REFERENCES

Albanna, M., & Holmes IV, J. H. (2016). *Skin Tissue Engineering and Regenerative Medicine*. Academic Press.

Antonio, C. R., & Trídico, L. A. (2021). The importance of interaction between hyaluronic acid and CD44 receptor. *Surgical & Cosmetic Dermatology*, *13*. https://doi.org/10.5935/scd1984-8773.2021130006

Aslantürk, Ö. S. (2018). In Vitro Cytotoxicity and Cell Viability Assays: Principles, Advantages, and Disadvantages. *Genotoxicity - A Predictable Risk to Our Actual World*. https://doi.org/10.5772/intechopen.71923

Bakibaev, A. A., Il'yasov, S. G., Tatarenko, O. V., Tuguldurova, V. P., Zorin, A. O., Malkov, V. S., & Kasyanova, A. S. (2020). Allantoin: synthesis and chemical properties. *Organic Chemistry*, *1*(97), 7-19. https://doi.org/10.31489/2020Ch1/7-21

Barton, S., Eastham, A., Isom, A., McIaverty, D., & Soong, Y. L. (2020). *Discovering Cosmetic Science*. Royal Society of Chemistry.

Baumann, L., Bernstein, E. F., Weiss, A. S., Bates, D., Humphrey, S., Silberberg, M., & Daniels, R. (2021). Clinical Relevance of Elastin in the Structure and Function of Skin. *Aesthetic Surgery Journal Open Forum*, *3*(3). https://doi.org/10.1093/asjof/ojab019

Becker, L. C., Bergfeld, W. F., Belsito, D. V., Klaassen, C. D., Marks, J. G., Shank, R. C., Slaga, T. J., Snyder, P. W., & Andersen, F. A. (2010). Final Report of the Safety Assessment of Allantoin and Its Related Complexes. *International Journal of Toxicology*, *29*(3_suppl), 84S-97S. https://doi.org/10.1177/1091581810362805

Biological Evaluation of Medical Devices - Part 5: Tests for in vitro Cytotoxicity (ISO 10993-5:2009). (2009). International Organization for Standardization. https://nhiso.com/wp-content/uploads/2018/05/ISO-10993-5-2009.pdf

Cole, M. A., Quan, T., Voorhees, J. J., & Fisher, G. J. (2018). Extracellular matrix regulation of fibroblast function: Redefining our perspective on skin aging. Journal of Cell Communication and Signaling, 12(1), 35-43. https://doi.org/10.1007/s12079-018-0459-1

Dunbar, R. L., & Gelfand, J. M. (2010). Seeing red: flushing out instigators of niacin-associated skin toxicity. *Journal of Clinical Investigation*, *120*(8), 2651-2655. https://doi.org/10.1172/jci44098

Frantz, C., Stewart, K. M., & Weaver, V. M. (2010). The extracellular matrix at a glance. Journal of Cell Science, 123(24), 4195-4200. https://doi.org/10.1242/jcs.023820

Hosseini, S., Vázquez-Villegas, P., Rito-Palomares, M., & Martinez-Chapa, S. O. (2017). *Enzyme-linked Immunosorbent Assay (ELISA): From A to Z*. Springer.

Kabakov, A. E., & Gabai, V. L. (2017). Cell Death and Survival Assays. *Methods in Molecular Biology*, 107-127. https://doi.org/10.1007/978-1-4939-7477-1_9

Karsdal, M. (2019). *Biochemistry of Collagens, Laminins, and Elastin: Structure, Function and Biomarkers*. Academic Press.

Kular, J. K., Basu, S., & Sharma, R. I. (2014). The extracellular matrix: Structure, composition, age-related differences, tools for analysis and applications for tissue engineering. Journal of Tissue Engineering, 5, 204173141455711. https://doi.org/10.1177/2041731414557112

Lago, J. C., & Puzzi, M. B. (2019). The effect of aging in primary human dermal fibroblasts. PLOS ONE, 14(7), e0219165. https://doi.org/10.1371/journal.pone.0219165

Marzook, F., Marzook, E., & El-Sonbaty, S. (2021). Allantoin may modulate aging impairments, symptoms and cancers. *Pakistan Journal of Pharmaceutical Sciences*, *34*(4). https://doi.org/10.36721/PJPS.2021.34.4.REG.1377-1384.1

MERCK. (2021). Human Dermal Fibroblasts (HDF) Culture Protocol. MERCK. https://www.sigmaaldrich.com/ID/en/technical-documents/protocol/cell-culture-and-cell-culture-analysis/primary-cell-culture/human-dermal-fibroblasts

Mohiuddin, A. K. (2019). Skin Aging & Modern Age Anti-Aging Strategies. Global Journal of Medical Research, 19(2), 15-60. https://doi.org/10.34257/gjmrbvol19is2pg15

Niazi, S. K. (2019). Handbook of Pharmaceutical Manufacturing Formulations (3rd ed.). CRC Press.

