

DAFTAR PUSTAKA

- Abcam, 2007, T47D (Human Ductal Breast Epithelial Tumor Cell Line) Whole Cell Lysate (ab14899) datasheet. <http://www.abcam.com/index.html?datasheet=14899>, diakses Februari 2007.
- Afzal, S., Asad, M.K, Rumana, Q.F, Ansari, Muhammad, F.N, and Syed, S.S, 2008, Redox Behavior of Anticancer Chalcone on a Glassy Carbon Electrode and Evaluation of its Interaction Parameters with DNA, *Int. J. Mol. Sci.*, 9, 1424-1434.
- Albert, B., 1994, *Molecular Biology of the Cell*, 3rd ed., Garland Publisher, Inc., New York and London.
- American Cancer Society, 2016, *Cancer Facts and Figure*, Atlanta, American Cancer Society, Inc., 1-6.
- Amundson, S.A., Myers, T.G., Scudiero, D., Kitada, S., Reed, J.C., and Fornace, A.J., 2000, An Informatics Approach Identifying Markers of Chemosensitivity in Human Cancer Cell Lines, *Cancer Res.*, 60: 6101-6110.
- Aouali, N., Morjani, H., Trussardi, A., Soma, E., Giroux, B., and Manfait, M., 2003, Enhanced Cytotoxicity and Nuclear Accumulation of Doxorubicin-loaded Nanospheres in Human Breast Cancer MCF-7 Cells Expressing MRP1, *International Journal of Oncology*, 23: 1195-1201.
- Arianingrum, R., Arty, I.A dan Atun S., 2011, Uji Sitotoksitas Senyawa Mono Para Hidroksi Kalkon terhadap Cancer cell lines T47D, *Saintek Jurnal*, Vol 16, No.2, 131-132, LPPM, UNY.
- Arty, I.A, Henk T, Samhudi, Sastrohamidjojo, and Henk an der Goot., 2000, Synthesis of Benzylideneacetophenones and their Inhibition of Lipidperoxidation., *Eur. J., Med. Chem.* 35, 449-457.
- Arty, I.A., 2010, Synthesize and Citotoxicity Test of Several Compounds of Mono Para Hidroxy Chalcone, *Indo. J. Chem.*, 10 (1), 110-115

- ATCC, 2008, *Cell Biology*, ATCC® Number: HTB-22TM, Designations: MCF-7, <http://www.atcc.org/ATCCAdvancedCatalogSearch/ProductDetails/tabid/452/Default.aspx?ATCCNum=HTB-22&Template=cellBiology>, 19 Juli 2008.
- Aysola, K., Desai, A., Welch, C., Xu, J., Qin, Y., Reddy, V., Matthews, R., Owens, C., Okoli, J., Beech, D.J., Piyathilake, C.J., Reddy, S.P., and Rao, V.N., 2013, Triple Negative Breast Cancer – An Overview, *Hereditary Genet.; Suppl 2*.
- Belsare, D.P., Pal, S.C., Kazi, A.A., Kankate, R.S., and Vanjari, S.S., 2010, Evaluation of Antioxidant Activity of Chalcones and Flavonoids, *Int.J. ChemTech Res.*, Vol.2, No.2, pp 1080-1089.
- Bjelakovic, G., Nagorni, A., Bjelakovic, M., Stamenkovic, I., Arsic, R., and Katic, V., 2005, Apoptosis: Programmed Cell Death and Its Clinical Implications, *Medicine and Biology*, 12(1): 6-11.
- Bois, F., Beney, C., Boumendjel A, Mariotte, A.M., Conseil G., and Di Pietro, A., 1998, Halogenated Chalcones with High-Affinity Binding to P-glycoprotein: Potential Modulators of Multidrug Resistance. *J Med Chem.*, 41: 4161–4164.
- Bois, F., Boumendjel, A., Mariotte, A.M., Conseil, G., and Di Pietro, A., 1999, Synthesis and Biological Activity of 4-alkoxy Chalcones: Potential Hydrophobic Modulators of P-glycoprotein-Mediated Multidrug Resistance, *Bioorg Med Chem.*; 7: 2691–2695.
- Boumendjel, A., Ronot, X., and Boutonnat, 2009, Chalcone Derivatives Acting as Cell Cycle Blockers : Potensial Anticancer Drugs ? *J Curr Drug Targets*, 10 (4): 363-71.
- Breckenridge, David, G., Germani, Marc, Pathai, J.P., Nguyen, Mai, and Shore, G.C., 2003, Regulation of Apoptosis by Endoplasmic Reticulum Pathway, *Oncogene*, 22: 8608-8618.
- Brown, M. and Attardi, L.D., 2005, The Role of Apoptosis in Cancer Development and Treatment Response, *Nature Rev. Cancer*, 5: 231-236.
- Burry, R.W., 2010, *Immunocytochemistry: A Practical Guide for Biomedical Research*, Springer, New York.
- Butt, A.J., Firth, S.M., King, M.A., and Baxter, R.C., 2000, Insulin-Like Growth Factor-Binding Protein-3 Modulates Expression of Bax and Bcl-2 and

Potentiates P53-Independent Radiation-Induced Apoptosis In Human Breast Cancer Cells, *J. Biol Chem.*, 275(50): 39174-39181.

