REFERENCES

Al-Mahmood, S.M., Razak, T.A., Abdullah, S.T., Fatnoon NA, N.N., Mohamed, A.H. and Al-Ani, I.M. (2016) 'A comprehensive study of chronic diabetes complications in streptozotocin-induced diabetic rat', *Makara Journal of Health Research*, 20(2).

Alisi, A., Carpino, G., Oliveira, F.L., Panera, N., Nobili, V. and Gaudio, E. (2017) 'The Role of Tissue Macrophage-Mediated Inflammation on NAFLD Pathogenesis and Its Clinical Implications', *Mediators of Inflammation*.

Alqarni, I., Bassiouni, Y.A., Badr, A.M. and Ali, R.A. (2019) 'Telmisartan and/or chlorogenic acid attenuates fructose-induced non-alcoholic fatty liver disease in rats: Implications of cross-talk between angiotensin, the sphingosine kinase/sphingoine-1-phosphate pathway, and TLR4 receptors', *Biochemical Pharmacology*, 164.

Amarante-Mendes, G.P., Adjemian, S., Branco, L.M., Zanetti, L.C., Weinlich, R. and Bortoluci, K.R. (2018) 'Pattern recognition receptors and the host cell death molecular machinery', *Frontiers in Immunology*.

Bagdas, D., Etoz, B.C., Gul, Z., Ziyanok, S., Inan, S., Turacozen, O., Gul, N.Y., Topal, A., Cinkilic, N., Tas, S., Ozyigit, M.O. and Gurun, M.S. (2015) 'In vivo systemic chlorogenic acid therapy under diabetic conditions: Wound healing effects and cytotoxicity/genotoxicity profile', *Food and Chemical Toxicology*, 81.

Bagdas, D., Gul, N.Y., Topal, A., Tas, S., Ozyigit, M.O., Cinkilic, N., Gul, Z., Etoz, B.C., Ziyanok, S., Inan, S., Turacozen, O. and Gurun, M.S. (2014) 'Pharmacologic overview of systemic chlorogenic acid therapy on experimental wound healing', *Naunyn-Schmiedeberg's Archives of Pharmacology*, 387(11).

Bisht, A., Dickens, M., Rutherfurd-Markwick, K., Thota, R., Mutukumira, A.N. and Singh, H. (2020) 'Chlorogenic acid potentiates the anti-inflammatory activity of curcumin in LPS-stimulated THP-1 cells', *Nutrients*, 12(9).

Braunersreuther, V., Viviani, G.L., Mach, F. and Montecucco, F. (2012) 'Role of cytokines and chemokines in non-alcoholic fatty liver disease', *World Journal of Gastroenterology*.

Cai, D., Yuan, M., Frantz, D.F., Melendez, P.A., Hansen, L., Lee, J. and Shoelson, S.E. (2005) 'Local and systemic insulin resistance resulting from hepatic activation of IKK-β and NF-κB', *Nature Medicine*, 11(2).

Chen, Y.L., Qiao, Y.C., Pan, Y.H., Xu, Y., Huang, Y.C., Wang, Y.H., Geng, L.J., Zhao, H.L. and Zhang, X.X. (2017) 'Correlation between serum interleukin-6 level and type 1 diabetes mellitus: A systematic review and meta-analysis', *Cytokine*, 94, pp. 14–20.

Cipollone, F., Chiarelli, F., Davì, G., Ferri, C., Desideri, G., Fazia, M., Iezzi, A., Santilli, F., Pini, B., Cuccurullo, C., Tumini, S., Del Ponte, A., Santucci, A., Cuccurullo, F. and Mezzetti, A. (2005) 'Enhanced soluble CD40 ligand contributes to endothelial cell dysfunction in vitro and monocyte activation in patients with diabetes mellitus: Effect of improved metabolic control', *Diabetologia*, 48(6).

Cunningham, R.P. and Porat-Shliom, N. (2021) 'Liver Zonation – Revisiting Old Questions With New Technologies', *Frontiers in Physiology*.

Diabetes (2021) *World Health Organizations*. Available at: https://www.who.int/health-topics/diabetes#tab=tab_1 (Accessed: 7 March 2021).

