

DAFTAR PUSTAKA

- A current view on inflammation, 2017. . *Nature Immunology*, **18**: 825–825.
- Abdulkhaleq, L.A., Assi, M.A., Abdullah, R., Zamri-Saad, M., Taufiq-Yap, Y.H., dan Hezmee, M.N.M., 2018. The crucial roles of inflammatory mediators in inflammation: A review. *Veterinary World*, **11**: 627–635.
- Adan, A., Kiraz, Y., dan Baran, Y., 2016. Cell Proliferation and Cytotoxicity Assays. *Current Pharmaceutical Biotechnology*, **17**: 1213–1221.
- Alkilani, A.Z., McCrudden, M.T.C., dan Donnelly, R.F., 2015. Transdermal Drug Delivery: Innovative Pharmaceutical Developments Based on Disruption of the Barrier Properties of the stratum corneum. *Pharmaceutics*, **7**: 438–470.
- Anonim, 2011. Decreased Lymphocytes. *Health Hearty*, .
- Anonim, 2020. 'High Hemoglobin Count: Causes, Testing & Treatment', *Cleveland Clinic*. URL: <https://my.clevelandclinic.org/health/diseases/17789-high-hemoglobin-count> (diakses tanggal 9/7/2022).
- Anonim, n.d. 'Cell proliferation - Latest research and news | Nature', . URL: <https://www.nature.com/subjects/cell-proliferation> (diakses tanggal 11/7/2022).
- Arango, M.-T., Quintero-Ronderos, P., Castiblanco, J., dan Montoya-Ortíz, G., 2013. *Cell Culture and Cell Analysis*, Autoimmunity: From Bench to Bedside [Internet]. El Rosario University Press.
- Ayala, A., Muñoz, M.F., dan Argüelles, S., 2014. Lipid Peroxidation: Production, Metabolism, and Signaling Mechanisms of Malondialdehyde and 4-Hydroxy-2-Nonenal. *Oxidative Medicine and Cellular Longevity*, **2014**: 360438.
- Bae, H.C., Ryu, H.J., Jeong, S.H., Lee, E.Y., Park, Y.-H., Lee, K.G., dkk., 2011. Oxidative stress and apoptosis induced by ZnO nanoparticles in HaCaT cells. *Molecular & Cellular Toxicology*, **7**: 333–337.
- Baraldi, E., Giordano, G., Pasquale, M.F., Carraro, S., Mardegan, A., Bonetto, G., dkk., 2006. 3-Nitrotyrosine, a marker of nitrosative stress, is increased in breath condensate of allergic asthmatic children. *Allergy*, **61**: 90–96.
- Barnum, K.J. dan O'Connell, M.J., 2014. Cell Cycle Regulation by Checkpoints. *Methods in molecular biology (Clifton, N.J.)*, **1170**: 29–40.
- Behzadi, S., Serpooshan, V., Tao, W., Hamaly, M.A., Alkawareek, M.Y., Dreaden, E.C., dkk., 2017. Cellular Uptake of Nanoparticles: Journey Inside the Cell. *Chemical Society reviews*, **46**: 4218–4244.
- Bergmann, A. dan Steller, H., 2010. Apoptosis, Stem Cells, and Tissue Regeneration. *Science signaling*, **3**: re8.
- Betteridge, D.J., 2000. What is oxidative stress? *Metabolism: Clinical and Experimental*, **49**: 3–8.

- Bolke, L., Schlippe, G., Gerß, J., dan Voss, W., 2019. A Collagen Supplement Improves Skin Hydration, Elasticity, Roughness, and Density: Results of a Randomized, Placebo-Controlled, Blind Study. *Nutrients*, **11**: 2494.
- Breunig, H.G., Weinigel, M., dan König, K., 2015. In Vivo Imaging of ZnO Nanoparticles from Sunscreen on Human Skin with a Mobile Multiphoton Tomograph. *BioNanoScience*, **5**: 42–47.