Cao, S.G., Valerie, H.L., Wu, X.H., Sim, K.Y., Tan, B.H.K., Pereira, J.T., Goh, S.H., 1998, Novel Cytotoxic Polyprenylated Xanthenes from *Garcinia Gaudichaudi*, *Tetrahedron*, 54: 10915-10924.

Chang, H.Y. and Yang, X., 2000, Proteases for Cell Suicide: Functions and regulation of Caspases, *Microbiol. Mol. Biol. Rev.*, 64(4): 821-846

Chimenti, F., Fioravanti, R., Bolasco, A., Chimenti, P., Secci, D., Rossi, F., Yanez, M., Francisco, O.F., Ortuso, F., Alcaro, S., 2009, Chalcones: A Valid Scaffold for Monoamine Oxidases Inhibitors, *Journal of Medicinal Chemistry*, 10:1-8.

Chung, S.Y., Sung, M.K., Kim, N.H., Jang, J.O., Go, E.J., and Lee, H.J., 2005, Inhibition of P-glycoprotein by Natural Product in Human Breast Cancer Cells, *Arch. Pharm. Res.*, 28 (7): 823 – 8.

Conze, D., Weiss, L., Regen, P.S., Bushan, A., Weaver, D., Johnson, P., and Rincon, M., 2001, Autocrine Production of Interleukin-6 Causes Multidrug Resistance in Breast Cancer Cells, *Cancer Res.*, 61, 8851-8858.

D'Archivio, M., Santangelo, C., Scuzzochio, B., Vari, R., Filesi, C., Massela, R., and Giovannini, C., 2008, Modulatory Effect of Polyphenol on Apoptosis Induction Relevance for Cancer prevention, *Int. J. Mol. Sci.*, 9: 213-228.

Danial, N.N., and Korsmeyer, S.J., 2004, Cell Death: Critical Control points, *Cell*, 116: 205-219

Davis, J.M., Navolanic, P.M., Weinstein-Oppenheimer, C.R., Steelman, L.S., Wei, H., Konopleva, M., Blagosklonny, M.V., and McCubrey, J.A., 2003, Raf-1 and Bcl-2 Induce Distinct and Common Pathways That Contribute to Breast Cancer Drug Resistance, *Clin. Cancer Res.*, 9: 1161-1170.

DeDregori, J., Leone, G., Miron, A., Jakoi, L., and Nevins, J.R., 1997, Distinct Roles for E2F Proteins in Cell Growth Control and Apoptosis, *Biochemistry*, 94, 7245-7250.

Departemen Kesehatan, 2008, Riset Kesehatan Dasar 2007, Jakarta, Badan Penelitian dan Pengembangan Kesehatan , 115.

- Dimmock, J.R., Elias, D.W., Beazely, M.A., and Kandepu, N.M., 1999, Bioactivities of chalcones. *Curr Med Chem.*, 6: 1125–49.
- Donovan, Jeffrey, C.H., Slingerland, Joyce, Tannock, and Ian F., 2005, *The Basic Science of Oncology: Cell Proliferation and Tumor Growth*, Mc Graw Hill Compay, fourth edition New York.
- Dotzlaw, H., Leygue, E., Watson, P. H., and Murphy, L.C., 1997, Expression of Estrogen Receptor- β in Human Breast Tumors, *J. Clin. Endocrinol. Metab.*, 82: 2371-2374.
- Doyle, A., and Griffiths, J.B., 2000, *Cell and Tissue Culture for Medical Research*, John Willey and Sons, Ltd., New York.
- Drummond, C., 2007, The Mechanism of Anti-tumour Activity of DNA Binding Agent SN28049, *Thesis*, New Zealand: University of Auckland
- Fan, Ting-Jun., Han, Li-Hui, Cong, Ri-Shan and Liang. J., 2005, Caspase Family Proteases and Apoptosis, *Acta Biochim. Biophys. Sin.*, 37(11): 719-727.
- Faneyte, I. F., Kristel, P.M.P, Maliapaard, M., Scheffer, G.L., Scheper, R.J., Schellens, J.H.M., and van de Vijver, 2002, Expression of the Breast Cancer Resistance Protein in Breast Cancer, *Clin. Cancer Res.*, 8: 1068-1074.
- Febriansah, R., Purti, D.P.P., Nurulita, N.A., Meiyanto, E., and Nugroho, A.E., 2014, Hesperidin as a Preventive Resistance Agent in MCF-7 Breast Cancer Cells Line Resistance to Doxorubicin, *Asian Pacific Journal of Tropical Biomedicine*, 4 (3), 228-233.
- Ferreira, G.C., Epping, M., Kruyt, F.A.E., and Giaccone, G., 2002, Apoptosis: Target of Cancer Therapy, *Clin. Cancer Research*, 8: 2024-2034.
- Fisher, D.E., 1994. Apoptosis in Cancer Therapy: Crossing the Threshold, *Cell*, 78, 539-542.
- Foster, J.S., Henley, D.C., Ahamed, S., and Wimalasena, J., 2001, Estrogen and Cell Cycle Regulation in Breast Cancer, *Trend Endocr, Metab.*, 12(7): 320-327.
- Freshney, R.I., 2000, *Culture of Animal Cells: A Manual of Basic Technique*, John Willey & sons, Inc Publications, fourth edition, New York