Dixon, L.J., Barnes, M., Tang, H., Pritchard, M.T. and Nagy, L.E. (2013) 'Kupffer cells in the liver', *Comprehensive Physiology*, 3(2), pp. 785–797. Available at: /pmc/articles/PMC4748178/ (Accessed: 7 March 2021).

Dungubat, E., Watabe, S., Togashi-Kumagai, A., Watanabe, M., Kobayashi, Y., Harada, N., Yamaji, R., Fukusato, T., Lodon, G., Sevjid, B. and Takahashi, Y. (2020) 'Effects of Caffeine and Chlorogenic Acid on Nonalcoholic Steatohepatitis in Mice Induced by Choline-Deficient, L-Amino Acid-Defined, High-Fat Diet', *Nutrients*, 12, p. 3886. Available at: www.mdpi.com/journal/nutrients.

Elchaninov, A. V., Fatkhudinov, T.K., Vishnyakova, P.A., Lokhonina, A. V. and Sukhikh, G.T. (2019) 'Phenotypical and Functional Polymorphism of Liver Resident Macrophages', *Cells*. NLM (Medline).

Farhaty, N. and Muchtaridi (2016) 'Tinjauan Kimia dan Aspek Farmakologi Senyawa Asam Klorogenat Pada Biji Kopi : Review', *Farmaka*, 14(1).

De Ferranti, S.D., De Boer, I.H., Fonseca, V., Fox, C.S., Golden, S.H., Lavie, C.J., Magge, S.N., Marx, N., McGuire, D.K., Orchard, T.J., Zinman, B. and Eckel, R.H. (2014) 'Type 1 diabetes mellitus and cardiovascular disease: A scientific statement from the American Heart Association and American Diabetes Association', *Diabetes Care*.

Firdaus, M. and Chamidah, A. (2018) 'Sargassum polycystum methanol extract affects the nuclear factor-k beta and interleukin-6 expression in streptozotocin-induced diabetes rats', *Asian Journal of Pharmaceutical and Clinical Research*, 11(11).

Fitri, E., Andayani, T.M. and Suparniati, E. (2015) 'Cost Analysis of Diabetes Melitus', *Journal of Management and Pharmacy Practice*, 5(1), pp. 61–66.

Goutos, I., Nicholas, R.S., Pandya, A.A. and Ghosh, S.J. (2015) 'Diabetes mellitus and burns. Part I-basic science and implications for management.', *International journal of burns and trauma*, 5(1).

Grunhut, J., Wang, W., Aykut, B., Gakhal, I., Torres-Hernandez, A. and Miller, G. (2018) 'Macrophages in Nonalcoholic Steatohepatitis: Friend or Foe?', *European medical journal. Hepatology*, 6(1).

Guo, J. and Friedman, S.L. (2010) 'Toll-like receptor 4 signaling in liver injury and hepatic fibrogenesis', *Fibrogenesis and Tissue Repair*. BioMed Central, p. 21. Available at: /pmc/articles/PMC2984459/ (Accessed: 19 April 2021).

Guyton, A.C. and Hall, J.E. (2006) *Textbook of Medical Physiology*. 11th edn, *Physiology*. 11th edn. Philadelphia, PA: Elsevier Inc.

Haukeland, J.W., Damås, J.K., Konopski, Z., Løberg, E.M., Haaland, T., Goverud, I., Torjesen, P.A., Birkeland, K., Bjøro, K. and Aukrust, P. (2006) 'Systemic inflammation in nonalcoholic fatty liver disease is characterized by elevated levels of CCL2', *Journal of Hepatology*, 44(6).

Hayaishi-Okano, R., Yamasaki, Y., Katakami, N., Ohtoshi, K., Gorogawa, S.I., Kuroda, A., Matsuhisa, M., Kosugi, K., Nishikawa, N., Kajimoto, Y. and Hori, M. (2002) 'Elevated C-reactive protein associates with early-stage carotid atherosclerosis in young subjects with type 1 diabetes', *Diabetes Care*, 25(8).

Heymann, F. and Tacke, F. (2016) 'Immunology in the liver-from homeostasis to disease', *Nature Reviews Gastroenterology and Hepatology*.

International Diabetes Federation (2019) *IDF Diabetes Atlas, 9th edition*. Ninth edit, *International Diabetes Federation*. Ninth edit. Edited by S. Karuranga, B. Malanda, P. Saeedi, and P. Salpea. Brussels, Belgium: International Diabetes Federation. Available at: www.diabetesatlas.org.

