

DAFTAR PUSTAKA

- Adi-Kusumo, F., Aryati, L., Risdhayati, S. dan Norhidayah, S. (2020). Hopf Bifurcation on a Cancer Therapy Model by Oncolytic Virus Involving the Malignancy Effect and Therapeutic Efficacy, *International Journal of Mathematics and Mathematical Sciences*, 2020, 1-8.
- Adi-Kusumo, F., & Winanda, R. S. (2016). Bifurcation analysis of the cervical cancer cells, effector cells, and IL-2 compounds interaction model with immunotherapy, *Far East Journal of Mathematical Sciences*, 99(6), 869–883.
- Aguirre-Ghiso, J. A. (2007). Models, mechanisms and clinical evidence for cancer dormancy, *Nature Reviews Cancer*, 7(11), 834–846.
- Alizadeh, A. A., Eisen, M. B., Davis, R. E., Ma, C., Lossos, I. S., Rosenwald, A., Boldrick, J. C., Sabet, H., Tran, T., Yu, X., Powell, J. I., Yang, L., Marti, G. E., Moore, T., Jr, J. H., Lu, L., Lewis, D. B., Tibshirani, R., Sherlock, G., Chan, W. C., Greiner, T. C., Weisenburger, D. D., Armitage, J. O., Warnke, R., Levy, R., Wilson, W., Grever, M. R., Byrd, J. C., Botstein, D., Brown, P. O., & Staudt, L. M. (2000). Distinct types of diffuse large B-cell lymphoma identified by gene expression profiling, *Nature*, 403(6769), 503–511.
- Alkodsí, A., Cervera, A., Zhang, K., Louhimo, R., Meriranta, L., Pasanen, A., Leivonen, S., Holte, H., Leppä, S., Lehtonen, R., & Hautaniemi, S. (2019). Distinct subtypes of diffuse large B-cell lymphoma defined by hypermutated genes, *Leukemia*, 33, 2662–2672.
- Allen, C. D. C., Ansel, K. M., Low, C., Lesley, R., Tamamura, H., Fujii, N., & Cyster, J. G. (2004). Germinal center dark and light zone organization is mediated by CXCR4 and CXCR5, *Nature Immunology*, 5(9), 943–952.
- Allen, C. D. C., Okada, T., & Cyster, J. G. (2007). Germinal Center Organization and Cellular Dynamics, *Immunity*, 27(2), 190–202.

- Alyahya, N., Adiga, B., Alwadei, A., Alshahrani, G., & Alyahya, F. (2019). The clinico-pathological profile of non-Hodgkin's lymphoma in Aseer region of Saudi Arabia, *BMC Research Notes*, *12*(1), 418.
- American Cancer Society. (2021). Cancer Facts & Figures 2021, In American Cancer Society, Diakses pada September 14, 2022, dari <https://www.cancer.org/research/cancer-facts-statistics/all-cancer-facts-figures/cancer-facts-figures-2021.html>
- American Cancer Society. (2022). 2022 Estimated, In American Cancer Society, Diakses pada September 14, 2022, dari <https://cancerstatisticscenter.cancer.org/#!/>
- Anggorowati, N., Dhyanti, A. L., Arkan anda, H., Rizki, S. H., Setiawan, S. A., Bagaskoro, M. R., & Hardianti, M. S. (2022). Sociodemographic and Clinico-pathological Features of Lymphoma Patients in Indonesia: A report from Special Region of Yogyakarta Province, *Asian Pacific Journal of Environment and Cancer*, *4*(1), 33–38.
- Antic, D., Jelcic, J., Trajkovic, G., Balint, M. T., Bila, J., Markovic, O., Petkovic, I., Nikolic, V., Andjelic, B., Djurasinovic, V., Sretenovic, A., Smiljanic, M., Vukovic, V., & Mihaljevic, B. (2018). Is it possible to improve prognostic value of NCCN-IPI in patients with diffuse large B cell lymphoma? The prognostic significance of comorbidities, *Annals of Hematology*, *97*(2), 267–276.
- Anton, S. (2000). *Elementary Linear Algebra* (Eight Edition). New York, NY: John Wiley and Sons, Inc.
- Arakawa, H., Hauschild, J., & Buerstedde, J. (2002). Requirement of the activation-induced deaminase (AID) gene for immunoglobulin gene conversion, *Science (New York, N.Y.)*, *295*(5558), 1301–1306.
- Aranda-gutiérrez, A., Hernández-hernández, J. A., López-Sánchez, R. del C., &

- Villela, L. (2021). Prognostic clinical and serum biomarkers in diffuse large B-cell lymphoma, *Revista de Hematologia México*, 22(1), 30–43.
- Asih, T. S. N., Lenhart, S., Wise, S., Aryati, L., Adi-Kusumo, F., Hardianti, M. S., & Forde, J. (2016), The Dynamics of HPV Infection and Cervical Cancer Cells, *Bulletin of Mathematical Biology*, 78(1), 4–20.
- Ateya, S. F. & Alharthi, A. S. (2014), Estimation under a finite mixture of modified weibull distributions based on censored data via em algorithm with application, *Journal of Statistical Theory and Applications*, 13(3), 196–204.
- Bain L. J. & Engelhardt. (1992). *Introduction to Probability and Mathematical Statistics* (Second Edition). Belmon, CA, Duxbury Press.
- Baliu-Piqué, M., van Hoeven, V., Drylewicz, J., van der Wagen, L. E., Janssen, A., Otto, S. A., van Zelm, M. C., de Boer, R. J., Kuball, J., Borghans, J. A., & Tesselaar, K. (2021). Cell-density independent increased lymphocyte production and loss rates post-autologous HSCT, *eLife*, 10, e59775.
- Bannard, O., Horton, R. M., Allen, C. D. C., An, J., Nagasawa, T., & Cyster, J. G. (2013). Germinal center centroblasts transition to a centrocyte phenotype according to a timed program and depend on the dark zone for effective selection, *Immunity*, 39(5), 912–924.
- Baran, R. H. & Coughlin, J. P. (1987). An alternative derivation of the hazard rate, *IEEE Transactions on Reliability*, 36(2), 259–260.
- Bari, A., Marcheselli, L., Sacchi, S., Marcheselli, R., Pozzi, S., Ferri, P., Balleari, E., Musto, P., Neri, S., Spiriti, M. A. A., & Cox, M. C. (2010). Prognostic models for diffuse large B-cell lymphoma in the rituximab era: a never-ending story, *Annals of Oncology: Official Journal of the European Society for Medical Oncology*, 21(7), 1486–1491.
- Barreto, V., Reina-San-Martin, B., Ramiro, A. R., McBride, K. M., & Nussenzweig, M. C. (2003). C-Terminal Deletion of AID Uncouples Class Switch Recombina-

- tion from Somatic Hypermutation and Gene Conversion, *Molecular Cell*, 12(2), 501–508.
- Basso, K., & Dalla-favera, R. (2015). Germinal centres and B cell lymphomagenesis, *Nature Reviews Immunology*, 15(3), 172–184.
- Batlevi, C. L., Matsuki, E., Brentjens, R. J., & Younes, A. (2016). Novel immunotherapies in lymphoid malignancies, *Nature reviews. Clinical oncology*, 13(1), 25–40.
- Bertrand, K. A., Giovannucci, E., Rosner, B. A., Zhang, S. M., Laden, F., & Birman, B. M. (2017). Dietary fat intake and risk of non-Hodgkin lymphoma in 2 large prospective cohorts, *the American Society for Nutrition*, 106(2), 650–656.
- Berg, Jeremy M., Tymoczko, John L., & Stryer, L. (2002). *Biochemistry* (5th edition), New York: W H Freeman and Company.
- Blower, S.M. dan Dowlatabadi, H. (1994) Sensitivity and Uncertainty Analysis of Complex Models of Disease Transmission: An HIV Model, as an Example, *International Statistical Review*, 62, 229–243.
- Bouwstra, R., He, Y., De Boer, J., Kooistra, H., Cendrowicz, E., Fehrmann, R. S. N., Ammatuna, E., Zu Eulenburg, C., Nijland, M., Huls, G., Bremer, E., & Van Meerten, T. (2019). CD47 expression defines efficacy of rituximab with CHOP in non-germinal center B-cell (Non-GCB) diffuse large B-cell lymphoma patients (DLBCL), but not in GCB DLBCL, *Cancer Immunology Research*, 7(10), 1663–1671.
- Bross, L., Fukita, Y., Mcblane, F., Rajewsky, K., & Jacobs, H. (2000). DNA double-strand breaks in immunoglobulin genes undergoing somatic hypermutation, *Immunity*, 13(5), 589–597.
- Button, D. K., Robertson, B., Gustafson, E., & Zhao, X. (2004). Experimental and theoretical bases of specific affinity, a cytoarchitecture-based formulation of nutrient collection proposed to supercede the Michaelis-Menten paradigm of microbial kinetics, *Applied and environmental microbiology*, 70(9), 5511–5521.

