

DAFTAR PUSTAKA

- Abdullah, A., Qasim, M., Shafiq, M., *et al.* 2016. Molecular diagnosis and phylogenetic analysis of human papillomavirus type-16 from suspected patients in Pakistan. *Infectious Agents and Cancer*, 11(1), 1–7.
- Abliz, G., Mijit, F., Hua, L., *et al.* 2015. Anti-carcinogenic effects of the phenolic-rich extract from abnormal Savda Munziq in association with its cytotoxicity, apoptosis-inducing properties and telomerase activity in human cervical cancer cells (SiHa). *BMC Complementary and Alternative Medicine*, 15(1), 1–10.
- ACS. 2019. Key Statistics For Cervical Cancer. *American Cancer Society* [Preprint].
- Adler, S., Rashid, G. and Klein, A. 2011. Indole-3-carbinol inhibits telomerase activity and gene expression in prostate cancer cell lines. *Anticancer Research*, 31(11), 3733–3737.
- Aguayo, F., Munoz, JP., Perez-Dominguez, F., *et al.* 2020. High-risk human papillomavirus and tobacco smoke interactions in epithelial carcinogenesis. *Cancers*, 12(8), 1–18.
- Aizawa, S., Brar, G. and Tsukamoto, H.(2020). Cell death and liver disease. *Gut and Liver*, 14(1), 20–29.
- Akiyama, M. Horiguchi-Yamada, J., Saito, S., *et al.* 1999. Cytostatic concentrations of anticancer agents do not affect telomerase activity of leukaemic cells in vitro. *European Journal of Cancer*, 35(2), 309–315.
- Almeida, A.M., Queiroz, J.A., Sousa, F., Sousa, A. 2019. Cervical cancer and HPV infection: ongoing therapeutic research to counteract the action of E6 and E7 oncoproteins. *Drug Discovery Today*, 24(10), 2044–2057.
- Altamura, G., Uberti, B.D., Galiero, G., *et al.* 2021. The Small Molecule BIBR1532 Exerts Potential Anti-cancer Activities in Preclinical Models of Feline Oral Squamous Cell Carcinoma Through Inhibition of Telomerase Activity and Down-Regulation of TERT. *Frontiers in Veterinary Science*, 7, 1–11.
- Amador-Molina, A., Hernandex-Valencia, J.F., Lamoyi, E., Contreras-Paredes, A., Lizano, M. 2013. Role of innate immunity against human papillomavirus (HPV) infections and effect of adjuvants in promoting specific immune response. *Viruses*, 5(11), pp. 2624–2642.
- Anitha, E. Neevedha, K., Isswariya, A., Gokul, T. 2022. Synergistic effects of methotrexate and piperine on human osteosarcoma cell lines – An in-vitro study. *National Journal of Physiology, Pharmacy and Pharmacology*, 13(05), 909-913.

- Appleby, P. Beral, V., de Gonzalez, A.B., *et al.* 2006. Carcinoma of the cervix and tobacco smoking: Collaborative reanalysis of individual data on 13,541 women with carcinoma of the cervix and 23,017 women without carcinoma of the cervix from 23 epidemiological studies. *International Journal of Cancer*, 118(6), 1481–1495.
- Aubrey, B.J., Kelly, G.L., Janic, A., Herold, M.J., Strasser, A. 2018. How does p53 induce apoptosis and how does this relate to p53-mediated tumour suppression?', *Cell Death and Differentiation*, 25(1), 104–113.
- Badrzadeh, F., Akbarzadeh, A., Zarghami, N., *et al.* 2014. Comparison between effects of free curcumin and curcumin loaded NIPAAm-MAA nanoparticles on telomerase and pinX1 gene expression in lung cancer cells. *Asian Pacific Journal of Cancer Prevention*, 15(20), 8931–8936.
- Bai, L. and Zhu, W.G. 2006. p53: Structure, Function and Therapeutic Applications', *Journal of Cancer Molecules*, 2(4), 141–153.
- Bao, J., Huang B., Zou, L., *et al.* 2015. Hormetic effect of berberine attenuates the anticancer activity of chemotherapeutic agents. *PLoS ONE*, 10(9), 1–13.
- Barton, S.E. Maddox, P.H., Jenkins, D., Edwards, Cuzick J., Singer, A. 1988. Effect of Cigarette Smoking on Cervical Epithelial Immunity: a Mechanism for Neoplastic Change?. *The Lancet*, 332(8612), 652–654.
- Bermudez, A., Bhatla, N. and Leung, E. 2015. International Journal of Gynecology and Obstetrics Cancer of the cervix uteri. *International Journal of Gynecology and Obstetrics*, 131, S88–S95.
- Bezerra, D.P., Castro, F.O., Alves, A.P.N.N., *et al.* 2006. In vivo growth-inhibition of Sarcoma 180 by pipartine and piperine, two alkaloid amides from piper. *Brazilian Journal of Medical and Biological Research*, 39(6), 801–807.
- Bhat, B.G. and Chandrasekhara, N. 1986. Lack of Adverse Influence of Black Pepper, Its Oleoresin and Piperine in the Weanling Rat. *Journal of Food Safety*, 7(4), 215–223.
- Bhatla, N. Aoki, D., Sharma, D.N, Sankaranarayanan, R. 2018. Cancer of the cervix uteri', *International Journal of Gynecology and Obstetrics*, 143, 22–36.
- Billingsley, C.L., Chintala, S. and Katzenellenbogen, R.A. 2022. Post-Transcriptional Gene Regulation by HPV 16E6 and Its Host Protein Partners. *Viruses*, 14(1483), 1–12.
- Bourdon, J.C. Renzing, J., Lane, D. 2002. Scotin, a novel p53-inducible proapoptotic protein located in the ER and the nuclear membrane. *Journal of Cell Biology*, 158(2), 235–246.
- Bravo, I.G. and Felez-Sanchez, M. 2015. Papillomaviruses: Viral evolution, cancer and evolutionary medicine. *Evolution, Medicine and Public*

Health, 2015(1), 32–51.

