

DAFTAR PUSTAKA

- Aboutaleb, N., Jamali, H., Abolhasani, M., Pazoki Toroudi, H., 2019. Lavender oil (*Lavandula angustifolia*) attenuates renal ischemia/reperfusion injury in rats through suppression of inflammation, oxidative stress and apoptosis. *Biomed. Pharmacother.* 110: 9–19. doi:10.1016/j.biopha.2018.11.045
- Aguilar Koga, B.A., Fernandes, L.A., Fratini, P., Sogayar, M.C., Carreira, A.C.O., 2022. Role of MSC-derived small extracellular vesicles in tissue repair and regeneration. *Front. Cell Dev. Biol.* 10: 1–16. doi:10.3389/fcell.2022.1047094
- Akl, H., Vervloessem, T., Kiviluoto, S., Bittremieux, M., Parys, J.B., De Smedt, H., Bultynck, G., 2014. A dual role for the anti-apoptotic Bcl-2 protein in cancer: Mitochondria versus endoplasmic reticulum. *Biochim. Biophys. Acta - Mol. Cell Res.* 1843: 2240–2252. doi:10.1016/j.bbamcr.2014.04.017
- Arfian, N., Budiharjo, S., Wibisono, D.P., Setyaningsih, W.A.W., Romi, M.M., Saputri, R.L.A.A.N.W., Rofiah, E.K., Rahmanti, T., Agustin, M., Sari, D.C.R., 2019. Vitamin D ameliorates kidney ischemia reperfusion injury via reduction of inflammation and myofibroblast expansion. *Kobe J. Med. Sci.* 65: E138–E143.
- Basile, D.P., Anderson, M.D. and Sutton, T.A., 2012. Pathophysiology of acute kidney injury. *Comprehensive Physiology*, 2(2), p.1303.
- Bazira, P.J., 2022. Anatomy of the kidney and ureter. *Surgery (Oxford)*, 40(8), pp.481–488.
- Ben-Shahar, Y., Abassi, Z., Pollak, Y., Koppelman, T., Gorelik, G., Sukhotnik, I., 2021. Cell death induction (extrinsic versus intrinsic apoptotic pathway) by intestinal ischemia–reperfusion injury in rats is time-dependent. *Pediatr. Surg. Int.* 37: 369–376. doi:10.1007/s00383-020-04817-7
- Briones-Suarez, L., Cifuentes, M., Bravo-Sagua, R., 2023. Secretory Factors from Calcium-Sensing Receptor-Activated SW872 Pre-Adipocytes Induce Cellular Senescence and A Mitochondrial Fragmentation-Mediated Inflammatory Response in HepG2 Cells. *Int. J. Mol. Sci.* 24. doi:10.3390/ijms24065217
- Burke, J., Kolhe, R., Hunter, M., Isales, C., Hamrick, M., Fulzele, S., 2016. Stem cell-derived exosomes: A potential alternative therapeutic agent in orthopaedics. *Stem Cells Int.* 2016: 5–8. doi:10.1155/2016/5802529
- Cao, J.Y., Wang, B., Tang, T.T., Wen, Y., Li, Z.L., Feng, S.T., Wu, M., Liu, D., Yin, D., Ma, K.L., Tang, R.N., Wu, Q.L., Lan, H.Y., Lv, L.L., Liu, B.C., 2021. Exosomal miR-125b-5p deriving from mesenchymal stem cells promotes tubular repair by suppression of p53 in ischemic acute kidney injury. *Theranostics* 11: 5248–5266. doi:10.7150/thno.54550
- Cao, Q., Huang, C., Chen, X.M., Pollock, C.A., 2022. Mesenchymal Stem Cell-Derived Exosomes: Toward Cell-Free Therapeutic Strategies in Chronic Kidney Disease. *Front. Med.* 9. doi:10.3389/fmed.2022.816656
- Chen, F., Chen, N.N., Xia, C., Wang, H., Shao, L., Zhou, C., Wang, J., 2023.

