



DAFTAR PUSTAKA

- ARSITA, E.V., 2022. *Efek Delesi GSTM1 Menggunakan CRISPR Single Guide RNA Tunggal dan Ganda pada Viabilitas Sel 4T1 yang Diterapi Paclitaxel: Kajian pada Ekson yang Sama* (Doctoral dissertation, Universitas Gadjah Mada).
- Aysola, K., Desai, A., Welch, C., Xu, J., Qin, Y., Reddy, V., Matthews, R., Owens, C., Okoli, J., Beech, D.J. and Piyathilake, C.J., 2013. Triple negative breast cancer—an overview. *Heredity genetics: current research*, 2013(Suppl 2).
- Bradford, H., Advait, L. and Kulkarni, A.B., 2009. Overview: Generation of Gene Knockout Mice. *Current Protocols in Cell Biology*, 44(19.12), pp.19-1
- Berger, E.R., Park, T., Saridakis, A., Golshan, M., Greenup, R.A. and Ahuja, N., 2021. Immunotherapy treatment for triple negative breast cancer. *Pharmaceuticals*, 14(8), p.763.
- Campbell, K.J., Dhayade, S., Ferrari, N., Sims, A.H., Johnson, E., Mason, S.M., Dickson, A., Ryan, K.M., Kalna, G., Edwards, J. and Tait, S.W., 2018. MCL-1 is a prognostic indicator and drug target in breast cancer. *Cell death & disease*, 9(2), pp.1-14.
- Cardona, A. and Tomancak, P., 2012. Current challenges in open-source bioimage informatics. *Nature methods*, 9(7), pp.661-665.
- Criscitiello, C., Azim Jr, H.A., Schouten, P.C., Linn, S.C. and Sotiriou, C., 2012. Understanding the biology of triple-negative breast cancer. *Annals of oncology*, 23, pp.vi13-vi18.
- Dawood Nejad, L., Biglari, A., Annese, T. and Ribatti, D., 2017. Recombinant fibromodulin and decorin effects on NF-κB and TGFβ1 in the 4T1 breast cancer cell line. *Oncology letters*, 13(6), pp.4475-4480.
- DeNardo, D.G. and Coussens, L.M., 2007. Inflammation and breast cancer. Balancing immune response: crosstalk between adaptive and innate immune cells during breast cancer progression. *Breast cancer research*, 9, pp.1-10.
- Dent, R., Trudeau, M., Pritchard, K.I., Hanna, W.M., Kahn, H.K., Sawka, C.A., Lickley, L.A., Rawlinson, E., Sun, P. and Narod, S.A., 2007. Triple-negative breast cancer: clinical features and patterns of recurrence. *Clinical cancer research*, 13(15), pp.4429-4434.
- Dexter, D.L., Kowalski, H.M., Blazar, B.A., Fligiel, Z., Vogel, R. and Heppner, G.H., 1978. Heterogeneity of tumor cells from a single mouse mammary tumor. *Cancer research*, 38(10), pp.3174-3181.



Dunn, G.P., Old, L.J. and Schreiber, R.D., 2004. The three Es of cancer immunoediting. *Annu. Rev. Immunol.*, 22, pp.329-360.

Esparza-López, J., Longoria, O., La Cruz-Escobar, D., Neftali, E., Garibay-Díaz, J.C., León-Rodríguez, E. and Ibarra-Sánchez, M.D.J., 2022. Paclitaxel resistance is mediated by NF-κB on mesenchymal primary breast cancer cells. *Oncology Letters*, 23(2), pp.1-10qg.

Farkas, D.H. and Holland, C.A., 2009. Overview of molecular diagnostic techniques and instrumentation. In *Cell and Tissue based Molecular Pathology* (pp. 19-32). Churchill Livingstone.