- Butkowski, E., 2020. Chapter 1 - Oxidative stress markers in diabetes, dalam: Preedy, V.R. (Editor), *Diabetes (Second Edition)*. Academic Press, hal. 3–11.
- Cannan, W.J. dan Pederson, D.S., 2016. Mechanisms and Consequences of Double-strand DNA Break Formation in Chromatin. *Journal of cellular physiology*, **231**: 3–14.
- Cathe, D.S., Whitaker, J.N., Breitner, E.K., dan Comfort, K.K., 2017. Exposure to metal oxide nanoparticles in physiological fluid induced synergistic biological effects in a keratinocyte model. *Toxicology Letters*, **268**: 1–7.
- Caunt, C.J. dan McArdle, C.A., 2012. ERK phosphorylation and nuclear accumulation: insights from single-cell imaging. *Biochemical Society Transactions*, **40**: 224–229.
- Chatterjee, N. dan Walker, G.C., 2017. Mechanisms of DNA damage, repair and mutagenesis. *Environmental and molecular mutagenesis*, **58**: 235–263.
- Chen, Y.-Y., Lee, Y.-H., Wang, B.-J., Chen, R.-J., dan Wang, Y.-J., 2022. Skin damage induced by zinc oxide nanoparticles combined with UVB is mediated by activating cell pyroptosis via the NLRP3 inflammasome-autophagy-exosomal pathway. *Particle and Fibre Toxicology*, **19**: 2.
- Cooper, G.M., 2000. Mitochondria. *The Cell: A Molecular Approach. 2nd edition*, .
- Davis, M.A. dan Jeffery, E.H., 2002. 4 - Organelle Biochemistry and Regulation of Cell Death, dalam: Haschek, W.M., Rousseaux, C.G., dan Wallig, M.A. (Editor), *Handbook of Toxicologic Pathology (Second Edition)*. Academic Press, San Diego, hal. 67–81.
- Detoni, C.B., Coradini, K., Back, P., Oliveira, C.M., Andrade, D.F., Beck, R.C.R., dkk., 2014. Penetration, photo-reactivity and photoprotective properties of nanosized ZnO. *Photochemical & Photobiological Sciences*, **13**: 1253–1260.
- Diembeck, W., Beck, H., Benech-Kieffer, F., Courtellemont, P., Dupuis, J., Lovell, W., dkk., 1999. Test guidelines for in vitro assessment of dermal absorption and percutaneous penetration of cosmetic ingredients. European Cosmetic, Toiletry and Perfumery Association. *Food and Chemical Toxicology: An International Journal Published for the British Industrial Biological Research Association*, **37**: 191–205.

- Dréno, B., Alexis, A., Chuberre, B., dan Marinovich, M., 2019. Safety of titanium dioxide nanoparticles in cosmetics. *Journal of the European Academy of Dermatology and Venereology: JEADV*, **33 Suppl 7**: 34–46.
- Elmore, S., 2007. Apoptosis: A Review of Programmed Cell Death. *Toxicologic pathology*, **35**: 495–516.
- Emam, A.N., Girgis, E., Khalil, W.K.B., dan Mohamed, M.B., 2014. Chapter Five - Toxicity of Plasmonic Nanomaterials and Their Hybrid Nanocomposites, dalam: Fishbein, J.C. dan Heilman, J.M. (Editor), *Advances in Molecular Toxicology*. Elsevier, hal. 173–202.
- Farhana, A. dan Lappin, S.L., 2022. Biochemistry, Lactate Dehydrogenase, dalam: *StatPearls*. StatPearls Publishing, Treasure Island (FL).
- Fischer, H.C. dan Chan, W.C., 2007. Nanotoxicity: the growing need for in vivo study. *Current Opinion in Biotechnology*, , Chemical biotechnology / Pharmaceutical biotechnology **18**: 565–571.
