

## DAFTAR PUSTAKA

- Abhinand, C. S., Raju, R., Soumya, S. J., Arya, P. S., & Sudhakaran, P. R. 2016. VEGF-A/VEGFR2 signaling network in endothelial cells relevant to angiogenesis. *Journal of Cell Communication and Signaling*, 10(4), 347–354. <https://doi.org/10.1007/s12079-016-0352-8>
- Adair, T. H., & Montani, J.-P. 2010. *Angiogenesis* (Integrated). San Rafael (CA): Morgan & Claypool Life Sciences.
- Alamsyah, F., Ajrina, I. N., Dewi, F. N. A., Iskandriati, D., Prabandari, S. A., & Taruno, W. P. 2015. Antiproliferative effect of electric fields on breast tumor cells in vitro and in vivo. *Indonesian Journal of Cancer Chemoprevention*, 6(3), 71–77.
- Alamsyah, F., Fadhlurrahman, A. G., Pello, J. I., Firdausi, N., Evi, S., Karima, F. N., Pratiwi, R., Fitria, L., Nurhidayat, L., & Taruno, W. P. 2018. PO-111 Non-contact electric fields inhibit the growth of breast cancer cells in animal models and induce local immune reaction. *ESMO Open*, 3, A269. <https://doi.org/10.1136/esmoopen-2018-eacr25.636>
- Alamsyah, F., Firdausi, N., Evi, S., Nugraheni, D., Fadhlurrahman, A. G., Nurhidayat, L., Pratiwi, R., & Taruno, W. P. 2023. Kidney and liver histology in tumour-induced rats exposed to non-contact electric fields. *F1000Research*, 1–12.
- Alamsyah, F., Pratiwi, R., Firdausi, N., Pello, J. I. M., Nugraheni, S. E. D., Fadhlurrahman, A. G., Nurhidayat, L., & Taruno, W. P. 2021. Cytotoxic T cells response with decreased CD4/CD8 ratio during mammary tumors inhibition in rats induced by non-contact electric fields. *F1000Research*, 10.
- Albini, A., Tosetti, F., Li, V. W., Noonan, D. M., & Li, W. W. 2012. Cancer prevention by targeting angiogenesis. *Nature Reviews Clinical Oncology*, 9(9), 498–509. <https://doi.org/10.1038/nrclinonc.2012.120>
- Armstrong, R. A., & Hilton, A. C. 2004. *Statistical Analysis In Microbiology: Statnotes*.
- Arruebo, M., Vilaboa, N., Sáez-Gutierrez, B., Lambea, J., Tres, A., Valladares, M., & González-Fernández, Á. 2011. Assessment of the evolution of cancer treatment therapies. *Cancers*, 3(3), 3279–3330. <https://doi.org/10.3390/cancers3033279>
- Auerbach, R., Lewis, R., Shinnars, B., Kubai, L., & Akhtar, N. 2003. Angiogenesis assays: A critical overview. *Clinical Chemistry*, 49(1), 32–40. <https://doi.org/10.1373/49.1.32>
- Ausprunk, D. H., Knighton, D. R., & Folkman, J. 1974. Differentiation of vascular endothelium in the chick chorioallantois: A structural and autoradiographic

- study. *Developmental Biology*, 38(2), 237–248. [https://doi.org/10.1016/0012-1606\(74\)90004-9](https://doi.org/10.1016/0012-1606(74)90004-9)
- Bardet, S. M., Carr, L., Soueid, M., Arnaud-Cormos, D., Leveque, P., & O'Connor, R. P. 2016. Multiphoton imaging reveals that nanosecond pulsed electric fields collapse tumor and normal vascular perfusion in human glioblastoma xenografts. *Scientific Reports*, 6. <https://doi.org/10.1038/srep34443>
- Bayraktar, S., Batoz, S., Okuno, S., & Glück, S. 2019. Immunotherapy in breast cancer. *J. Carcinog.*, 18(2). [https://doi.org/10.4103/jcar.JCar\\_2\\_19](https://doi.org/10.4103/jcar.JCar_2_19)
- Beebe, S. J., Fox, P. M., Rec, L. J., Somers, K., Stark, R. H., & Schoenbach, K. H. 2002. Nanosecond Pulsed Electric Field (nsPEF) Effects on Cells and Tissues: Apoptosis Induction and Tumor Growth Inhibition. *IEEE TRANSACTIONS ON PLASMA SCIENCE*, 30(1).
- Beebe, S. J., Fox, P. M., Rec, L. J., Willis, E. L. K., & Schoenbach, K. H. 2003. Nanosecond, high-intensity pulsed electric fields induce apoptosis in human cells. *The FASEB Journal : Official Publication of the Federation of American Societies for Experimental Biology*, 17(11), 1493–1495. <https://doi.org/10.1096/fj.02-0859fje>
- Beebe, S. J., & Schoenbach, K. H. 2005. Nanosecond pulsed electric fields: A new stimulus to activate intracellular signaling. *Journal of Biomedicine and Biotechnology*, 2005(4), 297–300. <https://doi.org/10.1155/JBB.2005.297>
- Beebe, S. J., White, J., Blackmore, P. F., Deng, Y., Somers, K., & Schoenbach, K. H. 2003. Diverse Effects of Nanosecond Pulsed Electric Fields on Cells and Tissues. *DNA and Cell Biology*, 22(12), 785–796. <https://doi.org/10.1089/104454903322624993>
- Bergers, G., Brekken, R., McMahon, G., Vu, T. H., Itoh, T., Tamaki, K., Tanzawa, K., Thorpe, P., Itohara, S., Werb, Z., & Hanahan, D. 2000. Matrix metalloproteinase-9 triggers the angiogenic switch during carcinogenesis. *Nature Cell Biology*, 2(10), 737–744. <https://doi.org/10.1038/35036374>
- Beyer, S., Koch, M., Lee, Y. H., Jung, F., & Blocki, A. 2018. An in vitro model of angiogenesis during wound healing provides insights into the complex role of cells and factors in the inflammatory and proliferation phase. *International Journal of Molecular Sciences*, 19(10). <https://doi.org/10.3390/ijms19102913>
- Bhavsar, M. B., Leppik, L., Costa Oliveira, K. M., & Barker, J. H. 2020. Role of Bioelectricity During Cell Proliferation in Different Cell Types. *Frontiers in Bioengineering and Biotechnology*, 8. <https://doi.org/10.3389/fbioe.2020.00603>
- 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. <https://doi.org/10.3322/caac.21492>

