

## DAFTAR PUSTAKA

- Agarwal, S., & Krishnamurthy, K. (2023). Histology, Skin. *StatPearls*.  
<https://www.ncbi.nlm.nih.gov/books/NBK537325/>
- Almutairi, S., Kalloush, H. M., Manoon, N. A., & Bardawel, S. K. (2023). Matrix Metalloproteinases Inhibitors in Cancer Treatment: An Updated Review (2013-2023). *Molecules (Basel, Switzerland)*, 28(14).  
<https://doi.org/10.3390/MOLECULES28145567>
- Angeline Giri Putra, L., Jodi Yonathan, C., Imania Niedhatrata, N., Hilmy Rizka Firdaus, M., & Renata Yoewono, J. (2020). *Stannum : Jurnal Sains dan Terapan Kimia A Review of the Development of Polymerase Chain Reaction Technique and Its Uses in Scientific Field.* 2(1), 17–30.  
<https://doi.org/10.33019/jstk.v%vi%.i.1619>
- Anis, A., Kurniawati, E. M., Hardianto, G., & Setyohadi, T. H. (2023). The role of matrix metalloproteinase-9 (MMP-9) and tissue inhibitor of metalloproteinase-1 (TIMP-1) Expression in pelvic organ prolapse: A literature review. *Bali Medical Journal*, 12(3), 2729–2734.  
<https://doi.org/10.15562/BMJ.V12I3.4785>
- BMKG. (2022). Indeks Sinar Ultraviolet (UV). <https://bmkg.go.id/kualitas-udara/indeks-uv.bmkg>
- Cancemi, P., Aiello, A., Accardi, G., Caldarella, R., Candore, G., Caruso, C., Ciaccio, M., Cristaldi, L., Gaudio, F. Di, Siino, V., & Vasto, S. (2020). The Role of Matrix Metalloproteinases (MMP-2 and MMP-9) in Ageing and Longevity: Focus on Sicilian Long-Living Individuals (LLIs). *Hindawi Mediators of Inflammation*, 2020, 11. <https://doi.org/10.1155/2020/8635158>
- Chaudhary, M., Khan, A., & Gupta, M. (2020). SCIENCE BENTHAM Send Orders for Reprints to reprints@benthamscience.net Skin Ageing: Pathophysiology and Current Market Treatment Approaches. *Current Aging Science*, 13, 22–30. <https://doi.org/10.2174/1567205016666190809161115>
- Dick, M. K., Miao, J. H., & Limaiem, F. (2023). Histology, Fibroblast. *StatPearls*.  
<https://www.ncbi.nlm.nih.gov/books/NBK541065/>

- Eroschenko, Victor P. (2017). *diFIORE'S Atlas of Histology with Functional Correlations* (10th ed.). Baltimore: Wolters Kluwer Health.
- Flint, B., & Tadi, P. (2023). Physiology, Aging. *StatPearls*. <https://www.ncbi.nlm.nih.gov/books/NBK556106/>
- Guan, L. L., Henry, ·, Lim, W., Tasneem, ·, & Mohammad, F. (123 C.E.). Sunscreens and Photoaging: A Review of Current Literature. *American Journal of Clinical Dermatology*, 22, 819–828. <https://doi.org/10.1007/s40257-021-00632-5>
- Hamczyk, M. R., Nevado, R. M., Baretino, A., Fuster, V., & Andrés, V. (2020). Biological Versus Chronological Aging: JACC Focus Seminar. *Journal of the American College of Cardiology*, 75(8), 919–930. <https://doi.org/10.1016/J.JACC.2019.11.062>
- James, W. D., D. M. Elston, J. R. Treat, M. A. Rosenbach, I. M. Neuhaus. (2020). Andrews' Disease of the Skin Clinical Dermatology Thirteenth Edition. Elsevier
- Joshi, M., & Deshpande, J. D. (n.d.). POLYMERASE CHAIN REACTION: METHODS, PRINCIPLES AND APPLICATION. *International Journal of Biomedical Research*, 81–97. Retrieved January 3, 2025, from [www.ssjournals.com](http://www.ssjournals.com)
- Kim, D. J., Iwasaki, A., Chien, A. L., & Kang, S. (2022). *UVB-mediated DNA damage induces matrix metalloproteinases to promote photoaging in an AhR- and SP1-dependent manner*. <https://doi.org/10.1172/jci>
- Kisiel, M. A., & Klar, A. S. (2019). Isolation and Culture of Human Dermal Fibroblasts. *Methods in Molecular Biology (Clifton, N.J.)*, 1993, 71–78. [https://doi.org/10.1007/978-1-4939-9473-1\\_6](https://doi.org/10.1007/978-1-4939-9473-1_6)
- Krutmann, J., Bouloc, A., Sore, G., Bernard, B. A., & Passeron, T. (2017). The skin aging exposome. *Journal of Dermatological Science*, 85(3), 152–161. <https://doi.org/10.1016/J.JDERMSCI.2016.09.015>
- Latronico, T., Petraglia, T., Sileo, C., Bilancia, D., Rossano, R., & Liuzzi, G. M. (2024). Inhibition of MMP-2 and MMP-9 by Dietary Antioxidants in THP-1

