



## REFERENCES

- Abu Samaan, T.M., Samec, M., Liskova, A., Kubatka, P., and Büsselberg, D., 2019a. Paclitaxel's Mechanistic and Clinical Effects on Breast Cancer. *Biomolecules*, **9**: 789.
- Abu Samaan, T.M., Samec, M., Liskova, A., Kubatka, P., and Büsselberg, D., 2019b. Paclitaxel's Mechanistic and Clinical Effects on Breast Cancer. *Biomolecules*, **9**: 789.
- ACS, A.C.S., 2020. 'Breast Cancer - Metastatic - Statistics', *Cancer.Net*. URL: <https://www.cancer.net/cancer-types/breast-cancer-metastatic/statistics> (accessed 6/3/2020).
- Adams, J.M. and Cory, S., 2007. The Bcl-2-regulated apoptosis switch: mechanism and therapeutic potential. *Current opinion in immunology*, **19**: 488–496.
- Alibeiki, F., Jafari, N., Karimi, M., and Peeri Dogaheh, H., 2017. Potent anti-cancer effects of less polar Curcumin analogues on gastric adenocarcinoma and esophageal squamous cell carcinoma cells. *Scientific Reports*, **7**: 1–9.
- Allegra, A., Innao, V., Russo, S., Gerace, D., Alonci, A., and Musolino, C., 2017. Anticancer Activity of Curcumin and Its Analogues: Preclinical and Clinical Studies. *Cancer Investigation*, **35**: 1–22.
- Al-Mahmood, S., Sapiezynski, J., Garbuzenko, O.B., and Minko, T., 2018. Metastatic and triple-negative breast cancer: challenges and treatment options. *Drug Delivery and Translational Research*, **8**: 1483–1507.
- Altmann, K.H., 2001. Microtubule-stabilizing agents: a growing class of important anticancer drugs. *Current Opinion in Chemical Biology*, **5**: 424–431.
- Araujo, A.R., Gelens, L., Sheriff, R.S.M., and Santos, S.D.M., 2016. Positive Feedback Keeps Duration of Mitosis Temporally Insulated from Upstream Cell-Cycle Events. *Molecular Cell*, **64**: 362–375.
- Asteriti, I.A., De Mattia, F., and Guaraguaglini, G., 2015. Cross-Talk between AURKA and Plk1 in Mitotic Entry and Spindle Assembly. *Frontiers in Oncology*, **5**: .
- Atkins, J.H. and Gershell, L.J., 2002. Selective anticancer drugs. *Nature Reviews Drug Discovery*, **1**: 491–492.
- Avagliano, A., Ruocco, M.R., Aliotta, F., Belviso, I., Accurso, A., Masone, S., et al., 2019. Mitochondrial Flexibility of Breast Cancers: A Growth Advantage and a Therapeutic Opportunity. *Cells*, **8**: 401.
- Bharadwaj, D. and Mandal, M., 2020. Senescence in polyploid giant cancer cells: A road that leads to chemoresistance. *Cytokine & Growth Factor Reviews*, **52**: 68–75.
- Bojko, A., Czarnecka-Herok, J., Charzynska, A., Dabrowski, M., and Sikora, E., 2019. Diversity of the Senescence Phenotype of Cancer Cells Treated with Chemotherapeutic Agents. *Cells*, **8**: 1501.
- Brooks, M.D., Burness, M.L., and Wicha, M.S., 2015. Therapeutic Implications of Cellular Heterogeneity and Plasticity in Breast Cancer. *Cell Stem Cell*, **17**: 260–271.



- Burkhart, D.L. and Sage, J., 2008. Cellular mechanisms of tumour suppression by the retinoblastoma gene. *Nature Reviews. Cancer*, **8**: 671–682.
- Cerella, C., Grandjenette, C., Dicato, M., and Diederich, M., 2016. Roles of Apoptosis and Cellular Senescence in Cancer and Aging. *Current Drug Targets*, **17**: 405–415.
- Chainoglou, E. and Hadjipavlou-Litina, D., 2019. Curcumin analogues and derivatives with anti-proliferative and anti-inflammatory activity: Structural characteristics and molecular targets. *Expert Opinion on Drug Discovery*, **14**: 821–842.
- Cheetham, G.M.T., Knegtel, R.M.A., Coll, J.T., Renwick, S.B., Swenson, L., Weber, P., et al., 2002. Crystal Structure of Aurora-2, an Oncogenic Serine/Threonine Kinase\*. *Journal of Biological Chemistry*, **277**: 42419–42422.
- Chen, Q., Zhang, X., Jiang, Q., Clarke, P.R., and Zhang, C., 2008. Cyclin B1 is localized to unattached kinetochores and contributes to efficient microtubule attachment and proper chromosome alignment during mitosis. *Cell Research*, **18**: 268–280.
- Childs, B.G., Baker, D.J., Kirkland, J.L., Campisi, J., and Van Deursen, J.M., 2014. Senescence and apoptosis: dueling or complementary cell fates? *EMBO reports*, **15**: 1139–1153.