- Breier, G., & Risau, W. 1996. The Role of Vascular Endothelial Growth Factor in Blood Vessel Formation. *Trends in Cell Biology*, 6, 454–456.
- Cao, Y. 2004. Antiangiogenic cancer therapy. *Seminars in Cancer Biology*, 14(2), 139–145. <https://doi.org/10.1016/j.semcancer.2003.09.018>
- Cardiff, R. D., & Allison, K. H. 2012. Mammary Gland. In *Comparative Anatomy and Histology*. Elsevier Inc. <https://doi.org/10.1016/B978-0-12-381361-9.00004-4>
- Carlos, D., Barros, A. S., Muranaka, E. K. N., Mori, L. J., Pelizon, C. H. T., Iriya, K., Giocondo, G., & Pinotti, J. A. 2004. Induction Of Experimental Mammary Carcinogenesis In Rats With 7,12-Dimethylbenz(A)Anthracene. *Rev. Hosp. Clin. Fac. Med. S. Paulo*, 59(5), 257–261.
- Carmeliet, P. 2000. Mechanisms of angiogenesis and arteriogenesis. *Nature America Inc.*, 6(3), 389–395. <http://medicine.nature.com>
- Carmeliet, P., & Collen, D. 2006. *Molecular Basis of Angiogenesis Role of VEGF and VE-Cadherin*. *Annals New York Academy of Sciences*, 249-264.
- Carmeliet, P., & Jain, R. K. 2011. Molecular mechanisms and clinical applications of angiogenesis. In *Nature*. Vol. 473, Issue 7347, pp. 298–307. <https://doi.org/10.1038/nature10144>
- Casper, M. N. 2016. Immunohistochemistry (IHC) Handbook. *Novus Biologicals*, 1–28.
- Cébe-Suarez, S., Zehnder-Fjällman, A., & Ballmer-Hofer, K. 2006. The role of VEGF receptors in angiogenesis; complex partnerships. *Cellular and Molecular Life Sciences*, 63(5), 601–615. <https://doi.org/10.1007/s00018-005-5426-3>
- Cekanova, M., & Rathore, K. 2014. DDDT-49584-animal-models-of-cancer---utility-and-limitations. *Development and Therapy*, 8, 1911–1922. <http://dx.doi.org/10.2147/DDDT.S49584>
- Chen, W. J., Xiong, Z. A., Zhang, M., Yao, C. G., Zhao, Z. Y., Hua, Y. Y., & Zhou, W. 2013. Picosecond pulsed electric fields induce apoptosis in HeLa cells via the endoplasmic reticulum stress and caspase-dependent signaling pathways. *International Journal of Oncology*, 42(3), 963–970. <https://doi.org/10.3892/ijo.2013.1774>
- Cho, M. R., Thatte, H. S., Lee, R. C., & Golan, D. E. 1994. Induced redistribution of cell surface receptors by alternating current electric fields. *The FASEB Journal*, 8(10), 771–776. <https://doi.org/10.1096/fasebj.8.10.8050677>
- Cho, M. R., Thatte, H. S., Lee, R. C., & Golan, D. E. 1996. Reorganization of microfilament structure induced by ac electric fields. *The FASEB Journal*, 10(13), 1552–1558. <https://doi.org/10.1096/fasebj.10.13.8940302>
- Choi, S. B., Park, J. B., Song, T. J., & Choi, S. Y. 2011. Molecular mechanism of

- HIF-1-independent VEGF expression in a hepatocellular carcinoma cell line. *International Journal of Molecular Medicine*, 28(3), 449–454. <https://doi.org/10.3892/ijmm.2011.719>
- Corrado, C., & Fontana, S. 2020. Hypoxia and HIF signaling: One axis with divergent effects. *International Journal of Molecular Sciences*, 21(16), 1–17. <https://doi.org/10.3390/ijms21165611>
- Cross, M. J., & Claesson-Welsh, L. 2001. FGF and VEGF function in angiogenesis: Signalling pathways, biological responses and therapeutic inhibition. *Trends in Pharmacological Sciences*, 22(4), 201–207. [https://doi.org/10.1016/S0165-6147\(00\)01676-X](https://doi.org/10.1016/S0165-6147(00)01676-X)
- Cross, M. J., Dixelius, J., Matsumoto, T., & Claesson-Welsh, L. 2003. VEGF-receptor signal transduction. In *Trends in Biochemical Sciences* (Vol. 28, Issue 9, pp. 488–494). [https://doi.org/10.1016/S0968-0004\(03\)00193-2](https://doi.org/10.1016/S0968-0004(03)00193-2)
- Cspedes, M. V., Casanova, I., Parrefio, M., & Mangues, R. 2006. Red series. Mouse models in oncogenesis and cancer therapy. *Clin Trans Oncol*, 8(5). 8(5).
- CTech Labs Edwar Technology. 2015. Principles of ECCT. In *CTech Labs Edwar Technology*.
- Curtis, K. K., Wong, W. W., & Ross, H. J. 2016. Past approaches and future directions for targeting tumor hypoxia in squamous cell carcinomas of the head and neck. *Critical Reviews in Oncology/Hematology*, 103, 86–98. <https://doi.org/10.1016/j.critrevonc.2016.05.005>
- Daniel, F. B., & Joyce, N. J. 1983. DNA adduct formation by 7,12-dimethylbenz[a]anthracene and its noncarcinogenic 2-fluoro analogue in female Sprague-Dawley rats. *Journal of the National Cancer Institute*, 70(1), 111–118.
- Davidson, B. A., & Secord, A. A. 2014. Profile of pazopanib and its potential in the treatment of epithelial ovarian cancer. *International Journal of Women's Health*, 6(1), 289–300. <https://doi.org/10.2147/IJWH.S49781>
- de Oliveira, K. D., Avanzo, G. U., Tedardi, M. V., Rangel, M. M. M., Avanzo, J. L., Fukumasu, H., Rao, K. V. K., Sinhorini, I. L., & Dagli, M. L. Z. 2015. Carcinogenese quimica por DMBA (7,12-dimethylbenzanthracene)em MKAundongos femeas BALB/c novos fatos. *Brazilian Journal of Veterinary Research and Animal Science*, 52(2), 125–133. <https://doi.org/10.11606/issn.1678-4456.v52i2p125-133>
- DeNardo, D. G., Brennan, D. J., Rexhepaj, E., Ruffell, B., Shiao, S. L., Madden, S. F., Gallagher, W. M., Wadhwani, N., Keil, S. D., Junaid, S. A., Rugo, H. S., Shelley Hwang, E., Jirström, K., West, B. L., & Coussens, L. M. 2011. Leukocyte complexity predicts breast cancer survival and functionally regulates response to chemotherapy. *Cancer Discovery*, 1(1), 54–67. <https://doi.org/10.1158/2159-8274.CD-10-0028>

- Deryugina, E. I., & Quigley, J. P. 2008. Chick embryo chorioallantoic membrane model systems to study and visualize human tumor cell metastasis. *Histochemistry and Cell Biology*, 130(6), 1119–1130. <https://doi.org/10.1007/s00418-008-0536-2>
- Deshmane, S. L., Kremlev, S., Amini, S., & Sawaya, B. E. 2009. Monocyte chemoattractant protein-1 (MCP-1): An overview. *Journal of Interferon and Cytokine Research*, 29(6), 313–325. <https://doi.org/10.1089/jir.2008.0027>
- Disis, M. L., & Stanton, S. E. 2018. Immunotherapy in breast cancer: An introduction. *Breast*, 37, 196–199. <https://doi.org/10.1016/j.breast.2017.01.013>
- Dobson, G. P., Letson, H. L., Biros, E., & Morris, J. 2019. Specific pathogen-free (SPF) animal status as a variable in biomedical research: Have we come full circle? *EBioMedicine*, 41, 42–43. <https://doi.org/10.1016/j.ebiom.2019.02.038>
- Dohle, D. S., Pasa, S. D., Gustmann, S., Laub, M., Wissler, J. H., Jennissen, H. P., & Dünker, N. 2010. Chick ex ovo culture and ex ovo MKA assay: How it really works. *Journal of Visualized Experiments*, 33, 1–8. <https://doi.org/10.3791/1620>
- Du, Z., & Lovly, C. M. 2018. Mechanisms of receptor tyrosine kinase activation in cancer. *Molecular Cancer*, 17(1), 1–13. <https://doi.org/10.1186/s12943-018-0782-4>
- Eguchi, R., Kawabe, J. I., & Wakabayashi, I. 2022. VEGF-Independent Angiogenic Factors: Beyond VEGF/VEGFR2 Signaling. *Journal of Vascular Research*, 59(2), 78–89. <https://doi.org/10.1159/000521584>
- Ellis, L., & Fidler, I. 1996. Angiogenesis and Metastasis. *European Journal of Cancer*. Vol. 32A, Issue 14. pp.2451-2460.
- Escrich, E. 1987. Validity of the DMBA-induced mammary cancer model for the study of human breast cancer. *The International Journal of Biological Markers*, 2(3), 197–206. <https://doi.org/10.1177/172460088700200312>
- Fabian, D., Eibl, M. del P. G. P., Alnahhas, I., Sebastian, N., Giglio, P., Puduvalli, V., Gonzalez, J., & Palmer, J. D. 2019. Treatment of glioblastoma (GBM) with the addition of tumor-treating fields (TTF): A review. In *Cancers* (Vol. 11, Issue 2). MDPI AG. <https://doi.org/10.3390/cancers11020174>
- Fathurrohman, S., Yehezkiel, G. A. B. P. C., Alamsyah, F., & Pratiwi, R. 2022. Electric Field-Based Cancer Therapy Induces the Expression of HMGB1 and PD-L1 mRNA Genes on Breast Tumor of Female Rats. i(2).128-136.
- Federer, W. T. 1963. *Experimental design: theory and application*. Macmillan, New York.
- Feng, Y., Spezia, M., Huang, S., Yuan, C., Zeng, Z., Zhang, L., Ji, X., Liu, W.,