- Byrne, H. M. (2010). Dissecting cancer through mathematics: From the cell to the animal model, *Nature Reviews Cancer*, *10*(3), 221–230.
- Byrne, M., Oluwole, O. O., Savani, B., Majhail, N. S., Hill, B. T., & Locke, F. L. (2019). Understanding and Managing Large B Cell Lymphoma Relapses after Chimeric Antigen Receptor T Cell Therapy, *Biology of Blood and Marrow Transplantation: Journal of the American Society for Blood and Marrow Transplantation*, *25*(11), e344–e351.
- Cai, J., Tian, X., Ma, S., Zhong, L., Li, W., Wang, L., Guo, L., Li, Z., Wu, Y., Zhong, G., Huang, H., Xia, Z., Xia, Y., Liu, P., Su, N., Fang, Y., Zhang, Y., & Cai, Q. (2021). A nomogram prognostic index for risk-stratification in diffuse large B-cell lymphoma in the rituximab era: a multi-institutional cohort study, *British Journal of Cancer*, *125*, 402–412.
- Calabrese, P. & Shibata, D. (2010). A simple algebraic cancer equation: Calculating how cancers may arise with normal mutation rates, *BMC Cancer*, *10* (2010).
- Camacho, S. A., Kosco-vilbois, M. H., & Berek, C. (1998). The dynamic structure of the germinal center, *View Point: Immunology Today*, *19*(11), 511–514.
- Campo, E., Swerdlow, S. H., Harris, N. L., Pileri, S., Stein, H., & Jaffe, E. S. (2011). The 2008 WHO classification of lymphoid neoplasms and beyond: Evolving concepts and practical applications, *Blood*, *117*(19), 5019–5032.
- Cancer Australia. (2022). Lymphoma. Cancer Australia, Diakses pada Oktober 20, 2022, dari <https://www.canceraustralia.gov.au/cancer-types/lymphoma/overview>.
- Casellas, R., Basu, U., Yewdell, W. T., Chaudhuri, J., Robbiani, D. F., & Noia, J. M. (2016). Mutations, kataegis, and translocations in B lymphocytes: towards a mechanistic understanding of AID promiscuous activity, *Nature Reviews Immunology*, *16*(3), 164–176.
- Castillo, J. J., Ingham, R. R., Reagan, J. L., Furman, M., Dalia, S., & Mitri, J. (2014). Obesity Is Associated With Increased Relative Risk of Diffuse Large

- B-Cell Lymphoma: A Meta-Analysis of Observational Studies, *Clinical Lymphoma, Myeloma and Leukemia*, 14(2), 122–130.
- Chan, T. D., Gatto, D., Wood, K., Camidge, T., Basten, A., & Brink, R. (2009). Antigen affinity controls rapid T-dependent antibody production by driving the expansion rather than the differentiation or extrafollicular migration of early plasmablasts, *Journal of immunology (Baltimore, Md.: 1950)*, 183 (2009), 3139–3149.
- Chaplain, M. A. J. (1996). Avascular Growth , Angiogenesis and Vascular Growth in Solid Tumours: The Mathematical Modelling of the Stages of Tumour Development, *Mathematical and Computer Modelling*, 23(6), 47–87.
- Chen, H., Qin, Y., Yang, J., Liu, P., He, X., Zhou, S., Zhang, C., Gui, L., Yang, S., & Shi, Y. (2021). The pretreatment platelet count predicts survival outcomes of diffuse large B-cell lymphoma: An analysis of 1007 patients in the rituximab era. *Leukemia Research*, 110, 106715.
- Chen, H., Zhong, Q., Zhou, Y., Qin, Y., Yang, J., Liu, P., He, X., Zhou, S., Zhang, C., Gui, L., Yang, S., Zhou, L., & Shi, Y. (2022). Enhancement of the International prognostic index with β 2-microglobulin, platelet count and red blood cell distribution width: a new prognostic model for diffuse large B-cell lymphoma in the rituximab era, *BMC Cancer*, 22(583), 1–14.
- Chen, L.-P., Lin S.-J., & Yu, M.-S. (2012). Prognostic Value of Platelet Count in Diffuse Large B-Cell Lymphoma, *Clinical Lymphoma, Myeloma & Leukemia*, 12(1), 32–7.
- Chen, Y., Zhang, Z., Fang, Q., & Jian, H. (2019). Prognostic impact of platelet-to-lymphocyte ratio on diffuse large B-cell lymphoma: a meta-analysis, *Cancer Cell International*, 19, 1–10.
- Chitnis, N., Hyman, J. M., & Cushing, J. M. (2008). Determining important parameters in the spread of malaria through the sensitivity analysis of a mathematical model, *Bulletin of mathematical biology*, 70(5), 1272–1296

Collett, D. (2015). *Modelling Survival Data in Medical Research* (Third Edition), London: Chapman & Hall/CRC Texts in Statistical Science.

Conconi, A., Zucca, E., Roggero, E., Bertoni, F., Bernasconi, A., Mingrone, W., Pedrinis, E., & Cavalli, F. (2000). Prognostic models for diffuse large B-cell lymphoma, *Hematological Oncology*, 18(2), 61–73.

Connolly, G. C., Khorana, A. A., Kuderer, N. M., Culakova, E., Francis, C. W., & Lyman, G. H. (2010). Leukocytosis, thrombosis and early mortality in cancer patients initiating chemotherapy, *Thrombosis research*, 126(2), 113–118.

Cooper, G. M. (2000). *The Cell: A Molecular Approach* (2nd edition). The Development and Causes of Cancer, Sunderland (MA): Sinauer Associates, Diakses pada Oktober 14, 2022, dari <https://www.ncbi.nlm.nih.gov/books/NBK9963/>

Countercurrents Series, & Narod, S. A. (2012). Disappearing breast cancers, *Current oncology* (Toronto, Ont.), 19(2), 59-60.

Coussens, L. M., & Werb, Z. (2002). Inflammation and Cancer, *Nature*, 420(6917), 860–867.

Cox, D. R. (1972). Regression Models and Life tables (with discussion), *Journal of The Royal Statistical Society: Series B*, 34(2), 187-220.

Cox, D.R., and Oakes, D. (1984). *Analysis of Survival Data*, London: Chapman and Hall.

Cox, M. C., Nofroni, I., Ruco, L., Amodeo, R., Ferrari, A., Verde, G. L. A., Cardelli, P., Montefusco, E., Conte, E., Monarca, B., & Aloe-spiriti, M. A., 2008, *Low absolute lymphocyte count is a poor prognostic factor in diffuse-large-B-cell-lymphoma*, *Leukemia & Lymphoma*, 49(9), 1745–1751.

Christen, J. A. & Rubio, F. J. (2024). Dynamic survival analysis: Modelling the hazard function via ordinary differential equations, *Statistical Methods in Medical Research*, 33(10), 1768-1782.

- Crump, M., Neelapu, S. S., Farooq, U., Van Den Neste, E., Kuruvilla, J., Westin, J., Link, B. K., Hay, A., Cerhan, J. R., Zhu, L., Boussetta, S., Feng, L., Maurer, M. J., Navale, L., Wieszorek, J., Go, W. Y., & Gisselbrecht, C. (2017). Outcomes in refractory diffuse large B-cell lymphoma: Results from the international SCHOLAR-1 study, *Blood*, *130*(16), 1800–1808.
- Cui, D., Naftel, J. P., Lynch, J. C., Yang, G., Daley, W. P., Hanies, D. E., & Fratkin, J. D. (2011). *Atlas of Histology with Functional & Clinical Correlations* (1th Edition), Lippincots, Williams & Wilkins.
- d’Onofrio, A. (2013). Multifaceted kinetics of immuno-evasion from tumor dormancy, *Advances in experimental medicine and biology*, *734*, 111-143.
- Dalia, S., Chavez, J., Castillo, J. J., & Sokol, L. (2013). Hepatitis B infection increases the risk of non-Hodgkin lymphoma: A meta-analysis of observational studies, *Leukemia Research*, *37*(9), 1107–1115.
- Danks, D. & Yau, C. (2022). Derivative-based neural modelling of cumulative distribution functions for survival analysis. In International Conference on Artificial Intelligence and Statistics, *Proceedings of Machine Learning Research*, 7240–7256.
- de Charette, M., & Houot, R. (2018). Hide or defend, the two strategies of lymphoma immune evasion: potential implications for immunotherapy, *Haematologica*, *103*(8), 1256–1268.
- Deisboeck, T. S., & Wang, Z. (2007). Cancer dissemination: a consequence of limited carrying capacity?, *Medical hypotheses*, *69*(1), 173–177.
- Del Monte U. (2009). Does the cell number 10⁹ still really fit one gram of tumor tissue?, *Cell cycle (Georgetown, Tex.)*, *8*(3), 505–506.
- de Pillis, L. G., & Radunskaya, A. (2003). The Dynamics of an Optimally Controlled Tumor Model: A Case Study, *Mathematical and Computer Modelling*, *37*(11), 1221–1244.

- de Silva, N. S., & Klein, U. (2015). Dynamics of B cells in germinal centres, *Nature Reviews Immunology*, 15(3), 137–148.
- de Paepe, P., & Wolf-Peeters, C. De. (2007). Diffuse large B-cell lymphoma: a heterogeneous group of non-Hodgkin lymphomas comprising several distinct clinicopathological entities, *Leukemia*, 21(1), 37–43.
- de Pillis, L. G., Radunskaya, A. E., & Wiseman, C. L. (2005). A Validated Mathematical Model of Cell-Mediated Immune Response to Tumor Growth, *Cancer Research*, 65(17), 7950–7958.
- de Vinuesa, C. G., Gulbranson-Judge, A., Khan, M., O’Leary, P., Cascalho, M., Wabl, M., Klaus, G. G. B., Owen, M. J., & MacLennan, I. C. M. (1999a). Dendritic cells associated with plasmablast survival, *European journal of immunology*, 29(11), 3712–3721.
- de Vinuesa, C. G., O’Leary, P., Sze, D. M.-Y., Toellner, K.-M., & MacLennan, I. C. M. (1999b). T-independent type 2 antigens induce B cell proliferation in multiple splenic sites, but exponential growth is confined to extrafollicular foci, *European journal of immunology*, 29(4), 1314–1323.
- Dempster, A. P., Laird, N. M., & Rubin, D. B. (1977). Maximum Likelihood from Incomplete Data via the EM Algorithm, *Journal of the Royal Statistical Society. Series B (Methodological)*, 39(1), 1–38.
- Dwilewicz-Trojaczek, J., & Wieczorek, J. (1997). Nadpłytkowość u chorych na chłoniaki złośliwe niehodgkinowskie i chorobe Hodgkina [Thrombocytosis in patients with non-Hodgkin’s lymphomas and Hodgkin’s disease], *Polskie Archiwum Medycyny Wewnętrznej*, 98(8), 117–121.
- Endo, H., & Inoue, M. (2019). Dormancy in cancer, *Cancer Science*, 110(2), 474–480.
- Fathoni, M. I. A., Adi-Kusumo, F., Gunardi, G., & Hutajulu, S. H. (2021). Dynamics of a Breast Cancer Model for Neutropenia Case due to Chemotherapy Effects, *International Journal of Differential Equations*, 2021, 1-8.