- Fotakis, G. dan Timbrell, J.A., 2006. In vitro cytotoxicity assays: Comparison of LDH, neutral red, MTT and protein assay in hepatoma cell lines following exposure to cadmium chloride. *Toxicology Letters*, **160**: 171–177.
- Fukuda, H., Koizumi, K., Motomatsu, K., Motose, H., dan Sugiyama, M., 2001. Molecular Mechanisms of Vascular Pattern Formation, dalam: Morohoshi, N. dan Komamine, A. (Editor), *Progress in Biotechnology, Molecular Breeding of Woody Plants*. Elsevier, hal. 53–61.
- Furukawa, F., Doi, Y., Suguro, M., Morita, O., Kuwahara, H., Masunaga, T., dkk., 2011. Lack of skin carcinogenicity of topically applied titanium dioxide nanoparticles in the mouse. *Food and Chemical Toxicology*, **49**: 744–749.
- Gaweł, S., Wardas, M., Niedworok, E., dan Wardas, P., 2004. [Malondialdehyde (MDA) as a lipid peroxidation marker]. *Wiadomosci Lekarskie (Warsaw, Poland: 1960)*, **57**: 453–455.
- Ge, W., Zhao, Y., Lai, F.-N., Liu, J.-C., Sun, Y.-C., Wang, J.-J., dkk., 2017. Cutaneous applied nano-ZnO reduce the ability of hair follicle stem cells to differentiate. *Nanotoxicology*, **11**: 465–474.
- Geoffrey, K., Mwangi, A., dan Maru, S.M., 2019. Sunscreen products: Rationale for use, formulation development and regulatory considerations. *Saudi Pharmaceutical Journal*, **27**: .
- Geppert, M., Schwarz, A., Stangassinger, L.M., Wenger, S., Wienerroither, L.M., Ess, S., dkk., 2020. Interactions of TiO₂ Nanoparticles with Ingredients from Modern Lifestyle Products and Their Effects on Human Skin Cells. *Chemical Research in Toxicology*, **33**: 1215–1225.
- Graf, B.W., Chaney, E.J., Marjanovic, M., De Lisio, M., Valero, M.C., Boppart, M.D., dkk., 2013. In vivo imaging of immune cell dynamics in skin in response to zinc-oxide nanoparticle exposure. *Biomedical Optics Express*, **4**: 1817–1828.

- Guo, Y., Chen, L., Yang, L., dan Wang, Q., 2008. Counting Sulfhydryls and Disulfide Bonds in Peptides and Proteins Using Mercurial Ions as an MS-Tag. *Journal of the American Society for Mass Spectrometry*, **19**: 1108–1113.
- Hammouda, M.B., Ford, A.E., Liu, Y., dan Zhang, J.Y., 2020. The JNK Signaling Pathway in Inflammatory Skin Disorders and Cancer. *Cells*, **9**: 857.
- Heylings, J.R., 2015. 'Skin Absorption | Dermal Penetration', *AltTox.org*. URL: <http://alttox.org/mapp/toxicity-endpoints-tests/dermal-penetration/> (diakses tanggal 8/7/2022).
- Holick, M.F., 2004. Sunlight and vitamin D for bone health and prevention of autoimmune diseases, cancers, and cardiovascular disease. *The American Journal of Clinical Nutrition*, **80**: 1678S-1688S.
- Hwang, H.-J., Jung, T.W., Hong, H.C., Seo, J.A., Kim, S.G., Kim, N.H., dkk., 2015. LECT2 induces atherosclerotic inflammatory reaction via CD209 receptor-mediated JNK phosphorylation in human endothelial cells. *Metabolism: Clinical and Experimental*, **64**: 1175–1182.