- Cho, S.J., Chae, M.J., Shin, B.K., Kim, H.K., and Kim, A., 2008. Akt- and MAPK-mediated activation and secretion of MMP-9 into stroma in breast cancer cells upon heregulin treatment. *Molecular Medicine Reports*, **1**: 83–88.
- Cominetti, M.R., Altei, W.F., and Selistre-de-Araujo, H.S., 2019. Metastasis inhibition in breast cancer by targeting cancer cell extravasation. *Breast Cancer : Targets and Therapy*, **11**: 165–178.
- Cowley, D.O., Rivera-Pérez, J.A., Schliekelman, M., He, Y.J., Oliver, T.G., Lu, L., et al., 2009. Aurora-A Kinase Is Essential for Bipolar Spindle Formation and Early Development. *Molecular and Cellular Biology*, **29**: 1059–1071.
- Da'i, M., Suhendi, A., Meiyanto, E., Jenie, U.A., and Kawaichi, M., 2017. Apoptosis Induction Effect of Curcumin and Its Analogs Pentagamavunon-0 And Pentagamavunon-1 on Cancer Cell Lines. *Asian journal of pharmaceutical and clinical research*, **10**: 373–376.
- Dai, X., Cheng, H., Bai, Z., and Li, J., 2017. Breast Cancer Cell Line Classification and Its Relevance with Breast Tumor Subtyping. *Journal of Cancer*, **8**: 3131–3141.
- Damaskos, C., Garmpi, A., Nikolettos, K., Vavourakis, M., Diamantis, E., Patsouras, A., et al., 2019. Triple-Negative Breast Cancer: The Progress of Targeted Therapies and Future Tendencies. *Anticancer Research*, **39**: 5285–5296.
- Davalli, P., Mitic, T., Caporali, A., Lauriola, A., and D'Arca, D., 2016. ROS, Cell Senescence, and Novel Molecular Mechanisms in Aging and Age-Related Diseases. *Oxidative Medicine and Cellular Longevity*, **2016**: .
- de Gooijer, M.C., van den Top, A., Bockaj, I., Beijnen, J.H., Würdinger, T., and van Tellingen, O., 2017. The G2 checkpoint—a node-based molecular switch. *FEBS Open Bio*, **7**: 439–455.



- Dominguez-Brauer, C., Thu, K.L., Mason, J.M., Blaser, H., Bray, M.R., and Mak, T.W., 2015. Targeting Mitosis in Cancer: Emerging Strategies. *Molecular Cell*, **60**: 524–536.
- Dong, L. and Neuzil, J., 2019. Targeting mitochondria as an anticancer strategy. *Cancer Communications*, **39**: 63.
- Dumontet, C. and Jordan, M.A., 2010. Microtubule-binding agents: a dynamic field of cancer therapeutics. *Nature Reviews. Drug Discovery*, **9**: 790–803.
- Egger, J.V., Lane, M.V., Antonucci, L.A., Dedi, B., and Krucher, N.A., 2016. Dephosphorylation of the Retinoblastoma protein (Rb) inhibits cancer cell EMT via Zeb. *Cancer Biology & Therapy*, **17**: 1197–1205.
- Ewald, J.A., Desotelle, J.A., Wilding, G., and Jarrard, D.F., 2010. Therapy-Induced Senescence in Cancer. *JNCI Journal of the National Cancer Institute*, **102**: 1536–1546.
- Fang, L. and Fang, G., 2007. Centromere cohesion: regulating the guardian. *Cell Research*, **17**: 664–665.
- Fares, J., Fares, M.Y., Khachfe, H.H., Salhab, H.A., and Fares, Y., 2020. Molecular principles of metastasis: a hallmark of cancer revisited. *Signal Transduction and Targeted Therapy*, **5**: 1–17.
- Foley, E.A. and Kapoor, T.M., 2013. Microtubule attachment and spindle assembly checkpoint signaling at the kinetochore. *Nature reviews. Molecular cell biology*, **14**: 25–37.
- Freudenberg, J.A., Wang, Q., Katsumata, M., Drebin, J., Nagatomo, I., and Greene, M.I., 2009. The role of HER2 in early breast cancer metastasis and the origins of resistance to HER2-targeted therapies. *Experimental and molecular pathology*, **87**: 1–11.
- Fu, J., Hagan, I.M., and Glover, D.M., 2015. The Centrosome and Its Duplication Cycle. *Cold Spring Harbor Perspectives in Biology*, **7**: a015800.
- Fulcher, L.J. and Sapkota, G.P., 2020. Mitotic kinase anchoring proteins: the navigators of cell division. *Cell Cycle*, **19**: 505–524.
- Garrido-Castro, A.C., Lin, N.U., and Polyak, K., 2019. Insights into Molecular Classifications of Triple-Negative Breast Cancer: Improving Patient Selection for Treatment. *Cancer Discovery*, **9**: 176–198.
- Gee, M. and Margaret, M., 2015. 'Targeting the Mitotic Catastrophe Signaling Pathway in Cancer', , *Review Article, Mediators of Inflammation*. URL: <https://www.hindawi.com/journals/mi/2015/146282/> (accessed 10/4/2020).