- Huang, B., Luo, W., Liu, B., Lei, Y., Du, S., Vuppalapati, A., Luu, H. H., Haydon, R. C., He, T. C., & Ren, G. 2018. Breast cancer development and progression: Risk factors, cancer stem cells, signaling pathways, genomics, and molecular pathogenesis. *Genes and Diseases*, 5(2), 77–106. <https://doi.org/10.1016/j.gendis.2018.05.001>
- Folkman, J. 1974. Tumor Angiogenesis. *Advances in Cancer Research*, 19, 331–358.
- Folkman, J. 1995. Angiogenesis in cancer, vascular, rheumatoid and other disease. *Nature Medicine*, 1(1), 27–30. <https://doi.org/10.1038/nm0195-27>
- Folkman, J., Merler, E., Abernathy, C., & Williams, G. 1971. Isolation Of A Tumor Factor Responsible For Angiogenesis. *J. Exp. Med.* 133(2).p. 275–288.
- Fox, S. B., Generali, D. G., & Harris, A. L. 2007. Breast tumour angiogenesis. *Breast Cancer Research*, 9(6), 1–11. <https://doi.org/10.1186/bcr1796>
- GE Healthcare. 2011 Western blotting: Principles and Methods. *Tropical Gastroenterology Official Journal of the Digestive Diseases Foundation*, 10(1), 1–181.
- Giladi, M., Schneiderman, R. S., Voloshin, T., Porat, Y., Munster, M., Blat, R., Sherbo, S., Bomzon, Z., Urman, N., Itzhaki, A., Cahal, S., Shteingauz, A., Chaudhry, A., Kirson, E. D., Weinberg, U., & Palti, Y. 2015. Mitotic Spindle Disruption by Alternating Electric Fields Leads to Improper Chromosome Segregation and Mitotic Catastrophe in Cancer Cells. *Scientific Reports*, 5. <https://doi.org/10.1038/srep18046>
- Gilbert, S. 2000. *Developmental Biology* (6th edition). Sunderland (MA): Sinauer Associates.
- Gille, H., Kowalski, J., Yu, L., Chen, H., Pisabarro, M. T., Davis-Smyth, T., & Ferrara, N. 2000. A repressor sequence in the juxtamembrane domain of Flt-1 (VEGFR-1) constitutively inhibits vascular endothelial growth factor-dependent phosphatidylinositol 3'-kinase activation and endothelial cell migration. *EMBO Journal*, 19(15), 4064–4073. <https://doi.org/10.1093/emboj/19.15.4064>
- Goel, H. L., & Mercurio, A. M. 2013. VEGF targets the tumour cell. In *Nature Reviews Cancer* (Vol. 13, Issue 12, pp. 871–882). <https://doi.org/10.1038/nrc3627>
- Grayson, P., & Rex, J. 2018. The Process of Western Blotting. *Eureka Methods*, March 2018, 0–6. <https://doi.org/10.31109/eurekamet.e03>
- Grishagin, I. V. 2015. Automatic cell counting with ImageJ. *Analytical Biochemistry*, 473(December), 63–65. <https://doi.org/10.1016/j.ab.2014.12.007>
- Guo, S., Colbert, L. S., Fuller, M., Zhang, Y., & Gonzalez-Perez, R. R. 2010.

- Vascular endothelial growth factor receptor-2 in breast cancer. *Biochimica et Biophysica Acta (BBA)-Reviews on Cancer*, 1806(1), 108–121.
- Guo, S., Colbert, L. S., McGlothen, T. Z., & Gonzalez-Perez, R. R. 2012. Regulation of Angiogenesis in Human Cancer via Vascular Endothelial Growth Factor Receptor-2 (VEGFR-2). *Tumor Angiogenesis*, 2(Ferrara 1999). <https://doi.org/10.5772/27370>
- Guo, Y., Xiao, Z., Yang, L., Gao, Y., Zhu, Q., Hu, L., Huang, D., & Xu, Q. 2020. Hypoxia-inducible factors in hepatocellular carcinoma (Review). In *Oncology Reports* (Vol. 43, Issue 1, pp. 3–15). Spandidos Publications. <https://doi.org/10.3892/or.2019.7397>
- Gupta, M. K., & Qin, R.-Y. 2003. Mechanism and its regulation of tumor-induced angiogenesis. *World Journal of Gastroenterology World J Gastroenterol*, 9(6), 1144–1155. <http://www.wjgnet.com/1007-9327/9/1144.asp>
- Hanahan, D., & Weinberg, R. A. 2000. The Hallmarks of Cancer Review evolve progressively from normalcy via a series of pre. In *Cell* (Vol. 100).
- Hanahan, D., & Weinberg, R. A. 2011. Hallmarks of cancer: The next generation. In *Cell* (Vol. 144, Issue 5, pp. 646–674). <https://doi.org/10.1016/j.cell.2011.02.013>
- Harada, H., Kizaka-Kondoh, S., Li, G., Itasaka, S., Shibuya, K., Inoue, M., & Hiraoka, M. 2007. Significance of HIF-1-active cells in angiogenesis and radioresistance. *Oncogene*, 26(54), 7508–7516. <https://doi.org/10.1038/sj.onc.1210556>
- Harmey, J. H. 2004. VEGF and Cancer. In *VEGF and Cancer* (Issue June 2015). <https://doi.org/10.1007/978-1-4419-9148-5>
- Harris, A. L. 2002. Hypoxia - A key regulatory factor in tumour growth. *Nature Reviews Cancer*, 2(1), 38–47. <https://doi.org/10.1038/nrc704>
- Hart, F. X. 2008. The mechanical transduction of physiological strength electric fields. *Bioelectromagnetics*, 29(6), 447–455. <https://doi.org/10.1002/bem.20411>
- Hart, F. X., & Palisano, J. R. 2018. The Application of Electric Fields in Biology and Medicine. *Electric Field*. Chapter 8. pp.161-186. InTech. <https://doi.org/10.5772/intechopen.71683>
- Hicklin, D. J., & Ellis, L. M. 2005. Role of the vascular endothelial growth factor pathway in tumor growth and angiogenesis. *Journal of Clinical Oncology* 23(5), pp. 1011–1027. <https://doi.org/10.1200/JCO.2005.06.081>
- Hoare, J. I., Rajnicek, A. M., McCaig, C. D., Barker, R. N., & Wilson, H. M. 2016. Electric fields are novel determinants of human macrophage functions. *Journal of Leukocyte Biology*, 99(6), 1141–1151. <https://doi.org/10.1189/jlb.3a0815-390r>

