

DAFTAR PUSTAKA

- Abbas, A. K., Lichtman, A. H., & Pillai, S. 2022. *Cellular and Molecular Immunology (10th ed.)*. Philadelphia: Elsevier.
- Amin, A. S. M., Pusmarani, J., & Fauziah, R. 2025. Uji Aktivitas Antihiperkolesterolemia dari Fraksi Air, Etil Asetat, dan N-Heksan dari Kulit Pisang Raja (*Musa paradisiaca* Var. *Sapientum*) pada Mencit (*Mus musculus*) yang Diinduksi Propiltiourasil. *Jurnal Pharmacia Mandala Waluya*, 4(1): 1-8.
- Amisha, F., & Rehman, A. 2023. *Propylthiouracil (PTU)*. Treasure Island: StatPearls Publishing.
- Anggarasari, Y. E., Luqman, M., Poernomo, B., dan Handijatno, D. 2014. Pengaruh Pemaparan Karbofuran terhadap Gambaran Diameter Pulpa Putih Limpa Mencit (*Mus musculus*). *Jurnal Veterinaria*, 7(2): 25-37.
- Ardian, J., Jauhari, M. T., & Rahmiati, B. F. 2020. Pengaruh Pemberian Jus Jambu Biji Merah terhadap Penurunan Kadar LDL (Low Density Lipoprotein) dan Kolesterol Total. *Nutriology: Jurnal Pangan, Gizi, Kesehatan*, 1(1): 26-34.
- Astrup, A., Teicholz, N., Magkos, F., Bier, D. M., Brenna, J. T., King, J. C., Mente, A., Ordovas, J. M., Volek, J. S., Yusuf, S., & Krauss, R. M. 2021. Dietary Saturated Fats and Health: Are the U.S. Guidelines Evidence-Based? *Nutrients*, 13(10): 1-10. DOI: 10.3390/nu13103305.
- Ayvaz, H., Cabaroglu, T., Akyildiz, A., Pala, C. U., Temizkan, R., Ağçam, E., Ayvaz, Z., Durazzo, A., Lucarini, M., Direito, R., & Diaconeasa, Z. 2022. Anthocyanins: Metabolic Digestion, Bioavailability, Therapeutic Effects, Current Pharmaceutical/Industrial Use, and Innovation Potential. *Antioxidants*, 12(1), 1-39.
- Bailey, A., & Mohiuddin, S. S. 2022. *Biochemistry, High Density Lipoprotein*. Treasure Island: StatPearls Publishing.
- Ballena-Caicedo, J., Zuzunaga-Montoya, F. E., Loayza-Castro, J. A., Romero, L. E. M., Limonchi, R., De Carrillo, C. I. G., & Vera-Ponce, V. J. 2025. Global Prevalence of Dyslipidemias in the General Adult Population: A Systematic Review and Meta-Analysis. *Journal of Health Population and Nutrition*, 44(1): 1-11. DOI: 10.1186/s41043-025-01054-3.
- Bastías-Pérez, M., Serra, D., & Herrero, L. 2020. Dietary Options for Rodents in the Study of Obesity. *Nutrients*, 12(11): 1-19. DOI: 10.3390/nu12113234.
- Bendokas, V., Stanys, V., Mažeikienė, I., Trumbeckaitė, S., Baniene, R., & Liobikas, J. 2020. Anthocyanins: from the Field to the Antioxidants in the Body. *Antioxidants (Basel, Switzerland)*, 9(9), 1-17. DOI: 10.3390/antiox9090819.
- Cañizares, L., Meza, S., Peres, B., Rodrigues, L., Jappe, S. N., Coradi, P. C., & de Oliveira, M. 2024. Functional Foods from Black Rice (*Oryza sativa* L.): An Overview of the Influence of Drying, Storage, and Processing on Bioactive Molecules and Health-Promoting Effects. *Foods*, 13(7): 1-16. DOI: 10.3390/foods13071088.

- Cunha, L. F., Ongaratto, M. A., Endres, M., & Barschak, A. G. 2021. Modelling Hypercholesterolaemia in Rats Using High Cholesterol Diet. *International Journal of Experimental Pathology*, 102(2): 74-79. DOI: 10.1111/iep.12387.
- Curto, E. A., & Milligan, G. 2016. Metabolism Meets Immunity: The Role of Fatty Acid Receptor in The Immune System. *Biochemical Pharmacology*, 114: 3-13. DOI: 10.1016/j.bcp.2016.03.017.
- Danastry, E. N., Arviani, A., Kurniantoro, F. E., & Larasati, D. 2021. Aktivitas Antioksidan Ekstrak Etanol Beras Merah (*Oryza rufipogon*) dengan Metode DPPH. *Jurnal Kesehatan Madani Medika*, 12 (2): 173-178).
- Das, M., Dash, U., Mahanand, S. S., Nayak, P. K., & Kesavan, R. K. 2023. Black Rice: A Comprehensive Review on Its Bioactive Compounds, Potential, Health Benefits and Food Applications. *Food Chemistry Advances*, 3(1): 1-13. DOI: 10.1016/j.focha.2023.100462.