- Bray, F., Ferlay, J., Soerjomataram, I., Siegel, R.L., Torre, L.A., Jemal, A. 2018. 'Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: A Cancer Journal for Clinicians*, 68(6), 394–424.
- Bruni, L., Albero, G., Serrano, B., *et al.* 2019. Human Papillomavirus and Related Diseases Report. *ICO/IARC Information Centre on HPV and Cancer (HPV Information Centre)* 1-66.
- Buranrat, B., Senggunprai, L., Prawan, A., Kukongviriyapan, V. 2023. Piperine Induces Cell Death, Apoptosis and Inhibits Migration in Cholangiocarcinoma Cells', *Indian Journal of Pharmaceutical Education and Research*, 57(1), 161–166.
- Burger, A.M., Double, J.A. and Newell, D.R. 1997. Inhibition of telomerase activity by cisplatin in human testicular cancer cells. *European Journal of Cancer Part A*, 33(4), 638–644.
- Buseman, C., Wright, W.E. and Shay, J.W. 2012. Is telomerase a viable target in cancer?. *Mutat Res*, 730(1–2), 90–97.
- Cacchione, S., Biroccio, A. and Rizzo, A. 2019. Emerging roles of telomeric chromatin alterations in cancer. *Journal of Experimental and Clinical Cancer Research*, 38(1), 1–12.
- Castellsagué, X. and Muñoz, N. 2003. Chapter 3: Cofactors in human papillomavirus carcinogenesis--role of parity, oral contraceptives, and tobacco smoking. *Journal of the National Cancer Institute. Monographs*, (31), pp 20–28.
- Cawthon, R.M. 2002. Telomere measurement by quantitative PCR. *Nucleic Acids Research*, 30(10), 29–50.
- Chen, H., Sheng, H., Zhao, Y., Zhu, G. 2020. Piperine inhibits cell proliferation and induces apoptosis of human gastric cancer cells by downregulating phosphatidylinositol 3-kinase (PI3K)/Akt pathway. *Medical Science Monitor*, 27, 1–12.
- Chen, J.L.Y. Sperry, J., Ip, N.Y., Brimble, M.A. 2011. Natural products targeting telomere maintenance. *MedChemComm*, 2(4), 229–245.
- Chi, S.W. 2014. Structural insights into the transcription-independent apoptotic pathway of p53. *BMB Reports*, 47(3), 167–172.
- Coecke, S. Balls, M., Bowe, G., *et al.* 2005. Guidance on good cell culture practice: A Report of the Second ECVAM Task Force on good cell culture practice. *Alternatives to Laboratory Animals*, 33(3), 261–287.
- Cohen, Z. Maimon, Y., Yoeli-Lerner, M., Yang, P., Samuels, N., Berger, R. 2015. Selective anticancer effects and protection from chemotherapy by the

- botanical compound LCS101: Implications for cancer treatment. *International Journal of Oncology*, 46(1), 308–316.
- Ćukušić, A. Vidacek, N.s., Sopta, M., Rubelj, I. 2009. Telomerase regulation at the crossroads of cell fate. *Cytogenetic and Genome Research*, 122(3–4), 263–272.
- Cullen, A.P. reid, R., Champion, M., Lorincz, A.T. 1991. Analysis of the physical state of different human papillomavirus DNAs in intraepithelial and invasive cervical neoplasm. *Journal of virology*, 65(2), 606–12.
- Dahlström, L.A. Andersson, K., Luostarinen, T., *et al.* 2011. Prospective seroepidemiologic study of human papillomavirus and other risk factors in cervical cancer. *Cancer Epidemiology Biomarkers and Prevention*, 20(12), 2541–2550.
- Dang, E. Yang, S., Song, C., *et al.* 2018. BAP31, a newly defined cancer/testis antigen, regulates proliferation, migration, and invasion to promote cervical cancer progression. *Cell Death and Disease*, 9(791), 1-15.
- DeBerardinis, R.J. Lum, J.J., Hatzivassiliou, G. 2008. The Biology of Cancer: Metabolic Reprogramming Fuels Cell Growth and Proliferation. *Cell Metabolism*, 7(1), 11–20.
- Deligeoroglou, E. Giannouli, A., Athanasopoulos, N., *et al.* 2013. HPV infection: Immunological aspects and their utility in future therapy. *Infectious Diseases in Obstetrics and Gynecology*, 2013, 1-9
- Demir, S. Turan, I., Aliyazicioglu, Y., Kilinc, K., Yaman, S.O., Demir, E.A. 2017. Morus Rubra Extract Induces Cell Cycle Arrest and Apoptosis in Human Colon Cancer Cells Through Endoplasmic Reticulum Stress and Telomerase. *Nutrition and Cancer*, 69(1), 74–83.
- Dick, F.A. and Rubin, S.M. 2013. Molecular mechanisms underlying RB protein function', *Nature Reviews Molecular Cell Biology*, 14(5), 297–306.
- Ding, D. Zhou, J., Wang, M., Cong, Y. 2013. Implications of telomere-independent activities of telomerase reverse transcriptase in human cancer. *FEBS Journal*, 280(14), 3205–3211.
- Do, M.T. Kim, H.G., Choi, J.H. *et al.* 2013. Antitumor efficacy of Piperine in the treatment of human HER2-overexpressing breast cancer cells. *Food Chemistry*, 141(3), 2591–2599.
- Dong, X. Liu, A., Zer, C., *et al.* 2009. siRNA inhibition of telomerase enhances the anti-cancer effect of doxorubicin in breast cancer cells. *BMC Cancer*, 9, 1–10.
- Doorbar, J. 2006. Molecular biology of human papillomavirus infection and cervical cancer', *Clinical Science*, 110(5), 525–541.

- Doorslaer, K. Van and Burk, R.D. 2012. Association between hTERT activation by HPV E6 proteins and oncogenic risk', *Virology*, 433(1), 216–219.
- Doucette, C.D. Hilcie, A.L., Liwski, R., Hoskin, D.W. 2014. Piperine, a dietary phytochemical, inhibits angiogenesis. *24(1)*, 231–239.
- Dratwa, M. Wysoczanska, B., Lacina, P., Kubik, T., Bogunia-Kubik, K. 2020. TERT—Regulation and Roles in Cancer Formation. *Frontiers in Immunology*, 11(November), 1–16.
- Drayman, N. Ben-Nun-Shaul., Butin-Israeli, V., *et al.* 2016. P53 elevation in human cells halt SV40 infection by inhibiting T-ag expression. *Oncotarget*, 7(33), 52643–52660.
- Dubuisson, A. and Micheau, O. 2017. Antibodies and derivatives targeting DR4 and DR5 for Cancer Therapy. *Antibodies*, 6(4), 9–13.
- Engeland, K. 2022. Cell cycle regulation: p53-p21-RB signaling. *Cell Death and Differentiation*, 29(5), 946–960.
- Estaquier, J., Vallete, F., Vayssiere, J., Mignotte, B. 2012. The Mitochondrial Pathways of Apoptosis. *Advances in Experimental Medicine and Biology*, 942, 157–183.
- Fathi, E. Charoudeh, H.N., Sanaat, Z., Farahzadi, R. 2019. Telomere shortening as a hallmark of stem cell senescence. *Stem Cell Investigation*, 6(7) 1-6.
- Fattah, A. Morovati, A., Niknam, Z., *et al.* 2021. The synergistic combination of cisplatin and piperine induces apoptosis in mcf-7 cell line. *Iranian Journal of Public Health*, 50(5), 1037–1047.
- Feng, Z. and Levine, A.J. 2010. The Regulation of Energy Metabolism and the IGF-1/mTOR Pathways by the p53 Protein. *BoneTrends Cell Biol*, 20(7), 427–434.
- Fernald, K. and Kurokawa, M. 2013. Evading apoptosis in cancer. *Trends Cell Biol*, 23(12), 620–633.
- Filippova, M. Song, H., Connolly, J.L., Dermody, T.S. Duerksen-Hughes, P.J. 2002. The human papillomavirus 16 E6 protein binds to tumor necrosis factor (TNF) R1 and protects cells from TNF-induced apoptosis. *Journal of Biological Chemistry*, 277(24), 21730–21739.
- Flatt, P.M. Polyak, K., Tang, L.J., *et al.* 2000. p53-dependent expression of PIG3 during proliferation, genotoxic stress, and reversible growth arrest. *Cancer Letters*, 156(1), 63–72.
- Fofaria, N.M., Kim, S.H. and Srivastava, S.K. 2014. Piperine causes G1 phase cell cycle arrest and apoptosis in melanoma cells through checkpoint kinase-1 activation. *PLoS ONE*, 9(5), 1–10.