- Houtman, J. J., Advisors, S., Tomanek, R. J., LaManna, J. C., Reviewer, S., Dore-Duffy, P., Barrett, J. E., Brautigan, D., Divi, R. L., Halpern, M., Hugli, T. T., Lou King, M., Naider, F. R., Oman-Ganes, L., Taylor, R. N., & LaManna, J. 2010. Acknowledgments Angiogenesis in Health and Disease. *Breakthroughs in Bioscience, FASEB*.
- Hu, Z. I., & McArthur, H. L. 2018. Immunotherapy in Breast Cancer: the New Frontier. *Current Breast Cancer Reports*, 10(2), 35–40. <https://doi.org/10.1007/s12609-018-0274-y>
- Iannaccone, P. M., & Jacob, H. J. 2009. Rats! *DMM Disease Models and Mechanisms*, 2(5–6), 206–210. <https://doi.org/10.1242/dmm.002733>
- IARC. 2018. *Latest global cancer data: Cancer burden rises to 18.1 million new cases and 9.6 million cancer deaths in 2018*.
- Ito, Y. 2001. Chemotherapy and hormone therapy for breast cancer: current status and perspective. *Journal of the Japan Medical Association*, 125(11), 1713–1720. [http://www.med.or.jp/english/pdf/2002\\_10/424\\_433.pdf](http://www.med.or.jp/english/pdf/2002_10/424_433.pdf)
- Jaime-Sanchez, P., Uranga-Murillo, I., Aguilo, N., Khouili, S. C., Arias, M. A., Sancho, D., & Pardo, J. 2020. Cell death induced by cytotoxic CD8 + T cells is immunogenic and primes caspase-3-dependent spread immunity against endogenous tumor antigens. *Journal for ImmunoTherapy of Cancer*, 8(1), 1–14. <https://doi.org/10.1136/jitc-2020-000528>
- Jia, J., Xiong, Z. A., Qin, Q., Yao, C. G., & Zhao, X. Z. 2015. Picosecond pulsed electric fields induce apoptosis in a cervical cancer xenograft. *Molecular Medicine Reports*, 11(3), 1623–1628. <https://doi.org/10.3892/mmr.2014.2953>
- Jiang, B. H., Zheng, J. Z., Aoki, M., & Vogt, P. K. 2000. Phosphatidylinositol 3-kinase signaling mediates angiogenesis and expression of vascular endothelial growth factor in endothelial cells. *Proceedings of the National Academy of Sciences of the United States of America*, 97(4), 1749–1753. <https://doi.org/10.1073/pnas.040560897>
- June, C. H., Riddell, S. R., & Schumacher, T. N. 2015. Adoptive cellular therapy, A race to the finish. *Perspective*. 7(280), 1–8.
- Karamysheva, A. F. 2008. Mechanisms of angiogenesis. *Biochemistry (Moscow)* 73(7), pp. 751–762. <https://doi.org/10.1134/S0006297908070031>
- Karar, J., & Maity, A. 2011. PI3K/AKT/mTOR Pathway in Angiogenesis. *Frontiers in Molecular Neuroscience*, 4(December), 1–8. <https://doi.org/10.3389/fnmol.2011.00051>
- Kementerian Kesehatan RI. 2015a. *Buletin Jendela, Data dan Informasi Kesehatan*.
- Kementerian Kesehatan RI. 2015b. *Pusat data dan informasi, Infodatin Kemenkes RI*.
- Kementerian Kesehatan RI. 2019. *Hari Kanker Sedunia 2019*.



<https://www.kemkes.go.id/article/view/19020100003/hari-kanker-sedunia-2019.html>

- Kim, E. H., Song, H. S., Yoo, S. H., & Yoon, M. 2016. Tumor treating fields inhibit glioblastoma cell migration, invasion and angiogenesis. *Oncotarget*, 7(40), 65125–65136. <https://doi.org/10.18632/oncotarget.11372>
- Kirson, E. D., & Dbaly', V. 2007. Alternating electric fields arrest cell proliferation in animal tumor models and human brain tumors. *PNAS*, 104(24), 10152–10157. [www.pnas.org/cgi/content/full/](http://www.pnas.org/cgi/content/full/)
- Kirson, E. D., Gurvich, Z., Schneiderman, R., Dekel, E., Itzhaki, A., Wasserman, Y., Schatzberger, R., & Palti, Y. 2004. Disruption of Cancer Cell Replication by Alternating Electric Fields. *Cancer Research*, 64, 3288–3295. <http://cancerres.aacrjournals.org/content/64/9/3288><http://cancerres.aacrjournals.org/content/64/9/3288.full.html#ref-list-1><http://cancerres.aacrjournals.org/content/64/9/3288.full.html#related-urls>
- Kirson, E. D., Schneiderman, R. S., Dbal, V., Tovary, F., Vymazal, J., Itzhaki, A., Mordechovich, D., Gurvich, Z., Shmueli, E., Goldsher, D., Wasserman, Y., & Palti, Y. 2009. Chemotherapeutic treatment efficacy and sensitivity are increased by adjuvant alternating electric fields (TTFields). *BMC Medical Physics*, 9(1). <https://doi.org/10.1186/1756-6649-9-1>
- Klagsbrunl, M., & Moses, M. A. 1999. Molecular angiogenesis. *Chemistry & Biology*, 6(8), 217–224.
- Kobori, T., Hamasaki, S., Kitaura, A., Yamazaki, Y., Nishinaka, T., Niwa, A., Nakao, S., Wake, H., Mori, S., Yoshino, T., Nishibori, M., & Takahashi, H. 2018. Interleukin-18 amplifies macrophage polarization and morphological alteration, leading to excessive angiogenesis. *Frontiers in Immunology*, 9(MAR). <https://doi.org/10.3389/fimmu.2018.00334>
- Koch, S., & Claesson-welsh, L. 2012. Signal Transduction by VEGFRs.pdf. *Cold Spring Harb Perspect Med.*, July(2), 1–21. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3385940/>
- Koch, S., Tugues, S., Li, X., Gualandi, L., & Claesson-Welsh, L. 2011. Signal transduction by vascular endothelial growth factor receptors. *Biochemical Journal*, 437(2), 169–183. <https://doi.org/10.1042/BJ20110301>
- Korbecki, J., Kojder, K., Barczak, K., Simińska, D., Gutowska, I., Chlubek, D., & Baranowska-Bosiacka, I. 2020. Hypoxia alters the expression of CC chemokines and cc chemokine receptors in a tumor—a literature review. *International Journal of Molecular Sciences*, 21(16), 1–32. <https://doi.org/10.3390/ijms21165647>
- Kotnik, T., Pucihar, G., & Miklavčič, D. 2011. The Cell in the Electric Field. In *Clinical Aspects of Electroporation* (pp. 19–29). Springer New York. [https://doi.org/10.1007/978-1-4419-8363-3\\_3](https://doi.org/10.1007/978-1-4419-8363-3_3)

- Koussounadis, A., Langdon, S. P., Um, I. H., Harrison, D. J., & Smith, V. A. Relationship between differentially expressed mRNA and mRNAprotein correlations in a xenograft model system. *Scientific Reports*, 5(10775). <https://doi.org/10.1038/srep10775>
- Kozak, M. 2009. Analyzing one-way experiments: A piece of cake or a pain in the neck? *Scientia Agricola*, 66(4), 556–562. <https://doi.org/10.1590/s0103-90162009000400020>
- Krogh, A. 1919. The supply of oxygen to the tissue and the regulation of the capillary circulation. *J. Physiol*, 52(6): 457–474
- Kue, C. S., Tan, K. Y., Lam, M. L., & Lee, H. B. 2014. Chick embryo chorioallantoic membrane (MKA): An alternative predictive model in acute toxicological studies for anti-cancer drugs. *Experimental Animals*, 64(2), 129–138. <https://doi.org/10.1538/expanim.14-0059>
- Kumar, S., Bajaj, S., & Bodla, R. B. 2016. Preclinical screening methods in cancer. *Indian J Pharmacol.*, 48(5), 481–486.
- Laaldin, N., Baloch, S. R., Noor, A., Aziz, A., Gul, A., Rajput, T. A., & Babar, M. M. 2019. Animal models: Bridging cross-species variation through animal biotechnology. *Genomics and Biotechnological Advances in Veterinary, Poultry, and Fisheries*. Elsevier Inc. <https://doi.org/10.1016/B978-0-12-816352-8.00008-4>
- LaGory, E. L., & Giaccia, A. J. 2016. The ever-expanding role of HIF in tumour and stromal biology. *Nature Cell Biology*, 18(4), 356–365. <https://doi.org/10.1038/ncb3330>
- Lamallice, L., Le Boeuf, F., & Huot, J. 2007. Endothelial cell migration during angiogenesis. *Circulation Research*, 100(6), 782–794. <https://doi.org/10.1161/01.RES.0000259593.07661.1e>
- Li, K., Wei, L., Huang, Y., Wu, Y., Su, M., Pang, X., Wang, N., Ji, F., Zhong, C., & Chen, T. 2016. Leptin promotes breast cancer cell migration and invasion via IL-18 expression and secretion. *International Journal of Oncology*, 48(6), 2479–2487. <https://doi.org/10.3892/ijo.2016.3483>
- Li, N., Li, Y., Li, Z., Huang, C., Yang, Y., Lang, M., Cao, J., Jiang, W., Xu, Y., Dong, J., & Ren, H. 2016. Hypoxia inducible factor 1 (HIF-1) recruits macrophage to activate pancreatic stellate cells in ancreatic ductal adenocarcinoma. *International Journal of Molecular Sciences*, 17(6), 1–12. <https://doi.org/10.3390/ijms17060799>
- Liao, D., & Johnson, R. S. 2007. Hypoxia: A key regulator of angiogenesis in cancer. *Cancer and Metastasis Reviews*, 26(2), 281–290. <https://doi.org/10.1007/s10555-007-9066-y>
- Liu, M., Xie, S., & Zhou, J., 2018. Use of animal models for the imaging and quantification of angiogenesis. *Exp. Anim*, 67(1), 1-6.