- Macrophages and Sera from Patients with Breast Cancer. *Molecules* 2024, Vol. 29, Page 1718, 29(8), 1718. <https://doi.org/10.3390/MOLECULES29081718>
- Mondal, S., Adhikari, N., Banerjee, S., Amin, S. A., & Jha, T. (2020). Matrix metalloproteinase-9 (MMP-9) and its inhibitors in cancer: A minireview. *European Journal of Medicinal Chemistry*, 194, 112260. <https://doi.org/10.1016/J.EJMECH.2020.112260>
- Murlistyarini, S., & Dani, A. A. (2023). THE ROLE OF MATRIX METALLOPROTEINASE (MMP) IN PHOTOAGING PROCESS. *Journal of Dermatology, Venereology and Aesthetic*, 3(1), 13–21. <https://jdva.ub.ac.id/index.php/jdva/article/view/24>
- Nikolov, A., & Popovski, N. (2021). Role of Gelatinases MMP-2 and MMP-9 in Healthy and Complicated Pregnancy and Their Future Potential as Preeclampsia Biomarkers. *Diagnostics* 2021, Vol. 11, Page 480, 11(3), 480. <https://doi.org/10.3390/DIAGNOSTICS11030480>
- Orioli, D., & Dellambra, E. (2018). Epigenetic Regulation of Skin Cells in Natural Aging and Premature Aging Diseases. *Cells* 2018, Vol. 7, Page 268, 7(12), 268. <https://doi.org/10.3390/CELLS7120268>
- Paulsen, Friedrich; Waschke, Jens (ed). (2018). *Atlas of Anatomy Sobotta : General Anatomy and Musculoskeletal System* (16). Munich,Germany: Elsevier Inc.
- Pustaka, T., & Yusharyahya, S. N. (2021). Mekanisme Penuaan Kulit sebagai Dasar Pencegahan dan Pengobatan Kulit Menua. *EJournal Kedokteran Indonesia*, 9(2), 150–150. <https://doi.org/10.23886/EJKI.9.49.150>
- Putri, D. R., Azis, A. D., & Rizqi, M. N. (2023). ANALISIS RASIO KEUANGAN DAN FINANCIAL DISTRESS SEBELUM DAN SESUDAH COVID-19 SUBSECTOR FOOD AND BEVERAGE. *Jurnal Maneksi*, 12(3), 564–572. <https://doi.org/10.31959/JM.V12I3.1727>
- Rashid, Z. A., & Bardawel, S. K. (2023). Novel Matrix Metalloproteinase-9 (MMP-9) Inhibitors in Cancer Treatment. *International Journal of Molecular Sciences*, 24(15), 12133. <https://doi.org/10.3390/IJMS241512133/S1>
- Sand, J. M. B., Madsen, S. F., & Karsdal, M. A. (2024). Type IV collagen. *Biochemistry of Collagens, Laminins and Elastin: Structure, Function and*

*Biomarkers, Third Edition, 37–53.* <https://doi.org/10.1016/B978-0-443-15617-5.00017-2>

Sidransky, Ellen. (2024), Fibroblast. Dalam National Human Genome Research Institute, <https://www.genome.gov/genetics-glossary/Fibroblast>

Shibata, N., Ishida, H., Kiyokawa, E., Singh, D. P., Sasaki, H., & Kubo, E. (2020). Relative gene expression analysis of human pterygium tissues and UV radiation-evoked gene expression patterns in corneal and conjunctival cells. *Experimental Eye Research*, 199, 108194. <https://doi.org/10.1016/J.EXER.2020.108194>

Song, D., Lian, Y., & Zhang, L. (2023). The potential of activator protein 1 (AP-1) in cancer targeted therapy. *Frontiers in Immunology*, 14, 1224892. <https://doi.org/10.3389/FIMMU.2023.1224892/BIBTEX>

Wang, D., & Farhana, A. (2023). Biochemistry, RNA Structure. *StatPearls*. <https://www.ncbi.nlm.nih.gov/books/NBK558999/>

Yousef, H., Alhajj, M., & Sharma, S. (2022). Anatomy, Skin (Integument), Epidermis. *StatPearls*. <https://www.ncbi.nlm.nih.gov/books/NBK470464/>

Zhang, R., Abbasi, Q. H., & Alomainy, A. (2019). Power distribution and performance analysis of terahertz communication in artificial skin. *Proceedings of the 6th ACM International Conference on Nanoscale Computing and Communication, NANOCOM 2019*. <https://doi.org/10.1145/3345312.3345461>

Zhang, S., & Duan, E. (2018). Fighting against Skin Aging: The Way from Bench to Bedside. *Cell Transplantation*, 27(5), 729–738. [https://doi.org/10.1177/0963689717725755/ASSET/IMAGES/LARGE/10.1177\\_0963689717725755-FIG2.JPG](https://doi.org/10.1177/0963689717725755/ASSET/IMAGES/LARGE/10.1177_0963689717725755-FIG2.JPG)