- Gaffney, D.K. Hashibe, M., Kepka, D., Maurer, K.A., Werner, T.L. 2018. Too many women are dying from cervix cancer: Problems and solutions. *Gynecologic Oncology*, 151(3), 547–554.
- Ganesan, K. and Xu, B. 2018. Telomerase inhibitors from natural products and their anticancer potential', *International Journal of Molecular Sciences*, 19(13), 1–26.
- Ganot, N. Meker, S., Reytman, L., Tzuber, A., Tshuva, E.Y. 2013. Anticancer metal complexes: synthesis and cytotoxicity evaluation by the MTT assay. *Journal of visualized experiments : JoVE*, (81), 1–6.
- Garima, Pandey, S., Pandey, L.K., Saxena, A.K., Patel, N. 2016. The role of p53 gene in cervical carcinogenesis. *Journal of Obstetrics and Gynecology of India*, 66(1), 383–388.
- George, D.P. 2011. P53 how crucial is its role in cancer?. *International Journal of Current Pharmaceutical Research*, 3(2), 19–25.
- Gewin, L. Myers, H., Kiyono, T., Galloway, D.A. 2004. Identification of a novel telomerase repressor that interact with the human papillomavirus type-16 E6/E6-AP complex. 3, 2269-2282
- Ghittoni, R. Accardi, R., Hasan, U., Gheit, T., Sylla, B., Tommasino, M. 2010. The biological properties of E6 and E7 oncoproteins from human papillomaviruses. *Virus Genes*, 40(1), 1–13.
- Goodwin, E.C. and DiMaio, D. 2000. Repression of human papillomavirus oncogenes in HeLa cervical carcinoma cells causes the orderly reactivation of dormant tumor suppressor pathways. *Proceedings of the National Academy of Sciences of the United States of America*, 97(23), 12513–12518.
- Graham, S. V. 2017. Keratinocyte differentiation-dependent human papillomavirus gene regulation. *Viruses*, 9(245), 1–18.
- Greenshields, A.L. Doucette, C.D. Sutton, K.M., *et al.* 2015. Piperine inhibits the growth and motility of triple-negative breast cancer cells. *Cancer Letters*, 357(1), 129–140.
- Gritz, E.R., Dresler, C. and Sarna, L. 2005. Smoking, the missing drug interaction in clinical trials: Ignoring the obvious. *Cancer Epidemiology Biomarkers and Prevention*, 14(10), 2287–2293.
- Gu, W. Lin, Z., Zhao, S., *et al.* 2022. Research Progress on G-Quadruplexes in Human Telomeres and Human Telomerase Reverse Transcriptase (hTERT) Promoter. *Oxidative Medicine and Cellular Longevity*, 2022, 1-11.
- Guo, X.-L., Ma, N.-N., Zhou, F.-G., *et al.* 2009. Up-regulation of hTERT expression by low-dose cisplatin contributes to chemotherapy resistance in human hepatocellular cancer cells. *Oncology Reports*, 22(3), 549–556.

- Guterres, A.N. and Villanueva, J. 2020. Targeting telomerase for cancer therapy. *Oncogene*, 39(36), 5811–5824.
- Guzmán-Olea, E., Bermudez- Morales, V.H., Peralta-Zaragoza, O., Torres-Poveda, K., Madrid-Marina, V. 2012. Molecular mechanism and potential targets for blocking HPV-induced lesion development. *Journal of Oncology*, 2012, 1-12.
- Hainaut, P. and Pfeifer, G.P. 2016. Somatic tp53 mutations in the era of genome sequencing. *Cold Spring Harb Perspect Med*, 6, 1–22.
- Hamid, N.A., Brown, C. and Gaston, K. 2009. The regulation of cell proliferation by the papillomavirus early proteins. *Cellular and Molecular Life Sciences*, 66(10), 1700–1717.
- Han, S-Z., Liu, H-X., Yang, L-q., Cui, L-d., Xu, Y. 2017. Piperine (PP) enhanced mitomycin-C (MMC) therapy of human cervical cancer through suppressing Bcl-2 signaling pathway via inactivating STAT3/NF-κB. *Biomedicine and Pharmacotherapy*, 96(November), 1403–1410.
- Handsfiel, H.H., Jasman, L.L., Roberts, P.L., Hanson, V.W., Kothenbeutel, R.L., Stamm, W. 1986. Criteria for selective screening for Chlamydia trachomatis infection in women attending family planning clinics. 592–594.
- Harden, M.E. and Munger, K. 2017. Human papillomavirus molecular biology. *Mutation Research - Reviews in Mutation Research*, 772(617), 3–12.
- Hatok, J. and Racay, P. 2016. Bcl-2 family proteins: Master regulators of cell survival. *Biomolecular Concepts*, 7(4), 259–270.
- Hausen, H. 2002. Papillomaviruses and Cancer: From Basic Studies to Clinical Application. *Cancer*, 2, 342–350.
- He, Y., Zhu, Q., Chen, M., *et al.* 2016. The changing 50% inhibitory concentration (IC50) of cisplatin: A pilot study on the artifacts of the MTT assay and the precise measurement of density-dependent chemoresistance in ovarian cancer. *Oncotarget*, 7(43), 70803–70821.
- Hellberg, D. Nilsson, S., Haley, N.J., Hoffman, D., Wynder, E. 1988. Smoking and cervical intraepithelial neoplasia: Nicotine and cotinine in serum and cervical mucus in smokers and nonsmokers. *American Journal of Obstetrics and Gynecology*, 158(4), 910–913.
- Hernández Borrero, L.J. and El-Deiry, W.S. 2021. Tumor suppressor p53: Biology, signaling pathways, and therapeutic targeting. *Biochimica et Biophysica Acta - Reviews on Cancer*, 1876(1), 1-49.
- Hickman, E.S., Moroni, M.C. and Helin, K. 2002. The role of p53 and pRB in apoptosis and cancer. *Current Opinion in Genetics and Development*, 12(1), 60–66.