- De Leon, M. A. F., Cañizares, L. C. C., Peres, B. B., Timm, N. S., Meza, S. L. R., Hoffmann, J. F., Ferreira, C. D., & Oliveira, M. 2023. Use of Monosodium Glutamate as Alternative to Reduce Sodium in Cooking Affects the Physicochemical, Phytochemical, and Sensory Attributes of Pigmented and Non-Pigmented Rice. *International Journal of Gastronomy and Food Science*, 34(5): 1-18.
- Dharmawansa, K. V. S., Hoskin, D. W., & Rupasinghe, H. P. V. 2020. Chemopreventive Effect of Dietary Anthocyanins against Gastrointestinal Cancers: A Review of Recent Advances and Perspectives. *International Journal of Molecular Sciences*, 21(18): 1-36. DOI: 10.3390/ijms21186555.
- Dias, I. H. K., Milic, I., Heiss, C., Ademowo, O. S., Polidori, M. C., Devitt, A., & Griffiths, H. R. 2020. Inflammation, Lipid Per-oxidation, and Redox Regulation. *Antioxidants & Redox Signaling*, 33(3): 166-190. DOI: 10.1089/ars.2020.8022.
- Diaz-Ricart, M., Torramade-Moix, S., Pascual, G., Palomo, M., Moreno-Castaño, A. B., Martinez-Sanchez, J., Vera, M., Cases, A., & Escolar, G. 2020. Endothelial Damage, Inflammation and Immunity in Chronic Kidney Disease. *Toxins*, 12(6), 1-21. DOI: 10.3390/toxins12060361.
- Dubois-Deruy, E., Peugnet, V., Turkieh, A., & Pinet, F. 2020. Oxidative Stress in Cardiovascular Diseases. *Antioxidants*, 9(9): 1-14. DOI: 10.3390/antiox9090864.
- Estina, E. 2010. *Galur Tikus Laboratorium*. Dokter Ternak. Diakses 28 November 2025 dari <https://dokterternak.wordpress.com/2010/11/05/galur-tikus-laboratorium/>.
- Fan, M. J., Yeh, P. H., Lin, J. P., Huang, A. C., Lien, J. C., Lin, H. Y., & Chung, J. G. 2017. Anthocyanins From Black Rice (*Oryza sativa*) Promote Immune Responses in Leukemia through Enhancing Phagocytosis of Macrophages *In Vivo*. *Experimental and Therapeutic Medicine*, 13(1): 59-64. DOI: 10.3892/etm.2017.4467.
- Faozah, N., Nasihun, T., Chodidjah, C., Sumarawati, T., Pertiwi, D., & Widodo, J. W. 2021. Pengaruh Pemberian N-Acetylcystein terhadap Kadar Hormon

- Testosteron pada Hiperkolesterolemia. *Jurnal Litbang Edusaintech*, 2(1): 8-12.
- Fatimah, S., Arisandi, D., & Saputri, M. S. 2018. Total Cholesterol Level of Hypercholesterolemia Male Wistar Rats (*Rattus norvegicus*) with Ethanol Extracts of Purple Sweet Potato Leaf (*Ipomoea batatas* (L.) Lam). *Journal of Heath (JoH)*, 5(1): 33-42. DOI: 10.30590/vol5-no1-p33-39.
- Feng, L., Huang, F., Ma, Y., & Tang, J. 2021. The Effect of High-Fat Diet and Exercise Intervention on the TNF- α Level in Rat Spleen. *Frontiers in Immunology*, 12(67): 1-9. DOI: 10.3389/fimmu.2021.671167.
- Fernández-García, V., González-Ramos, S., Martín-Sanz, P., Delgado, C., Castrillo, A., & Boscá, L. 2022. High-fat Diet Activates Splenic NOD1 and Enhances Neutrophil Recruitment and Neutrophil Extracellular Traps Release in the Spleen of ApoE-deficient Mice. *Cellular and Molecular Life Sciences*, 79: 1-16. DOI: 10.1007/s00018-022-04415-x.
- Frianto, F., Fajriaty, I., & Riza, H. 2015. Evaluasi Faktor yang Mempengaruhi Jumlah Perkawinan Tikus Putih (*Rattus norvegicus*) secara Kualitatif. *Jurnal Mahasiswa Farmasi Fakultas Kedokteran UNTAN*, 3(1): 1-7.
- Frountzas, M., Karanikki, E., Toutouza, O., Sotirakis, D., Schizas, D., Theofilis, P., Tousoulis, D., & Toutouzas, K. G. 2023. Exploring the Impact of Cyanidin-3-Glucoside on Inflammatory Bowel Diseases: Investigating New Mechanisms for Emerging Interventions. *International Journal of Molecular Sciences*, 24(11): 1-25. DOI: 10.3390/ijms24119399.
