pisonero-Vaquero, S., Martínez-Ferreras, Á., García-Mediavilla, M. V., Martínez-Flórez, S., Fernández, A., Benet, M., ... & Sánchez-Campos, S. 2015. Quercetin ameliorates dysregulation of lipid metabolism genes via the PI3K/AKT pathway in a diet-induced mouse model of nonalcoholic fatty liver disease. *Molecular nutrition & food research*, 59(5), 879-893
- Rolo, A. P., Teodoro, J. S., & Palmeira, C. M. 2012. Role of oxidative stress in the pathogenesis of nonalcoholic steatohepatitis. *Free Radical*

- Biology and Medicine*, 52(1), 59–69.
<https://doi.org/10.1016/j.freeradbiomed.2011.10.003>
- Rosqvist, F., Iggman, D., Kullberg, J., Cedernaes, J., Johansson, H. E., Larsson, A., ... Risérus, U. 2014. Overfeeding polyunsaturated and saturated fat causes distinct effects on liver and visceral fat accumulation in humans. *Diabetes*, 63(7), 2356–2368.
<https://doi.org/10.2337/db13-1622>
- Ruiz, M. J., Fernández, M., Picó, Y., Mañes, J., Asensi, M., Carda, C., Asensio, G., & Estrela, J. M. 2009. Dietary administration of high doses of pterostilbene and quercetin to mice is not toxic. *Journal of Agricultural and Food Chemistry*, 57(8), 3180–3186.
<https://doi.org/10.1021/jf803579e>
- Salt, W. B. 2004. Nonalcoholic fatty liver disease (NAFLD): a comprehensive review. *Journal of Insurance Medicine (New York, N.Y.)*, 36(1), 27–41.
- Santhekadur, P. K., Kumar, D. P., & Sanyal, A. J. 2018. Preclinical models of non-alcoholic fatty liver disease. *Journal of Hepatology*, 68(2), 230–237. <https://doi.org/10.1016/j.jhep.2017.10.031>
- Schattenberg, J. M., Galle, P. R., & Schuchmann, M. 2006. Apoptosis in liver disease. *Liver International*, 26(8), 904–911.
<https://doi.org/10.1111/j.1478-3231.2006.01324.x>
- Schwenger, K. J. P., & Allard, J. P. 2014. Clinical approaches to non-alcoholic fatty liver disease. *World Journal of Gastroenterology*, 20(7), 1712–1723. <https://doi.org/10.3748/wjg.v20.i7.1712>
- Serrano, J., Cassanye, A., Martín-Gari, M., Granado-Serrano, A., & Portero-Otín, M. 2016. Effect of Dietary Bioactive Compounds on Mitochondrial and Metabolic Flexibility. *Diseases*, 4(1), 14.
<https://doi.org/10.3390/diseases4010014>

- Song, Z., Xiaoli, A. M., & Yang, F. 2018. Regulation and metabolic significance of De Novo lipogenesis in adipose tissues. *Nutrients*, 10(10), 1–22. <https://doi.org/10.3390/nu10101383>
- Tilg, H., Moschen, A. R., & Roden, M. 2017. NAFLD and diabetes mellitus. *Nature Reviews Gastroenterology and Hepatology*, 14(1), 32–42. <https://doi.org/10.1038/nrgastro.2016.147>
- Tapia, G., Valenzuela, R., Espinosa, A., Romanque, P., Dossi, C., Gonzalez-Mañán, D., Videla, L. A., & D'Espessailles, A. 2014. N-3 long-chain PUFA supplementation prevents high fat diet induced mouse liver steatosis and inflammation in relation to PPAR- α upregulation and NF- κ B DNA binding abrogation. *Molecular Nutrition and Food Research*, 58(6), 1333–1341. <https://doi.org/10.1002/mnfr.201300458>
- Tveden-Nyborg, P., Birck, M. M., Ipsen, D. H., Thiessen, T., Feldmann, L. de B., Lindblad, M. M., Lykkesfeldt, J. 2016. Diet-induced dyslipidemia leads to nonalcoholic fatty liver disease and oxidative stress in guinea pigs. *Translational Research*, 168, 146–160. <https://doi.org/10.1016/j.trsl.2015.10.001>
- Ucar, F., Sezer, S., Erdogan, S., Akyol, S., Armutcu, F., & Akyol, O. 2013. The relationship between oxidative stress and nonalcoholic fatty liver disease: Its effects on the development of nonalcoholic steatohepatitis. *Redox Report*, 18(4), 127–133. <https://doi.org/10.1179/1351000213Y.0000000050>
- Umehar, T. 2018. Nonalcoholic fatty liver disease with elevated alanine aminotransferase levels is negatively associated with bone mineral density: Crosssectional study in U.S. adults. *PLoS ONE*, 13(6), 1–16. <https://doi.org/10.1371/journal.pone.0197900>

- Van Herck, M. A., Vonghia, L., & Francque, S. M. 2017. Animal models of nonalcoholic fatty liver disease—a starter’s guide. *Nutrients*, 9(10), 1–13. <https://doi.org/10.3390/nu9101072>
- VanSaun, M. N., In, K. L., Washington, M. K., Matrisian, L., & Gorden, D. L. 2009. High fat diet induced hepatic steatosis establishes a permissive microenvironment for colorectal metastases and promotes primary dysplasia in a murine model. *American Journal of Pathology*, 175(1), 355–364. <https://doi.org/10.2353/ajpath.2009.080703>
- Wong, S. W., Ting, Y. W., & Chan, W. K. 2018. Epidemiology of non-alcoholic fatty liver disease-related hepatocellular carcinoma and its implications. *JGH Open*, 2(5), 235–241. <https://doi.org/10.1002/jgh3.12070>
- Wong, V. W. S., & Singal, A. K. 2019. Emerging medical therapies for non-alcoholic fatty liver disease and for alcoholic hepatitis. *Translational Gastroenterology and Hepatology*, 4(July). <https://doi.org/10.21037/tgh.2019.06.06>
- Wu, J., You, J., Yerian, L., Shiba, A., Schauer, P. R., & Sessler, D. I. 2012. Prevalence of liver steatosis and fibrosis and the diagnostic accuracy of ultrasound in bariatric surgery patients. *Obesity Surgery*, 22(2), 240–247. <https://doi.org/10.1007/s11695-011-0509-8>
- Xu, Y., Han, J., Dong, J., Fan, X., Cai, Y., Li, J., Shang, J. 2019. Metabolomics characterizes the effects and mechanisms of quercetin in nonalcoholic fatty liver disease development. *International Journal of Molecular Sciences*, 20(5). <https://doi.org/10.3390/ijms20051220>
- Yoon No, D., Lee, K. H., Lee, J., & Lee, S. H. 2015. 3D liver models on a microplatform: well-defined culture, engineering of liver tissue and

liver-on-a-chip. *Lab on a Chip*, 15(19), 3822–3837.
<https://doi.org/10.1039/c5lc00611b>

Zainuddin, M., 2014. *Metodologi Penelitian Kefarmasian dan Kesehatan*.

Edisi ke-2, Surabaya: Airlangga University Press

Zebua, F. Y., Hasta Mulyani, S., & Endah, M. H. 2012. Pemodelan Deteksi Penyakit Sirosis Hati Dengan Menggunakan Jaringan Syaraf Tiruan. *Marselina Endah H*, 2(2), 51.