- Hongbao, M. 2017. HeLa Cells and Immortality. *Cancer Biology*, 7(3), 71–78.
- Howie, H.L., Katzenellenbogen, R.A. and Galloway, D.A. 2009. Papillomavirus E6 proteins. 384(2), 324–334.
- Hu, J. Cao, J., Topatana, W., *et al.* 2021. Targeting mutant p53 for cancer therapy: direct and indirect strategies. *Journal of Hematology and Oncology*, 14(1), 1–19.
- Hussar, P. 2022. Apoptosis Regulators Bcl-2 and Caspase-3. *Encyclopedia*, 2(4), 1624–1636.
- Ibeanu, O.A. 2011. Molecular pathogenesis of cervical cancer. *Cancer Biology and Therapy*, 11(3), 295–306.
- Ichim, G. and Tait, S.W.G. 2016. A fate worse than death: Apoptosis as an oncogenic process. *Nature Reviews Cancer*, 16(8), 539–548.
- Inoue, K., Fry, E.A. and Frazier, D.P. 2016. Transcription factors that interact with p53 and Mdm2. *Int J Cancer*, 138(7), 1577–1585.
- Irabor, G.I. siwele, E., Nnoli, M.A., Omoruyi, K.A. 2018. The Relationship between Age and Histological Types of Cervical Cancer', *Int J Sc Res*, 7(2), 260–263.
- Ishikawa, M. Fujii, T., Saito, M., *et al.* 2006. Overexpression of p16INK4a as an indicator for human papillomavirus oncogenic activity in cervical squamous neoplasia. *International Journal of Gynecological Cancer*, 16(1), 347–353.
- Ismail, N.I. Othman, I. Abes, F., Lajiz, N.H., Naidu, R. 2019. Mechanism of apoptosis induced by curcumin in colorectal cancer. *International Journal of Molecular Sciences*, 20(10) 1-34.
- Jafri, A. Siddiqui, A., Rais, J., *et al.* 2019. Induction of apoptosis by piperine in human cervical adenocarcinoma via ros mediated mitochondrial pathway and caspase-3 activation. *EXCLI Journal*, 18, 154–164.
- Jahanban-Esfahlan, R. Seidi, K., Monfaredan, A., *et al.* 2017. The herbal medicine *Melissa officinalis* extract effects on gene expression of p53, Bcl-2, Her2, VEGF-A and hTERT in human lung, breast and prostate cancer cell lines. *Gene*, 613, 14–19.
- Joerger, A.C. and Fersht, A.R. 2007. Structure-function-rescue: The diverse nature of common p53 cancer mutants. *Oncogene*, 26(15), 2226–2242.
- Johnson, J.D., Houchens, D.P., Kluwe, W.M., Craig, D.K., Fisher, G.L. 1990. Effects of mainstream and environmental tobacco smoke on the immune system in animals and humans: A review. *Critical Reviews in Toxicology*, 20(5), 369–395.

- Jung, H.M., Phillips, B.L. and Chan, E.K.L. 2014. MiR-375 activates p21 and suppresses telomerase activity by coordinately regulating HPV E6/E7, E6AP, CIP2A, and 14-3-3 ζ . *Molecular Cancer*, 13(1), 1–15.
- Kakarala, M. Brenner, D.E., Korkaya, H., *et al.* 2010. Targeting breast stem cells with the cancer preventive compounds curcumin and piperine. *Breast Cancer Research and Treatment*, 122(3), 777–785.
- Kamiloglu, S. Sari, G., Ozdal, T., Capanoglu, S. 2020. Guidelines for cell viability assays. *Food Frontiers*, 1(3), 332–349.
- Katzenellenbogen, R. 2017. Telomerase induction in HPV infection and oncogenesis. *Viruses*, 9(7), 1–12.
- Kaur, G. and Dufour, J.M. 2012. Cell lines. *Spermatogenesis*, 2(1), 1–5.
- Khan, K.H., Blanco-Codecido, M. and Molife, L.R. 2014. Cancer therapeutics: Targeting the apoptotic pathway. *Critical Reviews in Oncology/Hematology*, 90(3), 200–219.
- Khan, M.A., Tiwari, D., Dongre, A., Sadaf., Mustafa., S., Das, A.R., Messey, S., *et al.* 2020. Exploring the p53 connection of cervical cancer pathogenesis involving north-east Indian patients. *PLoS ONE*, 15(9)1–16.
- Khatun, S.F. Khatun, S., Hossain, A.F., Nahar, K. 2018. Prolonged use of oral contraceptive pill, a co-factor for the development of cervical cancer. *Bangabandhu Sheikh Mujib Medical University Journal*, 11(3), 222–225.
- Kines, R.C. Thompson, S.D., Lowy, D.R., Schiller, J.T., Day, P.M. 2009. The initial steps leading to papillomavirus infection occur on the basement membrane prior to cell surface binding. *PNAS*, 106(48), 20458–20463.
- Kiraz, Y., Adan, A., Yandim, M.K., Baran, Y. 2016. Major apoptotic mechanisms and genes involved in apoptosis. *Tumor Biology*, 37(7), 8471–8486.
- Koff, J.L., Ramachandiran, S. and Bernal-Mizrachi, L. 2015. A time to kill: Targeting apoptosis in cancer. *International Journal of Molecular Sciences*, 16(2), 2942–2955.
- Kojic, E.M. Kang, M., Cespedes, M.S., *et al.* 2014. Immunogenicity and safety of the quadrivalent human papillomavirus vaccine in HIV-1-infected women. *Clinical Infectious Diseases*, 59(1), 127–135.
- Krishnakumar, N., Manoharan, S., Pallaniapan., *et al.* 2009. Chemopreventive efficacy of piperine in 7,12-dimethyl benz [a] anthracene (DMBA)-induced hamster buccal pouch carcinogenesis: An FT-IR study. *Food and Chemical Toxicology*, 47(11), 2813–2820.
- Kroemer, G., Galluzi, L., Vandenabeele, P., Abrams, J., Alnemi, E.S. 2009. Classification of cell death: recommendations of the Nomenclature Committee on Cell Death 2009. *Cell Death and Differentiation*, 16(1), 3–11.