- Fu, Y., Hsieh, T.C., and Guo, J., 2004, Licochalcone-A, A Novel Flavonoid Isolated from Licorice Root (*Glycyrrhiza glabra*), Causes G2 and Late-G1 Arrests in Androgen-Independent PC-3 Prostate Cancer Cells., *Biochem Biophys Res Commun.*, 322: 263–70.
- Gan, F.F, Kaminska, K.K, Yang, H., Liew, C.Y, Leow, P.C, So, C.L, Tu, L,N, Roy, A., Yap, C.W, Kang, T.S, Chui, W.K, Chew, E.H, 2013, Identification of Michael Acceptor-Centric Pharmacophores with Substituents That Yield Strong Thioredoxin Reductase Inhibitory Character Correlated to Antiproliferative Activity, *Antioxidant and Redox Signaling*, 19: 1149–1165.
- Gibbs, J.B., 2000, Anticancer Drug Targets: Growth Factors and Growth Factor Signaling, *J. Clin. Invest.*, 105, 9-13.
- Go, M.L, Wu, X., and Liu, X.L., 2005, Chalcones: an Update on Cytotoxic and Chemoprotective Properties. *Curr. Med. Chem.*, 12: 481–99.
- Green, M. and Raina, V., 2008, Epidemiology, Screening and Diagnosis of Breast Cancer in the Asia–Pacific Region: Current Perspectives and Important Considerations, *Asia-Pacific Journal of Clinical Oncology*, 4: S5-S13.
- Guimaraes, C.A., and Linden, R., 2004, Programmed Cell Death: Apoptosis and Alternative Deathstyles, *Eur. J. Biochem.*, 271: 1638-1650.
- Hanhanan, D., and Wienberg, R.A., 2000, The Hallmarks of Cancer, *Cell*, 100, 57-70.
- Hanhanan, D., and Wienberg, R.A., 2011, Hallmarks of Cancer: The Next Generation, *Cell*, 144, 646-674, Elsevier, Inc.
- Hsu YL, Kuo PL, Chiang LC, and Lin CC., 2004, Isoliquiritigenin inhibits the proliferation and induces the apoptosis of human non-small cell lung cancer A549 cells. *Clin Exp Pharmacol. Physiol.*, 31: 414–8.
- Hsu, Y.L., Kuo, P.L., Tzeng, W.S., Lin, C.C., 2006, Chalcone Inhibits the Proliferation of Human Breast Cancer Cell by Blocking Cell Cycle Progression and Inducing Apoptosis, *Food Chem. Toxicol.*, 44: 704–713.
- Hyllested, J.L, Veje, K., Ostergaard, K., 2002, Histochemical Studies of the Extracellular Matrix of Human Articular Cartilage-A Review, *Osteoarthritis and Cartilage*, 10, 333-343.