Papakonstantinou, E., Roth, M., & Karakiulakis, G. (2012). Hyaluronic acid: A key molecule in skin aging. *Dermato-Endocrinology*, *4*(3), 253-258. https://doi.org/10.4161/derm.21923

Pfisterer, K., Shaw, L. E., Symmank, D., & Weninger, W. (2021). The Extracellular Matrix in Skin Inflammation and Infection. Frontiers in Cell and Developmental Biology, 9. https://doi.org/10.3389/fcell.2021.682414

Qin, Z., Fisher, G. J., & Quan, T. (2013). Cysteine-rich protein 61 (CCN1) Domain-specific Stimulation of Matrix Metalloproteinase-1 Expression through αVβ3 Integrin in Human Skin Fibroblasts. *Journal of Biological Chemistry*, *288*(17), 12386-12394. https://doi.org/10.1074/jbc.m112.424358

Quan, T., Qin, Z., Robichaud, P., Voorhees, J. J., & Fisher, G. J. (2011). CCN1 contributes to skin connective tissue aging by inducing age-associated secretory phenotype in human skin dermal fibroblasts. *Journal of Cell Communication and Signaling*, *5*(3), 201-207. https://doi.org/10.1007/s12079-011-0144-0

Quan, T., Qin, Z., Voorhees, J. J., & Fisher, G. J. (2012). Cysteine-rich protein 61 (CCN1) mediates replicative senescence-associated aberrant collagen homeostasis in human skin fibroblasts. *Journal of Cellular Biochemistry*, *113*(9), 3011-3018. https://doi.org/10.1002/jcb.24179

Shim, J. H. (2019). Prostaglandin E2 Induces Skin Aging via E-Prostanoid 1 in Normal Human Dermal Fibroblasts. *International Journal of Molecular Sciences*, *20*(22), 5555. https://doi.org/10.3390/ijms20225555

Snetkov, P., Zakharova, K., Morozkina, S., Olekhnovich, R., & Uspenskaya, M. (2020). Hyaluronic Acid: The Influence of Molecular Weight on Structural, Physical, Physico-Chemical, and Degradable Properties of Biopolymer. *Polymers*, *12*(8), 1800. https://doi.org/10.3390/polym12081800

Terazawa, S., Nakajima, H., Tobita, K., & Imokawa, G. (2014). The decreased secretion of hyaluronan by older human fibroblasts under physiological conditions is mainly associated with the down-

regulated expression of hyaluronan synthases but not with the expression levels of hyaluronidases. *Cytotechnology*, *67*(4), 609-620. https://doi.org/10.1007/s10616-014-9707-2

Tobin, D. J. (2017). Introduction to skin aging. Journal of Tissue Viability, 26, 37-46. https://doi.org/10.1016/j.jtv.2016.03.002

Tortora, G. J., & Derrickson, B. (2017). The Integumentary System. In Principles of Anatomy and Physiology (15th ed.). Wiley

Tracy, L. E., Minasian, R. A., & Caterson, E. (2016). Extracellular Matrix and Dermal Fibroblast Function in the Healing Wound. *Advances in Wound Care*, *5*(3), 119-136. https://doi.org/10.1089/wound.2014.0561

Tu, Y., & Quan, T. (2016). Oxidative Stress and Human Skin Connective Tissue Aging. *Cosmetics*, *3*(3), 28. https://doi.org/10.3390/cosmetics3030028

Vierkötter, A., & Krutmann, J. (2012). Environmental influences on skin aging and ethnic-specific manifestations. Dermato-Endocrinology, 4(3), 227-231. https://doi.org/10.4161/derm.19858

Weihermann, A. C., Lorencini, M., Brohem, C. A., & De Carvalho, C. M. (2016). Elastin structure and its involvement in skin photoageing. *International Journal of Cosmetic Science*, *39*(3), 241-247. https://doi.org/10.1111/ics.12372

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