<https://doi.org/10.1538/expanim.17-0054>

- Livak, K. J., & Schmittgen, T. D. 2001. Analysis of relative gene expression data using real-time quantitative PCR and the  $2^{-\Delta\Delta CT}$  method. *Methods*, 25(4), 402–408. <https://doi.org/10.1006/meth.2001.1262>
- Lung, H. L., & Lung, M. 2012. In vivo Matrigel Plug Angiogenesis Assay. *Bio-Protocol*, 2(18), 4–9. <https://doi.org/10.21769/bioprotoc.261>
- Lv, X., Li, J., Zhang, C., Hu, T., Li, S., He, S., Yan, H., Tan, Y., Lei, M., Wen, M., & Zuo, J. 2017. The role of hypoxia-inducible factors in tumor angiogenesis and cell metabolism. *Genes and Diseases*, 4(1), pp. 19–24. <https://doi.org/10.1016/j.gendis.2016.11.003>
- Maira, S. M., Stauffer, F., Brueggen, J., Furet, P., Schnell, C., Fritsch, C., Brachmann, S., Chène, P., De Pover, A., Schoemaker, K., Fabbro, D., Gabriel, D., Simonen, M., Murphy, L., Finan, P., Sellers, W., & García-Echeverría, C. 2008. Identification and characterization of NVP-BEZ235, a new orally available dual phosphatidylinositol 3-kinase/mammalian target of rapamycin inhibitor with potent in vivo antitumor activity. *Molecular Cancer Therapeutics*, 7(7), 1851–1863. <https://doi.org/10.1158/1535-7163.MCT-08-0017>
- Martini, M., De Santis, M. C., Braccini, L., Gulluni, F., & Hirsch, E. 2014. PI3K/AKT signaling pathway and cancer: An updated review. *Annals of Medicine*, 46(6), 372–383. <https://doi.org/10.3109/07853890.2014.912836>
- Matsumoto, T., & Claesson-welsh, L. 2001. VEGF Receptor Signal Transduction. *Science's* *stke*. 1–17. [www.stke.org/cgi/content/full/OC\\_sigtrans;2001/112/re21](http://www.stke.org/cgi/content/full/OC_sigtrans;2001/112/re21)
- McCrudden, C. M., & McCarthy, H. O. 2014. Current status of gene therapy for breast cancer: Progress and challenges. *Application of Clinical Genetics*, 7, 209–220. <https://doi.org/10.2147/TACG.S54992>
- McGee, S. F. 2010. Understanding metastasis : current paradigms and therapeutic challenges in including both chemotherapy and endocrine. *RCSI Student Medical Journal*, 3(1), 56–60.
- McNamee, E. N., Korn Johnson, D., Homann, D., & Clambey, E. T. 2013). Hypoxia and hypoxia-inducible factors as regulators of T cell development, differentiation, and function. *Immunologic Research*, 55(1–3), 58–70. <https://doi.org/10.1007/s12026-012-8349-8>
- Melincovici, C. S., Boşca, A. B., Şuşman, S., Mărginean, M., Mihu, C., Istrate, M., Moldovan, I.-M., Roman, A. L., & Mihu, C. M. 2018. Vascular endothelial growth factor (VEGF)-key factor in normal and pathological angiogenesis. *Rom J Morphol Embryol*, 59(2), 455–467. <http://www.rjme.ro/>
- Merckx, G., Tay, H., Lo Monaco, M., Van Zandvoort, M., De Spiegelaere, W., Lambrichts, I., & Bronckaers, A. 2020. Chorioallantoic Membrane Assay as

- Model for Angiogenesis in Tissue Engineering: Focus on Stem Cells. *Tissue Engineering - Part B: Reviews*, 26(6), 519–539. <https://doi.org/10.1089/ten.teb.2020.0048>
- Mina, L. A., Lim, S., Bahadur, S. W., & Firoz, A. T. 2019. Immunotherapy for the treatment of breast cancer: Emerging new data. *Breast Cancer: Targets and Therapy*, 11, 321–328. <https://doi.org/10.2147/BCTT.S184710>
- Modi, S. J., & Kulkarni, V. M. 2019. Vascular Endothelial Growth Factor Receptor (VEGFR-2)/KDR Inhibitors: Medicinal Chemistry Perspective. *Medicine in Drug Discovery*, 2(October), 100009. <https://doi.org/10.1016/j.medidd.2019.100009>
- Murad, T. M., & Von Haam, E. 1972. Studies of Mammary Carcinoma Induced by 7,12-Dimethylbenz(a)anthracene Administration1. In *CANCER RESEARCH* (Vol. 32).
- Mursilatun. 2010. Pengaruh Medan Listrik Terhadap Pertumbuhan Sel Kanker. In *Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Indonesia*.
- Muz, B., de la Puente, P., Azab, F., & Azab, A. K. 2015. The role of hypoxia in cancer progression, angiogenesis, metastasis, and resistance to therapy. *Hypoxia*, 83. <https://doi.org/10.2147/hp.s93413>
- Neshat, S. B., Tehranipour, M., & Balanejad, S. Z. 2017. The Effect of Aqueous Phase and Hydroalcoholic Extract of *Stachys lavandulifolia* on VEGF Gene Expression Changes and Angiogenesis of Chick Embryo Chorioallantoic Membrane. *Journal of Kermanshah University of Medical Science*, 20(4), 117–123.
- Nguyen, M., Shing, Y., & Folkman, J. 1994. Quantitation of Angiogenesis and Antiangiogenesis in the Chick Embryo Chorioallantoic Membrane. *Microvascular Research*, 47, 31–40.
- Nishida, N., Yano, H., Nishida, T., Kamura, T., & Kojiro, M. 2006. Angiogenesis in cancer. *Vascular Health and Risk Management*, 2(3), 213–219. <https://doi.org/10.2147/vhrm.2006.2.3.213>
- Nowak-Sliwinska, P., Segura, T., & Iruela-Arispe, M. L. 2014. The chicken chorioallantoic membrane model in biology, medicine and bioengineering. *Angiogenesis*, 17(4), 779–804. <https://doi.org/10.1007/s10456-014-9440-7>
- Nurani, P. 2019. *Profil Leukosit dan Trombosit Tikus (Rattus norvegicus Berkenhout, 1769) dengan Induksi 7,12-Dimethylbenz[a]anthracene dan Paparan Medan Listrik Statis*. [Skripsi]. Fakultas Biologi, Universitas Gadjah Mada.
- Nurhidayat, L., Fajar, I., Yati, A., Prinanda, H. H., Irfan, M., Afina, D., Fadlurrahman, A. G., Antara, N. Y., Alamsyah, F., Taruno, W. P., & Pratiwi, R. 2022. Evaluation of Static Electric Field Exposure on Histopathological Structure and Function of Kidney and Liver in DMBA-Induced RAT (*Rattus*