- IARC Working Group on the Evaluation of Carcinogenic Risks to Humans, 1989. *Some Organic Solvents, Resin Monomers and Related Compounds, Pigments and Occupational Exposures in Paint Manufacture and Painting*, Some Organic Solvents, Resin Monomers and Related Compounds, Pigments and Occupational Exposures in Paint Manufacture and Painting. International Agency for Research on Cancer, Lyon (FR).
- Ihn, H., Yamane, K., dan Tamaki, K., 2005. Increased phosphorylation and activation of mitogen-activated protein kinase p38 in scleroderma fibroblasts. *The Journal of Investigative Dermatology*, **125**: 247–255.
- 'Inflammation', , 2021. *National Institute of Environmental Health Sciences*. URL: <https://www.niehs.nih.gov/health/topics/conditions/inflammation/index.cfm> (diakses tanggal 11/7/2022).
- Katz, L.M., Dewan, K., dan Bronaugh, R.L., 2015. Nanotechnology in cosmetics. *Food and Chemical Toxicology*, , Nanotoxicology and Nanomedicine **85**: 127–137.
- Kelley, N., Jeltema, D., Duan, Y., dan He, Y., 2019. The NLRP3 Inflammasome: An Overview of Mechanisms of Activation and Regulation. *International Journal of Molecular Sciences*, **20**: E3328.
- Khabir, Z., Holmes, A.M., Lai, Y.-J., Liang, L., Deva, A., Polikarpov, M.A., dkk., 2021. Human Epidermal Zinc Concentrations after Topical Application of ZnO Nanoparticles in Sunscreens. *International Journal of Molecular Sciences*, **22**: 12372.
- Khalid, N. dan Azimpouran, M., 2022. Necrosis, dalam: *StatPearls*. StatPearls Publishing, Treasure Island (FL).

- Khoubnasabjafari, M., Ansarin, K., dan Jouyban, A., 2015. Reliability of malondialdehyde as a biomarker of oxidative stress in psychological disorders. *BioImpacts : BI*, **5**: 123–127.
- Kim, J.H., Park, M.K., Im, J.M., Seo, H.S., Park, H.J., dan Nah, S.S., 2022. Repeated-dose 28-day dermal toxicity study of TiO₂ catalyst (GST) in Sprague-Dawley rats. *Environmental Health and Toxicology*, **37**: .
- Kimura, E., Kawano, Y., Todo, H., Ikarashi, Y., dan Sugibayashi, K., 2012. Measurement of skin permeation/penetration of nanoparticles for their safety evaluation. *Biological and Pharmaceutical Bulletin*, **35**: 1476–1486.
- Klaunig, J.E., Kamendulis, L.M., dan Hocesvar, B.A., 2010. Oxidative stress and oxidative damage in carcinogenesis. *Toxicologic Pathology*, **38**: 96–109.
- Kong, L., Barber, T., Aldinger, J., Bowman, L., Leonard, S., Zhao, J., dkk., 2022. ROS generation is involved in titanium dioxide nanoparticle-induced AP-1 activation through p38 MAPK and ERK pathways in JB6 cells. *Environmental Toxicology*, **37**: 237–244.
- Kyriakis, J.M., 2018. Activation of the AP-1 Transcription Factor by Inflammatory Cytokines of the TNF Family. *Gene Expression*, **7**: 217–231.
- Lai, X., Wang, M., Zhu, Y., Feng, X., Liang, H., Wu, J., dkk., 2021. ZnO NPs delay the recovery of psoriasis-like skin lesions through promoting nuclear translocation of p-NFκB p65 and cysteine deficiency in keratinocytes. *Journal of Hazardous Materials*, **410**: 124566.
- Latha, M.S., Martis, J., Shobha, V., Sham Shinde, R., Bangera, S., Krishnankutty, B., dkk., 2013. Sunscreening Agents. *The Journal of Clinical and Aesthetic Dermatology*, **6**: 16–26.