- Gallo, A., Le Goff, W., Santos, R. D., Fichtner, I., Carugo, S., Corsini, A., Sirtori, C., & Ruscica, M. 2025. Hypercholesterolemia and Inflammation-Cooperative Cardiovascular Risk Factors. *European Journal of Clinical Investigation*, 55(1), 1-21. DOI: 10.1111/eci.14326.
- Ghozali, I. 2018. *Aplikasi Analisis Multivariate dengan Program IBM SPSS 25*. Semarang: Badan Penerbit Universitas Diponegoro.
- Global Biodiversity Information Facility. 2025. Taxonomic Hierarchy: *Oryza sativa* L. <https://www.gbif.org/species/2703459>. Diakses 20 Oktober 2025.
- Goufo, P., & Trindade, H. 2014. Rice Antioxidants: Phenolic Acids, Flavanoids, 611 Anthocyanins, Proanthocyanidins, Tocopherols, γ -oryzanol, and Phytic Acid. *Food Science and Nutrition*, 2(2): 75-104.
- Grosjean, C., Quessada, J., Nozais, M., Loosveld, M., Payet-Bornet, D., & Mionnet, C. 2021. Isolation and Enrichment of Mouse Splenic T Cells for *Ex Vivo* and *In Vivo* T Cell Receptor Stimulation Assays. *Star Protocols*, 2(4): 1-14. DOI: 10.1016/j.xpro.2021.100961.
- Grundy, S. M., Stone, N. J., Bailey, A. L., Beam, C., Birtcher, K. K., Blumenthal, R. S., Braun, L. T., de Ferranti, S., Faiella-Tommasino, J., Forman, D. E., Goldberg, R., Heidenreich, P. A., Hlatky, M. A., Jones, D. W., Lloyd-Jones, D., Lopez-Pajares, N., Ndumele, C. E., Orringer, C. E., & Peralta, C. A. 2019. Guideline on the Management of Blood Cholesterol: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *JACC*, 73(24): 285–302.
- Gu, H., Gwon, M. H., Kim, S. M., & Yun, J. M. 2021. Dietary Glucosinolates Inhibit Splenic Inflammation in High Fat/Cholesterol Diet-fed C57BL/6

- Mice. *Nutrition Research and Practice*, 15(6): 798-806. DOI: 10.4162/nrp.2021.15.6.798.
- Gui, H., Sun, L., Liu, R., Si, X., Li, D., Wang, Y., Shu, C., Sun, X., Jiang, Q., Qiao, Y., Li, B., & Tian, J. 2023. Current Knowledge of Anthocyanin Metabolism in The Digestive Tract: Absorption, Distribution, Degradation, and Interconversion. *Critical in Food Science and Nutrition*, 63(22), 5953–5966.
- Guo, J., Chen, S., Zhang, Y., Liu, J., Jiang, L., Hu, L., Yao, K., Yu, Y., & Chen, X. 2024. Cholesterol Metabolism and Its Regulation in Health and Disease. *Medcomm*, 5(2): 1-24. DOI: 10.1002/mco2.476.
- Guyton, A. C., & Hall, J. E. 2021. *Textbook of Medical Physiology (14th ed.)*. Philadelphia: Elsevier.
- Harapko, T. V. 2019. Structural Changes of the Spleen in Experimental Obesity. *Reports of Morphology*, 26(2): 36-41.
- Harijati, N., Samino, S., Indriyani, S., & Soewondo, A. 2017. *Mikroteknik Dasar*. Malang: UB Press.
- Hartady, T., Sifora, S., Lesmana, R., & Sarniem, C. 2026. Histopathological Study of Changes in White-Pulp Structure Due to Lymphoid Depletion in the Spleen in Male Rats Caused by Exposure to Transitional Cigarette Smoke. *Toxics*, 14(2): 1-12. DOI: 10.3390/toxics14020113.
- Hartati, F. K. 2016. Aktivitas Antiinflamasi Ekstrak Etanol dan Air Beras Hitam (*Oryza sativa* L. indica) pada Tikus Wistar Jantan. *Jurnal Rekapangan*, 10(1): 9-15.
- Hassan, A., Zuraidah, A., Niu, T. J., & Safuan, S. 2024. Cholic Acid Enhanced Hypercholesterol Parameters in High Cholesterol Diet Fed Sprague-Dawley Rats. *Physiology and Pharmacology*, 28: 400-408. DOI: 10.61186/phypha.28.4.400.
- Hoshino, K., Andersen, M. L., Papale, L. A., & Alvarenga, T. A. F. 2016. *Sleep Patterns in Rats: Rodent Model as Tools in Ethical Biomedical Research* (pp. 375-398). London: Springer International Publishing.
- Hou, Z., Qin, P., Zhang, Y., Cui, S., & Ren, G. 2013. Identification of Anthocyanins Isolated from Black Rice (*Oryza sativa* L.) and Their Degradation Kinetics. *Food Research International*, 50(2): 691-697.