- Fathoni, M. I. A., Adi-Kusumo, F., & Hilda Hutajulu, S. (2022). Mathematical Model of the Journey of Breast Cancer Patients Affected by Chemotherapy Response, *International Journal of Difference Equations*, *17*(1), 19–32.
- Fathoni, M. I. A., Gunardi, Kusumo, F. A., & Hutajulu, S. H. (2019). Mathematical model analysis of breast cancer stages with side effects on heart in chemotherapy patients, *AIP Conference Proceedings*, *2192* (December), 1-8.
- Feng, P., Li, H., Pei, J., Huang, Y., & Li, G. (2021). Identification of a 14-Gene Prognostic Signature for Diffuse Large B Cell Lymphoma (DLBCL), *Frontiers in Genetics*, *12*, 625414.
- Finizio, N., & Ladas, G. (1982). *An Introduction to Differential Equations with Difference Equations, Fourier Series, and Partial Differential Equations*, Wardswoth Publishing Company, California, USA.
- Fogel, D. B. (2018). Factors associated with clinical trials that fail and opportunities for improving the likelihood of success: A review, *Contemporary Clinical Trials Communications*, *11*, 156–164.
- Folkman, J. (1971). Tumor angiogenesis: therapeutic implications, *The New England Journal of Medicine*, *285*(21), 1182–1186.
- Folkman, J. (2002). Role of angiogenesis in tumor growth and metastasis, *Seminars in Oncology*, *29*(6 Suppl 16), 15–18.
- Franco, A. T., Corken, A., & Ware, J. (2015). Platelets at the interface of thrombosis, inflammation, and cancer, *Blood*, *126*(5), 582–8.
- Gajewski, T. F., Schreiber, H., & Fu, Y.-X. (2013). Innate and Adaptive Immune Cells in The Tumor Microenvironment, *Nature Immunology*, *14*(10), 1014–1022.
- Ganesh, S. R., Roth, C. M., & Parekkadan, B. (2023). Simulating Interclonal Interactions in Diffuse Large B-Cell Lymphoma. *Bioengineering* (Basel, Switzerland), *10*(12), 1–19.

- Ganeshalingam, S., & Koh, D. M. (2009). Nodal staging, *Cancer imaging: the official publication of the International Cancer Imaging Society*, 9(1), 104-111.
- Gay, L. J., & Felding-Habermann, B. (2011). Contribution of platelets to tumour metastasis, *Nature Reviews Cancer*, 11(2), 123–34.
- Gerlee, P., & Anderson, A. R. (2015). The evolution of carrying capacity in constrained and expanding tumour cell populations, *Physical biology*, 12(5), 056001.
- Ghanavat, M., Ebrahimi, M., Rafeemehr, H., Maniati, M., Behzad, M. M., & Shahrabi, S. (2019). Thrombocytopenia in solid tumors: Prognostic significance, *Oncology Reviews*, 13(1), 43–8.
- Gibson, T. M., Engels, E. A., Clarke, C. A., Lynch, C. F., Weisenburger, D. D., Lindsay, M., Services, H., Prevention, C., Program, F., Institutes, N., Services, H., Prevention, C., & City, I. (2014). Risk of diffuse large B-cell lymphoma after solid organ transplantation in the United States, *American Journal of Hematology*, 89(7), 714–720.
- Gisselbrecht, C., Glass, B., Mounier, N., Gill, D. S., Linch, D. C., Trneny, M., Bosly, A., Ketterer, N., Shpilberg, O., Hagberg, H., Ma, D., Brière, J., Moskowitz, C. H., & Schmitz, N. (2010). Salvage regimens with autologous transplantation for relapsed large B-cell lymphoma in the rituximab era, *Journal of Clinical Oncology*, 28(27), 4184–4190.
- GLOBOCAN. (2020). *Indonesia - Global Cancer Observatory*, Diakses pada Agustus 1, 2022, dari <https://gco.iarc.fr/today/data/factsheets/populations/360-indonesia-fact-sheets.pdf>
- Go, S., Park, S., Kang, M. H., Kim, H., Kim, H. R., & Lee, G. (2018). Clinical impact of prognostic nutritional index in diffuse large B cell lymphoma, *Annals of Hematology*, 98(2), 401–411.
- Gonzalez, H., Hagerling, C., & Werb, Z. (2018). Roles of the immune system in cancer: From tumor initiation to metastatic progression, *Genes & Development*, 32(19-20), 1267–1284.

- Gonze, D., & Kaufman, M. (2013). *Chemical and Enzyme Kinetics*, Master en. Bioinformatique et Modélisation 2009-2010.
- Guidez, S., Glaisner, S., Neste, E. V. D., Gyan, E., Marjanovic, Z., Fornecker, L.-M., Deconinck, E., Fabbro, M., Dorvaux, V., Robu, D., Yokoyama, H., Johnson, N. A., Cheung, M. C., Snauwaert, S., Casanova, M., Terui, Y., Yamamoto, G., Choudhary, Y., Mace, J. R., Quick, D. P., Morschhauser, F., & Foucher, Y. (2023). Mixture model to predict the cumulative incidence of relapses in follicular lymphoma: Need for longer follow-up or alternative outcomes, *Blood*, 142.
- Guo, J., Cai, P., Li, P., Cao, C., Zhou, J., Dong, L., Yang, Y., Xuan, Q., Wang, J., & Zhang, Q. (2021). Body Composition as a Predictor of Toxicity and Prognosis in Patients with Diffuse Large B-Cell Lymphoma Receiving, *Current Oncology* (Toronto, Ont.), 28(2), 1325–1337.
- Hamad H., & Mangla, A. (2023). *Lymphocytosis*. StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing, Diakses pada Januari 20, 2023, dari <https://www.ncbi.nlm.nih.gov/books/NBK549819/>
- Han, J., Akira, S., Calame, K., Beutler, B., Selsing, E., & Imanishi-kari, T. (2007). Class Switch Recombination and Somatic Hypermutation in Early Mouse B Cells Are Mediated by B Cell and Toll-like Receptors, *Immunity*, 27(1), 64–75.
- Han, X., Ruan, J., Zhang, W., Zhou, D., Xu, D., Pei, Q., Ouyang, M., & Zuo, M. (2017). Prognostic implication of leucocyte subpopulations in diffuse large B-cell lymphoma, *Oncotarget*, 8(29), 47790–47800.
- Han, Y., Yang, J., Liu, P., He, X., Zhang, C., Zhou, S., Zhou, L., Qin, Y., Song, Y., Sun, Y., & Shi, Y. (2019). Prognostic Nomogram for Overall Survival in Patients with Diffuse Large B-Cell Lymphoma, *The Oncologist*, 24(11), e1251–e1261.
- Hancock, B. W., Dunsmore, I. R., & Swan, H. T. (1982). Lymphopenia: a bad prognostic factor in Hodgkin's disease, *Scandinavian journal of haematology*, 29(3), 193–199.

- Hardianti, M. S., Rizki, S. H. M., Arkananda, H., Dhyanti, A. L., Setiawan, S. A., Indrawati, Dinantia, N., & Anggorowati, N. (2021). Anemia in Lymphoma Patients in Indonesia: The Prevalence and Predictive Factors, *Asian Pacific Journal of Cancer Biology*, 6(4), 235–241.
- Hatta, W., Gotoda, T., Oyama, T., Kawata, N., Takahashi, A., Yoshifuku, Y., Hoteya, S., Nakagawa, M., Hirano, M., Esaki, M., & others. (2017). A Scoring System to Stratify Curability after Endoscopic Submucosal Dissection for Early Gastric Cancer: "eCura system", *The American journal of gastroenterology*, 112(6), 874–881.
- Hirsch, M. W., Smale, S., Devaney, R. L., (2004). *Differential Equations, Dynamical Systems, and An Introduction to Chaos*, Second Edition, Elsevier, California, USA.
- Hollowood, K., & Macartney, J. (1992). Cell kinetics of the germinal center reaction—a stathmokinetic study, *European journal of immunology*, 22(1), 261–266.
- Honjo, T., Kinoshita, K., & Muramatsu, M. (2002). Molecular Mechanism of Class Switch recombination: Linkage with Somatic Hypermutation, *Annual Review of Immunology*, 20, 165–196.
- Honjo, T., Muramatsu, M., & Fagarasan, S. (2004). AID: How Does It Aid Antibody Diversity? Review, *Immunity*, 20(6), 659–668.
- Hosmer, D.W. & Lemeshow, S. (1989). *Applied Logistic Regression*, John Wiley and Sons, Inc., New York.
- Iber, D., & Maini, P. K. (2002). A Mathematical Model for Germinal Centre Kinetics and Affinity Maturation, *Journal of Theoretical Biology*, 219(2), 153–175.
- Islam, M.R. & Peace, A.L. (2018). Parameter Sensitivity Analysis and Control Strategies of a Multi-Stage Epidemic Model. Poster, *Conference: Multiscale Dynamics of Infections*, Ohio State University, Columbus.

- Istiadi, H., Sadhana, U., Puspasari, D., Miranti, I. P., Karlowee, V., Listiana, D. E., & Prasetyo, A. (2021). Role of Cell-Origin Profiling Using Immunohistochemistry to Predict the Survival of Patients with Diffuse Large B-Cell Lymphoma in Indonesia, *Yonago acta medica*, 64(2), 200–206.
- Iwata, K., Kawasaki, K., & Shigesada, N. (2000). A dynamical model for the growth and size distribution of multiple metastatic tumors, *Journal of theoretical biology*, 203(2), 177–186.
- Jaffe, E. S., Harris, N. L., Vardiman, J. W., Campo, E., & Arber, D. A. (2011). *Hematopathology*, Elsevier Saunders.
- Jamil, A., & Mukkamalla, S. K. R. (2021). *Lymphoma*. StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing, Diakses pada Agustus 20, 2022, dari <https://www.ncbi.nlm.nih.gov/books/NBK560826/>
- Jialin, S., Xiaolei, W., Yuankun, Z., Xiaoxiao, H., Weimin, H., Qi, W., Yongqiang, W., & Ru, F. (2018). The prognostic value of the international prognostic index, the national comprehensive cancer network IPI and the age-adjusted IPI in diffuse large B cell lymphoma, *Zhonghua Xue Ye Xue Za Zhi*, 39(9), 739–744.
- Jochems, C., & Schlom, J. (2011). Tumor-infiltrating immune cells and prognosis: the potential link between conventional cancer therapy and immunity, *Experimental biology and medicine (Maywood, N.J.)*, 236(5), 567–579.
- Kavya, A. K., Nair, C. K., Padmanabhan, M., Sindhu E. R. (2022). Evaluation of Haematological Parameters and Lymphocyte Monocyte Ratio as a Prognostic Marker in Diffuse Large B-cell Lymphoma and T Cell Lymphoma Patients- An Observational Study, *Asian Pacific Journal of Cancer Care*, 7(4), 607–13.
- Keane, C., Tobin, J., Talaulikar, D., Green, M., Crooks, P., Jain, S., & Gandhi, M. (2018). A high LDH to absolute lymphocyte count ratio in patients with DLBCL predicts for a poor intratumoral immune response and inferior survival, *Oncotarget*, 9(34), 23620–23627.