- Leite-Silva, V.R., Le Lamer, M., Sanchez, W.Y., Liu, D.C., Sanchez, W.H., Morrow, I., dkk., 2013. The effect of formulation on the penetration of coated and uncoated zinc oxide nanoparticles into the viable epidermis of human skin in vivo. *European Journal of Pharmaceutics and Biopharmaceutics: Official Journal of Arbeitsgemeinschaft Fur Pharmazeutische Verfahrenstechnik e.V*, **84**: 297–308.
- Leite-Silva, V.R., Sanchez, W.Y., Studier, H., Liu, D.C., Mohammed, Y.H., Holmes, A.M., dkk., 2016. Human skin penetration and local effects of topical nano zinc oxide after occlusion and barrier impairment. *European Journal of Pharmaceutics and Biopharmaceutics*, **104**: 140–147.
- Liu, J.-D., Wang, Y.-J., Chen, C.-H., Yu, C.-F., Chen, L.-C., Lin, J.-K., dkk., 2003. Molecular mechanisms of G0/G1 cell-cycle arrest and apoptosis induced by terfenadine in human cancer cells. *Molecular Carcinogenesis*, **37**: 39–50.
- Liu, T., Zhang, L., Joo, D., dan Sun, S.-C., 2017. NF-κB signaling in inflammation. *Signal Transduction and Targeted Therapy*, **2**: 17023.
- Loprieno, N., 1992. Guidelines for safety evaluation of cosmetics ingredients in the EC countries. *Food and Chemical Toxicology*, **30**: 809–815.

- Loro, L.L., Johannessen, A.C., dan Vintermyr, O.K., 2002. Decreased expression of bcl-2 in moderate and severe oral epithelia dysplasias. *Oral oncology*, **38**: .
- Lu, S.C., 2009. Regulation of glutathione synthesis. *Molecular Aspects of Medicine*, , Glutathione in Health and Disease **30**: 42–59.
- Ma, Q., 2013. Role of Nrf2 in Oxidative Stress and Toxicity. *Annual review of pharmacology and toxicology*, **53**: 401–426.
- Makhlouf, A.S.H. dan Barhoum, A. (Editor), 2018. *Fundamentals of Nanoparticles: Classifications, Synthesis Methods, Properties and Characterization*, 1st edition. ed. Elsevier, Amsterdam, Netherlands.
- Merriam-Webster, n.d. 'Definition of IN VITRO', *In vitro*. URL: <https://www.merriam-webster.com/dictionary/in+vitro> (diakses tanggal 25/2/2022).
- Mohammed, Y.H., Barkauskas, D.S., Holmes, A., Grice, J., dan Roberts, M.S., 2020a. Noninvasive in vivo human multiphoton microscopy: a key method in proving nanoparticulate zinc oxide sunscreen safety. *Journal of Biomedical Optics*, **25**: 014509.
- Mohammed, Y.H., Haridass, I.N., Grice, J.E., Benson, H.A.E., dan Roberts, M.S., 2020b. Bathing Does Not Facilitate Human Skin Penetration or Adverse Cellular Effects of Nanoparticulate Zinc Oxide Sunscreens after Topical Application. *Journal of Investigative Dermatology*, **140**: 1656–1659.
- Mohammed, Y.H., Holmes, A., Haridass, I.N., Sanchez, W.Y., Studier, H., Grice, J.E., dkk., 2019. Support for the Safe Use of Zinc Oxide Nanoparticle Sunscreens: Lack of Skin Penetration or Cellular Toxicity after Repeated Application in Volunteers. *The Journal of Investigative Dermatology*, **139**: 308–315.
- Mytilineou, C., Kramer, B.C., dan Yabut, J.A., 2002. Glutathione depletion and oxidative stress. *Parkinsonism & Related Disorders*, **8**: 385–387.
- Narayanan, D.L., Saladi, R.N., dan Fox, J.L., 2010. Ultraviolet radiation and skin cancer. *International Journal of Dermatology*, **49**: 978–986.
