

## DAFTAR PUSTAKA

- Abdelmoez, A., Puig, L., Smith, J., & Gabriel, B. (2020). *Comparative profiling of skeletal muscle models reveals heterogeneity of transcriptome and metabolism*.
- Abmayr, S. M., & Pavlath, G. K. (2012). Myoblast fusion: Lessons from flies and mice. In *Development* (Vol. 139, Issue 4, pp. 641–656). <https://doi.org/10.1242/dev.068353>
- Ahangar, P., Mills, S. J., & Cowin, A. J. (2020). Mesenchymal stem cell secretome as an emerging cell-free alternative for improving wound repair. In *International Journal of Molecular Sciences* (Vol. 21, Issue 19, pp. 1–15). MDPI AG. <https://doi.org/10.3390/ijms21197038>
- Baranovskii, D. S., Klabukov, I. D., Arguchinskaya, N. V., Yakimova, A. O., Kisel, A. A., Yatsenko, E. M., Ivanov, S. A., Shegay, P. V., & Kaprin, A. D. (2022). Adverse events, side effects and complications in mesenchymal stromal cell-based therapies. In *Stem Cell Investigation* (Vol. 9). AME Publishing Company. <https://doi.org/10.21037/sci-2022-025>
- Barnett, A. H., Tahrani, A. A., Ord, C., Bailey, J., & Prato, S. Del. (2011). Management of type 2 diabetes: new and future developments in treatment. *Www.TheLancet.Com*, 378, 182–197. <https://doi.org/10.1016/S0140>
- Boushra, A. F., Mahmoud, R. H., Ayoub, S. E., Mohammed, R. A., Shamardl, H. A., & El Amin Ali, A. M. (2022). The Potential Therapeutic Effect of Orexin-Treated versus Orexin-Untreated Adipose Tissue-Derived Mesenchymal Stem Cell Therapy on Insulin Resistance in Type 2 Diabetic Rats. *Journal of Diabetes Research*, 2022. <https://doi.org/10.1155/2022/9832212>
- Brown, C., McKee, C., Bakshi, S., Walker, K., Hakman, E., Halassy, S., Svinarich, D., Dodds, R., Govind, C. K., & Chaudhry, G. R. (2019). Mesenchymal stem cells: Cell therapy and regeneration potential. In *Journal of Tissue Engineering and Regenerative Medicine* (Vol. 13, Issue 9, pp. 1738–1755). John Wiley and Sons Ltd. <https://doi.org/10.1002/term.2914>
- Bunn, R. C., Cockrell, G. E., Ou, Y., Thrailkill, K. M., Lumpkin, C. K., & Fowlkes, J. L. (2010). Palmitate and insulin synergistically induce IL-6 expression in human monocytes. *Cardiovascular Diabetology*, 9. <https://doi.org/10.1186/1475-2840-9-73>
- Che, J., Wang, H., Dong, J., Wu, Y., Zhang, H., Fu, L., & Zhang, J. (2024). Human umbilical cord mesenchymal stem cell-derived exosomes attenuate neuroinflammation and oxidative stress through the NRF2/NF-κB/NLRP3 pathway. *CNS Neuroscience and Therapeutics*, 30(3). <https://doi.org/10.1111/cns.14454>