- Mesenchymal Stem Cell Therapy in Kidney Diseases: Potential and Challenges. *Cell Transplant.* 32. doi:10.1177/09636897231164251
- Chen, T.K., Knicely, D.H., Grams, M.E., 2019. Chronic Kidney Disease Diagnosis and Management: A Review. *JAMA - J. Am. Med. Assoc.* 322: 1294–1304. doi:10.1001/jama.2019.14745
- Chen, W., Wang, L., Liang, P., Mast, J., Mathis, C., Liu, C.Y., Wei, J., Zhang, J., Fu, L., Juncos, L.A., Buggs, J., Liu, R., 2022. Reducing ischemic kidney injury through application of a synchronization modulation electric field to maintain Na⁺/K⁺-ATPase functions. *Sci. Transl. Med.* 14: 1–27. doi:10.1126/scitranslmed.abj4906
- Chen, F., Chen, N.N., Xia, C., Wang, H., Shao, L., Zhou, C., Wang, J., 2023. Mesenchymal Stem Cell Therapy in Kidney Diseases: Potential and Challenges. *Cell Transplant.* 32. doi:10.1177/09636897231164251
- Davidson, S.M., Adameová, A., Barile, L., Cabrera-Fuentes, H.A., Lazou, A., Pagliaro, P., Stensløkken, K.O., Garcia-Dorado, D., 2020. Mitochondrial and mitochondrial-independent pathways of myocardial cell death during ischaemia and reperfusion injury. *J. Cell. Mol. Med.* 24: 3795–3806. doi:10.1111/jcmm.15127
- Delou, J.M.A., Biasoli, D., Borges, H.L., 2016. The complex link between apoptosis and autophagy: A promising new role for RB. *An. Acad. Bras. Cienc.* 88: 2257–2275. doi:10.1590/0001-3765201620160127
- Drosos, Y., Konstantakou, E.G., Bassogianni, A.S., Nikolakopoulos, K.S., Koumoundourou, D.G., Markaki, S.P., Tsitsilonis, O.E., Voutsinas, G.E., Valakos, D., Anastasiadou, E., Thanos, D., Velentzas, A.D., Stravopodis, D.J., 2023. Microtubule Dynamics Deregulation Induces Apoptosis in Human Urothelial Bladder Cancer Cells via a p53-Independent Pathway. *Cancers (Basel)*. 15. doi:10.3390/cancers15143730
- Dybiec, J., Szlagor, M., Młynarska, E., Rysz, J., Franczyk, B., 2022. Structural and Functional Changes in Aging Kidneys. *Int. J. Mol. Sci.* 23. doi:10.3390/ijms232315435
- El-Reshaid, W., Abdul-Fattah, H., 2014. Sonographic assessment of renal size in healthy adults. *Med. Princ. Pract.* 23: 432–436. doi:10.1159/000364876
- Ferenbach, D.A. and Bonventre, J.V., 2015. Mechanisms of maladaptive repair after AKI leading to accelerated kidney ageing and CKD. *Nature Reviews Nephrology*, 11(5), pp.264-276.