- National Center for Biotechnology Information, 2022. 'ZINC oxide', *PubChem Compound Summary for CID 14806, ZINC oxide*. URL: <https://pubchem.ncbi.nlm.nih.gov/compound/14806> (diakses tanggal 24/2/2022).
- Nazir, S., Rabbani, A., Mehmood, K., Maqbool, F., Shah, G.M., Khan, M.F., dkk., 2019. Antileishmanial activity and cytotoxicity of ZnO-based nano-formulations. *International Journal of Nanomedicine*, **14**: 7809–7822.
- Newman, M.D., Stotland, M., dan Ellis, J.I., 2009. The safety of nanosized particles in titanium dioxide– and zinc oxide–based sunscreens. *Journal of the American Academy of Dermatology*, **61**: 685–692.

- Nitrosative Stress, 2006. , dalam: *Encyclopedic Reference of Genomics and Proteomics in Molecular Medicine*. Springer, Berlin, Heidelberg, hal. 1293–1293.
- Osmond-McLeod, M.J., Oytam, Y., Kirby, J.K., Gomez-Fernandez, L., Baxter, B., dan McCall, M.J., 2014. Dermal absorption and short-term biological impact in hairless mice from sunscreens containing zinc oxide nano- or larger particles. *Nanotoxicology*, **8**: 72–84.
- Pal, A., Alam, S., Mittal, S., Arjaria, N., Shankar, J., Kumar, M., dkk., 2016. UVB irradiation-enhanced zinc oxide nanoparticles-induced DNA damage and cell death in mouse skin. *Mutation Research/Genetic Toxicology and Environmental Mutagenesis*, **807**: 15–24.
- Park, H.-O., Yu, M., Kang, S.K., Yang, S.I., dan Kim, Y.-J., 2011. Comparison of cellular effects of titanium dioxide nanoparticles with different photocatalytic potential in human keratinocyte, HaCaT cells. *Molecular & Cellular Toxicology*, **7**: 67–75.
- Park, Y.-H., Jeong, S.H., Yi, S.M., Choi, B.H., Kim, Y.-R., Kim, I.-K., dkk., 2011. Analysis for the potential of polystyrene and TiO₂ nanoparticles to induce skin irritation, phototoxicity, and sensitization. *Toxicology in Vitro*, **25**: 1863–1869.
- Parrado, C., Gilaberte, Y., Philips, N., Juarranz, A., dan Gonzalez, S., 2021. Chapter 34 - Fern extract, oxidative stress, and skin cancer, dalam: Preedy, V.R. dan Patel, V.B. (Editor), *Cancer (Second Edition)*. Academic Press, San Diego, hal. 387–398.
- Parrino, F. dan Palmisano, L. (Editor), 2020. *Titanium Dioxide*, 1st edition. ed. Elsevier, Cambridge.
- Parsanathan, R. dan Jain, S.K., 2018. L-Cysteine in vitro can restore cellular glutathione and inhibits the expression of cell adhesion molecules in G6PD-deficient monocytes. *Amino Acids*, **50**: 909–921.
- Pauwels, M. dan Rogiers, V., 2004. Safety evaluation of cosmetics in the EU: Reality and challenges for the toxicologist. *Toxicology Letters*, , Festschrift dedicated to Christian Hodel **151**: 7–17.
- Pérez-Torres, I., Manzano-Pech, L., Rubio-Ruíz, M.E., Soto, M.E., dan Guarner-Lans, V., 2020. Nitrosative Stress and Its Association with Cardiometabolic Disorders. *Molecules*, **25**: 2555.
- Porter, A.G. dan Jänicke, R.U., 1999. Emerging roles of caspase-3 in apoptosis. *Cell Death and Differentiation*, **6**: 99–104.
- Roy, A., Sahu, R.K., Matlam, M., Deshmukh, V.K., Dwivedi, J., dan Jha, A.K., 2013. In vitro techniques to assess the proficiency of skin care cosmetic formulations. *Pharmacognosy Reviews*, **7**: 97–106.