Kalra, A., Yetiskul, E., Wehrle, C.J. and Tuma, F. (2018) *Physiology, Liver, StatPearls*. Treasure Island (FL): StatPearls Publishing. Available at: https://www.ncbi.nlm.nih.gov/books/NBK535438/ (Accessed: 21 January 2022).

Karthikesan, K., Pari, L. and Menon, V.P. (2010) 'Protective effect of tetrahydrocurcumin and chlorogenic acid against streptozotocin-nicotinamide generated oxidative stress induced diabetes', *Journal of Functional Foods*, 2(2).

Kawasaki, T. and Kawai, T. (2014) 'Toll-like receptor signaling pathways', *Frontiers in Immunology*.

Kementerian Kesehatan RI (2018) 'InfoDATIN Hari Diabetes Sedunia Tahun 2018', *Pusat Data dan Informasi Kementrian Kesehatan RI*, pp. 1–8.

Kementerian Kesehatan RI (2020) 'InfoDATIN Diabetes Melitus'. South Jakarta: Pusat Data dan Informasi Kementerian Kesehatan RI.

Klover, P.J., Clementi, A.H. and Mooney, R.A. (2005) 'Interleukin-6 depletion selectively improves hepatic insulin action in obesity', *Endocrinology*, 146(8).

Koyama, Y. and Brenner, D.A. (2017) 'Liver inflammation and fibrosis', *Journal of Clinical Investigation*, 127(1), pp. 55–64.

Kubes, P. and Mehal, W.Z. (2012) 'Sterile inflammation in the liver', *Gastroenterology*, 143(5), pp. 1158–1172. Available at: http://dx.doi.org/10.1053/j.gastro.2012.09.008.

Kugelmas, M., Hill, D.B., Vivian, B., Marsano, L. and McClain, C.J. (2003) 'Cytokines and NASH: A pilot study of the effects of lifestyle modification

and vitamin E', *Hepatology*, 38(2).

Li, S.Y., Chang, C.Q., Ma, F.Y. and Yu, C.L. (2009) 'Modulating effects of chlorogenic acid on lipids and glucose metabolism and expression of hepatic peroxisome proliferator-activated receptor-α in golden hamsters fed on high fat diet', *Biomedical and Environmental Sciences*, 22(2).

Liang, N. and Kitts, D.D. (2015) 'Role of chlorogenic acids in controlling oxidative and inflammatory stress conditions', *Nutrients*.

Ma, Y., Gao, M. and Liu, D. (2015) 'Chlorogenic acid improves high fat diet-induced hepatic steatosis and insulin resistance in mice', *Pharmaceutical Research*, 32(4).

Melmed, S., Auchus, R.J., Goldfine, A.B., Koenig, R.J. and Rosen, C.J. (2020) *Williams Textbook of Endocrinology*. 14th Editi. Canada: Elsevier.

Mertens, J., De Block, C., Spinhoven, M., Driessen, A., Francque, S.M. and Kwanten, W.J. (2021) 'Hepatopathy Associated With Type 1 Diabetes: Distinguishing Non-alcoholic Fatty Liver Disease From Glycogenic Hepatopathy', *Frontiers in Pharmacology*, 12. Available at: https://www.frontiersin.org/articles/10.3389/fphar.2021.768576/full.

Mescher, A.L. and Junqueira, L.C. (2013) *Epidermis*. Thirteenth, *Junqueira's Basic Histology Text and Atlas*. Thirteenth. McGraw-Hill eBook.

Miura, K., Seki, E., Ohnishi, H. and Brenner, D.A. (2010) 'Role of toll-like receptors and their downstream molecules in the development of nonalcoholic fatty liver disease', *Gastroenterology Research and Practice* [Preprint].

Mohamed, J., Nazratun Nafizah, A.H., Zariyantey, A.H. and Budin, S.B. (2016) 'Mechanisms of diabetes-induced liver damage: The role of oxidative stress and inflammation', *Sultan Qaboos University Medical Journal*, pp. e132–e141.

Mohan, H. (2015) *Textbook of Pathology*. 7th edn. New Delhi: Jaypee Brothers Medical Publishers (P) Ltd.