- Geran, R.I., Greenberg, N.H., and Donald, M.M.M., 1972. Protocols for Screening Chemical Agents and Natural Products against Animal Tumors and Other Biological Systems. *Cancer chemotherapy reports*, 1–66.
- Giménez-Abián, J.F., Sumara, I., Hirota, T., Hauf, S., Gerlich, D., de la Torre, C., et al., 2004. Regulation of sister chromatid cohesion between chromosome arms. *Current biology: CB*, **14**: 1187–1193.
- Gómez-Cuadrado, L., Tracey, N., Ma, R., Qian, B., and Brunton, V.G., 2017. Mouse models of metastasis: progress and prospects. *Disease Models & Mechanisms*, **10**: 1061–1074.



- Gomez-Ferreria, M.A., Rath, U., Buster, D.W., Chanda, S.K., Caldwell, J.S., Rines, D.R., et al., 2007. Human Cep192 Is Required for Mitotic Centrosome and Spindle Assembly. *Current Biology*, **17**: 1960–1966.
- Gordon, G.M., Ledee, D.R., Feuer, W., and Fini, M.E., 2009. Cytokines and Signaling Pathways Regulating Matrix Metalloproteinase-9 (MMP-9) Expression in Corneal Epithelial Cells. *Journal of cellular physiology*, **221**: 402–411.
- Grisold, W., Cavaletti, G., and Windebank, A.J., 2012. Peripheral neuropathies from chemotherapeutics and targeted agents: diagnosis, treatment, and prevention. *Neuro-Oncology*, **14**: iv45–iv54.
- Guicciardi, M.E. and Gores, G.J., 2009. Life and death by death receptors. *The FASEB Journal*, **23**: 1625–1637.
- Harley, M.E., Allan, L.A., Sanderson, H.S., and Clarke, P.R., 2010. Phosphorylation of Mcl-1 by CDK1-cyclin B1 initiates its Cdc20-dependent destruction during mitotic arrest. *The EMBO journal*, **29**: 2407–2420.
- Heo, S., Kim, S., and Kang, D., 2020. The Role of Hydrogen Peroxide and Peroxiredoxins throughout the Cell Cycle. *Antioxidants*, **9**: 280.
- Hermawan, A., Fitriasari, A., Junedi, S., Ikawati, M., Haryanti, S., Widaryanti, B., et al., 2011. PGV-0 and PGV-1 increased apoptosis induction of doxorubicin on MCF-7 breast cancer cells. *Pharmacon*, **12**: 55–59.
- Herranz, N. and Gil, J., 2018. Mechanisms and functions of cellular senescence. *The Journal of Clinical Investigation*, **128**: 1238–1246.
- Hoeferlin, L.A., E.Chalfant, C., and Park, M.A., 2013. Challenges in the Treatment of Triple Negative and HER2-Overexpressing Breast Cancer. *Journal of surgery and science*, **1**: 3–7.
- Huber, I., Zupkó, I., Kovács, I.J., Minorics, R., Gulyás-Fekete, G., Maász, G., et al., 2015. Synthesis and antiproliferative activity of cyclic arylidene ketones: a direct comparison of monobenzylidene and dibenzylidene derivatives. *Monatshefte für Chemie - Chemical Monthly*, **146**: 973–981.
- Hunt, R.T., Nasmyth, K.A., Diffley, J., and Hersko, A., 1999. Mechanisms and regulation of the degradation of cyclin B. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, **354**: 1571–1576.
- Hyder, T., Bhattacharya, S., Gade, K., Nasrazadani, A., and Brufsky, A.M., 2021. Approaching Neoadjuvant Therapy in the Management of Early-Stage Breast Cancer. *Breast Cancer: Targets and Therapy*, **13**: 199–211.
- IARC, 2021. 'Indonesia - Global Cancer Observatory', *Global Cancer Observatory*. URL: <https://gco.iarc.fr/today/data/factsheets/populations/360-indonesia-fact-sheets.pdf> (accessed 23/3/2022).
- Indrayanto, G., Putra, G.S., and Suhud, F., 2021. Chapter Six - Validation of in-vitro bioassay methods: Application in herbal drug research, in: Al-Majed, A.A. (Editor), *Profiles of Drug Substances, Excipients and Related Methodology*. Academic Press, pg. 273–307.
- Ježek, J., Cooper, K.F., and Strich, R., 2018. Reactive Oxygen Species and Mitochondrial Dynamics: The Yin and Yang of Mitochondrial Dysfunction and Cancer Progression. *Antioxidants (Basel, Switzerland)*, **7**: E13.



- Jin, X. and Mu, P., 2015. Targeting Breast Cancer Metastasis. *Breast Cancer: Basic and Clinical Research*, **9**: 23–34.
- Joukov, V., Walter, J.C., and De Nicolo, A., 2014. The Cep192-Organized Aurora A-Plk1 Cascade Is Essential for Centrosome Cycle and Bipolar Spindle Assembly. *Molecular Cell*, **55**: 578–591.