- Roy, P.K., Rashid, F., Bragg, J., dan Ibdah, J.A., 2008. Role of the JNK signal transduction pathway in inflammatory bowel disease. *World Journal of Gastroenterology : WJG*, **14**: 200.
- Ryu, H.J., Seo, M.Y., Jung, S.K., Maeng, E.H., Lee, S.-Y., Jang, D.-H., dkk., 2014. Zinc oxide nanoparticles: a 90-day repeated-dose dermal toxicity study in rats. *International Journal of Nanomedicine*, **9 Suppl 2**: 137–144.
- Schieven, G.L., 2005. The biology of p38 kinase: a central role in inflammation. *Current Topics in Medicinal Chemistry*, **5**: 921–928.
- Schneider, S.L. dan Lim, H.W., 2019. A review of inorganic UV filters zinc oxide and titanium dioxide. *Photodermatology, Photoimmunology & Photomedicine*, **35**: 442–446.
- Shukla, R.K., Sharma, V., Pandey, A.K., Singh, S., Sultana, S., dan Dhawan, A., 2011. ROS-mediated genotoxicity induced by titanium dioxide nanoparticles in human epidermal cells. *Toxicology in Vitro*, **25**: 231–241.
- Smijs, T.G. dan Pavel, S., 2011. Titanium dioxide and zinc oxide nanoparticles in sunscreens: focus on their safety and effectiveness. *Nanotechnology, Science and Applications*, **4**: 95–112.
- Srivastava, A.K., Khare, P., Nagar, H.K., Raghuwanshi, N., dan Srivastava, R., 2016. Hydroxyproline: A Potential Biochemical Marker and Its Role in the Pathogenesis of Different Diseases. *Current Protein & Peptide Science*, **17**: 596–602.
- Stark, G.R. dan Taylor, W.R., 2004. Analyzing the G2/M checkpoint. *Methods in Molecular Biology (Clifton, N.J.)*, **280**: 51–82.
- Sugrue, M.M. dan Tatton, W.G., 2001. Mitochondrial membrane potential in aging cells. *Biological Signals and Receptors*, **10**: 176–188.
- Surekha, P., Kishore, A.S., Srinivas, A., Selvam, G., Goparaju, A., Reddy, P.N., dkk., 2012. Repeated dose dermal toxicity study of nano zinc oxide with Sprague-Dawley rats. *Cutaneous and Ocular Toxicology*, **31**: 26–32.
- Tibbetts, J., 2008. Bleached, But Not by the Sun: Sunscreen Linked to Coral Damage. *Environmental Health Perspectives*, **116**: A173.
- Tomankova, K., Horakova, J., Harvanova, M., Malina, L., Soukupova, J., Hradilova, S., dkk., 2015. Reprint of: Cytotoxicity, cell uptake and microscopic analysis of titanium dioxide and silver nanoparticles in vitro. *Food and Chemical Toxicology*, , Nanotoxicology and Nanomedicine **85**: 20–30.
- 'Toxicology MSDT', , 2021. *Chemistry LibreTexts*. URL: https://chem.libretexts.org/Bookshelves/Environmental_Chemistry/Toxicology_MSDT (diakses tanggal 8/7/2022).
- Trummer, C., Pandis, M., Verheyen, N., Grübler, M.R., Gaksch, M., Obermayer-Pietsch, B., dkk., 2016. Beneficial Effects of UV-Radiation: Vitamin D and

- beyond. *International Journal of Environmental Research and Public Health*, **13**: 1028.
- Tsujimoto, Y., 1998. Role of Bcl-2 family proteins in apoptosis: apoptosomes or mitochondria? *Genes to Cells: Devoted to Molecular & Cellular Mechanisms*, **3**: 697–707.