- Keener, J., and Sneyd, J. (1998). *Mathematical Physiology*, 8, New York: Springer-Verlag, Inc.
- Keim, C., Kazadi, D., Rothschild, G., & Basu, U. (2013). Regulation of AID, the B-cell genome mutator, *Genes & Development*, 27(1), 1–17.
- Kelsoe, G. (1996). The germinal center: a crucible for lymphocyte selection, *Seminars in Immunology*, 8(3), 179–184.
- Kerfoot, S. M., Yaari, G., Patel, J. R., Johnson, K. L., Gonzalez, D. G., Kleinstein, S. H., & Haberman, A. M. (2011). Germinal center B cell and T follicular helper cell development initiates in the inter-follicular zone, *Immunity*, 34(6), 947–960.
- Kesmir, C., & Boer, R. J. De. (1999). A Mathematical Model on Germinal Center Kinetics and Termination, *Journal of Immunology*, 163(5), 2463–2469.
- Khanal, S., & Bradley, T. (2021). A prognostic gene signature for predicting survival outcome in diffuse large B-cell lymphoma, *Cancer Genetics*, 252–253, 87–95.
- Khodadadi, L., Cheng, Q., Radbruch, A., & Hiepe, F. (2019). The Maintenance of Memory Plasma Cells, *Frontiers in Immunology*, 10, 1-17.
- Kim, H., Hendrickson, R., & Dorfman, R. F. (1977). Composite lymphoma. *Cancer*, 40(3), 959–976.
- Kim, H. N., Jeon, M. J., Yu, E. S., Kim, D. S., Choi, C. W., & Ko, Y. H. (2022). Composite follicular lymphoma and classic Hodgkin lymphoma. *Journal of pathology and translational medicine*, 56(1), 57–60.
- Kim, S., Nam, S. J., Park, C., Kwon, D., Yim, J., Song, S. G., Ock, C. Y., Kim, Y. A., Park, S. H., Kim, T. M., & Jeon, Y. K. (2019). High tumoral PD-L1 expression and low PD-1+ or CD8+ tumor-infiltrating lymphocytes are predictive of a poor prognosis in primary diffuse large B-cell lymphoma of the central nervous system. *Oncoimmunology*, 8(9), e1626653.

- Kirschner, D., & Panetta, J. C. (1998). Modeling immunotherapy of the tumor-immune interaction, *Journal of Mathematical Biology*, 37(3), 235–252.
- Klein, U., & Dalla-favera, R. (2008). Germinal centres: role in B-cell physiology and malignancy, *Immunology*, 8(1), 22–33.
- Kleinbaum, D. G., & Klein, M. (2012). *Survival Analysis a Self-Learning Text* (Third Edit), Springer.
- Kleinstein, S. H., & Singh, J. P. (2001). Toward quantitative simulation of germinal center dynamics: biological and modeling insights from experimental validation, *Journal of theoretical biology*, 211(3), 253–275.
- Klipp, E., Herwig, R., Kowald, A., Wierling, C., & Lehrach, H. (2005). *Systems Biology in Practice: Concepts, Implementation and Application*, Wiley-VCH Verlag GmbH & Co. KGaA.
- Knudson, A. G. (1971). Mutation and cancer: statistical study of retinoblastoma. *Proceedings of the National Academy of Sciences of the United States of America*, 68(4), 820–823.
- Ko, W., & Ahn, I. (2011). Stationary patterns and stability in a tumor-immune interaction model with immunotherapy, *Journal of Mathematical Analysis and Applications*, 383(2), 307–329.
- Kojima, Y., Tsurumi, H., Goto, N., Shimizu, M., Kasahara, S., Yamada, T., Kanemura, N., Hara, T., Sawada, M., Saio, M., Yamada, T., Takahashi, T., Tomita, E., Takami, T., & Moriwaki, H. (2006). Fas and Fas ligand expression on germinal center type-diffuse large B-cell lymphoma is associated with the clinical outcome, *European journal of haematology*, 76(6), 465–472.
- Kreuzig, E., (1978). *Introductory Functional Analysis with Applications*, John Wiley and Sons, New York.
- Kuroda, H., Matsunaga, T., Sakamaki, S., Koike, K., Terui, T., Neda, H., Ishitani, K., Nobuoka, A., Sato, M., Kida, M., Watanabe, H., Yamaguchi, J., & Niitsu, Y.

- (2007). T-cell rich B-cell lymphoma associated with neutrophilia and thrombocytosis, [*Rinsho ketsueki*] *The Japanese journal of clinical hematology*, 48(3), 217–222.
- Küppers, R. (2005). Mechanisms of B-cell Lymphoma Pathogenesis, *Nature reviews. Cancer*, 5(4), 251–262.
- Küppers, R., & Dalla-Favera, R. (2001). Mechanisms of chromosomal translocations in B cell lymphomas, *Oncogene*, 20(40), 5580–5594.
- Küppers, Ralf, Engert, A., & Hansmann, M. (2012). Hodgkin lymphoma, *The Journal of Clinical Investigation*, 122(10), 3439–3447.
- Küppers, Ralf, Klein, U., Hansmann, M., & Rajewsky, K. (1999). Cellular Origin of Human B-Cell Lymphomas, *The New England Journal of Medicine*, 341(20), 1520–1529.
- Kuznetsov, V. A., Makalkin, I. A., Taylor, M. A., & Perelson, A. S. (1994). Nonlinear Dynamics of Immunogenic Tumors: Parameter Estimation and Global Bifurcation Analysis, *Bulletin of Mathematical Biology*, 56(2), 295–321.
- Kuznetsov, Y.A. (1998). *Element of Applied Bifurcation Theory*, New York: Springer-Verlag.
- Lawless, J. F. (1982). *Statistical models and methods for lifetime data*, John Wiley and Sons, New York.
- Lee, E. T., & Wang, J. W. (2003). *Statistical Methods for Survival Data Analysis* (Third Edition), John Wiley dan Sons, Inc.
- Lemez, P., Jankovska, M., Pytlik, R., Subrtova, H., Polivka, J., Novakova, L., & Kozak, T. (2006). Thrombocytosis over $800 \times 10^9/L$ Following the Use of Pegfilgrastim after Chemotherapy R-MegaCHOP in Patients with Diffuse Large B-Cell Lymphoma, *Blood*, 108(11).
- Li, C., Zhang, Y., Zhang, C., Chen, J., Lou, X., Chen, X., Kang, L., Xu, N., Li, M., Tan, J., Sun, X., Zhou, J., Yang, Z., Zong, X., Wang, P., Xu, T., Qu, C., Huang,

- H., Jin, Z., Yu, L., & Wu, D. (2019). Comparison of CART19 and autologous stem-cell transplantation for refractory/relapsed non-Hodgkin's lymphoma, *JCI Insight*, 5(17), 0–12.
- Liang, A., Zhou, L., Li, P., Yu, W., Yang, M., Xu, Y., Ye, S., Zhu, J., Huang, J., Zhang, Y., Li, L., Zhao, J., Li, J., Zheng, C., Zhu, K., Lan, L., Zhang, H., Zhou, D., Yao, Y., & Jin, J. (2021). Safety and efficacy of a novel anti-CD20/CD19 bi-specific CAR T-cell therapy (C-CAR039) in relapsed or refractory (r/r) B-cell non-Hodgkin lymphoma (B-NHL), *Journal of Clinical Oncology*, 39(15-suppl (May 20, 2021)).
- Liebman, H. A. (2014). Thrombocytopenia in cancer patients, *Thrombosis Research*, 133(SUPPL. 2), S63–S69.
- Liu, H., Zhang, C.-L., Feng, R., Li, J.-T., Tian, Y., & Wang, T. (2018). Validation and Refinement of the Age, Comorbidities, and Albumin Index in Elderly Patients with Diffuse Large B-Cell Lymphoma: An Effective Tool for Comprehensive Geriatric Assessment, *The Oncologist*, 23(6), 722–729.
- Liu, P., Han, Y., Jiang, S. Y., He, X. H., Qin, Y., Gui, L., Zhou, S. Y., Zhou, L. Q., Yang, J. L., Yang, S., Wen, T. Y., & Shi, Y. K. (2019). A retrospective analysis of real-world outcomes of elderly Chinese patients with diffuse large B-cell lymphoma, *Chinese Medical Journal*, 132(15), 1807–1814.
- Liu, Y.-J., Barthelemy, C., Bouteiller, O. de, & Banchereau, J. (1994). The Differences In Survival and Phenotype Between Centroblasts and Centrocytes, *Advances in Experimental Medicine and Biology*, 355, 213-218.
- Liu, Y., & Barta, S. K. (2019). Diffuse large B-cell lymphoma: 2019 update on diagnosis, risk stratification, and treatment, *American Journal of Hematology*, 94(5), 604–616.
- Liu, Y., Zhang, J., Lane, P. J. L., Chan, E. Y.-T., & MacLennan, I. C. M. (1991). Sites of specific Bcell activation in primary and secondary responses to T cell-

dependent and T cell-independent antigens, *European journal of immunology*, 21(12), 2951–2962.

Luhuna, M., Irawan, C., Harahap, A. S., Shatri, H., Yunir, E., & Sutandyo, N. (2025). Clinical Characteristics and Outcomes of Patients with Diffuse Large B-Cell Lymphoma Treated Using R-CHOP, *EJournal Kedokteran Indonesia*, 13(1).

Machin, D., Cheung, Y. B., & Parmar, M. (2006). *Survival Analysis Practical Approach* (2nd ed.), Chicester: John Wiley and Sons Ltd.