- Kuguyo, O., Tsikai, N., Thomford., N.E., *et al.* 2018. Genetic susceptibility for cervical cancer in African populations: What are the host genetic drivers?. *OMICS A Journal of Integrative Biology*, 22(7), 468–483.
- Kuranaga, E. 2012. Beyond apoptosis: Caspase regulatory mechanisms and functions in vivo. *Genes to Cells*, 17(2), 83–97.
- Kuranaga, N., Shinomiya, N. and Mochizuki, H. 2001. Long-term cultivation of colorectal carcinoma cells with anti-cancer drugs induces drug resistance and telomere elongation: An in vitro study. *BMC Cancer*, 1(10),1-8.
- Kurvinen, K., Syrjänen, S. and Johansson, B. 2006. Long-term suppression of telomerase expression in HeLa cell clones, transfected with an expression vector carrying siRNA targeting hTERT mRNA. *International Journal of Oncology*, 29(1), 279-288.
- LaCasse, E.C., Mahoney., D.J., Cheung, H.H., *et al.* 2008. IAP-targeted therapies for cancer. *Oncogene*, 27(48), 6252–6275.
- Lacroix, M. Riscal., R., Arena, G., Linares., L.K., Cam, L.L. 2020. Metabolic functions of the tumor suppressor p53: Implications in normal physiology, metabolic disorders, and cancer. *Molecular Metabolism*, 33, 2–22.
- Lai, L. Fu, Q-h., Liu, Y., *et al.* 2012. Piperine suppresses tumor growth and metastasis in vitro and in vivo in a 4T1 murine breast cancer model. *Nature Publishing Group*, 523–530.
- Landry, J.J.M. Pyl, P, T., Rausch., T., *et al.* 2013. The genomic and transcriptomic landscape of a hela cell line. *G3: Genes, Genomes, Genetics*, 3(8), 1213–1224.
- Lea, J.S., Coleman, R., Kurien, A., *et al.* 2004. Aberrant p16 methylation is a biomarker for tobacco exposure in cervical squamous cell carcinogenesis. *American Journal of Obstetrics and Gynecology*, 190(3), 674–679.
- Letian, T. and Tianyu, Z. 2010. Cellular receptor binding and entry of human papillomavirus. *Virology Journal*, 7, 1–7.
- Lin, Y., Xu, J., Liao, H., Li, L., Pan L. 2014. Piperine induces apoptosis of lung cancer A549 cells via p53-dependent mitochondrial signaling pathway. *Tumor Biology*, 35(4), 3305–3310.
- Ling, X., Wen, L. and Zhou, Y. 2012. Role of mitochondrial translocation of telomerase in hepatocellular carcinoma cells with multidrug resistance. *International Journal of Medical Sciences*, 9(7), 545–554.
- Liu, W.J. Gissman., Sun, X.Y., *et al.* 1997. Sequence close to the N-terminus of L2 protein is displayed on the surface of bovine papillomavirus type 1 virions. *Virology*, 227(2), 474–483.

- Liu, X., Roberts, J., Dakic, A., Zhang, Y., Schlegel, R. 2008. HPV E7 contributes to the telomerase activity of immortalized and tumorigenic cells and augments E6-induced hTERT promoter function. *Virology*, 375(2), 611–623.
- Locksley, R.M., Killeen, N. and Lenardo, M.J. 2001. The TNF and TNF receptor superfamilies: Integrating mammalian biology. *Cell*, 104(4), 487–501.
- Lucey, B.P., Nelson-Rees, A.A., Hutchins, G.M. 2009. Henrietta Lacks, HeLa Cells, and Cell Culture Contamination. *Arch Pathol Lab Med*, 133, 1463–1467.
- Ludlow, A.T., Slusher, A.L. and Sayed, M.E. 2019. Insights into telomerase/hTERT alternative splicing regulation using bioinformatics and network analysis in cancer. *Cancers*, 11(5), 1–15.
- Madeleine, M.M., Antilla, T., Schwartz, S.M., *et al.* 2007. Risk of Cervical Cancer Associated with Chlamydia trachomatis Antibodies by Histology, HPV Type, and HPV Cofactors. *Int J Cancer*, 120(3), 650–655.
- Mahmutovic, S. 2012. Chlamydia trachomatis Infections of the Adults. *Sexually Transmitted Infections* [Preprint].
- Manzo-Merino, J. Contreras-Paredes, A., Vazquez-Ulloa., *et al.* 2014. The Role of Signaling Pathways in Cervical Cancer and Molecular Therapeutic Targets. *Archives of Medical Research*, 45(7), 525–539.
- Marei, H.E. Althani, A., Afifi, N., *et al.* 2021. P53 Signaling in Cancer Progression and Therapy. *Cancer Cell International*, 21(1), 1–15.
- Martinez-Zapien, D., Ruiz, F. X., Poirson, J., *et al.* 2016. Structure of the E6/E6AP/p53 complex required for HPV-mediated degradation of p53. *Nature*, 529(7587), 541–545.
- Maximov, G.K. and Maximov, K.G. 2008. The role of p53 tumor-suppressor protein in apoptosis and cancerogenesis. *Biotechnology and Biotechnological Equipment*, 22(2), 664–668.
- Mazumder, D. Singh, R.K., Mitra, S., *et al.* 2011. Genetic and epigenetic changes of HPV16 in cervical cancer differentially regulate E6/E7 expression and associate with disease progression. *Gynecologic Oncology*, 123(3), 597–604.
- McIlwain, D.R., Berger, T. and Mak, T.W. 2013. Caspase functions in cell death and disease. *Cold Spring Harbor Perspectives in Biology*, 5(4), 1–28.
- McKenzie, B.A. Fernandez, J.P., Doan, M.A.L., Schmitt., L.M., Brantom, W.G., Power, C. 2020. Activation of the executioner caspases-3 and-7 promotes microglial pyroptosis in models of multiple sclerosis. *Journal of Neuroinflammation*, 17(1), 1–25.

- McLaughlin-Daurbin, M.E. 2014. Oncogenic Activities of Human Papillomaviruses Margaret. 71(11), 3831–3840.
- Melikian, A.A. Sun, P., Prokopczyk, K.E., Hoffman, D., Wang, X., Waggoner, S. 1999. Identification of benzo[a]pyrene metabolites in cervical mucus and DNA adducts in cervical tissues in humans by gas chromatography-mass spectrometry. *Cancer Letters*, 146(2), 127–134.
- Meng, T., Qin, Q-P., Wang, A-R., Peng, L-T., Zou, H.H., Gan, Z-Y. 2018. Synthesis and biological evaluation of substituted 3-(2'-benzimidazolyl)coumarin platinum(II) complexes as new telomerase inhibitors. *Journal of Inorganic Biochemistry*, 189,143–150.
- Miller, J., Dakic, A., Chen, R.,*et al.* 2013. HPV16 E7 Protein and hTERT Proteins Defective for Telomere Maintenance Cooperate to immortalize Human Keratinocytes. *PLoS Pathogens*, 9(4), 1–13.
- Min, K.J., Lee, J-K., So, A.K., Kim, M.K., 2018. Association Between Passive Smoking and the Risk of Cervical Intraepithelial Neoplasia 1 in Korean Women. *Journal of Epidemiology*, 28(1), 48–53.
- Mohammadian, M., Khameneh., A.R., Minaei, S.E., Ebrahimifar, M., Esgandri, K. 2022. Regulatory Effects of Apatinib in Combination with Piperine on MDM- 2 Gene Expression, Glutathione Peroxidase Activity and Nitric Oxide Level as Mechanisms of Cytotoxicity in Colorectal Cancer Cells. *Advanced Pharmaceutical Bulletin*, 12(2), 404–409.
- Moll, U.M. and Petrenko, O. 2003. The MDM2-p53 Interaction. *Molecular Cancer Research*, 1(December), 1001–1008.
- Moriarty, T.J., Dupuis, S. and Autexier, C. 2002. Rapid upregulation of telomerase activity in human leukemia hl-60 cells treated with clinical doses of the dna-damaging drug etoposide. *Leukemia*, 16(6), 1112–1120.
- da Mota, T.H.A., Camargo, R., Biojone., E.R., Guimaraes., A.F,R., Pittella-Silva, F., de-Oliveira, D.M. 2023. The Relevance of Telomerase and Telomere-Associated Proteins in B-Acute Lymphoblastic Leukemia', *Genes*, 14(691), 1-19.
- Muñoz, N., Franceschi,S., Bosetti, C. 2002. Role of parity and human papillomavirus in cervical cancer: the IARC multicentric case-control study. *The Lancet*, 359, 1093–1101.
- Muraki, K. Nyhan, K., Han, L., Murnane., J.P. 2012. Mechanisms of telomere loss and their consequences for chromosome instability. *Frontiers in Oncology*, 2(October), 1–13.
- Myosite, C. 2021. *Immortalized Versus Primary Cells: Considerations for Optimal Application in Cell Cultures Laboratory Research Services*. Delta Dr, Pittsburgh PA: Cook MyoSite, Inc. pp 1-6.