Gaol, D.L.H.L., Rizki, K.A. and Soemitro, M.P., 2023. Incidence Rate and Clinical Characteristics of Triple Negative Breast Cancer Patients in Hasan Sadikin Hospital, for the Last Five Years. *Journal of Social Research*, 2(5), pp.1558-1562.

Giuliani, C., Bucci, I. and Napolitano, G., 2018. The role of the transcription factor nuclear factor-kappa B in thyroid autoimmunity and cancer. *Frontiers in endocrinology*, 9, p.471.

Gloire, G., Legrand-Poels, S. and Piette, J., 2006. NF-κB activation by reactive oxygen species: fifteen years later. *Biochemical pharmacology*, 72(11), pp.1493-1505.

Handoyo, D. and Rudiretna, A., 2000. Prinsip umum dan pelaksanaan polymerase chain reaction (PCR)[general principles and implementation of polymerase chain reaction]. *Unitas*, 9(1), pp.17-29.

Hsu, P.D., Lander, E.S. and Zhang, F., 2014. Development and applications of CRISPR-Cas9 for genome engineering. *Cell*, 157(6), pp.1262-1278.

Huang, Y.C., Lai, J.C.Y., Peng, P.H., Wei, K.C. and Wu, K.J., 2021. Chromatin accessibility analysis identifies GSTM1 as a prognostic marker in human glioblastoma patients. *Clinical Epigenetics*, 13(1), pp.1-12.

Kalacas, N.A., Garcia, J.A., Ortin, T.S., Valdez Jr, A., Fellizar, A., Ramos, M.C. and Albano, P.M., 2019. GSTM1 and GSTT1 genetic polymorphisms and breast cancer risk in selected Filipino cases. *Asian Pacific journal of cancer prevention: APJCP*, 20(2), p.529.

Kathawala, R.J., Gupta, P., Ashby Jr, C.R. and Chen, Z.S., 2015. The modulation of ABC transporter-mediated multidrug resistance in cancer: a review of the past decade. *Drug resistance updates*, 18, pp.1-17.

Kawanishi, S., Hiraku, Y., Pinlaor, S. and Ma, N., 2006. Oxidative and nitrative DNA damage in animals and patients with inflammatory diseases in relation to inflammation-related carcinogenesis.



- Kracht, M., Müller-Ladner, U. and Schmitz, M.L., 2020. Mutual regulation of metabolic processes and proinflammatory NF-κB signaling. *Journal of Allergy and Clinical Immunology*, 146(4), pp.694-705.
- Li, S., Lang, G.T., Zhang, Lee, P.Y., Costumbraido, J., Hsu, C.Y. and Kim, Y.H., 2012. Agarose gel electrophoresis for the separation of DNA fragments. *JoVE (Journal of Visualized Experiments)*, (62), p.e3923. Y.Z., Yu, K.D., Shao, Z.M. and Zhang, Q., 2018. Interaction between glutathione S-transferase M1-null/present polymorphism and adjuvant chemotherapy influences the survival of breast cancer. *Cancer medicine*, 7(9), pp.4202-4207.
- Lorenz, T.C., 2012. Polymerase chain reaction: basic protocol plus troubleshooting and optimization strategies. *JoVE (Journal of Visualized Experiments)*, (63), p.e3998.
- Louie, S.M., Grossman, E.A., Crawford, L.A., Ding, L., Camarda, R., Huffman, T.R., Miyamoto, D.K., Goga, A., Weerapana, E. and Nomura, D.K., 2016. GSTP1 is a driver of triple-negative breast cancer cell metabolism and pathogenicity. *Cell chemical biology*, 23(5), pp.567-578.
- Lu, Y., Zhou, J., Zhang, J., Wang, Z., Yu, Y., Miao, M. and Yao, Q., 2019. Dual roles of glutathione S-transferase mu 1 in the development and metastasis of hepatocellular carcinoma. *Biomedicine & Pharmacotherapy*, 120, p.109532.
- Ma, F., Li, H., Wang, H., Shi, X., Fan, Y., Ding, X., Lin, C., Zhan, Q., Qian, H. and Xu, B., 2014. Enriched CD44+/CD24- population drives the aggressive phenotypes presented in triple-negative breast cancer (TNBC). *Cancer letters*, 353(2), pp.153-159.
- Maeda, H. and Akaike, T., 1998. Nitric oxide and oxygen radicals in infection, inflammation, and cancer. *BIOCHEMISTRY C/C OF BIOKHMIIA*, 63, pp.854-865.
- Matoba, K., Dohi, E., Choi, E.Y. and Kano, S.I., 2023. Glutathione S-transferases Control astrocyte activation and neuronal health during neuroinflammation. *Frontiers in Molecular Biosciences*, 9, p.1080140.
- Meier-Soelch, J., Mayr-Buro, C., Juli, J., Leib, L., Linne, U., Dreute, J., Papantonis, A., Schmitz, M.L. and Kracht, M., 2021. Monitoring the levels of cellular NF-κB activation states. *Cancers*, 13(21), p.5351.
- Mittal, M., Siddiqui, M.R., Tran, K., Reddy, S.P. and Malik, A.B., 2014. Reactive oxygen species in inflammation and tissue injury. *Antioxidants & redox signaling*, 20(7), pp.1126-1167.