- Kawamura, K. and Fujikawa-Yamamoto, K., 2009. Evaluation of sub-G1 peak in mitotic catastrophe. *Cytometry Research*, **19**: 63–71.
- Kessenbrock, K., Plaks, V., and Werb, Z., 2010. Matrix Metalloproteinases: Regulators of the Tumor Microenvironment. *Cell*, **141**: 52–67.
- Kim, J., Kim, Jaehong, and Bae, J.-S., 2016. ROS homeostasis and metabolism: a critical liaison for cancer therapy. *Experimental & molecular medicine*, **48**: e269.
- Kim, S., Lee, J., Jeon, M., Lee, J.E., and Nam, S.J., 2016. Zerumbone suppresses the motility and tumorigenecity of triple negative breast cancer cells via the inhibition of TGF-β1 signaling pathway. *Oncotarget*, **7**: 1544–1558.
- Kim, Y.H. and Park, T.J., 2019. Cellular senescence in cancer. *BMB Reports*, **52**: 42–46.
- Komlodi-Pasztor, E., Sackett, D., Wilkerson, J., and Fojo, T., 2011. Mitosis is not a key target of microtubule agents in patient tumors. *Nature Reviews Clinical Oncology*, **8**: 244–250.
- Kondov, B., Milenkovicj, Z., Kondov, G., Petrushevska, G., Basheska, N., Bogdanovska-Todorovska, M., et al., 2018. Presentation of the Molecular Subtypes of Breast Cancer Detected By Immunohistochemistry in Surgically Treated Patients. *Open Access Macedonian Journal of Medical Sciences*, **6**: 961–967.
- Krenn, V. and Musacchio, A., 2015. The Aurora B Kinase in Chromosome Bi-Orientation and Spindle Checkpoint Signaling. *Frontiers in Oncology*, **5**: 225.
- Kuczler, M.D., Olseen, A.M., Pienta, K.J., and Amend, S.R., 2021. ROS-induced cell cycle arrest as a mechanism of resistance in polyaneuploid cancer cells (PACCs). *Progress in Biophysics and Molecular Biology*, **165**: 3–7.
- Kumari, S., Badana, A.K., G, M.M., G, S., and Malla, R., 2018. Reactive Oxygen Species: A Key Constituent in Cancer Survival. *Biomarker Insights*, **13**: 1–9.
- Kunnumakkara, A.B., Harsha, C., Banik, K., Vikkurthi, R., Sailo, B.L., Bordoloi, D., et al., 2019. Is curcumin bioavailability a problem in humans: lessons from clinical trials. *Expert Opinion on Drug Metabolism & Toxicology*, **15**: 705–733.
- Larasati, Y.A., Yoneda-Kato, N., Nakamae, I., Yokoyama, T., Meiyanto, E., and Kato, J., 2018. Curcumin targets multiple enzymes involved in the ROS metabolic pathway to suppress tumor cell growth. *Scientific reports*, **8**: 2039.
- Lee, M.-Y., Marina, M., King, J.L., and Saavedra, H.I., 2014. Differential expression of centrosome regulators in Her2+ breast cancer cells versus non-tumorigenic MCF10A cells. *Cell Division*, **9**: 3.



- Lee, S. and Lee, J.-S., 2019. Cellular senescence: a promising strategy for cancer therapy. *BMB Reports*, **52**: 35–41.
- Lestari, B., Nakamae, I., Yoneda-Kato, N., Morimoto, T., Kanaya, S., Yokoyama, T., et al., 2019. Pentagamavunon-1 (PGV-1) inhibits ROS metabolic enzymes and suppresses tumor cell growth by inducing M phase (prometaphase) arrest and cell senescence. *Scientific Reports*, **9**: 1–12.
- Levine, M.S. and Holland, A.J., 2018. The impact of mitotic errors on cell proliferation and tumorigenesis. *Genes & Development*, **32**: 620–638.
- Li, H., Hu, P., Wang, Z., Wang, H., Yu, X., Wang, X., et al., 2020. Mitotic catastrophe and p53-dependent senescence induction in T-cell malignancies exposed to nonlethal dosage of GL-V9. *Archives of Toxicology*, **94**: 305–323.
- Li, H., Qiu, Z., Li, F., and Wang, C., 2017. The relationship between MMP-2 and MMP-9 expression levels with breast cancer incidence and prognosis. *Oncology Letters*, **14**: 5865–5870.
- Li, J.-P., Yang, Y.-X., Liu, Q.-L., Pan, S.-T., He, Z.-X., Zhang, X., et al., 2015. The investigational Aurora kinase A inhibitor alisertib (MLN8237) induces cell cycle G2/M arrest, apoptosis, and autophagy via p38 MAPK and Akt/mTOR signaling pathways in human breast cancer cells. *Drug Design, Development and Therapy*, **9**: 1627–1652.
- Liang, G., Shao, L., Wang, Y., Zhao, C., Chu, Y., Xiao, J., et al., 2009. Exploration and synthesis of curcumin analogues with improved structural stability both in vitro and in vivo as cytotoxic agents. *Bioorganic & Medicinal Chemistry*, **17**: 2623–2631.