- Nag, S., Qin, J., Srivenugopak, K.S., Wang, M., Zhang, R. 2013. The MDM2-p53 pathway revisited. *Journal of Biomedical Research*, 27(4), 254–271.
- Nakatani, N. Inatani, R., Ohta, H., Nishioka, A. 1986. Chemical constituents of peppers (*Piper spp.*) and application to food preservation: Naturally occurring antioxidative compounds. *Environmental Health Perspectives*, VOL. 67, 135–142.
- Narisawa-Saito, M. and Kiyono, T. 2007. Basic mechanisms of high-risk human papillomavirus-induced carcinogenesis: Roles of E6 and E7 proteins. *Cancer Science*, 98(10), 1505–1511.
- Nasiri, M. Zarghami, N., Koshki, K.N., *et al.* 2013. Curcumin and silibinin inhibit telomerase expression in T47D human breast cancer cells. *Asian Pacific Journal of Cancer Prevention*, 14(6), 3449–3453.
- National Cancer Institute. 2017. Cervical Cancer - Cancer Stat Facts. *SEER Cancer Stat Facts: Cervical Cancer*
- Nguyen, D., Liao, W., Zeng, A.X., Lu, H. 2017. Reviving the guardian of the genome: Small molecule activators of p53. *Pharmacology and Therapeutics*, 178, pp. 92–108.
- Nikoletopoulou, V., Markaki, M., Palikaras, K., Tavernarakis, N. 2013. Crosstalk between apoptosis, necrosis and autophagy. *Biochimica et Biophysica Acta - Molecular Cell Research*, 1833(12), 3448–3459.
- Okunade, K.S. 2020. Human Papillomavirus and Cervical Cancer. *J Obstet Gynaecol*, 40(5), 602–608.
- Olusola, P., Banerjee, H.N., Philley, J.V., Dasgupta., S. 2019. Human Papilloma Virus-Associated Cervical Cancer and Health Disparities. *Cells*, 8(6), 622.
- Ortiz-Sánchez, E., Santiago-Lopez., Cruz-Dominguez, V.B., *et al.* 2016. Characterization of cervical cancer stem cell-like cells: Phenotyping, stemness, and Human Papilloma Virus co-receptor expression. *Oncotarget*, 7(22), 31943–31954.
- Ozaki, T. and Nakagawara, A. 2011. Role of p53 in cell death and human cancers. *Cancers*, 3(1), 994–1013.
- Paarakh, P.M., Sreeram, D.C., Shruti, S.D., Ganapathy, S.P.S. 2015. In vitro cytotoxic and in silico activity of piperine isolated from *Piper nigrum* fruits Linn. *In Silico Pharmacology*, 3–9.
- Pal, S., Goel, H. and Jha, A.K. 2019. Apoptosis Caused by Natural Compounds in Cervical Cancer Cell Line. *Cancer Ther Oncol Int J*. 14(2).001-005.
- Pańczyszyn, A., Boniewska-Bernacka, E. and Głąb, G. 2018. Telomeres and Telomerase During Human Papillomavirus-Induced Carcinogenesis. *Molecular Diagnosis and Therapy*, 22(4), 421–430.

- Pandey, U. 2017. What is cervical cancer?. *Journal of Gynecology and Womens Health*, 2(5), 1–7.
- Park, W., Wei, S., Kim, B-S., *et al.* 2023. Diversity and complexity of cell death: a historical review. *Experimental and Molecular Medicine*, 55(8), 1573–1594.
- Parrish, A.B., Freel, C.D. and Kornbluth, S. 2013. Cellular Mechanisms Controlling Caspase Activation and Function Amanda. *Cold Spring Harb Perspect Biol*, 5, 1–24.
- Pešut, E. Dukic, A., Lulic, L., *et al.* 2021. Human papillomaviruses-associated cancers: An update of current knowledge. *Viruses*, 13(11). 1-31
- Pistritto, G., Trisciuglio., Ceci, C., Garufi., A., D-Orazi, G. 2016. Apoptosis as anticancer mechanism: Function and dysfunction of its modulators and targeted therapeutic strategies. *Aging*, 8(4), 603–619.
- Piyachaturawat, P., Glinsukon, T. and Toskulkao, C. 1983. Acute and subacute toxicity of piperine in mice, rats and hamsters. *Toxicology Letters*, 16(3–4), 351–359.
- Pol, S.B. Vande and Klingelutz, A.J. 2013. Papillomavirus E6 oncoproteins. *Virology*, 27(445), 1–19.
- Poppe, W.A.J., Drijkoningen, M., Ide, P.S., Lauweryns, J.M., Assche, F.A.V. 1996. Langerhans cells and L1 antigen expression in normal and abnormal squamous epithelium of the cervical transformation zone. *Gynecologic and Obstetric Investigation*, 41(3), 207–213.
- Präbst, K. Engelhardt, H., Ringgeler, S., Hubner, H. 2017. Basic colorimetric proliferation assays: MTT, WST, and resazurin. *Methods in Molecular Biology*, 1601, pp. 1–17.
- Pradeep, C.R. and Kuttan, G. 2002. Effect of piperine in the inhibition of lung metastasis induced by B16F-10 melanoma cells. *Clinical & Experimental Metastasis*, 19, 703–708.
- Prati, B., Marangoni, B. and Boccardo, E. 2018. Human papillomavirus and genome instability: From productive infection to cancer. *Clinics*, 73(6), 1–9.
- Prokopczyk, B., Cox, J.E., Waggoner, S.E. 1997. Identification of tobacco-specific carcinogen in the cervical mucus of smokers and nonsmokers. *Journal of the National Cancer Institute*, 89(12), 868–873.
- Quarti, J. *et al.* 2021. Selective cytotoxicity of piperine over multidrug resistance leukemic cells', *Molecules*, 26(4), 1–23.
- Reddy, V.G., Khanna, N., Jain, S.K., Das, B.C., Singh, N. 2001. Telomerase-A molecular marker for cervical cancer screening. *International Journal of Gynecological Cancer*, 11(2), 100–106.