- Tu, M., Huang, Y., Li, H.-L., dan Gao, Z.-H., 2012. The stress caused by nitrite with titanium dioxide nanoparticles under UVA irradiation in human keratinocyte cell. *Toxicology*, **299**: 60–68.
- UNECE, 2009. 'GHS (Rev.3) (2009) | UNECE', . URL: <https://unece.org/ghs-rev3-2009> (diakses tanggal 11/7/2022).
- Valavanidis, A., Vlachogianni, T., dan Fiotakis, C., 2009. 8-hydroxy-2' - deoxyguanosine (8-OHdG): A critical biomarker of oxidative stress and carcinogenesis. *Journal of Environmental Science and Health. Part C, Environmental Carcinogenesis & Ecotoxicology Reviews*, **27**: 120–139.
- Verdier-Sévrain, S. dan Bonté, F., 2007. Skin hydration: a review on its molecular mechanisms. *Journal of Cosmetic Dermatology*, **6**: 75–82.
- Viatour, P., Merville, M.-P., Bours, V., dan Chariot, A., 2005. Phosphorylation of NF-kappaB and IkappaB proteins: implications in cancer and inflammation. *Trends in Biochemical Sciences*, **30**: 43–52.
- Wacker, M. dan Holick, M.F., 2013. Sunlight and Vitamin D. *Dermato-endocrinology*, **5**: 51–108.
- Wang, S.Q. dan Tooley, I.R., 2011. Photoprotection in the era of nanotechnology. *Seminars in Cutaneous Medicine and Surgery*, **30**: 210–213.
- Wolvertson, S.E. dan Wu, J.J., 2020. *Comprehensive Dermatologic Drug Therapy*, 4th edition. ed. Elsevier, Philadelphia.
- Wong, V., Sorkin, M., Glotzbach, J., Longaker, M., dan Gurtner, G., 2011. Surgical Approaches to Create Murine Models of Human Wound Healing. *Journal of biomedicine & biotechnology*, **2011**: 969618.
- Wright, C., Iyer, A.K.V., Wang, L., Wu, N., Yakisich, J.S., Rojanasakul, Y., dkk., 2017. Effects of titanium dioxide nanoparticles on human keratinocytes. *Drug and Chemical Toxicology*, **40**: 90–100.
- Yang, N. dan Sheridan, A.M., 2014. Cell Cycle, dalam: Wexler, P. (Editor), *Encyclopedia of Toxicology (Third Edition)*. Academic Press, Oxford, hal. 753–758.
- Yin, J.-J., Liu, J., Ehrenshaft, M., Roberts, J.E., Fu, P.P., Mason, R.P., dkk., 2012. Phototoxicity of nano titanium dioxides in HaCaT keratinocytes-- generation of reactive oxygen species and cell damage. *Toxicology and Applied Pharmacology*, **263**: 81–88.
- Yin, Y., Peng, H., Shao, J., Zhang, J., Li, Y., Pi, J., dkk., 2021. NRF2 deficiency sensitizes human keratinocytes to zinc oxide nanoparticles-induced

autophagy and cytotoxicity. *Environmental Toxicology and Pharmacology*, **87**: 103721.

Yoshida, Y., Umeno, A., dan Shichiri, M., 2013. Lipid peroxidation biomarkers for evaluating oxidative stress and assessing antioxidant capacity in vivo. *Journal of Clinical Biochemistry and Nutrition*, **52**: 9–16.

Yousef, H., Alhaji, M., dan Sharma, S., 2022. Anatomy, Skin (Integument), Epidermis, dalam: *StatPearls*. StatPearls Publishing, Treasure Island (FL).

Zorova, L.D., Popkov, V.A., Plotnikov, E.Y., Silachev, D.N., Pevzner, I.B., Jankauskas, S.S., dkk., 2018. Mitochondrial membrane potential. *Analytical Biochemistry*, , Mitochondrial Biochemistry and Bioenergetics **552**: 50–59.