- Chen, G., Fan, X. Y., Zheng, X. P., Jin, Y. L., Liu, Y., & Liu, S. C. (2020). Human umbilical cord-derived mesenchymal stem cells ameliorate insulin resistance via PTEN-mediated crosstalk between the PI3K/Akt and Erk/MAPKs signaling pathways in the skeletal muscles of db/db mice. *Stem Cell Research and Therapy*, 11(1). <https://doi.org/10.1186/s13287-020-01865-7>
- Costanzo, L., Soto, B., Meier, R., & Geraghty, P. (2022). The Biology and Function of Tissue Inhibitor of Metalloproteinase 2 in the Lungs. In *Genetics Research* (Vol. 2022). Hindawi Limited. <https://doi.org/10.1155/2022/3632764>
- Day, E. A., Ford, R. J., & Steinberg, G. R. (2017). AMPK as a Therapeutic Target for Treating Metabolic Diseases. In *Trends in Endocrinology and Metabolism* (Vol. 28, Issue 8, pp. 545–560). Elsevier Inc. <https://doi.org/10.1016/j.tem.2017.05.004>
- D'Oria, R., Laviola, L., Giorgino, F., Unfer, V., Bettocchi, S., & Scioscia, M. (2017). PKB/Akt and MAPK/ERK phosphorylation is highly induced by inositols: Novel potential insights in endothelial dysfunction in preeclampsia. *Pregnancy Hypertension*, 10, 107–112. <https://doi.org/10.1016/j.preghy.2017.07.001>
- ECACC. (2018). *C2C12 Cell Line Profile*.
- Eleuteri, S., & Fierabracci, A. (2019). Insights into the secretome of mesenchymal stem cells and its potential applications. In *International Journal of Molecular Sciences* (Vol. 20, Issue 18). MDPI AG. <https://doi.org/10.3390/ijms20184597>
- Garibyan, L., & Avashia, N. (2013). Polymerase chain reaction. *Journal of Investigative Dermatology*, 133(3), 1–4. <https://doi.org/10.1038/jid.2013.1>
- Gaster, M., Handberg, A., Beck-Nielsen, H., & Schröder, H. D. (2000). *Glucose transporter expression in human skeletal muscle fibers*. <http://www.ajpendo.org>
- Gesmundo, I., Pardini, B., Gargantini, E., Gamba, G., Birolo, G., Fanciulli, A., Banfi, D., Congiusta, N., Favaro, E., Deregibus, M. C., Togliatto, G., Zocaro, G., Brizzi, M. F., Luque, R. M., Castaño, J. P., Bocchiotti, M. A., Arolfo, S., Bruno, S., Nano, R., ... Granata, R. (2021). *Adipocyte-derived extracellular vesicles regulate survival and function of pancreatic  $\beta$  cells*. <https://doi.org/10.1172/jci>
- Goyal, R., & Jialal, I. (2022). *StatPearls-Diabetes Mellitus Type 2*. National Library of Medicine. <https://www.ncbi.nlm.nih.gov/books/NBK513253/>
- Goyal, R., Singhal, M., & Jialal, I. (2023). *StatPearls-Diabetes Mellitus Type 2*. <https://www.ncbi.nlm.nih.gov/books/NBK513253/>
- Hammad, A. M., Ibrahim, Y. A., Khdaib, S. I., Hall, F. S., Alfaraj, M., Jarrar, Y., & Abed, A. F. (2021). Metformin reduces oxandrolone- induced depression-like behavior in rats via modulating the expression of IL-1 $\beta$ , IL-6, IL-10 and TNF-

$\alpha$ . *Behavioural Brain Research*, 414.  
<https://doi.org/10.1016/j.bbr.2021.113475>

Harrell, C. R., Jovicic, N., Djonov, V., Arsenijevic, N., & Volarevic, V. (2019). Mesenchymal stem cell-derived exosomes and other extracellular vesicles as new remedies in the therapy of inflammatory diseases. In *Cells* (Vol. 8, Issue 12). MDPI. <https://doi.org/10.3390/cells8121605>

He, J., Dai, P., Liu, L., Yang, Y., Liu, X., Li, Y., & Liao, Z. (2022). The effect of short-term intensive insulin therapy on inflammatory cytokines in patients with newly diagnosed type 2 diabetes. *Journal of Diabetes*, 14(3), 192–204. <https://doi.org/10.1111/1753-0407.13250>

Heo, J. S., & Kim, S. (2022). Human adipose mesenchymal stem cells modulate inflammation and angiogenesis through exosomes. *Scientific Reports*, 12(1). <https://doi.org/10.1038/s41598-022-06824-1>