- George, N.E., Sarojini, ., Thomas, G., 2022. Role of Immunohistochemical Expression of p53 in Intestinal Epithelial Cells to Detect Dysplasia in Patients with Inflammatory Bowel Disease. *J. Clin. Diagnostic Res.* 16: 2–5. doi:10.7860/jcdr/2022/52194.16001
- Granata, S., Votrico, V., Spadaccino, F., Catalano, V., Netti, G.S., Ranieri, E., Stallone, G., Zaza, G., 2022. Oxidative Stress and Ischemia/Reperfusion Injury in Kidney Transplantation: Focus on Ferroptosis, Mitophagy and New Antioxidants. *Antioxidants* 11. doi:10.3390/antiox11040769

- Han, S.J., Thomas Lee, H., 2019. Mechanisms and therapeutic targets of ischemic acute kidney injury. *Kidney Res. Clin. Pract.* 38: 427–440. doi:10.23876/j.krcp.19.062
- He, L., Wei, Q., Liu, J., Yi, M., Liu, Y., Liu, H., Sun, L., Peng, Y., Liu, F., Venkatachalam, M.A., Dong, Z., 2017. AKI on CKD: heightened injury, suppressed repair, and the underlying mechanisms. *Kidney Int.* 92: 1071–1083. doi:10.1016/j.kint.2017.06.030
- Herrmann, I.K., Wood, M.J.A., Fuhrmann, G., 2021. Extracellular vesicles as a next-generation drug delivery platform. *Nat. Nanotechnol.* 16: 748–759. doi:10.1038/s41565-021-00931-2
- Hoang, D.M., Pham, P.T., Bach, T.Q., Ngo, A.T.L., Nguyen, Q.T., Phan, T.T.K., Nguyen, G.H., Le, P.T.T., Hoang, V.T., Forsyth, N.R., Heke, M., Nguyen, L.T., 2022. Stem cell-based therapy for human diseases. *Signal Transduct. Target. Ther.* 7. doi:10.1038/s41392-022-01134-4
- Huang, J., Cao, H., Cui, B., Ma, X., Gao, L., Yu, C., Shen, F., Yang, X., Liu, N., Qiu, A., Cai, G., Zhuang, S., 2022. Mesenchymal Stem Cells-Derived Exosomes Ameliorate Ischemia/Reperfusion Induced Acute Kidney Injury in a Porcine Model. *Front. Cell Dev. Biol.* 10: 1–17. doi:10.3389/fcell.2022.899869
- Inker, L.A., Astor, B.C., Fox, C.H., Isakova, T., Lash, J.P., Peralta, C.A., Kurella Tamura, M., Feldman, H.I., 2014. KDOQI US commentary on the 2012 KDIGO clinical practice guideline for the evaluation and management of CKD. *Am. J. Kidney Dis.* 63: 713–735. doi:10.1053/j.ajkd.2014.01.416
- Jeyaraman, M., Muthu, S., Gulati, A., Jeyaraman, N., G.S, P., Jain, R., 2021. Mesenchymal Stem Cell-Derived Exosomes: A Potential Therapeutic Avenue in Knee Osteoarthritis. *Cartilage* 13: 1572S-1585S. doi:10.1177/1947603520962567
- Ji, C., Zhang, J., Zhu, Y., Shi, H., Yin, S., Sun, F., Wang, Q., Zhang, L., Yan, Y., Zhang, X., Xu, W., Qian, H., 2020. Exosomes derived from hucMSC attenuate renal fibrosis through CK1 δ / β -TRCP-mediated YAP degradation. *Cell Death Dis.* 11. doi:10.1038/s41419-020-2510-4
- Joss-Moore, L.A., Bantilan, C., Aagaard-Tillery, K., Mitchell, N., desRoberts, C., Lane, R.H., 2018. Adult Consequences of Neonatal and Fetal Nutrition: Mechanisms, Third Edit. ed, Gastroenterology and Nutrition: Neonatology Questions and Controversies. Elsevier Inc. doi:10.1016/B978-0-323-54502-0.00011-6
- Kim, M.G., Kim, S.C., Ko, Y.S., Lee, H.Y., Jo, S.K., Cho, W., 2015. The role of M2 macrophages in the progression of chronic kidney disease following acute kidney injury. *PLoS One* 10: 1–17. doi:10.1371/journal.pone.0143961
- Koeppen, B. M., & Stanton, B. A. (2012). *Renal Physiology E-Book: Mosby Physiology Monograph Series*. Elsevier Health Sciences.