- IARC, 2010, IARC Launches the Devinitive Cancer Statistics Resource Globocon 2008, Press Release No 201, 1-2.
- Ignatavicius, D.D and Workman, M.L., 2006, *Medical Surgical Nurshing Critical Thinking for Collaborative Care*, Vol. 2. Elsevier saunders: Ohia (5th ed). St. Louis: Elsevier.
- Igney, F.H., and Krammer, P.H., 2002, Review: Death and anti-death: Tumor Resistance to Apoptosis, *Nature Review: Cancer*, 2: 277-286.
- Isa, N.M, Abdelwahab, S.I., Mohan, S., Abdu,l A.B., Sukari, M,A, Taha, M,M, Syam, S., Narrima, P., Cheah, S.C, Ahmad S., Mustafa, M,R, 2012, In Vitro Anti-Inflammatory, Cytotoxic and Antioxidant Activities of Boesenbergin A, A Chalcone Isolated from *Boesenbergia rotunda* (L.) (fingerroot), *Braz. J. Med. Biol. Res.*, 524-530.
- Itagaki, H., Ohno, T., Hatao, M., Hattori, C., Hayasaka, A., Hayashi, M., Hori, H., Imai, K., Imazeki, I., Ishibashi, T., Kakuma, M., Kato, M., Kawakami, A., Kitazawa, M., Kogiso, S., Miyazaki, S.,Mori, M., Nakajima, K., Nakajima, M., Nakamura, M., Omori, T., Ono, H., Ono, M., Osonai, Y., Saijo, K., Sano, Y., Sasaki, T., Sto, S., Shimada, H., Shimogo, S., Sugawara, H., Sugimoto, S., Takizawa, M., Tamaki, C., Tanaka, N., Teramoto, N., Tsuchiya, T., Ueno, H., Ugai, Y., Wada, S., Wakuri, S., Wang, X., Watanabe, I., Yamakita, O., Yoshida, M., Yoshimura, I., and Yukiya, S., 1998, *Validation Study on Five Cytotoxicity Assays by JSAAE-VII*. Detail of the MTT assay, Altern Animal Test Experiment
- Jiao, Q., Wu, A., Shao, G., Peng, H., Wang, M., Ji, S., Liu, P., and Zhang, J., 2014, The Latest Progress in Research on Triple Negative Breast Cancer (TNBC): Risk Factors, Possible Therapeutic Targets and Prognostic Markers, *J. Thorac. Dis.*, 6 (9):1329-1335.
- Keshet, E., and Sasson, S.A.B, 1999, Anticancer Drug Targets: Approching Angiogenesis, *J. Clin. Invest.* , 104 (11), 1497-1501.
- Khan, N., Afag, F., and Mukhtar, H., 2007, Apoptosis by Dietary Factors: The Suicide Solution For Delaying Cancer Growth, *Carcinogenesis*, 88 (2): 233-239

- Kiat, T.S, Phippen, R., Yusof, R., Ibrahim, H., Khalid, N., Rahman, N.A., 2006, Inhibitory Activity of Cyclohexenyl Chalcone Derivatives and Flavonoids of Fingerroot, *Boesenbergia rotunda* (L.), Towards Dengue-2 Virus NS3 Protease. *Bioorg. Med. Chem. Lett.*, 16: 3337-3340.
- Kimura, Y. and Baba, K., 2003, Antitumor and Antimetastatic Activities of Angelica Keiskei Roots, part 1: Isolation of An Active Substance, Xanthoangelol, *Int. J. Cancer*, 106: 429–37.
- King, R. J. B., 2000, *Cancer Biology*, Pearson Education, Second Edition, England. p. 1-7, 228-231, 263-264.
- King, R.J.B., and Robins, M.W., 2006, *Cancer Biology* 3rd Edition, Pearson Education, England.
- Kishor V.G., Sandip V.G., Satish B.J., and Shantilal D.R., 2010, Synthesis of Some Novel Chalcones of Phthalimidoester Possessing Good Antiinflammatory and Antimicrobial activity, *Indian Journal of Chemistry*, 49B: 131-136.
- Kroemmer, G. and Martin, S.J., 2005, Caspase-independent Cell Death, *Nature Med.*, 11(7): 725-730.
- Kwon, S.J., Kim, M.I., Ku, B., Coulombel, L., Kim, J.H., Shawky, J.H., Linhardt, R.J., and Dordick, J.S., 2010, Unnatural Polyketide Analogues Selectively Target The HER Signaling Pathway in Human Breast Cancer Cells, *Chembiochem.*, 11(4): 573-580.
- Lammer, C. , Wagerer, S., Saffrich, R., , Mertens, D., Ansorge, W., Hoffmann, I., 1998, The Cdc25B Phosphatase is Essential for the G2/M Phase Transition in Human Cells, *J. Cell. Sci.*, 111 (Pt 16) 2445-2453.
- Leung, E., Kim, J.E., Amiri, M.A., Finlay, G.J., and Baguley, B.C., 2014, Evidence for the Existence of Triple-Negative Variants in the MCF-7 Breast Cancer Cell Population, *BioMed Research International*, 1- 7.
- Li, X., Lu, Y., Liang, K., Liu, B., and Fan, Z., 2005, Differential Responses to Doxorubicin-Induced Phosphorylation and Activation of Akt in Human Breast Cancer Cells, *Breast Cancer Research*, 7: 589-597.