Monteiro, R. and Azevedo, I. (2010) 'Chronic inflammation in obesity and the metabolic syndrome', *Mediators of Inflammation*.

Moore, K.L., Dalley, A.F. and Agur, A.M.R. (2010) *Clinically Oriented Anatomy*. sixth edit. Edited by C. Taylor, J. Hetse, and J. Montalbano. Philadelphia, PA: Lippincott Williams & Wilkins.

Naito, M., Hasegawa, G. and Takahashi, K. (1997) 'Development, differentiation, and maturation of kupffer cells', *Microscopy Research and Technique*, 39(4).

Naveed, M., Hejazi, V., Abbas, M., Kamboh, A.A., Khan, G.J., Shumzaid, M., Ahmad, F., Babazadeh, D., FangFang, X., Modarresi-Ghazani, F., WenHua, L. and XiaoHui, Z. (2018) 'Chlorogenic acid (CGA): A pharmacological review and call for further research', *Biomedicine and Pharmacotherapy*, 97(August 2017), pp. 67–74. Available at: https://doi.org/10.1016/j.biopha.2017.10.064.

Nguyen-Lefebvre, A.T. and Horuzsko, A. (2015) 'Kupffer Cell Metabolism and Function', *Journal of Enzymology and Metabolism*, 1(1).

Olthof, M.R., Hollman, P.C.H. and Katan, M.B. (2001) 'Chlorogenic acid and caffeic acid are absorbed in humans', *Journal of Nutrition*, 131(1), pp. 66–71.

Paschou, S.A., Papadopoulou-Marketou, N., Chrousos, G.P. and Kanaka-Gantenbein, C. (2018) 'On type 1 diabetes mellitus pathogenesis', *Endocrine Connections*.

Rivera, C.A., Adegboyega, P., van Rooijen, N., Tagalicud, A., Allman, M. and Wallace, M. (2007) 'Toll-like receptor-4 signaling and Kupffer cells play pivotal roles in the pathogenesis of non-alcoholic steatohepatitis', *Journal of Hepatology*, 47(4).

Sanders, F.W.B. and Griffin, J.L. (2016) 'De novo lipogenesis in the liver in health and disease: More than just a shunting yard for glucose', *Biological Reviews*, 91(2), pp. 452–468. Available at: /pmc/articles/PMC4832395/ (Accessed: 20 April 2021).

Santana-Gálvez, J., Cisneros-Zevallos, L. and Jacobo-Velázquez, D.A. (2017) 'Chlorogenic Acid: Recent advances on its dual role as a food additive and a nutraceutical against metabolic syndrome', *Molecules*.

Al Sarkhy, A.A., Zaidi, Z.A. and Babiker, A.M. (2017) 'Glycogenic hepatopathy, an underdiagnosed cause of relapsing hepatitis in uncontrolled type 1 diabetes mellitus', *Saudi Medical Journal*, 38(1).

Schmidt-Arras, D. and Rose-John, S. (2016) 'IL-6 pathway in the liver: From physiopathology to therapy', *Journal of Hepatology*.

Schölin, A., Siegbahn, A., Lind, L., Berne, C., Sundkvist, G., Björk, E. and Karlsson, F.A. (2004) 'CRP and IL-6 concentrations are associated with poor glycemic control despite preserved β-cell function during the first year after diagnosis of type 1 diabetes', *Diabetes/Metabolism Research and Reviews*, 20(3).

Shan, Z. and Ju, C. (2020) 'Hepatic Macrophages in Liver Injury', *Frontiers in Immunology*.

Shi, H., Dong, L., Jiang, J., Zhao, J., Zhao, G., Dang, X., Lu, X. and Jia, M. (2013) 'Chlorogenic acid reduces liver inflammation and fibrosis through inhibition of toll-like receptor 4 signaling pathway', *Toxicology*, 303, pp. 107–114. Available at: http://dx.doi.org/10.1016/j.tox.2012.10.025.

Al Shoyaib, A., Archie, S.R. and Karamyan, V.T. (2020) 'Intraperitoneal Route of Drug Administration: Should it Be Used in Experimental Animal Studies?', *Pharmaceutical Research*.

Spite, M., Clària, J. and Serhan, C.N. (2014) 'Resolvins, specialized proresolving lipid mediators, and their potential roles in metabolic diseases', *Cell Metabolism*.