- Kosanović, M., Milutinovic, B., Glamočlija, S., Morlans, I.M., Ortiz, A., Bozic, M., 2022. Extracellular Vesicles and Acute Kidney Injury: Potential Therapeutic Avenue for Renal Repair and Regeneration. *Int. J. Mol. Sci.* 23. doi:10.3390/ijms23073792

- Kwiatkowska, E., Kwiatkowski, S., Dziedziejko, V., Tomasiewicz, I., Domański, L., 2023. Renal Microcirculation Injury as the Main Cause of Ischemic Acute Kidney Injury Development. *Biology (Basel)*. 12. doi:10.3390/biology12020327
- Levin, A.S., Bilous, R.W. and Coresh, J., 2013. Chapter 1: Definition and classification of CKD. *Kidney Int. Suppl*, 3(1), pp.19-62.
- Li, L., Wang, R., Jia, Y., Rong, R., Xu, M., Zhu, T., 2019. Exosomes Derived From Mesenchymal Stem Cells Ameliorate Renal Ischemic-Reperfusion Injury Through Inhibiting Inflammation and Cell Apoptosis. *Front. Med.* 6: 1–8. doi:10.3389/fmed.2019.00269
- Lim, S.W., Kim, K.W., Kim, B.M., Shin, Y.J., Luo, K., Quan, Y., Cui, S., Ko, E.J., Chung, B.H., Yang, C.W., 2022. Alleviation of renal ischemia/reperfusion injury by exosomes from induced pluripotent stem cell-derived mesenchymal stem cells. *Korean J. Intern. Med.* 37: 411–424. doi:10.3904/kjim.2020.438
- Liu, B., Hu, D., Zhou, Y., Yu, Y., Shen, L., Long, C., Butnaru, D., Timashev, P., He, D., Lin, T., Xu, T., Zhang, D., Wei, G., 2020. Exosomes released by human umbilical cord mesenchymal stem cells protect against renal interstitial fibrosis through ROS-mediated P38MAPK/ERK signaling pathway. *Am. J. Transl. Res.* 12: 4998–5014.
- Lomonosova, E. & Chinnadurai, G., 2008. BH3-only proteins in apoptosis and beyond: an overview. *Oncogene*, 27(S1), pp.S2-S19.
- Madrazo-Ibarra, A. and Vaitla, P., 2023. Histology, Nephron. In *StatPearls [Internet]*. StatPearls Publishing.
- Mangolo, I.E., 2024. Pengaruh Eksosom HUC-MSC terhadap Cedera Tubulus, Ekspresi mRNA IL-6 dan SOD-1 pada Tikus dengan Cedera Iskemik Reperfusi Ginjal [Thesis]. Gadjah Mada University, Yogyakarta.
- Makris, K., Spanou, L., 2016. Lesion Renal Aguda Otro. *Clin. Biochem. Rev.* 37: 85–98.
- Malek, M., Nematbakhsh, M., 2015. Renal ischemia/reperfusion injury; from pathophysiology to treatment. *J. Ren. Inj. Prev.* 4: 20–7. doi:10.12861/jrip.2015.06
- Miclau, K., Hambright, W.S., Huard, J., Stoddart, M.J., Bahney, C.S., 2023. Cellular expansion of MSCs: Shifting the regenerative potential. *Aging Cell* 22: 1–18. doi:10.1111/accel.13759
- Murray, I. and Paolini, M.A., 2020. Histology, kidney and glomerulus.