Honardoost, M., Arefian, E., Soleimani, M., Soudi, S., & Sarookhani, M. R. (2016). Development of Insulin Resistance through Induction of miRNA-135 in C2C12 Cells Citation: Honardoost M, Arefian E, Soleimani M, Soudi S, Sarookhani MR. Development of insulin resistance through induction of miRNA-135 in C2C12 cells. In *Original Article Cell Journal(Yakhteh)* (Vol. 18, Issue 3). [www.genome.jp/kegg](http://www.genome.jp/kegg)

Huang, A., & Raskin, P. (2005). Thiazolidinediones and Insulin Rationale for Use and Role of Combination Therapy in Type 2 Diabetes Mellitus. In *Treat Endocrinol* (Vol. 4, Issue 4).

Jiang, P., Ren, L., Zhi, L., Hu, X., & Xiao, R. P. (2021). Protocol for cell preparation and gene delivery in HEK293T and C2C12 cells. *STAR Protocols*, 2(3). <https://doi.org/10.1016/j.xpro.2021.100497>

Jiwlawat, S., Lynch, E., Glaser, J., Smit-Oistad, I., Jeffrey, J., Van Dyke, J. M., & Suzuki, M. (2017). Differentiation and sarcomere formation in skeletal myocytes directly prepared from human induced pluripotent stem cells using a sphere-based culture. *Differentiation*, 96, 70–81. <https://doi.org/10.1016/j.diff.2017.07.004>

Jové, M., Planavila, A., Laguna, J. C., & Vázquez-Carrera, M. (2005). Palmitate-induced interleukin 6 production is mediated by protein kinase C and nuclear-factor B activation and leads to glucose transporter 4 down-regulation in skeletal muscle cells. *Endocrinology*, 146(7), 3087–3095. <https://doi.org/10.1210/en.2004-1560>

Kim, K. S., Choi, Y. K., Kim, M. J., Hwang, J. W., Min, K., Jung, S. Y., Kim, S. K., Choi, Y. S., & Cho, Y. W. (2020). Umbilical cord-mesenchymal stem cell-conditioned medium improves insulin resistance in c2c12 cell. *Diabetes and Metabolism Journal*, 44(44). <https://doi.org/10.4093/dmj.2019.0191>