- norvegicus Berkenhout, 1769). *Malaysian Journal of Fundamental and Applied Sciences*, 18(6), 703–713. <https://doi.org/10.11113/mjfas.v18n6.2725>
- Oktavia, S., Wijayanti, N., & Retnoaji, B. 2017. Anti-angiogenic effect of *Artocarpus heterophyllus* seed methanolic extract in ex ovo chicken chorioallantoic membrane. *Asian Pacific Journal of Tropical Biomedicine*, 7(3), 240–244. <https://doi.org/10.1016/j.apjtb.2016.12.024>
- Oladipupo, S., Hu, S., Kovalski, J., Yao, J., Santeford, A., Sohn, R. E., Shohet, R., Maslov, K., Wang, L. V., & Arbeit, J. M. 2011. VEGF is essential for hypoxia-inducible factor-mediated neovascularization but dispensable for endothelial sprouting. *Proceedings of the National Academy of Sciences of the United States of America*, 108(32), 13264–13269. <https://doi.org/10.1073/pnas.1101321108>
- Palazon, A., Tyrakis, P. A., Macias, D., Veliça, P., Rundqvist, H., Fitzpatrick, S., Vojnovic, N., Phan, A. T., Loman, N., Hedenfalk, I., Hatschek, T., Lövrot, J., Foukakis, T., Goldrath, A. W., Bergh, J., & Johnson, R. S. 2017. An HIF-1 $\alpha$ /VEGF-A Axis in Cytotoxic T Cells Regulates Tumor Progression. *Cancer Cell*, 32(5), 669–683.e5. <https://doi.org/10.1016/j.ccell.2017.10.003>
- Palumbo, C., Sisi, F., & Checchi, M. Review. CAM Model: Intriguing Natural Bioreactor for Sustainable Research and Reliable/Versatile Testing. *Biology*, 12(9). <https://doi.org/10.3390/biology12091219>
- Palupi, E. S., Retnoaji, B., Astuti, P., Alamsyah, F., & Pratiwi, R. 2023. The Specificity and Efficacy of Alternating Electric Fields as a Prospective Cancer Treatment. *ASM Sc. J.* 18. p1-14. <https://doi.org/10.32802/asmscj.2023.1588>
- Papaconstantinou, A. D., Shanmugam, I., Shan, L., Schroeder, I. S., Qiu, C., Yu, M., & Snyderwine, E. G. 2006. Gene expression profiling in the mammary gland of rats treated with 7,12-dimethylbenz[a]anthracene. *International Journal of Cancer*, 118(1), 17–24. <https://doi.org/10.1002/ijc.21247>
- Patan, S. 2000. Vasculogenesis and angiogenesis as mechanisms of vascular network formation, growth and remodeling. In *Journal of Neuro-Oncology* (50).
- Patan, S. 2004. Vasculogenesis and Angiogenesis. In *Angiogenesis in Brain Tumors* (pp. 3–32).
- Pello, J. I. M. 2019. *Pengaruh Medan Listrik Frekuensi Menengah dan Intensitas Rendah Terhadap Pertumbuhan Tumor Tikus Rattus norvegicus Berkenhout, 1769 dengan Induksi Tumor Payudara*. [Skripsi]. Fakultas Biologi, Universitas Gadjah Mada.
- Petri, A. K., Schmiedchen, K., Stunder, D., Dechent, D., Kraus, T., Bailey, W. H., & Driessen, S. 2017. Biological effects of exposure to static electric fields in humans and vertebrates: A systematic review. *Environmental Health: A Global Access Science Source*, 16(1). BioMed Central Ltd.



<https://doi.org/10.1186/s12940-017-0248-y>

- Pober, J. S., & Tellides, G. 2012. Participation of blood vessel cells in human adaptive immune responses. *Trends in Immunology*, 33(1), 49–57. <https://doi.org/10.1016/j.it.2011.09.006>
- Ponce, M. L. . & K. H. K. 2018. The Chick Chorioallantoic Membrane as an In Vivo Angiogenesis Model. *Current Protocols in Cell Biology*, 19(5), 1–6.
- Pore, N., Liu, S., Shu, H.-K., Li, B., Haas-Kogan, D., Stokoe, D., Milanini-Mongiat, J., Pages, G., M. O'Rourke, D., Bernhard, E., & Maity, A. 2004. Sp1 Is Involved in Akt-mediated Induction of VEGF Expression through an HIF-1–independent Mechanisme. *Molecular Biology of the Cell*, 15(November), 4841– 4853. <https://doi.org/www.molbiolcell.org/cgi/doi/10.1091/mbc.E04-05-0374>
- Pradeep, C. R., Sunila, E. S., & Kuttan, G. 2005. Expression of vascular endothelial growth factor (VEGF) and VEGF receptors in tumor angiogenesis and malignancies. *Integrative Cancer Therapies*, 4(4), pp. 315–321. <https://doi.org/10.1177/1534735405282557>
- Pratiwi, R., Antara, N. Y., Fadliansyah, L. G., Ardiansyah, S. A., Nurhidayat, L., Sholikhah, E. N., Sunarti, S., Widyarini, S., Fadhlurrahman, A. G., Fatmasari, H., Tunjung, W. A. S., Haryana, S. M., Alamsyah, F., & Taruno, W. P. 2019. CCL2 and IL18 expressions may associate with the anti-proliferative effect of noncontact electro capacitive cancer therapy in vivo. *F1000Research*, 8. <https://doi.org/10.12688/f1000research.20727.1>
- Pritchett, K. R., & Corning, B. F. 2004. Biology and Medicine of Rats. In: Laboratory Animal Medicine and Management. *International Veterinary Information Service (Www.Ivis.Org)*, August, B2503.0904.
- Rahman, S. 2008. *Basics of Electricity*. Bangladesh University of Engineering and Technology.
- Rajabi, M., & Mousa, S. A. 2017. The role of angiogenesis in cancer treatment. In *Biomedicines* (Vol. 5, Issue 2). MDPI AG. <https://doi.org/10.3390/biomedicines5020034>
- Ramos-Vara, J. A. 2017. Principles and methods of immunohistochemistry. *Methods in Molecular Biology*, 1641, 115–128. [https://doi.org/10.1007/978-1-4939-7172-5\\_5](https://doi.org/10.1007/978-1-4939-7172-5_5)
- Ranjan, R. A., Muenzner, J. K., Kunze, P., Geppert, C. I., Ruebner, M., Huebner, H., Fasching, P. A., Beckmann, M. W., Bauerle, T., Hartmann, A., Walther, W., Eckstein, M. Erber, R., & Schneider-Stock, R. 2023. The Chorioallantoic Membrane Xenograft Assay as a Reliable Model for Investigating the Biology of Breast Cancer. *Cancers*, 15(6), 1704. [http://doi: 10.3390/cancers15061704](http://doi:10.3390/cancers15061704).
- Rey, S., & Semenza, G. L. 2010. Hypoxia-inducible factor-1-dependent mechanisms of vascularization and vascular remodelling. *Cardiovascular*