- Huff, T., Boyd, B., & Jialal, I. 2023. *Physiology, Cholesterol*. In StatPearls: StatPearls Publishing.
- Ibrahim, M. A., Asuka, E., & Jialal, I. 2023. *Hypercholesterolemia*. In StatPearls: StatPearls Publishing.
- Indriputri, C., & Maulana, R. 2022. Pengaruh Pemberian Diet Tinggi Lemak terhadap Profil Lipid dan Gula Darah Puasa Serum Tikus Putih (*Rattus norvegicus*) Galur Wistar. *Higiene: Jurnal Kesehatan Lingkungan*, 8(3): 144-148. DOI: 10.24252/higiene.v8i3.35819.
- International Union for Conservation of Nature. 2025. Taxonomic Hierarchy: *Rattus norvegicus*. <https://www.iucnredlist.org/species/19353/165118026>. Diakses 10 Oktober 2025.
- Isdadiyanto, S. 2015. Efek Chitosan pada Histopatologis Aorta Tikus Putih yang Diberi Pakan Lemak Tinggi. *Buletin Anatomi dan Fisiologi*, 23(1): 57-68.

- Isdadiyanto, S., Mardiaty, S. M., & Sitasiwi, A. J. 2021. Kadar Apoprotein A dan Apoprotein B Serum Darah Tikus Putih (*Rattus norvegicus* L.) yang Diinduksi Pakan Tinggi Lemak setelah Diberi Ekstrak Etanol Daun Mimba (*Azadirachta indica*). *Buletin Anatomi dan Fisiologi*, 6(1): 1-7. DOI: 10.14710/baf.6.1.2021.49-55.
- Ito, V. C., & Lacerda, L. G. 2019. Black Rice (*Oryza sativa* L.): A Review of Its Historical Aspects, Chemical Composition, Nutritional and Functional Properties, and Applications and Processing Technologies. *Food Chemistry*, 301(21): 46-57.
- Jin, Y., Liu, Q., Wang, Y., Wang, B., An, J., Chen, Q., Wang, T., & Shang, J. 2024. Propylthiouracil Induced Rat Model Reflects Heterogeneity Observed in Clinically Non-Obese Subjects with Non-alcoholic Fatty Liver Disease. *International Journal of Molecular Sciences*, 25(19): 47-68.
- Jing, Y. S., Ma, Y. F., Pan, F. B., Li, M. S., Zheng, Y. G., Wu, L. F., & Zhang, D. S. 2022. An Insight into Antihyperlipidemic Effects of Polysaccharides from Natural Resources. *Molecules*, 27(6): 1-17. DOI: 10.3390/molecules27061903.
- Jokioja, J., Yang, B., & Linderborg, K. M. 2021. Acylated Anthocyanins: A Review on Their Bioavailability and Effects on Postprandial Carbohydrate Metabolism and Inflammation. *Comprehensive in Food Science and Food Safety*, 20(6): 5570–5615.
- Juliastuti, H., Djamaludin, M., & Alwani, H. 2022. The Black Rice Ethanol Extract Effect on Polymorphonuclear Cells Proliferation of Rats Induced by Lipopolysaccharide. *Acta Medical and Health Sciences*, 1(1): 38-45.
- Julyasih, K. S. M., Suata, K., Wirawan, G. P., & Astawa, N. M. 2012. Seaweed Extracts Improve Lipid Profile of Wistar Rat. *Indonesian Journal of Biomedical Sciences*, 5(2): 1-8. DOI: 10.15562/ijbs.v5i2.92.
- Kemenkes Republik Indonesia. 2019. *Profil Kesehatan Indonesia Tahun 2019*. Jakarta: Kementerian Kesehatan Republik Indonesia.
- Khasanah, N. A. H., & Husen, F. 2024. Evaluasi Struktur Histologi Hati dan Paru-Paru Mencit yang Diinduksi Karbon Tetraklorida (CCl₄). *BioEkstakta: Jurnal Ilmiah Biologi Unsoed*, 6(4): 263-270.
- Kierszenbaum, A. L., & Tres, L. L. 2020. *Histology and Cell Biology: An Introduction to Pathology 5th Edition*. Philadelphia: Elsevier.
- King, R. J., Singh, P. K., & Mehla, K. 2022. The Cholesterol Pathway: Impact on Immunity and Cancer. *Trends in Immunology*, 43(1): 78-92. DOI: 10.1016/j.it.2021.11.007.
- Kowalczyk, T., Muskała, M., Merecz-Sadowska, A., Sikora, J., Picot, L., & Sitarek, P. 2024. Anti-Inflammatory and Anticancer Effects of Anthocyanins in In Vitro and In Vivo Studies. *Antioxidants (Basel, Switzerland)*, 13(9): 1-35. DOI: 10.3390/antiox13091143.
- Kumar, V., Abbas, A. K., & Aster, J. C. 2017. *Robbins Basic Pathology (10th edition)*. Singapore: Elsevier.