- Liu, X.L., Tee, H.W., and Go, M.L., 2008, Functionalized Chalcones as Selective Inhibitors of P-Glycoprotein and Breast Cancer Resistance Protein. *Bioorg Med Chem.*, 16 (1): 171-180.
- Lodish, H., Berk, A., Zipursky, S.L., Matsudaira, P, Baltimore, D., and Darnell, J., 2000, *Molecular Cell Biology*, 4th edition, New York: W.H. Freeman.
- MacDonald, F. and Ford, C.H.J., 1997, *Molecular Biology of Cancer*, Bios Scientific Publishers Limited, Oxford.
- Mahapatra, D.K., Bharti, S.K., and Asati, V., 2015, Anti-cancer Chalcones: Structural and Molecular Target Perspectives, *Eur. J. Med. Chem.*, 15, 98: 69-114.
- Matheny, C. J. M., Lamb, M. W., Brouwer, K. L. R., and Pollack, G. M., 2001, Pharmacokinetic and Pharmacodynamic Implications of P-glycoprotein Modulation, *Pharmacotherapy*, 21 (7), 778-796.
- Mathivadani, P., Shanthi, P., and Sachdanandam, P., 2007, Apoptotic Effect of Semecarpus anacardium nut Extract on T47D Cancer Cell Line., *Cell.Biol. Int.*, 31, 1198-1206.
- Mc Person, K., Steel., C.M., and Dixon, J.M., 2000, ABC of breast diseases, Breast Cancer Epidemiology, Risk Factors, and Genetics, *Bri.Med. J.*, 321: 624-628.
- Meiyanto, E., 2012, *Harapan dan Tantangan Pengembangan Agen Kemoterapi Kanker Tepat Sasaran*, Pidato Pengukuhan Jabatan Guru Besar pada Fakultas Farmasi Universitas Gadjah Mada, 6-7.
- Menchetner, E., Kyshtoobayeva, A., Zonis, S., Kim, H., Stroup, R., Garcia, R., Parker, R.J., and Fruehauf, J.P., 1998, Levels of Multidrug Resistance (MDR1) P-Glycoprotein Expression by Human Breast Cancer Correlate with in Vitro Resistance to Taxol and Doxorubicin, *Clinical Cancer Research*, 4: 389-398.
- Munagala, R., Aqil, F, and Gupta, R.C, 2011, Promising Molecular Targeted Therapies in Breast Cancer, *Indian J. Pharmacol.*, 2011 May-Jun; 43(3): 236-245.
- Najafian, M., Ebrahim-Habibi, A., Hezareh, N., Yaghmaei, P., Parivar, K., Larijani, B., 2010. Trans-Chalcone: A Novel Small Molecule Inhibitor of Mammalian Alpha-Amylase. *Molecular Biology Reports*, 10: 271-274.

- Namba, H., Saenko, V., and Yamashita, S., 2007, Nuclearfactor- κ B in Thyroid Carcinogenesis and Progression: A novel Therapeutic Target for Advanced Thyroid Cancer, *Arq. Bras. Endocrinol. Methab.*, 51 (5): 843-851.
- Nerya, O., Musa, R., Khatib, S, Tamir, S., and Vaya, J., 2004, Chalcones as Potent Tyrosinase Inhibitors: The Effect of Hydroxyl Positions and Numbers. *Phytochemistry*; 65: 1389-1395.
- Nicotera, P. and Melino, G., 2004, Regulation of the Apoptosis-Necrosis Switch, *Oncogene*, 23: 2757-2765.
- Nikkhah, G., Tonn, J.C., Hoffmann, O., Kraemer, H.P., Darling, J.L., Schahenmayr, W., and Schonmayr, R., 1992, The MTT Assay for Chemo-Sensitivity Testing of Human Tumours of the Central Nervous System, *J. Neurooncol.*, 13: 13-24.
- Okada, Hitoshi and Mak, T.W., 2004, Pathway of Apoptotic and Non-apoptotic Death in Tumor Cells., *Nature Rev. Cancer*, 4: 592-603.
- Onuki, R., Kawasaki, H., Baba, T., dan Taira, K., 2003, Analysis of A Mitochondrial Apoptotic Pathway Using Bid-Targeted Ribozymes in Human MCF7 Cells in the Absence of A Caspase-3-Dependent Pathway, *Antisense and Nucleic Acid Drug Development*, 13 (2): 75-82.
- Pahl, H.L., 1999, Activators and Target genes of Rel/NF- κ B Transcription Factors, *Oncogene*, 18, 6853–6866.
- Pan, Min-Hsiung., Chen, Wei-Jen., Lin-Shiau, Shoei-Yin., Ho, Chi-Tang., and Lin, Jen-Kun., 2002, Tangeretin Induces Cell-Cycle Arrest Through Inhibiting Cyclin-Dependent Kinase 2 and 4 Activities as well as Elevating Cdk Inhibitor p21 and p27 in Human Colorectal Carcinoma, *Carcinogenesis* , 23(10): 1677-1684.
- Pandey, M.K, Sandur, S.K, Sung. B., Sethi, G., Kunnumakkara, A.B, Aggarwal, B.B., 2007, Butein, a Tetrahydroxychalcone, Inhibits Nuclear Factor (NF)-KappaB and NF-kappaB-Regulated Gene Expression Through Direct Inhibition of IkappaBalpha Kinase Beta on Cysteine 179 Residue, *J. Biol. Chem.*, 282: 7340-17350.
- Parton, Martina, Dowsett, Mitchel, and Smith, I., 2001, Studies of Apoptosis in Breast Cancer, *BMJ*, 322: 1528-1532.