- Rice, H., Bryant, S., Handley, C., Hall, M. 2014. Oncogenes and tumor suppressor genes: An essential building block of cancer. *Chemist*, 87(2),15–18.
- Roberts, H.E. 2004. Gynaecological cancer and the contraceptive pill. *The Obstetrician & Gynaecologist*, 6(2), 75–79.
- Roman, A. and Karl Munger. 2013. The papillomavirus E7 proteins. *Virology*, 445, 138–168.
- Roura, E., Travier, N., Waterbour, T., *et al.* 2016. The influence of hormonal factors on the risk of developing cervical cancer and pre-cancer: Results from the EPIC cohort. *PLoS ONE*, 11(1), 1–17.
- Rubio, I., Seitz, H., Canali, E., *et al.* 2011. The N-terminal region of the human papillomavirus L2 protein contains overlapping binding sites for neutralizing, cross-neutralizing and non-neutralizing antibodies. *Virology*, 409(2), 348–359.
- Ruttkay-nedecky, B., Jimenez, A.M, J., Nejdil, L., *et al.* 2013. Relevance of infection with human papillomavirus: The role of the p53 tumor suppressor protein and E6/E7 zinc finger proteins (Review). *International Journal of Oncology*, 43(6), 1754–1762.
- Sakaguchi, S., Nakagawa, N., Wahba, H.M., *et al.* 2023. Highly Similar Tetramerization Domains from the p53 Protein of Different Mammalian Species Possess Varying Biophysical, Functional and Structural Properties', *International Journal of Molecular Sciences*, 24(16620). 1-18.
- Samykutty, A., Shetty, A.V., Dakshinamoorthy, G., *et al.* 2013. Piperine, a Bioactive Component of Pepper Spice Exerts Therapeutic Effects on Androgen Dependent and Androgen Independent Prostate Cancer Cells. 8(6), 1–11.
- Sato, N., Mizumoto, K., Kusumoto, M., *et al.* 2000. Up-regulation of telomerase activity in human pancreatic cancer cells after exposure to etoposide. *British Journal of Cancer*, 82(11), 1819–1826.
- Scaglioni, L., Mondelli, R., Artali, R., Sirtori, F.R., Mazzini, S. 2016. Nemorubicin and doxorubicin bind the G-quadruplex sequences of the human telomeres and of the c-MYC promoter element Pu22. *Biochimica et Biophysica Acta - General Subjects*, 1860(6), 1129–1138.
- Schiller, J.T., Day, P.M. and Kines, R.C. 2010. Current understanding of the mechanism of HPV infection', *Gynecologic Oncology*, 118(1), 1–13.
- Schmittgen, T.D. and Livak, K.J. 2008. Analyzing real-time PCR data by the comparative CT method. *Nature Protocols*, 3(6), 1101–1108.
- Seo, E.J., Kim, H.J., Lee, C.J., Kang, H.T., Hwang, E.S. 2004. The role of HPV oncoproteins and cellular factors in maintenance of hTERT expression in cervical carcinoma cells. *Gynecologic Oncology*, 94, 40–47.

- Shapiro, S. Grosse, Y., Baan, R., *et al.* 2005. Carcinogenicity of combined oestrogen-progestagen contraceptives and menopausal treatment. *Lancet Oncology*, 6(10), 736–737.
- Shepelev, N., Dontsova, O. and Rubtsova, M. 2023. Post-Transcriptional and Post-Translational Modifications in Telomerase Biogenesis and Recruitment to Telomeres. *International Journal of Molecular Sciences*, 24(5027).1-34.
- Shi, D. and Gu, W. 2012. Dual Roles of MDM2 in the Regulation of p53: Ubiquitination Dependent and Ubiquitination Independent Mechanisms of MDM2 Repression of p53 Activity. *Genes and Cancer*, 3(3–4), 240–248.
- Shrestha, A.D., Neupane, D., Vedsted, P., Kallestrup, P. 2018. Cervical cancer prevalence, incidence and mortality in low and middle income countries: A systematic review. *Asian Pacific Journal of Cancer Prevention*, 19(2), 319–324.
- Siddiqui, S., Ahamad, M., Jafri, A., *et al.* 2017. Piperine Triggers Apoptosis of Human Oral Squamous Carcinoma Through Cell Cycle Arrest and Mitochondrial Oxidative Stress', *Nutrition and Cancer*, 69(5), 791–799.
- Simons, A.M., Phillips, D.H. and Coleman, D. V. 1993. Damage to DNA in cervical epithelium related to smoking tobacco. *British Medical Journal*, 306(6890), 1444–1448.
- Singh, R., Letai, A. and Sarosiek, K. 2019. Regulation of apoptosis in health and disease: the balancing act of BCL-2 family proteins. *Nat Rev Mol Cell Biol*, 20(3), 175–193.
- Singh, V., Khurana, A.m Navik, U., Allawadhi, P., Bharani, K.K., Weiskirchen, R. 2022. Apoptosis and Pharmacological Therapies for Targeting Thereof for Cancer Therapeutics. *Sci*, 4(15),1-25.
- Soleymanejadian, E., Zalini, P., Cassaniti, I., *et al.* 2022. Immunological Aspects of Human Papilloma Virus-Related Cancers Always Says, “I Am like a Box of Complexity, You Never Know What You Are Gonna Get”. *Vaccines*, 10(5), 1–18.
- Sprouse, A.A., Steding, C.E. and Herbert, B.S. 2012. Pharmaceutical regulation of telomerase and its clinical potential. *Journal of Cellular and Molecular Medicine*, 16(1), 1–7.
- Srinivas, N., Rachakonda, S. and Kumar, R. 2020. Telomeres and telomere length: A general overview. *Cancers*, 12(3),1–29.
- Stephens, P.J., Greenman, C.D., Fu, B., *et al.* 2011. Massive genomic rearrangement acquired in a single catastrophic event during cancer development. *Cell*, 144(1), 27–40.