- Lim, J.M., Lee, K.S., Woo, H.A., Kang, D., and Rhee, S.G., 2015. Control of the pericentrosomal H<sub>2</sub>O<sub>2</sub> level by peroxiredoxin I is critical for mitotic progression. *The Journal of Cell Biology*, **210**: 23–33.
- Lindqvist, A., Zon, W. van Rosenthal, C.K., and Wolthuis, R.M.F., 2007. Cyclin B1-Cdk1 Activation Continues after Centrosome Separation to Control Mitotic Progression. *PLOS Biology*, **5**: e123.
- Liou, G.-Y. and Storz, P., 2010. Reactive oxygen species in cancer. *Free radical research*, **44**: 479–496.
- Liu, Y.-M., Chen, H.-L., Lee, H.-Y., and Liou, J.-P., 2014. Tubulin inhibitors: a patent review. *Expert Opinion on Therapeutic Patents*, **24**: 69–88.
- Manfredi, M.G., Ecsedy, J.A., Chakravarty, A., Silverman, L., Zhang, M., Hoar, K.M., et al., 2011. Characterization of Alisertib (MLN8237), an Investigational Small-Molecule Inhibitor of Aurora A Kinase Using Novel In Vivo Pharmacodynamic Assays. *Clinical Cancer Research*, **17**: 7614–7624.
- Marumoto, T., Honda, S., Hara, T., Nitta, M., Hirota, T., Kohmura, E., et al., 2003. Aurora-A Kinase Maintains the Fidelity of Early and Late Mitotic Events in HeLa Cells \*. *Journal of Biological Chemistry*, **278**: 51786–51795.
- McCann, K.E., Hurvitz, S.A., and McAndrew, N., 2019. Advances in Targeted Therapies for Triple-Negative Breast Cancer. *Drugs*, **79**: 1217–1230.



- Mchedlishvili, N., Matthews, H.K., Corrigan, A., and Baum, B., 2018. Two-step interphase microtubule disassembly aids spindle morphogenesis. *BMC Biology*, **16**: 14.
- McIntosh, J.R., 2016. Mitosis. *Cold Spring Harbor Perspectives in Biology*, **8**: a023218.
- Meiyanto, E., Husnaa, U., Kastian, R.F., Putri, H., Larasati, Y.A., Khumaira, A., et al., 2021. The Target Differences of Anti-Tumorigenesis Potential of Curcumin and its Analogues Against HER-2 Positive and Triple-Negative Breast Cancer Cells. *Advanced Pharmaceutical Bulletin*, **11**: 188–196.
- Meiyanto, E., Melannisa, R., and Da'i, M., 2006. PGV-1 decreases angiogenic factor (VEGF and COX-2) expression on T47D cell induced by estrogen. *Indonesian Journal of Pharmacy*, **17**: 1–6.
- Meiyanto, E., Novitasari, D., Utomo, R.Y., Susidarti, R.A., Putri, D.D.P., and Kato, J., 2022. Bioinformatic and Molecular Interaction Studies Uncover That CCA-1.1 and PGV-1 Differentially Target Mitotic Regulatory Protein and Have a Synergistic Effect against Leukemia Cells. *Indonesian Journal of Pharmacy*, **33**: 225–233.
- Meiyanto, E., Putri, D.D.P., Susidarti, R.A., Murwanti, R., Sardjiman, null, Fitriasari, A., et al., 2014. Curcumin and its analogues (PGV-0 and PGV-1) enhance sensitivity of resistant MCF-7 cells to doxorubicin through inhibition of HER2 and NF- $\kappa$ B activation. *Asian Pacific journal of cancer prevention: APJCP*, **15**: 179–184.
- Meiyanto, E., Putri, H., Larasati, Y.A., Utomo, R.Y., Jenie, R.I., Ikawati, M., et al., 2019. Anti-Proliferative and Anti-Metastatic Potential of Curcumin Analogue, Pentagamavunon-1 (PGV-1), Toward Highly Metastatic Breast Cancer Cells in Correlation With ROS Generation. *Advanced Pharmaceutical Bulletin*, **9**: 445–452.
- Meiyanto, E., Septisetyani, E.P., Larasati, Y.A., and Kawaichi, M., 2018. Curcumin Analog Pentagamavunon-1 (PGV-1) Sensitizes Wdr Cells to 5-Fluorouracil through Inhibition of NF- $\kappa$ B Activation. *Asian Pacific Journal of Cancer Prevention : APJCP*, **19**: 49–56.
- Melichar, B., Adenis, A., Lockhart, A.C., Bennouna, J., Dees, E.C., Kayaleh, O., et al., 2015. Safety and activity of alisertib, an investigational aurora kinase A inhibitor, in patients with breast cancer, small-cell lung cancer, non-small-cell lung cancer, head and neck squamous-cell carcinoma, and gastro-oesophageal adenocarcinoma: a five-arm phase 2 study. *The Lancet. Oncology*, **16**: 395–405.