- Ostuni, R., Piccolo, V., Barozzi, I., Polletti, S., Termanini, A., Bonifacio, S., Curina, A., Prosperini, E., Ghisletti, S. and Natoli, G., 2013. Latent enhancers activated by stimulation in differentiated cells. *Cell*, 152(1), pp.157-171.
- Pavitra, E., Kancharla, J., Gupta, V.K., Prasad, K., Sung, J.Y., Kim, J., Tej, M.B., Choi, R., Lee, J.H., Han, Y.K. and Raju, G.S.R., 2023. The role of NF-κB in breast cancer initiation, growth, metastasis, and resistance to chemotherapy. *Biomedicine & Pharmacotherapy*, 163, p.114822.
- Pollard, J.W., 2004. Tumour-educated macrophages promote tumour progression and metastasis. *Nature Reviews Cancer*, 4(1), pp.71-78.
- Prayuni, K., Razari, I. and Yuliwulandari, R., 2019. Glutathione S-transferase M1 and T1 null allele frequencies among Indonesian ethnics toward improved disease risk assessment. *Environmental Toxicology and Pharmacology*, 65, pp.14-17.
- Pulaski, B.A., Clements, V.K., Pipeling, M.R. and Ostrand-Rosenberg, S., 2000. Immunotherapy with vaccines combining MHC class II/CD80+ tumor cells with interleukin-12 reduces established metastatic disease and stimulates immune effectors and monokine induced by interferon γ . *Cancer Immunology, Immunotherapy*, 49(1), pp.34-45.
- Pahwa, R., Goyal, A., Bansal, P. and Jialal, I., 2018. Chronic inflammation.
- Predicted: Mus musculus nuclear factor of kappa light polypeptide gene - nucleotide - NCBI*, 2020. *National Center for Biotechnology Information*. Available at: <https://www.ncbi.nlm.nih.gov/nucleotide/1907149241> (Accessed: 12 December 2023).
- Robey, R.W., Pluchino, K.M., Hall, M.D., Fojo, A.T. and Bates, S.E., 2018. Gottesman, structure of p-glycoprotein reveals a molecular basis for poly-specific drug binding. *Nat Rev Cancer*, 18(7), pp.452-464.
- Roy LD; Curry JM; Sahraei M; Besmer DM; Kidiyoor A; Gruber HE; Mukherjee P Arthritis augments breast cancer metastasis: role of mast cells and SCF/c-Kit signaling. *Breast Cancer Res*, 2013, 15 (2), R32.
- Sasmito, D.E.K., Kurniawan, R. and Muhammah, I., 2014. Karakteristik primer pada Polymerase Chain Reaction (PCR) untuk sekruensing DNA: mini review. In *Seminar Nasional Informatika Medis (SNIMed)* (pp. 93-102).
- Sau, A., Lau, R., Cabrita, M.A., Nolan, E., Crooks, P.A., Visvader, J.E. and Pratt, M.C., 2016. Persistent activation of NF-κB in BRCA1-deficient mammary progenitors drives aberrant proliferation and accumulation of DNA damage. *Cell stem cell*, 19(1), pp.52-65.