- Kumar, N., & Murali, R. D. 2020. Black Rice: A Novel Ingredient in Food Processing. *Journal of Nutrition and Food Sciences*, 10(2): 1-7. DOI: 10.35248/2155-9600.20.10.771.
- Larodphun, P., Arjinajarn, P., Thongnak, L., Promsan, S., Swe, M. T., Thitisut, P., Mahatheeranont, S., Jaturasitha, S., & Lungkaphin, A. 2021. Anthocyanin-rich Fraction from Black Rice, *Oryza sativa* L. var. indica “Luem Pua,” Bran Extract Attenuates Kidney Injury Induced by High-fat Diet Involving Oxidative Stress and Apoptosis in Obese Rats. *Phytotherapy Research*, 35(9): 5189-5202. DOI: 10.1002/ptr.7188.
- Lasker, S., Rahman, M.M., Parvez, F., Zamila, M., Miah, P., Nahar, K., Kabir, F., Sharmin, S. B., Subhan, N., Ahsan, G. U., Alam, M. A. 2019. High-Fat Diet-Induced Metabolic Syndrome and Oxidative Stress in Obese Rats are Ameliorated by Yogurt Supplementation. *Scientific Report*, 9(1): 1-15 DOI: 10.1038/s41598-019-56538-0.
- Li, D., Wang, P., Luo, Y., Zhao, M., & Chen, F. 2017. Health Benefits of Anthocyanins and Molecular Mechanisms: Update from Recent Decade. *Critical Reviews in Food Science and Nutrition*, 57(8), 1729–1741. DOI: 10.1080/10408398.2015.1030064.
- Liu, H., Liu, Z., Wu, Y., Zheng, L., & Zhang, G. 2021. Regulatory Mechanisms of Anthocyanin Biosynthesis in Apple and Pear. *International Journal of Molecular Sciences*, 22(16): 1-13.
- Lori, A., Perrotta, M., Lembo, G., & Carnevale, D. 2017. The Spleen: A Hub Connecting Nervous and Immune Systems in Cardiovascular and Metabolic Diseases. *International Journal of Molecular Sciences*, 18(6): 1-12. DOI: 10.3390/ijms18061216.
- Makiyah, S. N. N., Iszamriach, R., & Nofariyandi, A. 2014. Paparan Ultraviolet C Meningkatkan Diameter Pulpa Alba Limpa dan Indeks Mitotik Epidermis Kulit Mencit. *Jurnal Kedokteran Brawijaya*, 28(1): 17-21.
- Manzoni, A. G., Passos, D. F., Leitemperger, J. W., Storck, T. R., Doleski, P. H., Jantsch, M. H., Loro, V. L., & Leal, D. B. R. 2020. Hyperlipidemia-induced Lipotoxicity and Immune Activation in Rats are Prevented by Curcumin and Rutin. *International Immunopharmacology*, 81(4): 1-9.
- Martin, J., Kuskoski, E. M., Navas, M. J., Asuero, A. G. 2017. *Antioxidant Capacity of Anthocyanin Pigments: Flavonoids from Biosynthesis to Human Health*. Kroasia: By InTech.
- Matheos, C. 2014. Gambaran Histologi Jaringan Limpa Tikus Putih (*Rattus norvegicus*) yang Diinfeksi *Eschericia coli* dan Diberi Madu. *Ebiomedik*, 1(2): 961-965.
- Mende, R., Simbala, H., & Mansauda, K. L. R. 2021. Uji Efektivitas Sari Buah dan Ekstrak Etanol Kulit Jeruk Nipis (*Citrus aurantifolia*) terhadap Hiperkolesterolemia pada Tikus Putih Jantan Galur Wistar (*Rattus norvegicus*). *Pharmacon*, 10(1): 676-683.
- Montoya, T., Castejón, M. L., Sánchez-Hidalgo, M., González-Benjumea, A., Fernández-Bolaños, J. G., & de-la-Lastra, C. A. 2019. Oleocanthal Modulates LPS-induced Murine Peritoneal Macrophages Activation via Regulation of Inflammasome, nrf-2/HO-1, and MAPKs Signaling

- Pathways. *Journal of Agricultural and Food Chemistry*, 67(19): 5552-5559. DOI: 10.1021/acs.jafc.9b00771.
- Nata, I. D. G. A. T., Linawati, N. M., Ratnayanti, I. G. A. D., & Wayan, I. 2021. Efek Pemberian Teh Kombinasi Bunga Euphorbia Milii dan Propolis terhadap Diameter Pulpa Putih Limpa Tikus Wistar Jantan. *Jurnal Medika Udayana*, 10(5): 1-7.
- National Toxicology Program. 2026. *Spleen Inflammation and Necrosis*. National Institute of Environmental Health Sciences. Diakses pada: 1 Februari 2026.