- Niu, Q., Yang, Y., Li, D., Guo, W., Wang, C., Xu, H., Feng, Z., Han, Z., 2022. Exosomes Derived from Bone Marrow Mesenchymal Stem Cells Alleviate Ischemia-Reperfusion Injury and Promote Survival of Skin Flaps in Rats. *Life* 12. doi:10.3390/life12101567
- Pei, J., Tian, X., Yu, C., Luo, J., Zhang, J., Hua, Y., Wei, G., 2023. GPX3 and GSTT1 as biomarkers related to oxidative stress during renal ischemia reperfusion injuries and their relationship with immune infiltration. *Front. Immunol.* 14: 1–15. doi:10.3389/fimmu.2023.1136146
- Peshkova, M., Korneev, A., Suleimanov, S., Vlasova, I.I., Svistunov, A., Kosheleva,

- N., Timashev, P., 2023. MSCs' conditioned media cytokine and growth factor profiles and their impact on macrophage polarization. *Stem Cell Res. Ther.* 14: 1–16. doi:10.1186/s13287-023-03381-w
- Pitt, J.M., Kroemer, G., Zitvogel, L., 2016. Extracellular vesicles: Masters of intercellular communication and potential clinical interventions. *J. Clin. Invest.* 126: 1139–1143. doi:10.1172/JCI87316
- Pittenger, M.F., Discher, D.E., Péault, B.M., Phinney, D.G., Hare, J.M., Caplan, A.I., 2019. Mesenchymal stem cell perspective: cell biology to clinical progress. *npj Regen. Med.* 4. doi:10.1038/s41536-019-0083-6
- Prem, P.N., Kurian, G.A., 2021. High-Fat Diet Increased Oxidative Stress and Mitochondrial Dysfunction Induced by Renal Ischemia-Reperfusion Injury in Rat. *Front. Physiol.* 12: 1–12. doi:10.3389/fphys.2021.715693
- Ravarotto, V., Bertoldi, G., Stefanelli, L.F., Nalesso, F., Calò, L.A., 2022. Pathomechanism of oxidative stress in cardiovascular-renal remodeling and therapeutic strategies. *Kidney Res. Clin. Pract.* 41: 533–544. doi:10.23876/j.krcp.22.069
- Robert, T., greillier, S., Torrents, J., Raymond, L., Dancer, M., Jourde-Chiche, N., Halimi, J.M., Burtey, S., Bérout, C., Mesnard, L., 2023. Diagnosis of Kidney Diseases of Unknown Etiology Through Biopsy-Genetic Analysis. *Kidney Int. Reports* 8: 2077–2087. doi:10.1016/j.ekir.2023.07.003
- Rota, C., Morigi, M., Imberti, B., 2019. Stem cell therapies in kidney diseases: Progress and challenges. *Int. J. Mol. Sci.* 20. doi:10.3390/ijms20112790
- Rysmakhanov, M. S., Zare, A., Smagulov, A. S., Abenova, N. A., Mussin, N. M., Sultangereyev, Y. B., ... & Tamadon, A. (2023). A Comprehensive Overview of Innovative Approaches to Prevent Kidney Ischemia-Reperfusion Injury: Bibliometric and In Silico Analyses.
- Sari, F.T., Arfian, N., Sari, D.C.R., 2020. Effect of kidney ischemia/reperfusion injury on proliferation, apoptosis, and cellular senescence in acute kidney injury in mice. *Med. J. Malaysia* 75: 19–23.
- Sherwood L. 2013. Introduction to Human Physiology. 8th ed. Brooks/Cole, Cengage Learning: Belmont, Canada
- Taylor, J., 2023. Renal system 1: the anatomy and physiology of the kidneys. *Nurs. Times* 119: 1–5.
- Théry, C., Ostrowski, M., Segura, E., 2009. Membrane vesicles as conveyors of immune responses. *Nat. Rev. Immunol.* 9: 581–593. doi:10.1038/nri2567
- Tortora, G.J., Derrickson, B., 2017. Principles of ANATOMY & PHYSIOLOGY. 15th edn. Wiley
- Turgut, F., Awad, A.S., Abdel-Rahman, E.M., 2023. Acute Kidney Injury: Medical Causes and Pathogenesis. *J. Clin. Med.* 12: 1–11. doi:10.3390/jcm12010375
- Wang, B., Yao, K., Huuskes, B.M., Shen, H.H., Zhuang, J., Godson, C., Brenman, E.P., Wilkinson-Berka, J.L., Wise, A.F. and Ricardo, S.D., 2016. Mesenchymal stem cells deliver exogenous microRNA-let7c via exosomes to attenuate renal fibrosis. *Molecular therapy*, 24(7), pp.1290-1301.