Tacke, F. (2017) 'Targeting hepatic macrophages to treat liver diseases', *Journal of Hepatology*. Elsevier B.V., pp. 1300–1312.

Tanaka, T., Narazaki, M. and Kishimoto, T. (2014) 'Il-6 in inflammation, Immunity, And disease', *Cold Spring Harbor Perspectives in Biology*, 6(10).

Tian, J., Zhao, Y., Wang, L. and Li, L. (2021) 'Role of TLR4/MyD88/NF-κB signaling in heart and liver-related complications in a rat model of type 2 diabetes mellitus', *Journal of International Medical Research*, 49(3).

Vernon, H., Wehrle, C.J. and Kasi, A. (2019) *Anatomy, Abdomen and Pelvis, Liver*, *StatPearls*. Treasure Island (FL): StatPearls Publishing. Available at: https://www.ncbi.nlm.nih.gov/books/NBK500014/.

De Vries, M., Westerink, J., Kaasjager, K.H.A.H. and De Valk, H.W. (2020) 'Prevalence of Nonalcoholic Fatty Liver Disease (NAFLD) in patients with type 1 diabetes mellitus: A systematic review and meta-analysis', *Journal of Clinical Endocrinology and Metabolism*, 105(12), pp. 3842–3853.

Wadwa, R.P., Kinney, G.L., Ogden, L., Snell-Bergeon, J.K., Maahs, D.M., Cornell, E., Tracy, R.P. and Rewers, M. (2006) 'Soluble interleukin-2 receptor as a marker for progression of coronary artery calcification in type 1 diabetes', *International Journal of Biochemistry and Cell Biology*, 38(5–6).

Wieckowska, A., Papouchado, B.G., Li, Z.Z., Lopez, R., Zein, N.N. and Feldstein, A.E. (2008) 'Increased hepatic and circulating interleukin-6 levels in human nonalcoholic steatohepatitis', *American Journal of Gastroenterology*, 103(6).

Williams, R. and White, H. (1986) 'The greater omentum: Its applicability to cancer surgery and cancer therapy', *Current Problems in Surgery*, 23(11).

Xia, C., Braunstein, Z., Toomey, A.C., Zhong, J. and Rao, X. (2018) 'S100 proteins as an important regulator of macrophage inflammation', *Frontiers in Immunology*.

Xu, X., Liang, T., Lin, X., Wen, Q., Liang, X., Li, W., Qin, F., Zheng, N., Ming, J. and Huang, R. (2015) 'Effect of the total extract of averrhoacarambola(oxalidaceae) root on the expression levels of TLR4 and NF-κB in streptozotocin-induced diabetic mice', *Cellular Physiology and Biochemistry*, 36(6).

Yan, Y., Zhou, X., Guo, K., Zhou, F., Yang, H. and Wang, K. (2020) 'Review Article Use of Chlorogenic Acid against Diabetes Mellitus and Its Complications'. Available at: https://doi.org/10.1155/2020/9680508 (Accessed: 20 April 2021).

Yang, H., Hreggvidsdottir, H.S., Palmblad, K., Wang, H., Ochani, M., Li, J., Lu, B., Chavan, S., Rosas-Ballina, M., Al-Abed, Y., Akira, S., Bierhaus, A., Erlandsson-Harris, H., Andersson, U. and Tracey, K.J. (2010) 'A critical cysteine is required for HMGB1 binding to toll-like receptor 4 and activation of macrophage cytokine release', *Proceedings of the National Academy of Sciences of the United States of America*, 107(26).

Yuan, Y., Gong, X., Zhang, L., Jiang, R., Yang, J., Wang, B. and Wan, J. (2017) 'Chlorogenic acid ameliorated concanavalin A-induced hepatitis by suppression of Toll-like receptor 4 signaling in mice', *International Immunopharmacology*, 44.

Ziamajidi, N., Khaghani, S., Hassanzadeh, G., Vardasbi, S., Ahmadian, S., Nowrouzi, A., Ghaffari, S.M. and Abdirad, A. (2013) 'Amelioration by chicory seed extract of diabetes- and oleic acid-induced non-alcoholic fatty liver disease (NAFLD)/non-alcoholic steatohepatitis (NASH) via modulation of PPARα and SREBP-1', *Food and Chemical Toxicology*, 58.