- Ningtias, P. L., Suprihatin, T., & Sitasiwi, A. S. 2024. Struktur Histologis Pulpa Putih Limpa Tikus Putih (*Rattus norvegicus* L.) setelah Pemberian Sediaan Nanokitosan Ekstrak Etanol Daun Mimba (*Azadirachta indica* A. Juss). *Jurnal Sain Veteriner*, 42(3): 448-456. DOI: 10.22146/jsv.92377.
- Nugahaningsih, W., Susanti, E., & Nisa, M. 2023. Aktivitas Immunostimulan Daun *Elaeocarpus grandiflorus* terhadap Jumlah Leukosit dan Histologi Limpa Tikus yang Diinduksi SDMD. *Life Science*, 12(2): 192-201.
- Nugroho, S. W., Fauziyah, K. R., Sajuthi, D., & Darusman, H. S. 2018. Profil Tekanan Darah Normal Tikus Putih (*Rattus norvegicus*) Galur Wistar dan Sprague-Dawley. *Acta Veterinaria Indonesiana*, 6(2): 32-37.
- Oesterle, A., Laufs, U., & Liao, J. K. 2017. Pleiotropic Effects of Statins on the Cardiovascular System. *Circulation Research*, 120(1): 229-243.
- Ou, S. J. L., Yang, D., Pranata, H. P., Tai, E. S., & Liu, M. H. 2023. Postprandial Glycemic and Lipidemic Effects of Black Rice Anthocyanin Extract Fortification in Foods of Varying Macronutrient Compositions and Matrices. *Science of Food*, 7(1): 1-13.
- Pang, Y., Ahmed, S., Xu, Y., Beta, T., Zhu, Z., Shao, Y., & Bao, J. 2018. Bound Phenolic Compounds and Antioxidant Properties of Whole Grain and Bran of White, Red and Black Rice. *Food Chem*, 240(5): 212-221.
- Pappan, N., Awosika, A. O., & Rehman, A. 2024. *Dyslipidemia*. In StatPearls: StatPearls Publishing.
- Perdana, P. R. 2022. Aktivitas Immunomodulator Ekstrak Herba Meniran (*Phyllanthus niruri* L.). *Jurnal Farmagazine*, 9(1): 50-54.
- Puspitaningrum, I., Kusmita, L., & Franyoto, Y. D. 2017. Aktivitas Immunomodulator Fraksi Etil Asetat Daun Som Jawa (*Talinum triangulare* (Jacq.) Willd) terhadap Respon Imun Non Spesifik. *Jurnal Ilmu Farmasi dan Farmasi Klinik*, 14(1): 24-29.
- Puckett, E. E. Micci-Smith, O., & Munshi-South, J. 2017. Genomic Analyses Identify Multiple Asian Origins and Deeply Diverged Mitochondrial Clades in Inbred Brown Rats (*Rattus norvegicus*). *Evolutionary Applications*, 11(3): 718-726.
- Qi, S. S., He, J., Dong, L. C., Yuan, L. P., Wu, J. L., Zu, Y. X., & Zheng, H. X. 2020. Cyanidin-3-glucoside from Black Rice Prevents Renal Dysfunction and Renal Fibrosis in Streptozotocin-diabetic Rats. *Journal of Functional Foods*, 72(1): 1-12.
- Ranti, I., & Vickasari, N. 2022. The Effect of Ethanol Extract of Kersen Leaf (*Muntingia calabura* L.) on Reducing Triglyceride Levels in

- Hypercholesterolemic Rats. *Bioscientia Medicina: Journal of Biomedicine and Translational Research*, 6(6): 1929-1935. DOI: 10.37275/bsm.v6i6.534.
- Rosenson, R. S., & Baker, S. K. 2023. *Simvastatin*. In *StatPearls*. StatPearls Publishing.
- Rousdy, D. W., Rahmawati, R., Kurniatuhadi, R., & Kurniadi, E. 2017. Mikroanatomi Limpa Tikus Putih (*Rattus norvegicus* L.) setelah Pemberian Asam Humat dari Tanah Gambut Kalimantan. *Jurnal Penelitian dan Pengembangan Borneo Akcaya*, 4(1): 57-62.
- Rousdy, D., & Wardoyo, E. 2018. Histologi Limpa dan Hematologi Mencit yang Diinfeksi *Escherichia coli* setelah Pemberian Asam Humat Gambut Kalimantan. *Jurnal Bioteknologi dan Biosains Indonesia*, 5(2): 54-62.
- Rudrapal, M., Khairnar, S. J., Khan, J., Dukhyil, A. B., Ansari, M. A., Alomary, M. N., Alshabrmi, F. M., Palai, S., Deb, P. K., & Devi, R. 2022. Dietary Polyphenols and Their Role in Oxidative Stress-Induced Human Diseases: Insights Into Protective Effects, Antioxidant Potentials and Mechanism(s) of Action. *Frontiers in Pharmacology*, 13(1): 20-47. DOI: 10.3389/fphar.2022.806470.