- Wang, Z. and Zhang, C., 2022. From AKI to CKD: maladaptive repair and the underlying mechanisms. *International journal of molecular sciences*, 23(18), p.10880.
- Wei, Q., Dong, Z., 2012. Mouse model of ischemic acute kidney injury: Technical notes and tricks. *Am. J. Physiol. - Ren. Physiol.* 303. doi:10.1152/ajprenal.00352.2012
- Wei, Q., Xiao, X., Fogle, P., Dong, Z., 2014. Changes in metabolic profiles during acute kidney injury and recovery following ischemia/reperfusion. *PLoS One* 9: 1–13. doi:10.1371/journal.pone.0106647
- Yao, X.W., Liu, Z.Y., Ma, N.F., Jiang, W.K., Zhou, Z., Chen, B., Guan, W.G., Yan, J.J., Yang, M., 2023. Exosomes from Adipose-Derived Stem Cells Alleviate Dexamethasone-Induced Bone Loss by Regulating the Nrf2/HO-1 Axis. *Oxid. Med. Cell. Longev.* 2023. doi:10.1155/2023/3602962
- Yun, C.W., Lee, S.H., 2019. Potential and therapeutic efficacy of cell-based therapy using mesenchymal stem cells for acute/chronic kidney disease. *Int. J. Mol. Sci.* 20. doi:10.3390/ijms20071619
- Zamorano, M., Castillo, R.L., Beltran, J.F., Herrera, L., Farias, J.A., Antileo, C., Aguilar-Gallardo, C., Pessoa, A., Calle, Y., Farias, J.G., 2021. Tackling Ischemic Reperfusion Injury With the Aid of Stem Cells and Tissue Engineering. *Front. Physiol.* 12: 1–19. doi:10.3389/fphys.2021.705256
- Zhang, K., Cheng, K., 2023. Stem cell-derived exosome versus stem cell therapy. *Nat. Rev. Bioeng.* 1: 608–609. doi:10.1038/s44222-023-00064-2
- Zhang, M., Zhao, Y., Wang, L., Zheng, Y., Yu, H., Dong, X., He, W., Yin, Z., Wang, Z., 2022. Study of the biological characteristics of human umbilical cord mesenchymal stem cells after long-time cryopreservation. *Cell Tissue Bank.* 23: 739–752. doi:10.1007/s10561-021-09973-1
- Zhang, W., Wang, T., Xue, Y., Zhan, B., Lai, Z., Huang, W., Peng, X., Zhou, Y., 2023. Research progress of extracellular vesicles and exosomes derived from mesenchymal stem cells in the treatment of oxidative stress-related diseases. *Front. Immunol.* 14: 1–27. doi:10.3389/fimmu.2023.1238789
- Zhang, Y., Liu, Y., Liu, H., Tang, W.H., 2019. Exosomes: Biogenesis, biologic function and clinical potential. *Cell Biosci.* 9: 1–18. doi:10.1186/s13578-019-0282-2
- Zhu, F., Shin, O.L.S.C.L., Pei, G., Hu, Z., Yang, J., Zhu, H., Wang, M., Mou, J., Sun, J., Wang, Y., Yang, Q., Zhao, Z., Xu, H., Gao, H., Yao, W., Luo, X., Liao, W., Xu, G., Zeng, R., Yao, Y., 2017. Adipose-derived mesenchymal stem cells employed exosomes to attenuate AKI-CKD transition through tubular epithelial cell dependent Sox9 activation. *Oncotarget* 8: 70707–70726. doi:10.18632/oncotarget.19979
- Zhu, N., Han, M., 2022. Roles of adenosine monophosphate-activated protein kinase (AMPK) in the kidney. *Chin. Med. J. (Engl.)*. 135: 488–490. doi:10.1097/CM9.0000000000001831