Maclennan, I. C. M. (1994). Germinal centers, *Annual Review of Immunology*, 12, 117–139.

Macor, P., Secco, E., Zorzet, S., Tripodo, C., Celeghini, C., & Tedesco, F. (2008). An Update on the Xenograft and Mouse Models Suitable for Investigating New Therapeutic Compounds for the Treatment of B-Cell Malignancies An Update on the Xenograft and Mouse Models Suitable for Investigating New Therapeutic Compounds for the Treatment of, *Current Pharmaceutical Design*, 14(21), 2023–2039.

Magarelli, N., Guglielmi, G., Savastano, M., Toro, V., Sborgia, M., Fioritoni, G., Mattei, P. A., Steinbach, L., & Bonomo, L. (2004). Superficial inflammatory and primary neoplastic lymphadenopathy: diagnostic accuracy of power-doppler sonography, *European journal of radiology*, 52(3), 257–263.

Malinzi, J., Ouifki, R., Eladdadi, A., Torres, D.F.M. & White, K.A.J. (2018). Enhancement of chemotherapy using oncolytic virotherapy: Mathematical and optimal control analysis, *Mathematical Biosciences & Engineering*, 15(6), 1435–1463.

Maloney, D. G., Grillo-López, A. J., White, C. A., Bodkin, D., Schilder, R. J., Neidhart, J. A., Janakiraman, N., Foon, K. A., Liles, T.-M., Dallaire, B. K., Wey, K., Royston, I., Davis, T., & Levy, R. (1997). IDEC-C2B8 (rituximab) anti-CD20 monoclonal antibody therapy in patients with relapsed low-grade non-Hodgkin's lymphoma, *Blood*, 90(6), 2188–2195.

- Mansoor, N. A., & Al-Kubati, S. (2017). Clinicopathological correlation of non-hodgkin lymphoma an immunohistochemical profile, *European Journal of Pharmaceutical and Medical Research*, 4(9), 768–773.
- Matzavinos, A., Chaplain, M. A. J., & Kuznetsov, V. A. (2004). Mathematical modelling of the spatio-temporal response of cytotoxic T-lymphocytes to a solid tumour, *Mathematical Medicine and Biology*, 21(1), 1–34.
- McKay, M.D., Beckman, R.J., & Conover, W.J. (1979) A Comparison of Three Methods for Selecting Values of Input Variables in the Analysis of Output from a Computer Code, *Technometrics*, 21, 239–245.
- McKee, S. J., Tuong, Z. K., Kobayashi, T., Doff, B. L., Soon, M. S., Nissen, M., Lam, P. Y., Keane, C., Vari, F., Moi, D., Mazzieri, R., Leggatt, G., Gandhi, M. K., & Mattarollo, S. R. (2017). B cell lymphoma progression promotes the accumulation of circulating Ly6Cl^o monocytes with immunosuppressive activity, *Oncoimmunology*, 7(2), e1393599.
- McLachlan, G.J. & Krishnan, T. (2008). *The EM Algorithm and Extensions*. 2nd Edition, Wiley, New York.
- Mehta, H. B., Mehta, V., Girman, C. J., Adhikari, D., Johnson, M. L. (2016). Regression coefficient-based scoring system should be used to assign weights to the risk index, *J. Clin. Epidemiol.*, 79, 22–28.
- Menon, M. P., Pittaluga, S., & Jaffe, E. S. (2012). The Histological and Biological Spectrum of Diffuse Large B-Cell Lymphoma in the World Health Organization Classification, *The Cancer Journal*, 18(5), 411–420.
- Mescher, A. L. (2005), *Junqueira's Basic Histology Text & Atlas: Lymph Nodes* (12th ed.), Mc. Graw-Hill Company.
- Messerschmidt, J. L., Prendergast, G. C., & Messerschmidt, G. L. (2016). How Cancers Escape Immune Destruction and Mechanisms of Action for the New Significantly Active Immune Therapies: Helping Nonimmunologists Decipher Recent Advances, *The Oncologist*, 21(2), 233–243.

- Meyer-hermann, M. (2002). A Mathematical Model for the Germinal Center Morphology and Affinity Maturation, *Journal of Theoretical Biology*, 216(3), 273–300.
- Meyer-Hermann, M., Deutsch, A., & Or-Guil, M. (2001). Recycling Probability and Dynamical Properties of Germinal Center Reactions, *Journal of Theoretical Biology*, 210(3), 265–285.
- Meyer-hermann, M. E., Maini, P. K., & Iber, D. (2006). An analysis of B cell selection mechanisms in germinal centers, *Mathematical Medicine and Biology: A Journal of the IMA*, 23(3), 255–277.
- Miura, K., Konishi, J., Miyake, T., Makita, M., Hojo, A., Masaki, Y., Uno, M., Ozaki, J., Yoshida, C., Niiya, D., Kitazume, K., Maeda, Y., Takizawa, J., Sakai, R., Yano, T., Yamamoto, K., Sunami, K., Hiramatsu, Y., Aoyama, K., Tsujimura, H., Murakami, J., Hatta, Y., & Kanno, M. (2017). A Host-Dependent Prognostic Model for Elderly Patients with Diffuse Large B-Cell Lymphoma, *The Oncologist*, 22(5), 554–560.
- Miyazawa, Y., Yokohama, A., Ishizaki, T., Tsukamoto, N., Koshi, H., Hirato, J., & Handa, H. (2021). Pathological and molecular analysis of a composite lymphoma of mantle cell lymphoma and Epstein-Barr virus-positive follicular lymphoma. *International journal of hematology*, 113(4), 592–599.
- Mlynarczyk, C., Fontán, L., & Melnick, A. (2019). Germinal center-derived lymphomas: The darkest side of humoral immunity, *Immunological Reviews*, 288(1), 214–239.
- Mohseni, S., Shojaiefard, A., Khorgami, Z., Alinejad, S., Ghorbani, A., & Ghafouri, A. (2014). Peripheral lymphadenopathy: approach and diagnostic tools, *Iranian journal of medical sciences*, 39(2 Suppl), 158-170.
- Montalbán, C., Díaz-López, A., Dlouhy, I., Rovira, J., Lopez-Guillermo, A., Alonso, S., Martín, A., Sancho, J. M., García, O., Sánchez, J. M., Rodríguez, M., Novelli, S., Salar, A., Gutiérrez, A., Rodríguez-Salazar, M. J., Bastos, M.,

- Domínguez, J. F., Fernández, R., Gonzalez de Villambrosia, S., Queizan, J. A., Córdoba, R., de Oña, R., López-Hernandez, A., Freue, J. M., Garrote, H., López, L., Martin-Moreno, A. M., Rodriguez, J., Abraira, V., García, J. F., & GELTAMO-IPI Project Investigators. (2017). Validation of the NCCN-IPI for diffuse large B-cell lymphoma (DLBCL): the addition of β 2-microglobulin yields a more accurate GELTAMO-IPI, *British Journal of Haematology*, 176(6), 918–928.
- Murali, A. K., & Mehrotra, S. (2011). Apoptosis - an Ubiquitous T cell Immunomodulator, *Journal of clinical & cellular immunology*, S3, 1-17.
- Muramatsu, M., Kinoshita, K., Fagarasan, S., Yamada, S., Shinkai, Y., & Honjo, T. (2000). Class switch recombination and hypermutation require activation-induced cytidine deaminase (AID), a potential RNA editing enzyme, *Cell*, 102(5), 553–563.
- Muramatsu, M., Sankaranand, V. S., Anant, S., Sugai, M., Kinoshita, K., Davidson, N. O., & Honjo, T. (1999). Specific expression of activation-induced cytidine deaminase (AID), a novel member of the RNA-editing deaminase family in germinal center B cells, *The Journal of Biological Chemistry*, 274(26), 18470–18476.
- Muris, J. J., Meijer, C. J., Ossenkoppele, G. J., Vos, W., & Oudejans, J. J. (2006). Apoptosis resistance and response to chemotherapy in primary nodal diffuse large B-cell lymphoma, *Hematological oncology*, 24(3), 97–104.
- Murray, James D. (2002). *Mathematical Biology I: An Introduction* (3rd edition), Springer Interdisciplinary Applied Mathematics Series, 17.
- Nagata, A., Kanemasa, Y., Sasaki, Y., Nakamura, S., Okuya, T., Funasaka, C., Kageyama, A., Shimoyama, T., & Omuro, Y. (2020). Clinical impact of controlling nutritional status score on the prognosis of patients with diffuse large B-cell lymphoma, *Hematological Oncology*, 38(3), 309–317.

Nagle, S. J., Woo, K., Schuster, S. J., Nasta, S. D., Stadtmauer, E., Mick, R., & Svoboda, J. (2013). Outcomes of patients with relapsed/refractory diffuse large B-cell lymphoma with progression of lymphoma after autologous stem cell transplantation in the rituximab era, *American Journal of Hematology*, 88(10), 890–894.

Nakayama, S., Matsuda, M., Adachi, T., Sueda, S., Ohashi, Y., Awaji, S., Hashimoto, S., & Matsumura, I. (2019). Novel prognostic index based on hemoglobin level and platelet count for diffuse large B-cell lymphoma, not otherwise specified in the R-CHOP era, *Platelets*, 30(5), 637–645.

Ni, J., Wang, Y.-Q., Zhang, Y.-P., Wu, W., Zeng, Q.-S., Yang, M.-Z., & Xia, R.-X. (2016). Value of Neutrophil/Lymphocyte Ratio and Platelet/Lymphocyte Ratio for Prognostic Evaluation of Diffuse Large B-cell Lymphoma, *Zhongguo shi yan xue ye xue za zhi*, 24(2), 427–32.

Nitta, H., Terui, Y., Yokoyama, M., Mishima, Y., Nishimura, N., Ueda, K., Kusano, Y., Tsuyama, N., Takeuchi, K., Kanda, Y., & Hatake, K. (2015). Absolute peripheral monocyte count at diagnosis predicts central nervous system relapse in diffuse large B-cell lymphoma, *Haematologica*, 100(1), 87–90.

Ng, W. L., Chu, C. M., Wu, A. K., Cheng, V. C., & Yuen, K. Y. (2006). Lymphopenia at presentation is associated with increased risk of infections in patients with systemic lupus erythematosus, *QJM: monthly journal of the Association of Physicians*, 99(1), 37–47.