- Parveen, Z., Brunhofer, G., Jabeen, I., Erker, T., Chiba, P., Ecker, G.F., 2014, Synthesis, Biological Evaluation and 3D-QSAR Studies of New Chalcone Derivatives as Inhibitors of Human P-glycoprotein, *Bioorg. Med. Chem.*, 22: 2311-2319.
- Peralta-Leal, A., Rodríguez, M.I., Oliver, F.J., 2008, Poly (ADP-ribose) Polymerase-1 (PARP-1) in Carcinogenesis: Potential Role of PARP Inhibitors in Cancer Treatment, *Clin Transl Oncol.*, 10: 318-323.
- Philchenkov, A., 2004, Caspases: Potential Targets For Regulating Cell Death, *J.Cell. Mol. Med.*, 8(4): 432-444.
- Prayong, P., Barusrux, S., and Weerapreeyakul, N., 2008, Cytotoxic Activity Screening of Some Indigenous Thai Plants, *Fitoterapia*, 79, 598-601.
- Prunet, C., Lemaire-Ewing, S., Ménétrier, F., Néel, D., and Lizard, G., 2005, Activation of Caspase-3-Dependent and -Independent Pathways During 7-Ketocholesterol- and 7 β -Hydroxycholesterol-Induced Cell Death: A Morphological and Biochemical Study, *Journal of Biochemical and Molecular Toxicology*, 19 (5): 311-326.
- Rabbani, A., Finn, R.M., Ausio, J., 2004, The Anthracycline Antibiotics: Antitumor Drugs that alter Chromatin Structure, *BioEssays*, 27: 50-56.
- Rahman, M.A., 2011, Chalcone: A Valuable Insight into the Recent Advances and Potential Pharmacological Activities, *Chemical Sciences Journal*, Volume: CSJ-29, 1-16.
- Rastogi, R.P., Richa, Sinha, R.P., 2009, Apoptosis: Molecular Mechanism and Pathogenicity, *EXCLI Journal*, 8, 155-181.
- Reynolds, C.P., and Maurer, B.J., 2005, Evaluating Response to Antineoplastic Drug Combinations in Tissue Culture Models, *Methods Mol. Med.*, 110, 173-83.
- Riset Kesehatan Dasar (Riskesdas) tahun 2007.
- Ruddon, R.W., 2007, *Cancer Biology*, Fourth Edition, Oxford University Press.
- Ruefli, A.A., Smyth, M.J., and Johnstone, R.W., 2000, HMBA Induces Activation of a Caspase-Independent Cell Death Pathway to Overcome P-glycoprotein-mediated Multidrug Resistance, *Blood*, 95 (7): 2378-2385.

- Santos, N.C., Figuera-Coelho, J., Martins-Silva, J., Salhanda, C., 2003, Multidisciplinary Utilization of Dimethyl Sulfoxide: Pharmacological, Cellular, and Molecular Aspects, *Biochemical Pharmacology*, 65 (7): 1035-1041.
- Saraste, A., and Pulkki, K., 2000, Morphologic and Biochemical Hallmarks of Apoptosis, *Cardiovascular Research*, 45: 528-537.
- Schafer, J.M., Lee, E.S., O'Regan, R.M., Yao, K., and Jordan, V.C., 2000, Rapid Development of Tamoxifen-stimulated Mutant p53 Breast Tumors (T47D) in Athymic Mice, *Clin. Cancer Res.*, 6, 4373-4380.
- Schneider, A.K., 1997, Cancer Genetics, Encyclopedia of Human Biology, 2 nd Ed., Academic Press.
- Sen, R. and Baltimore, D., 1986, Inducibility of Kappa Immunoglobulin Enhancer-Binding Protein Nf-kappa B by a Posttranslational Mechanism, *Cell*, 1986 : 47, 921-8.
- Sethi, G., Ahn, K.S., Chaturvedi, M.M., and Aggarwal, B.B., 2007, Epidermal Growth Factor (EGF) Activates Nuclear Factor- κ B Through I κ B α Kinase-Independent but EGF Receptor-Kinase Dependent Tyrosine 42 Phosphorylation of I κ B α , *Oncogene*, 26, 7324-7332.
- Shah, M.A., and Schwartz, G.K., 2001, Cell Cycle-mediated Drug Resistance: An Emerging Concept in Cancer Therapy, *Clin. Cancer Res.* 7: 2168-2181.
- Shailendra, M., Hemendra, P.S., Gupta, S.D., and Hari, N.M., 2007, Synthesis and Characterization of Some Chalcone Derivatives, *Trends in Applied Sciences Research*, 2: 52-56.
- Shapiro, G.I. and Harper, J.W., 1999, Anticancer Drug Targets: Cell Cycle and Checkpoint Control, *J. Clin. Invest.*, 104, 1645-1653.
- Shen, K.H, Chang, J.K, Hsu, Y.L, and Kuo, P.L., 2007, Chalcone Arrests Cell Cycle Progression and Induces Apoptosis Through Induction Mitochondrial Pathway and Inhibition of Nuclear Faktor Kappa B Signaling in Human Bladder Cancer Cells, *Basic Clin Pharmacol Toxicol.*, 101: 254-261.
- Sher, C.J., 1996, Cancer Cell Cycles, *Science*, 274, 1672-1676.