- Kotikalapudi, N., Sampath, S. J. P., Sinha, S. N., Bhonde, R., Mungamuri, S. K., & Venkatesan, V. (2022). Human placental mesenchymal stromal cell therapy restores the cytokine efflux and insulin signaling in the skeletal muscle of obesity-induced type 2 diabetes rat model. *Human Cell*, 35(2), 557–571. <https://doi.org/10.1007/s13577-021-00664-3>
- Lee, E. J., & Kim, H. S. (2014). The anti-inflammatory role of tissue inhibitor of metalloproteinase-2 in lipopolysaccharide-stimulated microglia. *Journal of Neuroinflammation*, 11. <https://doi.org/10.1186/1742-2094-11-116>
- Lee, S. H., Park, S. Y., & Choi, C. S. (2022). Insulin Resistance: From Mechanisms to Therapeutic Strategies. In *Diabetes and Metabolism Journal* (Vol. 46, Issue 1, pp. 15–37). Korean Diabetes Association. <https://doi.org/10.4093/DMJ.2021.0280>
- Li, X., Zhang, D., Yu, Y., Wang, L., & Zhao, M. (2024). Umbilical cord-derived mesenchymal stem cell secretome promotes skin regeneration and rejuvenation: From mechanism to therapeutics. In *Cell Proliferation* (Vol. 57, Issue 4). John Wiley and Sons Inc. <https://doi.org/10.1111/cpr.13586>
- Liu, X., Zheng, P., Wang, X., Dai, G., Cheng, H., Zhang, Z., Hua, R., Niu, X., Shi, J., & An, Y. (2014). A preliminary evaluation of efficacy and safety of Wharton's jelly mesenchymal stem cell transplantation in patients with type 2 diabetes mellitus. *Stem Cell Research and Therapy*, 5(2). <https://doi.org/10.1186/scrt446>
- Mitchell, R., Mellows, B., Sheard, J., Antonioli, M., Kretz, O., Chambers, D., Zeuner, M. T., Tomkins, J. E., Denecke, B., Musante, L., Joch, B., Debacq-Chainiaux, F., Holthofer, H., Ray, S., Huber, T. B., Dengjel, J., De Coppi, P., Wiedera, D., & Patel, K. (2019). Secretome of adipose-derived mesenchymal stem cells promotes skeletal muscle regeneration through synergistic action of extracellular vesicle cargo and soluble proteins. *Stem Cell Research and Therapy*, 10(1). <https://doi.org/10.1186/s13287-019-1213-1>
- Mou, Y., Yue, Z., Zhang, H., Shi, X., Zhang, M., Chang, X., Gao, H., Li, R., & Wang, Z. (2017). High quality in vitro expansion of human endothelial progenitor cells of human umbilical vein origin. *International Journal of Medical Sciences*, 14(3), 294–301. <https://doi.org/10.7150/ijms.18137>
- Nagamura-Inoue, T. (2014). Umbilical cord-derived mesenchymal stem cells: Their advantages and potential clinical utility. *World Journal of Stem Cells*, 6(2), 195. <https://doi.org/10.4252/wjsc.v6.i2.195>
- Nieuwoudt, S., Mulya, A., Fealy, C. E., Martelli, E., Dasarathy, S., Prasad, S., & Kirwan, J. P. (2017). *In Vitro contraction protects against palmitate-induced insulin resistance in C2C12 myotubes.*
- Nouri K, & Yazdanparast R. (2011). *Proliferation inhibition, cell cycle arrest and apoptosis induced in HL-60 cells by a natural diterpene ester from Daphne mucronata.*

- Pajalunga, D., & Crescenzi, M. (2021). Restoring the cell cycle and proliferation competence in terminally differentiated skeletal muscle myotubes. In *Cells* (Vol. 10, Issue 10). MDPI. <https://doi.org/10.3390/cells10102753>
- Palomer, X., Pizarro-Delgado, J., Barroso, E., & Vázquez-Carrera, M. (2018). Palmitic and Oleic Acid: The Yin and Yang of Fatty Acids in Type 2 Diabetes Mellitus. In *Trends in Endocrinology and Metabolism* (Vol. 29, Issue 3, pp. 178–190). Elsevier Inc. <https://doi.org/10.1016/j.tem.2017.11.009>
- Peng, Y., & Croce, C. M. (2016). The role of microRNAs in human cancer. In *Signal Transduction and Targeted Therapy* (Vol. 1). Springer Nature. <https://doi.org/10.1038/sigtrans.2015.4>
- Petersen, M. C., & Shulman, G. I. (2018). Mechanisms of Insulin Action and Insulin Resistance. *Physiol Rev*, 98, 2133–2223. <https://doi.org/10.1152/physrev>
- Prasetyo, Y. C. (2023). *Efek Fraksi aktif herba ciplukan (Physalis angulata linn) terhadap konsumsi glukosa sel C2C12 Myotube: Kajian pada model resistensi insulin in vitro.*
- Pu, J., Peng, G., Li, L., Na, H., Liu, Y., & Liu, P. (2011). Palmitic acid acutely stimulates glucose uptake via activation of Akt and ERK1/2 in skeletal muscle cells. *Journal of Lipid Research*, 52(7), 1319–1327. <https://doi.org/10.1194/jlr.M011254>
- Qiu, L., Wang, J., Chen, M., Chen, F., & Tu, W. (2020). Exosomal microRNA-146a derived from mesenchymal stem cells increases the sensitivity of ovarian cancer cells to docetaxel and taxane via a LAMC2-mediated PI3K/Akt axis. *International Journal of Molecular Medicine*, 46(2), 609–620. <https://doi.org/10.3892/ijmm.2020.4634>
- Rehman, K., Sajid, M., Akash, H., Liaqat, A., Kamal, S., Qadir, M. I., & Rasul, A. (2017). Role of Interleukin-6 in Development of Insulin Resistance and Type 2 Diabetes Mellitus. In *Critical Reviews<sup>TM</sup> in Eukaryotic Gene Expression* (Vol. 27, Issue 3). www.begellhouse.com
- Riss, T. L., Moravec, R. A., & Niles, A. L. (2013). *Cell Viability Assays*.
- Sadeghi, A., Ebrahimi, S. S. S., Golestani, A., & Meshkani, R. (2017). Resveratrol ameliorates palmitate-induced inflammation in skeletal muscle cells by attenuating oxidative stress and JNK/NF-KB pathway in a SIRT1-independent mechanism. *Journal of Cellular Biochemistry*, 118(8), 2208–2218. <https://doi.org/10.1002/jcb.25867>
- Salvadori, M., Cesari, N., Murgia, A., Puccini, P., Riccardi, B., & Dominici, M. (2019). Dissecting the Pharmacodynamics and Pharmacokinetics of MSCs to Overcome Limitations in Their Clinical Translation. In *Molecular Therapy Methods and Clinical Development* (Vol. 14, pp. 1–15). Cell Press. <https://doi.org/10.1016/j.omtm.2019.05.004>