- Meng, L., Park, J.-E., Kim, T.-S., Lee, E.H., Park, S.-Y., Zhou, M., et al., 2015. Bimodal Interaction of Mammalian Polo-Like Kinase 1 and a Centrosomal Scaffold, Cep192, in the Regulation of Bipolar Spindle Formation. *Molecular and Cellular Biology*, **35**: 2626–2640.
- Metzger-Filho, O., Tutt, A., de Azambuja, E., Saini, K.S., Viale, G., Loi, S., et al., 2012. Dissecting the heterogeneity of triple-negative breast cancer. *Journal of Clinical Oncology: Official Journal of the American Society of Clinical Oncology*, **30**: 1879–1887.



- Mocanu, C. and Chan, K.-L., 2021. Mind the replication gap. *Royal Society Open Science*, **8**: 201932.
- Moon, H.-G., Hwang, K.-T., Kim, J.-A., Kim, H.S., Lee, M.-J., Jung, E.-M., et al., 2011. NFIB is a potential target for estrogen receptor-negative breast cancers. *Molecular Oncology*, **5**: 538–544.
- Moon, S.-K., Cha, B.-Y., and Kim, C.-H., 2004. ERK1/2 mediates TNF-alpha-induced matrix metalloproteinase-9 expression in human vascular smooth muscle cells via the regulation of NF-kappaB and AP-1: Involvement of the ras dependent pathway. *Journal of Cellular Physiology*, **198**: 417–427.
- Musacchio, A., 2015. The Molecular Biology of Spindle Assembly Checkpoint Signaling Dynamics. *Current Biology*, **25**: R1002–R1018.
- Musacchio, A. and Salmon, E.D., 2007. The spindle-assembly checkpoint in space and time. *Nature Reviews Molecular Cell Biology*, **8**: 379–393.
- Naylor, R.M. and van Deursen, J.M., 2016. Aneuploidy in Cancer and Aging. *Annual Review of Genetics*, **50**: 45–66.
- Newby, A.C., 2006. Matrix metalloproteinases regulate migration, proliferation, and death of vascular smooth muscle cells by degrading matrix and non-matrix substrates. *Cardiovascular Research*, **69**: 614–624.
- Nezi, L. and Musacchio, A., 2009. Sister chromatid tension and the spindle assembly checkpoint. *Current Opinion in Cell Biology*, , Cell differentiation / Cell division, growth and death **21**: 785–795.
- Orford, K.W. and Scadden, D.T., 2008. Deconstructing stem cell self-renewal: genetic insights into cell-cycle regulation. *Nature Reviews. Genetics*, **9**: 115–128.
- Panda, A.K., Chakraborty, D., Sarkar, I., Khan, T., and Sa, G., 2017. New insights into therapeutic activity and anticancer properties of curcumin. *Journal of Experimental Pharmacology*, **9**: 31–45.
- Patterson, J.C., Joughin, B.A., van de Kooij, B., Lim, D.C., Lauffenburger, D.A., and Yaffe, M.B., 2019. ROS and Oxidative Stress Are Elevated in Mitosis during Asynchronous Cell Cycle Progression and Are Exacerbated by Mitotic Arrest. *Cell Systems*, **8**: 163–167.e2.
- Perillo, B., Di Donato, M., Pezone, A., Di Zazzo, E., Giovannelli, P., Galasso, G., et al., 2020. ROS in cancer therapy: the bright side of the moon. *Experimental & Molecular Medicine*, **52**: 192–203.
- Plesca, D., Mazumder, S., and Almasan, A., 2008. DNA Damage Response and Apoptosis. *Methods in enzymology*, **446**: 107–122.
- Prayong, P., Barusrux, S., and Weerapreeyakul, N., 2008. Cytotoxic activity screening of some indigenous Thai plants. *Fitoterapia*, **79**: 598–601.
- Pucci, B., Kasten, M., and Giordano, A., 2000. Cell Cycle and Apoptosis. *Neoplasia (New York, N.Y.)*, **2**: 291–299.
- Reksohadiprodjo, M.S., Timmerman, H., Dummy, Sardjiman, Margono, S.A., Martono, S., Dummy, Sugiyanto, et al., 2004. 'Derivatives of benzylidene cyclohexanone, benzylidene cyclopentanone, and benzylidene acetone, and therapeutic uses thereof', [patent] US6777447B2.



- Rocca, G.L., Pucci-Minafra, I., Marrazzo, A., Taormina, P., and Minafra, S., 2004. Zymographic detection and clinical correlations of MMP-2 and MMP-9 in breast cancer sera. *British Journal of Cancer*, **90**: 1414–1421.
- Salehi, B., Stojanović-Radić, Z., Matejić, J., Sharifi-Rad, M., Anil Kumar, N.V., Martins, N., et al., 2019. The therapeutic potential of curcumin: A review of clinical trials. *European Journal of Medicinal Chemistry*, **163**: 527–545.