Nogai, H., Dörken, B., & Lenz, G. (2011). Pathogenesis of non-Hodgkin's lymphoma, *Journal of Clinical Oncology: Official Journal of the American Society of Clinical Oncology*, 29(14), 1803–1811.

Nussenzweig, A., & Nussenzweig, M. C. (2010). Origin of chromosomal translocations in lymphoid cancer, *Cell*, 141(1), 27–38.

Ocana, A., Nieto-Jiménez, C., Pandiella, A., & Templeton, A. J. (2017). Neu-

- trophils in cancer: prognostic role and therapeutic strategies, *Molecular cancer*, *16*(1), 1-7.
- Olsder, G. J. (1994). *Mathematical System Theory* (First Edition), Delftse Uitgevers Maatschappiji, CW Delft, Netherlands.
- Onose, H. (1986). Remarks on the failure rate characterizations, *Bulletin of the Faculty of Science*, Ibaraki University. Series A, Mathematics, *18*, 57–60.
- Oprea, M., & Perelson, A. S. (1997). Somatic mutation leads to efficient affinity maturation when centrocytes recycle back to centroblasts, *Journal of Immunology*, *158*(11), 5155–5162.
- Pélissier, A., Akrouf, Y., Jahn, K., Kuipers, J., Klein, U., Beerenwinkel, N., & Martínez, M. R. (2020). Computational Model Reveals a Stochastic Mechanism behind Germinal Center Clonal Bursts Aurélien, *Cells*, *9*(1448), 1–25.
- Padala, S. A., & Kallam, A. (2021). *Diffuse Large B Cell Lymphoma*, StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing, Diakses pada Oktober 1, 2022, dari <https://www.ncbi.nlm.nih.gov/books/NBK557796/>
- Papavasiliou, F. N., & Schatz, D. G. (2000). Cell-cycle-regulated DNA double-strand breaks in somatic hypermutation of immunoglobulin genes, *Nature*, *408*, 216–221.
- Pasqualucci, L. (2019). Molecular pathogenesis of germinal center-derived B cell lymphomas, *Immunological Reviews*, *288*(1), 240–261.
- Pasqualucci, L., Guglielmino, R., Houldsworth, J., Mohr, J., Aoufouchi, S., Polakiewicz, R., Chaganti, R. S. K., & Dalla-favera, R. (2004). Expression of the AID protein in normal and neoplastic B cells, *Blood*, *104*(10), 3318–3325.
- Pasqualucci, L., Neumeister, P., Goossens, T., Nanjangud, G., Chaganti, R. S. K., Küppers, R., & Dalla-Favera, R. (2001). Hypermutation of multiple proto-oncogenes in B-cell diffuse large-cell lymphomas, *Nature*, *412*(6844), 341–346.

- Paydaş, S., Bayram, E., Türker, M., & Özer, T. (2021). Severe Lymphocytosis in a Case of Diffuse Large B-Cell Lymphoma Treated by Ibrutinib, *Turkish journal of haematology : official journal of Turkish Society of Haematology*, 38(4), 337–338.
- Peduzzi, P., Concato, J., Kemper, E., Holford, T. R., & Feinstein, A. R. (1996). A simulation study of the number of events per variable in logistic regression analysis, *Journal of clinical epidemiology*, 49(12), 1373–1379
- Perko, L. (2001). *Differential Equations and Dynamical Systems*, Text in Applied Mathematics. Vol.7, Springer-Verlag, new York, USA.
- Plaça, J. R., Diepstra, A., Los, T., Mendeville, M., Seitz, A., Lugtenburg, P. J., Zijlstra, J., Lam, K., da Silva, W. A., Ylstra, B., de Jong, D., van den Berg, A., & Nijland, M. (2022). Reproducibility of Gene Expression Signatures in Diffuse Large B—Cell Lymphoma, *Cancers*, 14(5), 1—15.
- Powell, D. R., & Huttenlocher, A. (2016). Neutrophils in the Tumor Microenvironment, *Trends in immunology*, 37(1), 41–52.
- Rana, I., Dahlberg, S., Steinmaus, C., & Zhang, L. (2021). Benzene exposure and non-Hodgkin lymphoma: a systematic review and meta-analysis of human studies, *The Lancet Planetary Health*, 5196(21), 1–11.
- Randi, M. L., Rossi, C., Barbone, E., Pietrogrande, F., & Girolami, A. (1992). Incidence of thrombocytosis in lymphomas, *Leukemia & lymphoma*, 7(1-2), 139–141.
- Redner, R. A., & Walker, H. F. (1984). Mixture Densities, Maximum Likelihood, and the Em Algorithm, *SIAM Review*, 26(2), 195–239.
- Robinson, S. P., Boumendil, A., Finel, H., Blaise, D., Poiré, X., Nicolas-Virelizier, E., Or, R., Malladi, R., Corby, A., Fornecker, L., Caballero, D., Pohlreich, D., Nagler, A., Thieblemont, C., Finke, J., Bachy, E., Vincent, L., Schroyens, W.,

- Schouten, H., & Dreger, P. (2016). Autologous stem cell transplantation for relapsed/refractory diffuse large B-cell lymphoma: Efficacy in the rituximab era and comparison to first allogeneic transplants. A report from the EBMT Lymphoma Working Party, *Bone Marrow Transplantation*, 51(3), 365–371.
- Rodrigues, A. E., & Minceva, M. (2005). Modelling and simulation in chemical engineering: Tools for process innovation, *Computers and Chemical Engineering*, 29(6 SPEC. ISS.), 1167–1183.
- Rosai, J. (2011). *Rosai and Ackerman's Surgical Pathology: Lymph Nodes* (10th ed.), Mosby-Year Book Inc.
- Rosenwald, A., Wright, G., Chan, W. C., Connors, J. M., Campo, E., Fisher, R. I., Gascoyne, R. D., Muller-Hermelink, H. K., Smeland, E. B., Giltneane, J. M., Hurt, E. M., Zhao, H., Averett, L., Yang, L., Wilson, W. H., Jaffe, E. S., Simon, R., Klausner, R. D., Powell, J., Duffey, P. L., Longo, D. L., Greiner, T. C., Weisenburger, D. D., Sanger, W. G., Dave, B. J., Lynch, J. C., Vose, J., Armitage, J. O., Montserrat, E., López-Guillermo, A., Grogan, T. M., Miller, T. P., LeBlanc, M., Ott, G., Kvaloy, S., Delabie, J., Holte, H., Krajci, P., Stokke, T., Staudt, L. M., & Lymphoma/Leukemia Molecular Profiling Project. (2002). The use of molecular profiling to predict survival after chemotherapy for diffuse large-B-cell lymphoma, *The New England Journal of Medicine*, 346(25), 1937–1947.
- Rosenwald, A., Wright, G., Leroy, K., Yu, X., Gaulard, P., Gascoyne, R. D., Chan, W. C., Zhao, T., Haioun, C., Greiner, T. C., Weisenburger, D. D., Lynch, J. C., Vose, J., Armitage, J. O., Smeland, E. B., Kvaloy, S., Holte, H., Delabie, J., Campo, E., Montserrat, E., Lopez-Guillermo, A., Ott, G., Muller-Hermelink, H. K., Connors, J. M., Braziel, R., Grogan, T. M., Fisher, R. I., Miller, T. P., LeBlanc, M., Chiorazzi, M., Zhao, H., Yang, L., Powell, J., Wilson, W. H., Jaffe, E. S., Simon, R., Klausner, R. D., Staudt, L. M. (2003). Molecular diagnosis of primary mediastinal B cell lymphoma identifies a clinically favorable subgroup of diffuse large B cell lymphoma related to Hodgkin lymphoma, *The Journal of Experimental Medicine*, 198(6), 851–862.

- Ross, S. L., (1984). *Differential Equation*, John Wiley Inc., Singapore.
- Ruppert, A. S., Dixon, J. G., Salles, G., Wall, A., Cunningham, D., Poeschel, V., Haioun, C., Tilly, H., Ghesquieres, H., Ziepert, M., Flament, J., Flowers, C., Shi, Q., & Schmitz, N. (2020). International prognostic indices in diffuse large B-cell lymphoma: a comparison of IPI, R-IPI, and NCCN-IPI, *Blood*, *135*(23), 2041–2048.
- Sabir, S., León-Triana, O., Serrano, S., Barrio, R., & Pérez-García, V. M. (2025). Mathematical Model of CAR T-Cell Therapy for a B-Cell Lymphoma Lymph Node, *Bulletin of mathematical biology*, *87*(3), 1–33.
- Sadikovic, B., Al-Romaih, K., Squire, J., & Zielenska, M. (2008). Cause and Consequences of Genetic and Epigenetic Alterations in Human Cancer, *Current Genomics*, *9*(6), 394–408.
- Sapkota, S., & Shaikh, H. (2021). *Non-Hodgkin Lymphoma*. StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing, Diakses pada Oktober 1, 2022, dari <https://www.ncbi.nlm.nih.gov/books/NBK559328/>
- Saroha, S., Uzzo, R. G., Plimack, E. R., Ruth, K., & Al-Saleem, T. (2013). Lymphopenia is an independent predictor of inferior outcome in clear cell renal carcinoma, *The Journal of urology*, *189*(2), 454–461.
- Savage, K. J., Monti, S., Kutok, J. L., Cattoretti, G., Neuberg, D., De Leval, L., Kurtin, P., Dal Cin, P., Ladd, C., Feuerhake, F., Aguiar, R. C., Li, S., Salles, G., Berger, F., Jing, W., Pinkus, G. S., Habermann, T., Dalla-Favera, R., Harris, N. L., Aster, J. C., Golub, T. R., Shipp, M. A. (2003). The molecular signature of mediastinal large B-cell lymphoma differs from that of other diffuse large B-cell lymphomas and shares features with classical Hodgkin lymphoma, *Blood*, *102*(12), 3871–3879.
- Savatorova, V. (2023). Exploring Parameter Sensitivity Analysis in Mathematical Modeling with Ordinary Differential Equations, *CODEE Journal*, *16*(1), 1–26.