- Sanap, A., Bhonde, R., & Joshi, K. (2021). Mesenchymal stem cell conditioned medium ameliorates diabetic serum-induced insulin resistance in 3T3-L1 cells. *Chronic Diseases and Translational Medicine*, 7(1), 47–56. <https://doi.org/10.1016/j.cdtm.2020.09.001>
- Saraswati, M. R. (2022). *Diabetes Melitus Adalah Masalah Kita*. KEMENKES.
- Septisetyani, E. P., Santoso, A., Wisnuwardhani, P. H., & Prasetyaningrum, P. W. (2020). Cytotoxic effects of chemopreventive agents curcumin, naringin and epigallocatechin-3-gallate in C2C12 myoblast cells. *IOP Conference Series: Earth and Environmental Science*, 439(1). <https://doi.org/10.1088/1755-1315/439/1/012062>
- Shang, R., & Miao, J. (2023). Mechanisms and effects of metformin on skeletal muscle disorders. In *Frontiers in Neurology* (Vol. 14). Frontiers Media SA. <https://doi.org/10.3389/fneur.2023.1275266>
- Shen, N., Yu, X., Pan, F. Y., Gao, X., Xue, B., & Li, C. J. (2011). An early response transcription factor, Egr-1, enhances insulin resistance in type 2 diabetes with chronic hyperinsulinism. *Journal of Biological Chemistry*, 286(16), 14508–14515. <https://doi.org/10.1074/jbc.M110.190165>
- Shree, N., & Bhonde, R. R. (2017). Conditioned Media From Adipose Tissue Derived Mesenchymal Stem Cells Reverse Insulin Resistance in Cellular Models. *Journal of Cellular Biochemistry*, 118(8), 2037–2043. <https://doi.org/10.1002/jcb.25777>
- Staiger, H., Staiger, K., Stefan, N., Gü Nther Wahl, H., Machicao, F., Kellerer, M., & Hä, H.-U. (2004). *Palmitate-Induced Interleukin-6 Expression in Human Coronary Artery Endothelial Cells*. <http://diabetesjournals.org/diabetes/article-pdf/53/12/3209/376358/zdb01204003209.pdf>
- Sun, X., Hao, H., Han, Q., Song, X., Liu, J., Dong, L., Han, W., & Mu, Y. (2017). Human umbilical cord-derived mesenchymal stem cells ameliorate insulin resistance by suppressing NLRP3 inflammasome-mediated inflammation in type 2 diabetes rats. *Stem Cell Research and Therapy*, 8(1). <https://doi.org/10.1186/s13287-017-0668-1>
- Sun, Y., Shi, H., Yin, S., Ji, C., Zhang, X., Zhang, B., Wu, P., Shi, Y., Mao, F., Yan, Y., Xu, W., & Qian, H. (2018). Human mesenchymal stem cell derived exosomes alleviate type 2 diabetes mellitus by reversing peripheral insulin resistance and relieving  $\beta$ -cell destruction. *ACS Nano*, 12(8), 7613–7628. <https://doi.org/10.1021/acsnano.7b07643>
- Thorn, S. L., Gollob, M. H., Harper, M. E., Beanlands, R. S., Dekemp, R. A., & Dasilva, J. N. (2013). Chronic AMPK activity dysregulation produces myocardial insulin resistance in the human Arg302Gln-PRKAG2 glycogen storage disease mouse model. *EJNMMI Research*, 3(1), 1–9. <https://doi.org/10.1186/2191-219X-3-48>