- Research*, 86(2), 236–242. <https://doi.org/10.1093/cvr/cvq045>
- Ribatti, D. 2008. Chapter 5 Chick Embryo Chorioallantoic Membrane as a Useful Tool to Study Angiogenesis. *International Review of Cell and Molecular Biology*, 270(C). Elsevier Inc. [https://doi.org/10.1016/S1937-6448\(08\)01405-6](https://doi.org/10.1016/S1937-6448(08)01405-6)
- Ribatti, D. 2010. The chick embryo chorioallantoic membrane as an in vivo assay to study antiangiogenesis. *Pharmaceuticals*, 3(3), 482–513. <https://doi.org/10.3390/ph3030482>
- Ribatti, D. 2016. The chick embryo chorioallantoic membrane (MKA). A multifaceted experimental model. *Mechanisms of Development*, 141, 70–77. <https://doi.org/10.1016/j.mod.2016.05.003>
- Ribatti, D., 2023. The chick embryo chorioallantoic membrane as an experimental model to study *in vivo* angiogenesis in glioblastoma multiforme. *Brain Research Bulletin*, 182, 26–29. <https://doi.org/10.1016/j.brainresbull.2022.02.005>.
- Risau, W. 1997. Mechanism of Angiogenesis. *Nature*, 386(April), 671–674.
- Robinson, K. R. 1985. The Responses of Cells to Electrical Fields: A Review. *The Journal of Cell Biology*, 101, 2023–2027.
- Roskoski, R. 2007. Vascular endothelial growth factor (VEGF) signaling in tumor progression. *Critical Reviews in Oncology/Hematology*, 62(3), pp. 179–213. <https://doi.org/10.1016/j.critrevonc.2007.01.006>
- Russo, J., Saby, J., Isenberg, W. M., & Russo, I. H. 1977. Pathogenesis of mammary carcinomas induced in rats by 7,12-dimethylbenz[a]anthracene. *Journal of the National Cancer Institute*, 59(2), 435–445. <https://doi.org/10.1093/jnci/59.2.435>
- Rydén, L., Linderholm, B., Nielsen, N. H., Emdin, S., Jönsson, P. E., & Landberg, G. 2003. Tumor specific VEGF-A and VEGFR2/KDR protein are co-expressed in breast cancer. *Breast Cancer Research and Treatment*, 82(3), 147–154. <https://doi.org/10.1023/B:BREA.00000004357.92232.cb>
- Saaristo, A., Karpanen, T., & Alitalo, K. 2000. Mechanisms of angiogenesis and their use in the inhibition of tumor growth and metastasis. *Oncogene*, 19(53), 6122–6129. <https://doi.org/10.1038/sj.onc.1203969>
- Saeidnia, S., Manayi, A., & Abdollahi, M. 2015. From in vitro Experiments to in vivo and Clinical Studies; Pros and Cons. *Curr Drug Discov Technol*, 12(4), 218–224. <https://doi.org/10.2174/1570163813666160114093140>
- Sagar, S., Yance, D., & Wong, R. 2006. Natural health products that inhibit angiogenesis: a potential source for investigational new agents to treat cancer—Part 1. *CURRENT ONCOLOGY*, 13(1), 14–26.

- Saha Roy, S., & Vadlamudi, R. K. 2012. Role of Estrogen Receptor Signaling in Breast Cancer Metastasis. *International Journal of Breast Cancer*, 2012, 1–8. <https://doi.org/10.1155/2012/654698>
- Salajegheh, A. 2016. Introduction to Angiogenesis in Normal Physiology, Disease and Malignancy. In *Angiogenesis in Health, Disease and Malignancy* (pp. 1–9). Springer International Publishing. [https://doi.org/10.1007/978-3-319-28140-7\\_1](https://doi.org/10.1007/978-3-319-28140-7_1)
- Salter, J. T., & Miller, K. D. 2007. Antiangiogenic agents in breast cancer. *Cancer Investigation*, 25(7), 518–526. <https://doi.org/10.1080/07357900701648516>
- Samuelson, E., & Göteborgs universitet. Institutionen för cell- och molekyärbiologi. 2008. *Analyses of rat tumor models for DMBA-induced fibrosarcoma and spontaneous endometrial carcinoma*. Department of Cell and Molecular Biology - Genetics, Lundberg Institute, Faculty of Science, University of Gothenburg.
- Sanderson, T., Wild, G., Cull, A. M., Marston, J., & Zardin, G. 2019. Immunohistochemical and immunofluorescent techniques. In *Bancroft's Theory and Practice of Histological Techniques* (Eighth Edi, Vol. 5). Elsevier. <https://doi.org/10.1016/b978-0-7020-6864-5.00019-0>
- Sari, S. R. 2019. *Profil hematologi mencit (Mus musculus Linnaeus, 1758) galur Swiss dengan induksi 7,12-dimethylbenz[a]antrachene dan paparan medan listrik statis*. [Skripsi]. Fakultas Biologi, Universitas Gadjah Mada.
- Schmitt, F. C., Longatto Filho, A., & Lopes, J. M. 2010. Angiogenesis and breast cancer. *Journal of Oncology*, 2010. <https://doi.org/10.1155/2010/576384>
- Schneider, B. P., & Miller, K. D. 2005. Angiogenesis of breast cancer. *Journal of Clinical Oncology*, 23(8), 1782–1790. <https://doi.org/10.1200/JCO.2005.12.017>
- Semenza, G. L. 1996. Transcriptional Regulation by Hypoxia-Inducible Factor I Molecular Mechanisms of Oxygen Homeostasis. *Trends in Cardiovascular Medicine*, 6(5), 151–157.
- Shao, Y., Saredy, J., Yang, W. Y., Sun, Y., Lu, Y., Saaoud, F., Drummer, C., Johnson, C., Xu, K., Jiang, X., Wang, H., & Yang, X. 2020. Vascular Endothelial Cells and Innate Immunity. *Arteriosclerosis, Thrombosis, and Vascular Biology*, June, E138–E152. <https://doi.org/10.1161/ATVBAHA.120.314330>
- Sharma, G. N., Dave, R., Sanadya, J., Sharma, P., & Sharma, K. K. 2010. Various types and management of breast cancer: an overview. *J. Adv. Pharm. Tech. Res.*, 1(2), 109–126.
- Shi, Y.-H., & Fang, W.-G. 2004. Hypoxia-inducible factor-1 in tumour angiogenesis. *World Journal of Gastroenterology* *World J Gastroenterol*, 10(8), 1082–1087. <http://www.wjgnet.com/1007-9327/10/1082.asp>