- Rusriasri, C. S., Sitasiwi, A. S., & Kasiyati, K. 2025. Potensi Jamu Kencing Manis Madura terhadap Struktur Limpa Tikus Jantan Galur Wistar Penderita Diabetes Melitus. *Jurnal Veteriner*, 26(4): 534-544.
- Sagay, S. J. J., Simbala, H. E., & de Queljoe, E. 2019. Uji Aktivitas Antihiperlipidemia Ekstrak Etanol Buah Pinang Yaki (*Areca vestiaria*) pada Tikus Putih Jantan Galur Wistar (*Rattus norvegicus*) yang Diinduksi Pakan Hiperlipidemia. *Pharmacon*, 8(2): 442-448.
- Salim, H. M., Kurnia, L. F., Bintarti, T. W., & Handayani, H. 2018. The Effects of High-fat Diet on Histological Changes of Kidneys in Rats. *Biomolecular and Health Science Journal*, 1(2): 109-112.
- Sasmita, S., Djabir, Y. Y., & Yustisia, I. 2023. Efek Pemberian Dangke terhadap Kadar Kolesterol dan Trigliserida Darah Tikus Pemodelan Hiperkolesterolemia dan Hipertrigliseridemia. *Majalah Farmasi dan Farmakologi*, 27(2): 43-46.
- Setiawan, H., Wulandari, S.W., dan Fitriyani, A. N. 2021. Potensi Imunomodulator Herbal Ekstrak Etanol Daun Pepaya Varietas Calina terhadap Struktur Jaringan Limpa Tikus Putih Galur Wistar. *Jurnal Veteriner*, 22(4): 531-539.
- Sijabat, A. C. G., Isdadiyanto, S., & Sitasiwi, A. J. 2024. Histopatologi Hepar Tikus dengan Induksi Pakan Tinggi Lemak setelah Pemberian Biji Mahoni. *Jurnal Ilmu Pertanian Indonesia*, 29(3): 482-490. DOI: 10.18343/jipi.29.3.482.
- Soesilawati, P. 2020. *Histologi Kedokteran Dasar*. Surabaya: Airlangga University Press.
- Song, H., Shen, X., Zhou, Y., & Zheng, X. 2021. Black Rice Anthocyanins Alleviate Hyperlipidemia, Liver Steatosis and Insulin Resistance by Regulating Lipid Metabolism and Gut Microbiota in Obese Mice. *Food & Function*, 12(20): 10160-10170.

- Steiniger, B. S., Ulrich, C., Berthold, M., Guthe, M., & Lobachev, O. 2018. Capillary Networks and Follicular Marginal Zones in Human Spleens. Three-dimensional Models Based on Immunostained Serial Sections. *PLOS ONE*, 13(2): 1-21. DOI: 10.1371/journal.pone.0191019.
- Sun, M., Li, D., Hua, M., Miao, X., Su, Y., Chi, Y., Li, Y., Sun, R., Niu, H., & Wang, J. 2022. Black Bean Husk and Black Rice Anthocyanin Extracts Modulated Gut Microbiota and Serum Metabolites for Improvement in Type 2 Diabetic Rats. *Food & Function*, 13(13): 7377-7391. DOI: 10.1039/d2fo01165d.
- Sutjiatmo, A. B., Haq, F. A., Al Jati, S., & Vikasari, N. S. 2021. The Effect of Ethanol Extract from *Portulaca oleracea* on Inhibiting Total Cholesterol on Animal Subjects. *Pharmacy Education*, 21(2): 22-26.
- Szipirer, C. 2020. Rat Models of Human Diseases and Related Phenotypes: a Systematic Inventory of the Causative Genes. *J Biomed Sci*, 27(1): 1-52. DOI: 10.1186/s12929-020-00673-8.
- Tasminatun, S., Pravitasari, R., & Makiyah, N. 2017. Potential Ethanol of *Carica papaya* L. Extract as Immunomodulatory through Histology Observation at Mice Balb/C Spleen. *Jurnal Berkala Kedokteran*, 13(2): 205-210.
- Thagaard, J., Stovgaard, E. S., Vognsen, L. G., Hauberg, S., Dahl, A., Ebstrup, T., Doré, J., Vincentz, R. E., Jepsen, R. K., Roslind, A., Kümler, I., Nielsen, D., & Balslev, E. 2021. Automated Quantification of sTIL Density with H&E-Based Digital Image Analysis has Prognostic Potential in Triple-Negative Breast Cancers. *Cancers*, 13(12): 1-15. DOI: 10.3390/cancers13123050.
- Tokgozoglu, L., & Kayikcioglu, M. 2021. Familial Hypercholesterolemia: Global Burden and Approaches. *Current Cardiology Reports*, 23(10): 1-13. DOI: 10.1007/s11886-021-01565-5.