- Shi, S., Wang, Q., Xu, J., Jang, J., Padilla, M.T., Nyunoya, T., Xing, C., Zhang, L., and Lin, Y., 2015, Synergistic Anticancer Effect of Cisplatin and Chal-24 Combination Through IAP and c-FLIPL Degradation, Ripoptosome Formation and Autophagy-mediated Apoptosis, *Oncotarget*, Vol. 6, No.3, 1640-1651.
- Shi, Y., Moon, M., Dawood, S., McManus, B., and Liu, P.P., 2011, Mechanisms and Management of Doxorubicin Cardiotoxicity, *Herz*, 36: 296–305.
- Simstein, R., Burow, M., Parker, A., Weldon, C., and Beckman, B., 2003, Apoptosis, Chemoresistance, and Breast Cancer: Insights from the MCF-7 Cell Model System, *Exp Biol Med.*, 228: 995-1003.
- Singal, P.K., and Iliskovic, N., 1998, Doxorubicin-Induced Cardiomyopathy, *N. Engl. J. Med.* 339: 900-905.
- Slee, E.A., Drain, C.A., and Martin, S.J., 2001, Executioner Caspase-3,-6 and -7 Perform Distinct, Non-redundant Roles During The Demolition Phase of Apoptosis, *J. Biol. Chem.*, 276(10): 7320-7326.
- Sodhi, R.K, Singh, N., Jaggi, A.S., 2010, Poly (ADP-ribose) Polymerase-1 (PARP-1) and its Therapeutic Implications, *Vascular Pharmacology*, 53, 77–87.
- Sreedhar, 2010, Synthesis and Characterization of 4-Hydroxy Chalcones Using PEG-400 as a Recyclable Solvent. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, 1 (4), 480-48.
- Srinivasan, B., Johnson, T.E., Lad, R., and Xing C, 2009, Structure-Activity Relationship Studies of Chalcone Leading to 3-hydroxy-4,3',4',5'-Tetramethoxychalcone and Its Analogues as Potent Nuclear Factor KappaB Inhibitors and Their Anticancer Activities, *J Med Chem.*, 26; 52(22): 7228-7235.
- Suffness, M. and Pezzuto, J.M., 1990, *Assays Related to Cancer Drug Discovery. In: Methods in Plant Biochemistry. Assays for Bioactivity*, Hostettmann, K. (ED). Vol. 6. Academic Press London, pp: 71-133.
- Szliszka, E., Czuba, Z.P., Mazur, B., Sedek, L., Paradysz, A., and Krol, W., 2010, Chalcones Enhance TRAIL-Induced Apoptosis in Prostate Cancer Cells, *Int. J. Mol. Sci.* 11, 1-13.

- Tabata, K, Motani, K, and Takayanagi, N., 2005, Xanthoangelol, A Major Chalcone Constituent of *Angelica Keiskei*, Induces Apoptosis in Neuroblastoma and Leukemia Cells. *Biol. Pharm. Bull.*, 28: 1404-7.
- Tjindarbumi, D. and Mangunkusumo, R., 2002, Cancer in Indonesia, Present and Future, *Jpn. J. Clin. Oncol.*, 32 (Supplement 1): S17-21.
- Toshio, M., Li-Bo, W., Seikou, N., Kiyofumi, N., Eri, Y., Hisashi, M., Osamu, M., Li-Jun, W., and Masayuki, Y., 2009, Medicinal Flowers. XXVII. New Flavanone and Chalcone Glycosides, Arenariumosides I, II, III, and IV, and Tumor Necrosis Factor- α Inhibitors from Everlasting, Flowers of *Helichrysum arenarium*, *Chem. Pharm. Bull.*, 57 (4), 361-367.
- Tyagi, A.K., Agarwal, C., Chan, D.C.F., and Agarwal, R., 2004, Synergistic Anti-Cancer Effects of Silibinin with Conventional Cytotoxic Agents Doxorubicin, Cisplatin and Carboplatin against Human Breast Carcinoma MCF-7 and MDA-MB468 Cells. *Oncology Reports*, 11: 493-499.
- Valeria, P.L. and Raul, B.R., 2005, Changes in P-Glycoprotein Activity are Mediated by The Growth of a Tumour Cell Line as Multicellular Spheroids, *Cancer Cell International*, 5 (20): 1-13.
- Van den Heuvel, S., 2005, *Cell-cycle Regulation*, WormBook, [oi/10.1895/wormbook.1.28.1](http://www.wormbook.org/), [Http://www.wormbook.org.](http://www.wormbook.org/), diakses 2 Agustus 2016.
- Varma, M.V., Sateesh, K, and Panchagnula, R, 2005, Functional role of P-glycoprotein in Limiting Intestinal Absorption of Drugs: Contribution of Passive Permeability to P-glycoprotein Mediated Efflux Transport, *Mol Pharm.*, 2 (1): 12-21.
- Venkateswararao, E., Sharma, V.K, Lee, K.C, Sharma, N, Park, S,H, Kim, Y., Jung, S.H., 2012, A SAR Study on a Series of Synthetic Lipophilic Chalcones as Inhibitor of Transcription Factor NF- κ B, *Eur. J. Med. Chem.*, 54: 379-386.
- Vermeulen, Katrien, Bockstaele, D.R., and Berneman, Z.N., 2003, The Cell Cycle: a Review of Regulation, Deregulation and Therapeutic Targets in Cancer, *Cell. Prolif.*, 36: 131-149.