- Shibuya, M. 2011. Vascular Endothelial Growth Factor (VEGF) and Its Receptor (VEGFR) Signaling in Angiogenesis: A Crucial Target for Anti- and Pro-Angiogenic Therapies. *Genes and Cancer*, 2(12), 1097–1105. <https://doi.org/10.1177/1947601911423031>
- Shibuya, M. 2012. Vascular Endothelial Growth Factor and its Receptor System: Physiological Functions in Angiogenesis and Pathological Roles in Various Diseases. *Journal of Biochemistry Advance Access*, November.
- Shiojima, I., & Walsh, K. 2002. Role of Akt signaling in vascular homeostasis and angiogenesis. *Circulation Research*, 90(12), 1243–1250. <https://doi.org/10.1161/01.RES.0000022200.71892.9F>
- Shweiki, D., Itin, A., Soffer, D., & Keshet, E. 1992. Vascular Endothelial Growth Factor Induced by Hypoxia may Mediate Hypoxia-Initiated Angiogenesis. *Nature*, 359(October), 843–845.
- Smoot, B., Wampler, M., & Topp, K. S. 2009. Breast cancer treatments and complications: Implications for rehabilitation. *Rehabilitation Oncology*, 27(3), 16–26. <https://doi.org/10.1097/01893697-200927030-00004>
- Sree, V. G., Udayakumar, K., & Sundararajan, R. 2011. Electric Field Analysis of Breast Tumor Cells. *International Journal of Breast Cancer*, 2011, 1–8. <https://doi.org/10.4061/2011/235926>
- Staton, C. A., Reed, M. W. R., & Brown, N. J. 2009. A critical analysis of current in vitro and in vivo angiogenesis assays. *International Journal of Experimental Pathology*, 90(3), 195–221. <https://doi.org/10.1111/j.1365-2613.2008.00633.x>
- Staton, C. A., Stribbling, S. M., Tazzyman, S., Hughes, R., Brown, N. J., & Lewis, C. E. 2004. Current methods for assaying angiogenesis in vitro and in vivo. *International Journal of Experimental Pathology*, 85(5), 233–248. <https://doi.org/10.1111/j.0959-9673.2004.00396.x>
- Stoff-Khalili, M. A., Dall, P., & Curiel, D. T. 2006. Gene therapy for carcinoma of the breast. *Cancer Gene Therapy*, 13(7), 633–647. <https://doi.org/10.1038/sj.cgt.7700929>
- Stryker, Z. I., Rajabi, M., Davis, P. J., & Mousa, S. A. 2019. Evaluation of angiogenesis assays. *Biomedicines*, 7(2), 1–13. <https://doi.org/10.3390/biomedicines7020037>
- Su, F., Geng, J., Li, X., Qiao, C., Luo, L., Feng, J., Dong, X., & Lv, M. 2017. SP1 promotes tumor angiogenesis and invasion by activating VEGF expression in an acquired trastuzumab-resistant ovarian cancer model. *Oncology Reports*, 38(5), 2677–2684. <https://doi.org/10.3892/or.2017.5998>
- Sung, H., Ferlay, J., Siegel, R. L., Laversanne, M., Soerjomataram, I., Jemal, A., & Bray, F. 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(3), 209–249.  
<https://doi.org/10.3322/caac.21660>
- Szipirer, C. 2010. Cancer research in rat models. *Methods in Molecular Biology (Clifton, N.J.)*, 597, 445–458. [https://doi.org/10.1007/978-1-60327-389-3\\_30](https://doi.org/10.1007/978-1-60327-389-3_30)
- Tahergorabi, Z., & Khazaei, M. 2012. A review on angiogenesis and its assays. *Iranian Journal of Basic Medical Sciences*, 15(6), 1110–1126.
- Taillibert, S., Rhun, E. Le, & Chamberlain, M. C. 2015. Tumor treating fields: A new standard treatment for glioblastoma? *Current Opinion in Neurology*, 28(6), 659–664. <https://doi.org/10.1097/WCO.0000000000000250>
- Takahashi, H., & Shibuya, M. 2005. The vascular endothelial growth factor (VEGF)/VEGF receptor system and its role under physiological and pathological conditions. *Clinical Science*, 109(3), 227–241. <https://doi.org/10.1042/CS20040370>
- Tamamouna, V. & Pitsouli, C. 2018. The Hypoxia-Inducible Factor-1 $\alpha$  in Angiogenesis and Cancer: Insights from the Drosophila Model. *Gene Expression and Regulation in Mammalian Cells - Transcription Toward the Establishment of Novel Therapeutics* (pp. 209–241). Department of Biological Sciences, University of Cyprus, Nicosia, Cyprus. <https://doi.org/http://dx.doi.org/10.5772/intechopen.72318>
- Terman, B. I., & Stoletov, K. 2001. VEGF and Tumor Angiogenesis. *J. Biol. and Med*, 18, 59–66.
- Titushkin, I & Cho, M. 2009. Regulation of cell cytoskeleton and membrane mechanics by electric field: role of linker proteins. *Biophys J*, 96(2):717-28. <https://doi.org/10.1016/j.bpj.2008.09.035>.
- Toma-Dasu, I. 2005. Theoretical modeling of tumor oxygenation and influences on treatment outcome. In *Medical Physics* (Vol. 32, Issue 2). <https://doi.org/10.1118/1.1844434>
- Toutenburg, H., & Shalabh. 2013. Statistical Analysis of Designed Experiments. In *NBER Working Papers*. <http://www.nber.org/papers/w16019>
- Trainito, C. 2015. Study of cell membrane permeabilization induced by pulsed electric field-electrical modeling and characterization on biochip. In *Université Paris-Saclay*. Université Paris-Saclay. <https://tel.archives-ouvertes.fr/tel-01254036>
- Vázquez, A. B. 2012. *Fundamentals of Physics in Engineering I Unit 6.-ELECTRIC FIELD*. University of Alicante.
- Veikkola, tanja, & Alitalo, K. 1999. VEGFs, receptors and angiogenesis. *Seminars in Cancer Biology*, 9, 211]220.
- Vellingiri, B., Iyer, M., Subramaniam, M. D., Jayaramayya, K., Siama, Z., Giridharan, B., Narayanasamy, A., Dayem, A. A., & Cho, S. G. 2020.



- Understanding the role of the transcription factor sp1 in ovarian cancer: From theory to practice. In *International Journal of Molecular Sciences* (Vol. 21, Issue 3). MDPI AG. <https://doi.org/10.3390/ijms21031153>
- Vogelstein, B., & Kinzler, K. W. 2004. Cancer genes and the pathways they control. *Nature Medicine*, 10(8), 789–799. <https://doi.org/10.1038/nm1087>
- Walther, W., & Schlag, P. M. 2013. Current status of gene therapy for cancer. *Current Opinion in Oncology*, 25(6), 659–664. <https://doi.org/10.1097/CCO.0000000000000004>
- Wang, H. bi, Leng, J. hua, Zhu, L., Liu, Z. feng, Sun, D. wei, & Lang, J. he. 2007. The chick embryo chorioallantoic membrane as a model for in vivo research on anti-angiogenesis in endometriosis. *Zhonghua Fu Chan Ke Za Zhi*, 42(1), 43–47.
- WHO. 2020. *Indonesia*. The Global Cancer Observatory. Pp.1-2.
- Williams, A. D., Payne, K. K., Posey, A. D., Hill, C., Conejo-Garcia, J., June, C. H., & Tchou, J. 2017. Immunotherapy for breast cancer: Current and future strategies. *Current Surgery Reports*, 5(12). <https://doi.org/10.1007/s40137-017-0194-1>
- Wolfe, D. 2019. Tissue processing. In *Bancroft's Theory and Practice of Histological Techniques* (Eighth Edi). Elsevier. <https://doi.org/10.1016/b978-0-7020-6864-5.00006-2>
- Wong, M. L. H., Prawira, A., Kaye, A. H., & Hovens, C. M. 2009. Tumour angiogenesis: Its mechanism and therapeutic implications in malignant gliomas. *Journal of Clinical Neuroscience*, 16(9), pp. 1119–1130. <https://doi.org/10.1016/j.jocn.2009.02.009>
- Wu, L., Wu, Y., Xiong, Z., Yao, C., Zeng, M., Zhang, R., & Hua, Y. 2019. Effects and possible mechanism of a picosecond pulsed electric field on angiogenesis in cervical cancer in vitro. *Oncology Letters*, 17(2), 1517–1522. <https://doi.org/10.3892/ol.2018.9782>
- Wu, L., Yao, C., Xiong, Z., Zhang, R., Wang, Z., Wu, Y., Qin, Q., & Hua, Y. 2016. The effects of a picosecond pulsed electric field on angiogenesis in the cervical cancer xenograft models. *Gynecologic Oncology*, 141(1), 175–181. <https://doi.org/10.1016/j.ygyno.2016.02.001>
- Yamazaki, Y., & Morita, T. 2006. Molecular and functional diversity of vascular endothelial growth factors. *Molecular Diversity*, 10(4), 515–527. <https://doi.org/10.1007/s11030-006-9027-3>
- Yang, M., & Brackenbury, W. J. 2013. Membrane potential and cancer progression. *Frontiers in Physiology*, 4. <https://doi.org/10.3389/fphys.2013.00185>
- Zetter, B. R. 1998. Angiogenesis and tumor metastasis. *Annual Review of Medicine*, 49(1), 407–424. <https://doi.org/10.1146/annurev.med.49.1.407>

Zimna, A., & Kurpisz, M. 2015. Hypoxia-Inducible factor-1 in physiological and pathophysiological angiogenesis: Applications and therapies. *BioMed Research International*, 2015. <https://doi.org/10.1155/2015/549412>