- Sardjiman, S.S., Reksohadiprodjo, M.S., Hakim, L., van der Goot, H., and Timmerman, H., 1997. 1,5-Diphenyl-1,4-pentadiene-3-ones and cyclic analogues as antioxidative agents. Synthesis and structure-activity relationship. *European Journal of Medicinal Chemistry*, **32**: 625–630.
- Sarmiento-Salinas, F.L., Delgado-Magallón, A., Montes-Alvarado, J.B., Ramírez-Ramírez, D., Flores-Alonso, J.C., Cortés-Hernández, P., et al., 2019. Breast Cancer Subtypes Present a Differential Production of Reactive Oxygen Species (ROS) and Susceptibility to Antioxidant Treatment. *Frontiers in Oncology*, **9**: .
- Schmitt, C.A., Fridman, J.S., Yang, M., Lee, S., Baranov, E., Hoffman, R.M., et al., 2002. A senescence program controlled by p53 and p16INK4a contributes to the outcome of cancer therapy. *Cell*, **109**: 335–346.
- Schmucker, S. and Sumara, I., 2014. Molecular dynamics of PLK1 during mitosis. *Molecular & Cellular Oncology*, **1**: e954507.
- Schneeweiss, A., Sinn, H.-P., Ehemann, V., Khbeis, T., Neben, K., Krause, U., et al., 2003. Centrosomal aberrations in primary invasive breast cancer are associated with nodal status and hormone receptor expression. *International Journal of Cancer*, **107**: 346–352.
- Shao, F., Sun, H., and Deng, C.-X., 2017. Potential therapeutic targets of triple-negative breast cancer based on its intrinsic subtype. *Oncotarget*, **8**: 73329–73344.
- Sherr, C.J., 1996. Cancer Cell Cycles. *Science*, **274**: 1672–1677.
- Sinn, H.-P. and Kreipe, H., 2013. A Brief Overview of the WHO Classification of Breast Tumors, 4th Edition, Focusing on Issues and Updates from the 3rd Edition. *Breast Care*, **8**: 149–154.
- Smith, A.L., Dohn, M.R., Brown, M.V., and Reynolds, A.B., 2012. Association of Rho-associated protein kinase 1 with E-cadherin complexes is mediated by p120-catenin. *Molecular Biology of the Cell*, **23**: 99–110.
- Stewart, M., 2007. Molecular mechanism of the nuclear protein import cycle. *Nature Reviews. Molecular Cell Biology*, **8**: 195–208.
- Sullivan, L.B. and Chandel, N.S., 2014. Mitochondrial reactive oxygen species and cancer. *Cancer & Metabolism*, **2**: 17.
- Sung, H., Ferlay, J., Siegel, R.L., Laversanne, M., Soerjomataram, I., Jemal, A., et al., 2021. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. *CA: A Cancer Journal for Clinicians*, **71**: 209–249.
- Takeda, D.Y. and Dutta, A., 2005. DNA replication and progression through S phase. *Oncogene*, **24**: 2827–2843.



- Tillery, M.M.L., Blake-Hedges, C., Zheng, Y., Buchwalter, R.A., and Megraw, T.L., 2018. Centrosomal and Non-Centrosomal Microtubule-Organizing Centers (MTOCs) in *Drosophila melanogaster*. *Cells*, **7**: E121.
- Tim Molnas Fak. Farmasi UGM, 2001. 'Uji Antiinflamasi Senyawa PGV-0, PGV1, dan HGV-1 Pada Tikus Jantan dan Betina dan Elusidasi Mekanisme Antiinflamasi', , Laporan Penelitian Tim Molnas. Fakultas Farmasi Universitas Gadjah Mada, Yogyakarta.
- Tomasz, M., 1995. Mitomycin C: small, fast and deadly (but very selective). *Chemistry & Biology*, **2**: 575–579.
- Trachootham, D., Alexandre, J., and Huang, P., 2009. Targeting cancer cells by ROS-mediated mechanisms: a radical therapeutic approach? *Nature Reviews. Drug Discovery*, **8**: 579–591.
- Utomo, R.Y., Wulandari, F., Novitasari, D., Lestari, B., Susidarti, R.A., Jenie, R.I., et al., 2022. Preparation and Cytotoxic Evaluation of PGV-1 Derivative, CCA-1.1, as a New Curcumin Analog with Improved-Physicochemical and Pharmacological Properties. *Advanced Pharmaceutical Bulletin*, **12**: 603–612.
- van Deursen, J.M., 2014. The role of senescent cells in ageing. *Nature*, **509**: 439.
- van Vuuren, R.J., Visagie, M.H., Theron, A.E., and Joubert, A.M., 2015. Antimitotic drugs in the treatment of cancer. *Cancer Chemotherapy and Pharmacology*, **76**: 1101–1112.
- Vang Mouritzen, M. and Jenssen, H., 2018. Optimized Scratch Assay for In Vitro Testing of Cell Migration with an Automated Optical Camera. *Journal of Visualized Experiments : JoVE*, 57691.
- Vitale, I., Galluzzi, L., Castedo, M., and Kroemer, G., 2011. Mitotic catastrophe: a mechanism for avoiding genomic instability. *Nature Reviews Molecular Cell Biology*, **12**: 385–392.