- Schatz, D. G., & Baltimore, D. (2004). Uncovering the V(D)J recombinase, *Cell*, *116*(2 Suppl), S103–S106.
- Schmitz, R., Wright, G. W., Huang, D. W., Johnson, C. A., Phelan, J. D., Wang, J. Q., Roulland, S., Kasbekar, M., Young, R. M., Shaffer, A. L., Hodson, D. J., Xiao, W., Yu, X., Yang, Y., Zhao, H., Xu, W., Liu, X., Zhou, B., Du, W., Chan, W. C., Jaffe, S. F., Gascoyne, R. D., Connors, J. M., Campo, E., Lopez-Guillermo, A., Rosenwald, A., Ott, G., Delabie, J., Rimsza, L. M., Wei, K. T. K., Zelenetz, A. D., Leonard, J. P., Bartlett, N. L., Tran, B., Shetty, J., Zhao, Y., Soppet, D. R., Pittaluga, S., Wilson, W. H., & Staudt, L. M. (2018). Genetics and Pathogenesis of Diffuse Large B-Cell Lymphoma, *The New England Journal of Medicine*, *378*(15), 1396–1407.
- Sehn, L. H., Assouline, S. E., Stewart, D. A., Mangel, J., Gascoyne, R. D., Fine, G., Frances-lasserre, S., Carlile, D. J., & Crump, M. (2012). A phase 1 study of obinutuzumab induction followed by 2 years of maintenance in patients with relapsed CD20-positive B-cell malignancies, *Blood*, *119*(22), 5118–5125.
- Sehn, L. H., Berry, B., Chhanabhai, M., Fitzgerald, C., Gill, K., Hoskins, P., Klasa, R., Savage, K. J., Shenkier, T., Sutherland, J., Gascoyne, R. D., & Connors, J. M. (2007). The revised International Prognostic Index (R-IPI) is a better predictor of outcome than the standard IPI for patients with diffuse large B-cell lymphoma treated with R-CHOP, *Blood*, *109*(5), 1857–1861.
- Sehn, L. H., Donaldson, J., Chhanabhai, M., Fitzgerald, C., Gill, K., Klasa, R., MacPherson, N., O'Reilly, S., Spinelli, J. J., Sutherland, J., Wilson, K. S., Gascoyne, R. D., & Connors, J. M. (2005). Introduction of combined CHOP plus rituximab therapy dramatically improved outcome of diffuse large B-cell lymphoma in British Columbia, *Journal of Clinical Oncology*, *23*(22), 5027–5033.
- Sehn, L. H., & Gascoyne, R. D. (2015). Diffuse large B-cell lymphoma: optimizing outcome in the context of clinical and biologic heterogeneity, *Blood*, *125*(1), 22–32.

- Seifert, M., & Küppers, R. (2017). Determining the Origin of Human Germinal Center B Cell-Derived Malignancies, *Methods and Protocols, Methods in Molecular Biology (Clifton, N.J.)*, 1623, 253–279.
- Sha, C., Barrans, S., Cucco, F., Bentley, M. A., Care, M. A., Cummin, T., Kennedy, H., Thompson, J. S., Uddin, R., Worrillow, L., Chalkley, R., van Hoppe, M., Ahmed, S., Maishman, T., Caddy, J., Schuh, A., Mamot, C., Burton, C., Tooze, R., Davies, A., Du, M. Q., Johnson, P. W. M., & Westhead, D. R. (2019). Molecular High-Grade B—Cell Lymphoma: Defining a Poor—Risk Group That Requires Different Approaches to Therapy, *Journal of Clinical Oncology: official journal of the American Society of Clinical Oncology*, 37(3), 202—212.
- Shahrabi, S., Behzad, M. M., Jaseb, K., & Saki, N. (2018). Thrombocytopenia in leukemia: Pathogenesis and prognosis, *Histol Histopathol*, 33(9), 895–908.
- Shaw, J. L., Nielson, C. M., Park, J. K., Marongiu, A., & Soff, G. A. (2021). The incidence of thrombocytopenia in adult patients receiving chemotherapy for solid tumors or hematologic malignancies, *European Journal Haematology*, 106(5), 662–72.
- Sheng, I. Y., Treaba, D. O., & Bishop, K. D. (2016). Leukemic-Phase Diffuse Large B-Cell Lymphoma with t(14;18), CDKN2A and MLL Deletion Presenting with an Infiltrative Skin Rash, *Blood*, 128(22), 5419.
- Shibuya, K., Kimura, H., Yamaguchi, Y., Fujisawa, T., Baba, M., Shiba, M., Yamakawa, H., Saitou, Y., Iwai, N., & Urabe, N. (1991). A comparative study of weight of regional lymph nodes in association with the presence of metastasis in primary lung cancer patients, *Nihon Kyobu Geka Gakkai*, 39(9), 1747-1751.
- Shiels, M. S., Haque, A. T., González, A. B. de, & Freedman, N. D. (2022). Leading Causes of Death in the US During the COVID-19 Pandemic, March 2020 to October 2021, *JAMA Internal Medicine*, 182(8), 883–886.
- Shi, X., Liu, X., Li, X., Li, Y., Lu, D., Sun, X., Li, Y., Hu, S., Zhang, Y., Zhou, X., Wang, X., Chen, H., & Fang, X. (2021). Risk Stratification for Diffuse Large B-

Cell Lymphoma by Integrating Interim Evaluation and International Prognostic Index: A Multicenter Retrospective Study, *Frontiers in Oncology*, 11, 1-9.

Shimono, J., Takahashi, S., Takemura, R., & Kakinoki, Y. (2019). Useful prognostic tools based on complete blood cell counts in diffuse large B-cell lymphoma, *International Journal of Laboratory Hematology*, 41(6), 754–761.

Shinkura, R., Ito, S., Begum, N. A., Nagaoka, H., Muramatsu, M., Kinoshita, K., Sakakibara, Y., Hijikata, H., & Honjo, T. (2004). Separate domains of AID are required for somatic hypermutation and class-switch recombination, *Nature Immunology*, 5(7), 707–712.

Siegel, R. L., Miller, K. D., Fuchs, H. E., & Jemal, A. (2022). Cancer statistics, 2022, *CA: a cancer journal for clinicians*, 72(1), 7–33.

Sinha, A. K., & Namdev, N. . (2021). A Mathematical Model of Tumor Growth in Human Body with the Rough Set, *Science & Technology Asia*, 26(1), 30–38.

Somkin, C. P., Altschuler, A., Ackerson, L., Geiger, A. M., Greene, S. M., Mouchawar, J., Holup, J., Fehrenbacher, L., Nelson, A., Glass, A., Polikoff, J., Tishler, S., Schmidt, C., Field, T., & Wagner, E. (2005). Organization barriers to physician participation in cancer clinical trials, *The American Journal of Managed Care*, 11(7), 413–421.

Song, J., Xia, Y., Bai, Y., Cai, Y., & O'Regan, D. (2019). A non-autonomous Leslie–Gower model with Holling type IV functional response and harvesting complexity, *Advances Difference Equations*, 299.

Stavnezer, J., & Schrader, C. E. (2014). IgH chain class switch recombination: mechanism and regulation, *Journal of Immunology (Baltimore, Md.: 1950)*, 193(11), 5370–5378.

Stiff, P. J., Unger, J. M., Cook, J. R., Constine, L. S., Couban, S., Stewart, D. A., Shea, T. C., Porcu, P., Winter, J. N., Kahl, B. S., Miller, T. P., Tubbs, R. R., Marcellus, D., Friedberg, J. W., Barton, K. P., Mills, G. M., LeBlanc, M., Rimsza, L.

- M., Forman, S. J., & Fisher, R. I. (2013). Autologous transplantation as consolidation for aggressive non-Hodgkin's lymphoma, *The New England Journal of Medicine*, 369(18), 1681–1690.
- Su, F. & Lian, K. (2023). Prognostic evaluation of system immune-inflammatory index and prognostic nutritional index in double expressor diffuse large B-cell lymphoma, *Open Medicine*, 18(1), 1-7.
- Suddin, S., Adi-Kusumo, F., Aryati, L., & Gunardi. (2021). Reaction-Diffusion on a Spatial Mathematical Model of Cancer Immunotherapy with Effector Cells and IL-2 Compounds' Interactions, *International Journal of Differential Equations*, 2021, 1-10.
- Suefuji, N., Niino, D., Arakawa, F., Karube, K., Kimura, Y., Kiyasu, J., Takeuchi, M., Miyoshi, H., Yoshida, M., Ichikawa, A., Sugita, Y., & Ohshima, K. (2012). Clinicopathological analysis of a composite lymphoma containing both T- and B-cell lymphomas. *Pathology international*, 62(10), 690–698.
- Sun, F., Zhu, J., Lu, S., Zhen, Z., Wang, J., Huang, J., Ding, Z., Zeng, M., & Sun, X. (2018). An inflammation-based cumulative prognostic score system in patients with diffuse large B cell lymphoma in rituximab era, *BMC Cancer*, 18(1), 1–8.
- Sun, W., & Yuan, Y. X. (2006). *Optimization Theory and Methods: Nonlinear Programming*, Springer Optimization and Its Applications, Springer, USA.
- 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.
- Swerdlow, S. H., Campo, E., Pileri, S. A., Harris, N. L., Stein, H., Siebert, R., Advani, R., Ghielmini, M., Salles, G. A., Zelenetz, A. D., & Jaffe, E. S. (2016). The 2016 revision of the World Health Organization classification of lymphoid neoplasms, *Blood*, 127(20), 2375–2390.