- Szallasi, A. 2005. Piperine: Researchers discover new flavor in an ancient spice. *Trends in Pharmacological Sciences*, 26(9), 437–439.
- Talbert-Slagle, K.D.D. 2008. The Bovine Papillomavirus E5 Protein and the PDGF β Receptor: It Takes Two to Tango. *Bone*, 23(1), 1–7.
- Tawani, A., Amanullah, A., Mishra, A., Kumar, A. 2016. Evidences for Piperine inhibiting cancer by targeting human G-quadruplex DNA sequences. *Nature Publishing Group*, 6(39239), 1–12.
- Torre, L., Bray, F., Siegel, R.L., Ferlay, J., Lortet-Tiulent., Jemal, A. 2015. Global Cancer Statistics, 2012. *Ca Cancer J Clin*, 65, 87-108.
- Trybek, T., Kowalik, A., Gozdz, S., Kowalska, A. 2020. Telomeres and telomerase in oncogenesis (review). *Oncology Letters*, 20(2), 1015–1027.
- UNAIDS. 2016. HPV, HIV and AIDS defining illnesses [Preprint].
- Varela, E. and Blasco, M.A. 2010. 2009 Nobel Prize in Physiology or Medicine: Telomeres and telomerase. *Oncogene*, 29(11), 1561–1565.
- Varshney, A., Ramakrishnan, S., Sharma, A., *et al.* 2014. Global expression profile of telomerase-associated genes in HeLa cells. *Gene*, 547(2), 211–217.
- Vasavirama, K. and Upender, M. 2014. Piperine: A Valuable Innovare. *International Journal of Pharmacy and Pharmaceutical Sciences*, 6(4), 34–38.
- Vasilishina, A., Kropotov, A., Spivak, I., *et al.* 2019. Chapter 5. Relative Human Telomere Length Quantification by Real-Time PCR. 1896, 39–44.
- Ventura, A., Kirsch, D.G., McLaughlin, A.E., *et al.* 2007. Restoration of p53 function leads to tumour regression in vivo. *Nature*, 445(7128), 661–665.
- Venuti, A., Paolini, F., Nasir, L., *et al.* 2011. Papillomavirus E5: The smallest oncoprotein with many functions. *Molecular Cancer*, 10(1), 140.
- De Villiers, E.M., Fauquet, C., Broker, T.R., Bernard, H-U., Hausen, H. 2004. Classification of papillomaviruses. *Virology*, 324(1), 17–27.
- Vousden, K. 1993. Interactions of human papillomavirus transforming proteins with the products of tumor suppressor genes. *FASEB Journal*, 7(10), 872–879.
- Vousden, K.H. and Prives, C. 2009. Blinded by the Light: The Growing Complexity of p53. *Cell*, 137(3), 413–431.
- Vu, M., Yu, J., Awolude, O., *et al.* 2018. Cervical cancer worldwide. *Current Problems in Cancer*, 42(5), 457–465.
- Wang, J. Guo, W., Zhou, H., *et al.* 2015. Mitochondrial p53 phosphorylation induces Bak-mediated and caspase-independent cell death. *Oncotarget*, 6(19), 17192–17205.

- Wang, Y.-H., Morris-Natschke, S.L., Yang, J., *et al.* 2014. Anticancer Principles from Medicinal Piper (胡椒 Hú Jiāo) Plants. *Journal of Traditional and Complementary Medicine*, 4(1), 8–16.
- Wang, Y. Cheng, F.X., Yuan, X.L., *et al.* 2016. Dihydropyrazole derivatives as telomerase inhibitors: Structure-based design, synthesis, SAR and anticancer evaluation in vitro and in vivo. *European Journal of Medicinal Chemistry*, 112, 231–251.
- Wei, Z.Z., Qin, Q.P., Chen, J-N., Chen, Z-F. 2016. Oxoisoaporphine as potent telomerase inhibitor. *Molecules*, 21(1543), 1-7.
- WHO. 2014. Comprehensive Cervical Cancer Control. *Geneva*, 366–378.
- Wilson, W.R. and Hay, M.P. 2011. Targeting hypoxia in cancer therapy. *Nature Reviews Cancer*, 11(6), 393–410.
- Wong, M.S., Wright, W.E. and Shay, J.W. 2014. Alternative splicing regulation of telomerase: A new paradigm?. *Trends in Genetics*, 30(10), 430–438.
- Wong, R.S.Y. 2011. Apoptosis in cancer: From pathogenesis to treatment. *Journal of Experimental and Clinical Cancer Research*, 30 (87) 1-14.
- Yaffe, P.B., Coombs, M.R.P., Doucette, C.D., Walsh, M., Hoskin, D.W. 2015. Piperine, an alkaloid from black pepper, inhibits growth of human colon cancer cells via G1 arrest and apoptosis triggered by endoplasmic reticulum stress. *Molecular Carcinogenesis*, 54(10), 1070–1085.
- Yang, X. and Lu, L. 2015. Expression of HPV-16 E6 protein and p53 inactivation increases the uterine cervical cancer invasion. *Drug Research*, 65(2), 70–73.
- Yi, X., Tesmer, V.M., Savre-Train, I., Shay, J.W., Wright, W.E. 1999. Both Transcriptional and Posttranscriptional Mechanisms Regulate Human Telomerase Template RNA Levels. *Molecular and Cellular Biology*, 19(6), 3989–3997.
- Yokoyama, C., Sueyoshi, Y., Ema, M., Nori, Y., Takaishi, K., Hisatomi, H. 2017. Induction of oxidative stress by anticancer drugs in the presence and absence of cells. *Oncology Letters*, 14(5), 6066–6070.
- Yoo, E.S., Choo, G.S., Kim, S.H., *et al.* 2019. Antitumor and Apoptosis-inducing Effects of Piperine on Human Melanoma Cells. *Anticancer Research*, 39(4), pp. 1883–1892.
- Yue, X., Zhao, Y., Xu, Y., Zheng, M., Feng, Z., Hu, W. 2017. Mutant p53 in cancer: accumulation, gain-of-function and therapy. *Journal of Molecular Biology*, 429(11), 1595–1606.
- Yugawa, T. and Kiyono, T. 2008. Molecular mechanisms of cervical carcinogenesis by high-risk human papillomaviruses: novel functions of E6 and E7 oncoproteins. *Reviews in medical virology*, 18(January), 305–

319.

- Zahler, A.M., Williamson, J.R., Cech, T.R., Prescott, D.M. 1991. Inhibition of telomerase by G-quartet DNA structures. *Nature*, 353, 412–414.
- Zannini, L., Delia, D. and Buscemi, G. 2014. CHK2 kinase in the DNA damage response and beyond. *Journal of Molecular Cell Biology*, 6(6), 442–457.
- Zeidel, A., Beilin, B., Yardeni, I., Mayburd, E., Smirnov, G., Bessler, H. 2002. Immune response in asymptomatic smokers. *Acta Anaesthesiologica Scandinavica*, 46(8), 959–964.
- Zejnnullahu, V.A., Zejnnullahu, V.A., Josifovska, S., Vukovic, N., Pakovski, K., Panov, S. 2017. Correlation of hTERT Expression with Cervical Cytological Abnormalities and Human Papillomavirus Infection. *Prilozi*, 38(3), 143–151.
- Zeng, X.T., Xlong, P-A., Wang, F., Li, Chun, Yi., Yao, J., Guo, Y. 2012. Passive smoking and cervical cancer risk: A meta-analysis based on 3,230 cases and 2,982 controls. *Asian Pacific Journal of Cancer Prevention*, 13(6), 2687–2693.
- Zhang, Y., Dakic, A., Chen, R., Dai, Y., Schlegel, R., Liu, X. 2017. Direct HPV E6/Myc interactions induce histone modifications, Pol II phosphorylation, and hTERT promoter activation. *Oncotarget*, 8(56), 96323–96339.
- Zhao, Q., Modis, Y., High, K., *et al.* 2012. Disassembly and reassembly of human papillomavirus virus-like particles produces more virion-like antibody reactivity. *Virology Journal*, 9(52), 1-13.
- Zhao, X. Sun, W., Ren, Y., Lu, Z. 2021. Therapeutic potential of p53 reactivation in cervical cancer. *Critical Reviews in Oncology/Hematology*, 157, 1-11.
- Zhu, C.W., Chen, M., Luo, X., *et al.* 2011. Interferon alpha on expression of hTERT mRNA in peripheral blood mononuclear cells of patients with chronic hepatitis B. *Clinical and Developmental Immunology*, 2011, 1-7.