- Wahba, H.A. and El-Hadaad, H.A., 2015. Current approaches in treatment of triple-negative breast cancer. *Cancer Biology & Medicine*, **12**: 106–116.
- Wang, B., Kohli, J., and Demaria, M., 2020. Senescent Cells in Cancer Therapy: Friends or Foes? *Trends in Cancer*, **6**: 838–857.
- Wang, Q., Wu, P.C., Dong, D.Z., Ivanova, I., Chu, E., Zeliadt, S., et al., 2013. Polyploidy road to therapy-induced cellular senescence and escape. *International Journal of Cancer*, **132**: 1505–1515.
- Wang, R., Zhu, Y., Liu, X., Liao, X., He, J., and Niu, L., 2019. The Clinicopathological features and survival outcomes of patients with different metastatic sites in stage IV breast cancer. *BMC Cancer*, **19**: 1091.
- Was, H., Borkowska, A., Olszewska, A., Klemba, A., Marciak, M., Synowiec, A., et al., 2021. Polyploidy formation in cancer cells: How a Trojan horse is born. *Seminars in Cancer Biology*, .
- Watson, S.S., Dane, M., Chin, K., Tatarova, Z., Liu, M., Liby, T., et al., 2018. Microenvironment-Mediated Mechanisms of Resistance to HER2 Inhibitors Differ between HER2+ Breast Cancer Subtypes. *Cell Systems*, **6**: 329–342.e6.
- Weaver, B.A., 2014. How Taxol/paclitaxel kills cancer cells. *Molecular Biology of the Cell*, **25**: 2677–2681.



- Welburn, J.P.I. and Jeyaprakash, A.A., 2018. Mechanisms of Mitotic Kinase Regulation: A Structural Perspective. *Frontiers in Cell and Developmental Biology*, **6**: .
- Willenbacher, E., Khan, S.Z., Mujica, S.C.A., Trapani, D., Hussain, S., Wolf, D., et al., 2019. Curcumin: New Insights into an Ancient Ingredient against Cancer. *International Journal of Molecular Sciences*, **20**: 1808.
- Wulandari, F., Ikawati, M., Kirihata, M., Kato, J., and Meiyanto, E., 2021a. A new curcumin analog, CCA-1.1, induces cell death and cell cycle arrest in WiDr colon cancer cells via ROS generation. *Journal of Applied Pharmaceutical Sciences*, **11**: 099–105.
- Wulandari, F., Ikawati, M., Kirihata, M., Kato, J.-Y., and Meiyanto, E., 2021b. A new curcumin analog, CCA-1.1, induces cell death and cell cycle arrest in WiDr colon cancer cells via ROS generation. *Journal of Applied Pharmaceutical Science*, **11**: 099–105.
- Wulandari, F., Ikawati, M., Novitasari, D., Kirihata, M., Kato, J., and Meiyanto, E., 2020. New curcumin analog, CCA-1.1, synergistically improves the antiproliferative effect of doxorubicin against T47D breast cancer cells. *Indonesian Journal of Pharmacy*, **31**: 244–256.
- Yang, N., Wang, C., Wang, J., Wang, Z., Huang, D., Yan, M., et al., 2019. Aurora kinase A stabilizes FOXM1 to enhance paclitaxel resistance in triple-negative breast cancer. *Journal of Cellular and Molecular Medicine*, **23**: 6442–6453.
- Yerlikaya, A. and Erin, N., 2008. Differential sensitivity of breast cancer and melanoma cells to proteasome inhibitor Velcade. *International Journal of Molecular Medicine*, **22**: 817–823.
- You, D., Jung, S.P., Jeong, Y., Bae, S.Y., and Kim, S., 2017. Wild-type p53 controls the level of fibronectin expression in breast cancer cells. *Oncology Reports*, **38**: 2551–2557.
- Yousef, E.M., Tahir, M.R., St-Pierre, Y., and Gaboury, L.A., 2014. MMP-9 expression varies according to molecular subtypes of breast cancer. *BMC Cancer*, **14**: 609.
- Yu, H. and Yao, X., 2008. Cyclin B1: conductor of mitotic symphony orchestra. *Cell Research*, **18**: 218–220.
- Zaharevitz, D.W., Holbeck, S.L., Bowerman, C., and Svetlik, P.A., 2002. COMPARE: a web accessible tool for investigating mechanisms of cell growth inhibition. *Journal of Molecular Graphics & Modelling*, **20**: 297–303.
- Zhang, W., Xia, D., Li, Zhangyun, Zhou, T., Chen, T., Wu, Z., et al., 2019. Aurora-A/ERK1/2/mTOR axis promotes tumor progression in triple-negative breast cancer and dual-targeting Aurora-A/mTOR shows synthetic lethality. *Cell Death & Disease*, **10**: 606.
- Zhou, D., Shao, L., and Spitz, D.R., 2014. Reactive Oxygen Species in Normal and Tumor Stem Cells. *Advances in cancer research*, **122**: 1–67.