- Schrörs, B., Boegel, S., Albrecht, C., Bukur, T., Bukur, V., Holtsträter, C., Ritzel, C., Manninen, K., Tadmor, A.D., Vormehr, M. and Sahin, U., 2020. Multi-omics characterization of the 4T1 murine mammary gland tumor model. *Frontiers in oncology*, 10, p.1195.
- Simões-Wüst, A.P., Schürpf, T., Hall, J., Stahel, R.A. and Zangemeister-Wittke, U., 2002. Bcl-2/bcl-xL bispecific antisense treatment sensitizes breast carcinoma cells to doxorubicin, paclitaxel and cyclophosphamide. *Breast cancer research and treatment*, 76(2), pp.157-166.
- Singh, N., Baby, D., Rajguru, J.P., Patil, P.B., Thakkannavar, S.S. and Pujari, V.B., 2019. Inflammation and cancer. *Annals of African medicine*, 18(3), p.121.
- Srinivas, P.R., 2019. Introduction to Protein Electrophoresis. In *Electrophoretic Separation of Proteins* (pp. 23-29). Humana Press, New York, NY.
- Subramanian, A., Mamedov, T., Pinnear, E. and Viljoen, H., 2008. Importance of annealing times in the PCR amplification of GC-rich genes. *Anuradha Subramanian Publications*, p.8.
- Tangkheunkan, P., Harncharoen, K., Thanositthichai, S., Tiwawech, D., Purisa, W., Saelee, P. and Wattanalai, R., 2020. Frequency and association of GSTM1 and GSTT1 gene polymorphisms with survival in breast cancer patients. *Asian Pacific Journal of Cancer Prevention: APJCP*, 21(8), p.2251.
- Tergaonkar, V., Bottero, V., Ikawa, M., Li, Q. and Verma, I.M., 2003. IκB kinase-independent IκBα degradation pathway: functional NF-κB activity and implications for cancer therapy. *Molecular and cellular biology*, 23(22), pp.8070-8083.
- Tulsky, S., Mittal, R.D. and Mittal, B., 2016. The effect of ABCB1 polymorphisms on the outcome of breast cancer treatment. *Pharmacogenomics and personalized medicine*, 9, p.47.
- Vaupel, P., 2008. Hypoxia and aggressive tumor phenotype: implications for therapy and prognosis. *The oncologist*, 13(S3), pp.21-26.
- Wang, W., Nag, S.A. and Zhang, R., 2015. Targeting the NF-κB signaling pathways for breast cancer prevention and therapy. *Current medicinal chemistry*, 22(2), pp.264-289.
- Zhang, J., Grek, C., Ye, Z.W., Manevich, Y., Tew, K.D. and Townsend, D.M., 2014. Pleiotropic functions of glutathione S-transferase P. In *Advances in cancer research* (Vol. 122, pp. 143-175). Academic Press.
- Zhang, J., Wu, Y., Hu, X., Wang, B., Wang, L., Zhang, S., Cao, J. and Wang, Z., 2017. GSTT1, GSTP1, and GSTM1 genetic variants are associated with



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Analisis Pengaruh Knock-Out GSTM1 pada mRNA Nuclear Factor Kappa-Light-Chain-Enhancer of Activated B Cells (NF-?B) Sel 4T1 Triple Negative Breast Cancer (TNBC)

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survival in previously untreated metastatic breast cancer. *Oncotarget*, 8(62), p.105905.