- Trikhonova, M. A., Shoeva, O. Y., Tenditnik, M. V., Akopyan, A. A., Litvinova, E. A., Popova, N. A., Amstislavskaya, T. G., & Khlestkina, E. K. 2024. Antitumor Effects of an Anthocyanin-Rich Grain Diet in a Mouse Model of Lewis Lung Carcinoma. *International Journal of Molecular Sciences*, 25(11): 1-17. DOI: 10.3390/ijms25115727
- Uivarasan, A., Lukinac, J., Jukić, M., Šelo, G., Peter, A., Nicula, C., Mihaly Cozmuta, A., & Mihaly Cozmuta, L. 2024. Characterization of Polyphenol Composition and Starch and Protein Structure in Brown Rice Flour, Black Rice Flour and Their Mixtures. *Foods*, 13(11): 1-19. DOI: 10.3390/foods13111592.
- Voelkl, B., Altman, N. S., Forsman, A., Forstmeier, W., Gurevitch, J., Jaric, I., Karp, N. A., Kas, M. J., Schielzeth, H., Van de Castele, T., & Würbel, H. 2020. Reproducibility of Animal Research in Light of Biological Variation. *Nature Reviews Neuroscience*, 21(7): 384-393.
- Wang, B., Huang, S., Li, S., Deng, Y., Li, Z., Wang, Y., Shi, X., Zhang, W., Shi, L., Wang, X., & Tang, X. 2025. Hepatotoxicity of Statins: A Real-World Study Based on The US Food and Drug Administration Adverse Event Reporting System Database. *Frontiers Pharmacology*, 15(1): 1-11. DOI: 10.3389/fphar.2024.1502791.

- Wang, Z., Haange, S., Haake, V., Huisinga, M., Kamp, H., Buesen, R., Schubert, K., Canzler, S., Hackermuller, J., Rolle-Kampczyk, U., & Bergen, M. 2023. Assessing the Influence of Propylthiouracil and Phenytoin on the Metabolomes of the Thyroid, Liver, and Plasma in Rats. *Metabolites*, 13(7): 1-22. DOI: 10.3390/metabo13070847.
- Wati, D. P., Ilyas, S., & Yurnadi, Y. 2024. *Prinsip Dasar Tikus sebagai Model Penelitian*. Medan: USU Press.
- Westerterp, M., Murphy, A. J., Wang, M., & Yvan-Charvet, L. 2017. Hypercholesterolemia Enhances T Cell Receptor Signaling and Increases The Regulatory T Cell Population. *Journal of Clinical Investigation*, 127(4): 1364-1376. DOI: 10.1172/JCI91345.
- Willebrords, J., Pereira, I. V. A., Maes, M., Yanguas, S. C., Colle, I., Bossche, B. V. D., Da Silva, T. C., de Oliveira, C. P., Andraus, W. Alves, V. A., Cogliati, B., & Vinken, M. 2015. Strategies, Models, and Biomarkers in Experimental Non-Alcoholic Fatty Liver Disease Research. *Progress in Lipid Research*, 59(2): 106-125. DOI: 10.1016/j.plipres.2015.05.002.
- Wójcik, P., Gęgotek, A., Żarković, N., & Skrzydlewska, E. 2021. Oxidative Stress and Lipid Mediators Modulate Immune Cell Function in Autoimmune Diseases. *International Journal Molecule Science*, 22(2): 1-20. DOI: 10.3390/ijms22020723.
- World Health Organization. 2019. *Cholesterol, Mean Total (Crude Estimate)*. Global Health Observatory Data. Diakses 14 Juni 2025.
- Xue, H., Sang, Y., Gao, Y., Zeng, Y., Liao, J., & Tan, J. 2022. Research Progress on Absorption, Metabolism, and Biological Activities of Anthocyanins in Berries: A Review. *Antioxidants*, 12(1): 1-22.
- Zhang, Q., Fan, X., Ye, R., Hu, Y., Zheng, T., Shi, R., Cheng, W., Lv, X., Chen, L., & Liang, P. 2020. The Effect of Simvastatin on Gut Microbiota and Lipid Metabolism in Hyperlipidemic Rats Induced by a High-Fat Diet. *Frontiers in Pharmacology*, 11(522): 1-16. DOI: 10.3389/fphar.2020.00522.
- Zhang, S., Ma, Q., Dong, L., Jia, X., Liu, L., Huang, F., Liu, G., Sun, Z., Chi, J., Zhang, M., & Zhang, R. 2022. Phenolic Profiles and Bioactivities of Different Milling Fractions of Rice Bran from Black Rice. *Food Chemistry*, 378(1): 76-84.
- Zheng, Y., Ley, S. H., & Hu, F. B. 2018. Global Aetiology and Epidemiology of Type 2 Diabetes Mellitus and Its Complications. *Nature Reviews Endocrinology*, 14(2): 88-98.
- Zulfamidah, Z., Abdullah, R. P. I., & Fajriansyah, F. 2022. PKM Sosialisasi Bahaya Hiperkolesterolemia pada Tubuh dan Pemeriksaan Kadar Kolesterol di Desa Paddingin Kabupaten Takalar. *Jurnal Pengabdian Kedokteran Indonesia*, 3(1): 14-20.