Weigert, C., Brodbeck, K., Staiger, H., Kausch, C., Machicao, F., Häring, H. U., & Schleicher, E. D. (2004). Palmitate, but not unsaturated fatty acids, induces the expression of interleukin-6 in human myotubes through proteasome-dependent activation of nuclear factor- $\kappa$ B. *Journal of Biological Chemistry*, 279(23), 23942–23952. <https://doi.org/10.1074/jbc.M312692200>

WHO. (2022). *Diabetes*.

Wong, C. Y., Al-Salami, H., & Dass, C. R. (2020). C2C12 cell model: its role in understanding of insulin resistance at the molecular level and pharmaceutical development at the preclinical stage. In *Journal of Pharmacy and Pharmacology* (Vol. 72, Issue 12, pp. 1667–1693). Blackwell Publishing Ltd. <https://doi.org/10.1111/jphp.13359>

Xie, Z., Hao, H., Tong, C., Cheng, Y., Liu, J., Pang, Y., Si, Y., Guo, Y., Zang, L., Mu, Y., & Han, W. (2016). Human umbilical cord-derived mesenchymal stem cells elicit macrophages into an anti-inflammatory phenotype to alleviate insulin resistance in type 2 diabetic rats. *Stem Cells*, 34(3), 627–639. <https://doi.org/10.1002/stem.2238>

Yang, M., Wei, D., Mo, C., Zhang, J., Wang, X., Han, X., Wang, Z., & Xiao, H. (2013). Saturated fatty acid palmitate-induced insulin resistance is accompanied with myotube loss and the impaired expression of health benefit myokine genes in C2C12 myotubes. *Lipids in Health and Disease*, 12(1). <https://doi.org/10.1186/1476-511X-12-104>

Yudhani, R. D., Sari, Y., Nugrahaningsih, D. A. A., Sholikhah, E. N., Rochmanti, M., Purba, A. K. R., Khotimah, H., Nugrahenny, D., & Mustofa, M. (2023). In Vitro Insulin Resistance Model: A Recent Update. In *Journal of Obesity* (Vol. 2023). Hindawi Limited. <https://doi.org/10.1155/2023/1964732>

Zang, L., Hao, H., Liu, J., Li, Y., Han, W., & Mu, Y. (2017). Mesenchymal stem cell therapy in type 2 diabetes mellitus. In *Diabetology and Metabolic Syndrome* (Vol. 9, Issue 1). BioMed Central Ltd. <https://doi.org/10.1186/s13098-017-0233-1>

Zhao, D., Yu, Z., Li, Y., Wang, Y., Li, Q., & Han, D. (2020). GelMA combined with sustained release of HUVECs derived exosomes for promoting cutaneous wound healing and facilitating skin regeneration. *Journal of Molecular Histology*, 51(3), 251–263. <https://doi.org/10.1007/s10735-020-09877-6>