- Vladusic, E.A., Hornby, A.E., Guerra-Vladusic, F.K., Lakins, J., and Lupu, R., 2000, Expression and Regulation of Estrogen Receptor β in Human Breast Tumors and Cell Lines. *Oncol. Rep.*, 7: 157-167.
- Wang, S., Kotamraju, S., Konorev, E., Joseps, J., and Kalyanamaran, B., 2002, Activation of Nuclear Factor- κ B During Apoptosis in Endothelial Cells and Myocytes is Pro-apoptotic: The Role of Hydrogen Peroxide, *Biochem. J.*, 367, 729-740.
- Wang, W., Rastinejad, F., El-Deiry, W.S., 2003, Models of Anti-Cancer Therapy: Restoring p53-Dependent Tumor Suppression, *Cancer Biology and Therapy*, 2: 4 Suppl. 1, S55-S63.
- WHO, 2006, Cancer Control, Knowledge into Action, WHO Guide for Effective Programmes, www.who.int/cancer, diakses 15 Desember 2012.
- WHO, 2014, Global Status Report on Noncommunicable Diseases 2014, Attaining the Nine Global Noncommunicable Diseases targets; a shared responsibility”, http://apps.who.int/iris/bitstream/10665/148114/1/9789241564854_eng.pdf, diakses 25 Agustus, 2017.
- Wong, H.L., Bendayan, R., Rauth, A.M., Xue, H.Y., Babakhanian, K., and Wu, X.Y., 2006, A Mechanistic Study of Enhanced Doxorubicin Uptake and Retention in Multidrug Resistant Breast Cancer Cells Using A Polymer-Lipid Hybrid Nanoparticle System, *The Journal of Pharmacology and Experimental Therapeutics*, 317 (3), 1372-1381.
- Wyllie, A., Donahue, V., Fisher, B., Hill, D., Keeseey, J., and Manzow, S., 2000, *Cell Death Apoptosis and Necrosis, Rosche Diagnostic Corporation*.
- Yadav, V.R., Prasad, S., Sung, B., Anggarwal, B.B., 2011, The Role of Chalcones in Suppression of NF- κ B-mediated Inflammation and Cancer, *International Immunopharmacology*, 11 (3): 295-309.
- Yang, E.B., Zhang, K., Cheng, L.Y., Mack, P., 1998, Butein, A Specific Protein Tyrosine Kinase Inhibitor. *Biochem Biophys Res Commun.*, 245 (2): 435-438.
- Yeh, E.T.H., 2006, Cardiotoxicity Induced by Chemotherapy and Antibody Therapy, *Annurev. Med.*, 57: 485-498.

- Zampieri, L., Bianchi, P., Ruff, P., and Arbuthnot, P., 2002, Differential Modulation by Estradiol of P-glycoprotein Drug Resistance Protein Expression in Cultured MCF-7 and T47D Breast Cancer cells, *Anticancer Res.*, 22(4): 2253-2259.
- Zarghi, A., Zebardast, T., Hakimion, F., Shirazi, F.H., Rao, P.N.P., and Knaus, E.E., 2006, Synthesis and Biological Evaluation of 1,3-diphenylprop-2-en-1-ones Possessing a Methanesulfonamido or an Azido Pharmacophore as Cyclooxygenase-1/2 Inhibitors, *Bioorganic and Medicinal Chemistry*, 14: 7044-7050.
- Zeiss, C.J., 2003, Review Article: The Apoptosis-Necrosis Continuum: Insights From Genetically Altered Mice, *Vet. Pathol.*, 40: 481-495.
- Zhang, J., Ji, F., Gu, Y., Zhan, X., and Qiao, S, 2014, Chalcones Derivatives as Potent Cell Division Cycle 25B Phosphatase Inhibitors, *Pharmacol. Reports*, 66: 515-519.
- Zhang, S., Yang, J., Lin, J., 2008, 3,3'-Diaminobenzidine (DAB)-H₂O₂-HRP Voltammetric Enzyme-Linked Immunoassay for the Detection of Carcionembryonic Antigen, *Bioelectrochemistry*, 72, 47-52.
- Zimmerman, K.C., Bonzon, C., and Green, R.D., 2001, The Machinery of programmed Cell Death., *Pharmacology and Therapeutics*, 92: 57-70.