- Sze, B. D. M., Toellner, K., Vinuesa, C. G. De, Taylor, D. R., & Maclennan, I. C. M. (2000). Intrinsic Constraint on Plasmablast Growth and Extrinsic Limits of Plasma Cell Survival, *The Journal of experimental medicine*, 192(6), 813–821.
- Töpfer, K., Kempe, S., Müller, N., Schmitz, M., Bachmann, M., Cartellieri, M., Schackert, G., & Temme, A. (2011). Tumor evasion from T cell surveillance, *Journal of Biomedicine and Biotechnology*, 2011, 1-19.
- Ta, V., Nagaoka, H., Catalan, N., Durandy, A., Fischer, A., Imai, K., Nonoyama, S., Tashiro, J., Ikegawa, M., Ito, S., Kinoshita, K., Muramatsu, M., & Honjo, T. (2003). AID mutant analyses indicate requirement for class-switch-specific cofactors, *Nature Immunology*, 4(9), 843–848.
- Tadmor, T., Bari, A., Sacchi, S., Marcheselli, L., Liardo, E. V., Avivi, I., Benyamini, N., Attias, D., Pozzi, S., Cox, A. C., Baldini, L., Brugiattelli, M., Federic, M., & Polliack, A. (2014). Monocyte count at diagnosis is a prognostic parameter in diffuse large B-cell lymphoma: results from a large multicenter study involving 1191 patients in the pre- and post-rituximab era, *Haematologica*, 99(1), 125–130.
- Tamma, R., Ranieri, G., Ingravallo, G., Annese, T., Oranger, A., Gaudio, F., Musto, P., Specchia, G., & Ribatti, D. (2020). Inflammatory Cells in Diffuse Large B Cell Lymphoma, *Journal of Clinical Medicine*, 9(8), 1-17.
- Tanaka, J., Su, P., Luedke, C., Jug, R., Yang, L. H., Deak, K., Rapisardo, S., Zhang, Y., Delos Angeles, M., Xie, Y., & Wang, E. (2018). Composite lymphoma of follicular B-cell and peripheral T-cell types with distinct zone distribution in a 75-year-old male patient: a case study. *Human pathology*, 76, 110–116.
- Tang, W., Ma, J., Mei, Q., & Zhu, J. (2022). SODEN: A Scalable Continuous-Time Survival Model through Ordinary Differential Equation Networks, *Journal of Machine Learning Research*, 23(34), 1-29.
- Tang, W., He, K., Xu, G., & Zhu, J. (2023). Survival Analysis via Ordinary Differential Equations, *Journal of the American Statistical Association*, 118(544), 2406-2421.

Taylor, A. E., & Mann, W. R., (1995). *Advanced Calculus*, John Wiley and Sons, New York.

The International Non-Hodgkin's Lymphoma Prognostic Factors Project. (1993). A Predictive Model For A ggressive Non-Hodgkin's Lymphoma, *The New England Journal of Medicine*, 329(14), 987–994.

Tokuhira, M., Watanabe, R., Iizuka, A., Sekiguchi, Y., Nemoto, T., Hanzawa, K., Takamatsu, I., Maruyama, T., Tamaru, J., Itoyama, S., Suzuki, H., Takeuchi, T., & Mori, S. (2007). De novo *CD5*+ diffuse large B cell lymphoma with basophilia in the peripheral blood: successful treatment with autologous peripheral blood stem cell transplantation, *American journal of hematology*, 82(2), 162–167.

Tomas-roca, L., Rodriguez, M., Alonso-alonso, R., Rodriguez-pinilla, S. M., & Piris, M. A. (2021). Diffuse Large B-Cell Lymphoma: Recognition of Markers for Targeted Therapy, *Hemato*, 2(2), 281–304.

Tonegawa, S. (1983). Somatic Generation of Antibody Diversity, *Nature*, 302(5909), 575–581.

Trecourt, A., Mauduit, C., Szablewski, V., Fontaine, J., Balme, B., Donzel, M., Laurent, C., Sesques, P., Ghesquières, H., Bachy, E., Salles, G., Emile, J. F., Chassagne-Clément, C., Genestier, L., Copie-Bergman, C., & Traverse-Glehen, A. (2022). Plasticity of Mature B Cells Between Follicular and Classic Hodgkin Lymphomas: A Series of 22 Cases Expanding the Spectrum of Transdifferentiation. *The American journal of surgical pathology*, 46(1), 58–70.

Türkan, A. H. & Çalış, N. (2014), Comparison of two-component mixture distribution models for heterogeneous survival datasets: a review study, *Istatistik Journal of The Turkish Statistical Association*, 7(2), 33–42.

Ulu, B. U., Yiğenoğlu, T. N., Başcı, S., Bakırtaş, M., Şahin, D., Darçın, T., Yaman, S., Bozan, E., Seçilmiş, S., Candır, B. A., Yıldız, J., İskender, D., Baysal, N. A., Çakar, M. K., Dal, M. S., & Altuntaş, F. (2021). Factors affecting survival in

- elderly patients with diffuse large B-Cell lymphoma, *Leukemia Research*, 110, 1-6.
- Uribe-Querol, E., & Rosales, C. (2015). Neutrophils in Cancer: Two Sides of the Same Coin, *Journal of immunology research*, 2015, 983698.
- Vaidya, R., & Witzig, T. E. (2014). Prognostic factors for diffuse large B-cell lymphoma in the R (X) CHOP era, *Annals of oncology : official journal of the European Society for Medical Oncology*, 25(11), 2124–2133.
- Verbeke, J., & Cools, R. (1995). The Newton-Raphson Method, *International Journal of Mathematical Education in Science and Technology*, 26(2), 177–193.
- Verhulst, F. (1990). *Nonlinear Differential Equation and Dynamical System*, Jerman: Springer-Verlag.
- Victoria, G. D., Schwickert, T. A., Fooksman, D. R., Kamphorst, A. O., Meyerhermann, M., Dustin, M. L., & Nussenzweig, M. C. (2010). Germinal Center Dynamics Revealed by Multiphoton Microscopy Using a Photoactivatable Fluorescent Reporter, *Cell*, 143(4), 592–605.
- Victoria, G. D. (2014). SnapShot: The Germinal Center Reaction, *Cell*, 159(3), 700-700.e1.
- Victoria, G. D., Dominguez-sola, D., Holmes, A. B., Deroubaix, S., Dalla-favera, R., & Nussenzweig, M. C. (2012). Identification of human germinal center light and dark zone cells and their relationship to human B cell lymphomas, *Blood*, 120(11), 2240-2248.
- Victoria, G. D., & Nussenzweig, M. C. (2012). Germinal Centers, *Annual Review of Immunology*, 30, 429–457.
- Villasana, M., & Radunskaya, A. (2003). A delay differential equation model for tumor growth, *Journal of mathematical biology*, 47(3), 270–294.

- Wang, S., & Lin, S.-Y. (2013). Tumor dormancy: potential therapeutic target in tumor recurrence and metastasis prevention, *Experimental Hematology & Oncology*, 2(1), 29.
- Wang, S., Ma, Y., Sun, L., Shi, Y., Jiang, S., Yu, K., & Zhou, S. (2018). Prognostic Significance of Pretreatment Neutrophil / Lymphocyte Ratio and Platelet / Lymphocyte Ratio in Patients with Diffuse Large B-Cell Lymphoma, *Biomed Research International*, 2018, 1–8.
- Wang, Z., Zhang, J., Luo, S., & Zhao, X. (2021). Prognostic Significance of Systemic Immune-Inflammation Index in Patients With Diffuse Large B-Cell Lymphoma, *Frontiers in Oncology*, 11, 1-10.
- Wang, W., Yin, J., Zhang, W., Zhang, Y., Zhou, D., Zhao, D., & Wei, C. (2021). Novel model predicts prognosis for patients with diffuse large B-cell lymphoma in first relapse after initial R-CHOP therapy: a single-institution study in China, *The Journal of International Medical Research*, 49(4), 1-11.
- Warny, M., Helby, J., Nordestgaard, B. G., Birgens, H., & Bojesen, S. E. (2018). Lymphopenia and risk of infection and infection-related death in 98, 344 individuals from a prospective Danish population-based study, *PLoS medicine*, 15(11), e1002685.
- World Health Organization. (2000). *International Association for the Study of Obesity, International Obesity Task Force. The Asia Pacific Perspective: Redefining Obesity and Its Treatment*, Sydney: Health Communications.
- Wiggins, S. (2003). *Introduction to Applied Nonlinear Dynamical System and Chaos* (second edition), New York: Springer.
- Wight, J. C., Chong, G., Grigg, A. P., & Hawkes, E. A. (2018). Prognostication of diffuse large B-cell lymphoma in the molecular era: moving beyond the IPI, *Blood Reviews*, 32(5), 400–415.
- Wilcox, R. A., Ristow, K., Habermann, T. M., Inwards, D. J., Micallef, I. N. M., Johnston, P. B., Colgan, J. P., Nowakowski, G. S., Ansell, S. M., Witzig, T. E.,

- Markovic, S. N., & Porrata, L. The absolute monocyte and lymphocyte prognostic score predicts survival and identifies high-risk patients in diffuse large-B-cell lymphoma. *Leukemia*, 25(9), 1502–1509.
- Willard-Mack, C. L. (2006). Normal Structure, Function, and Histology of Lymph Nodes, *Toxicologic Pathology*, 34(5), 409–424.
- Wolbers M, Koller MT, Wittteman JCM, Steyerberg EW. Prognostic models with competing risks methods and application to coronary risk prediction. *Epidemiology*. 2009;20(4):555–61.
- Wright, G., Tan, B., Rosenwald, A., Hurt, E. H., Wiestner, A., & Staudt, L. M. (2003). A gene expression-based method to diagnose clinically distinct subgroups of diffuse large B cell lymphoma, *Proceedings of the National Academy of Sciences of the United States of America*, 100(17), 9991–9996.
- Wu, J., Zhu H., Zhang, Q., Sun, Y., He, X., Liao, J., Liu, Y., & Huang, L. (2023). Nomogram based on the systemic immune-inflammation index for predicting the prognosis of diffuse large B-cell lymphoma, *Asia-Pacific journal of clinical oncology*, 19(2), e138–48.
- Xia, Y., Huang, S., Wang, Y., Lei, D., Wang, Y., Yang, H., Gao, Y., & Liu, P. (2021). Prognostication of primary tumor location in early-stage nodal diffuse large B-cell lymphoma: An analysis of the SEER database, *Cancers*, 13(16), 1–17.
- Yang, Y., Wang, L., Ma, Y., Han, T., & Huang, M. (2017). The enhanced International Prognostic Index (NCCN-IPI) for diffuse large B-cell lymphoma, *The American Journal of the Medical Sciences*, 353(5), 459–465.
- Yarchoan, R., & Uldrick, T. S. (2018). HIV-Associated Cancers and Related Diseases, *The New England Journal of Medicine*, 378(11), 1029–1041.
- Yeh, A. C., & Ramaswamy, S. (2015). Mechanisms of cancer cell dormancy—another hallmark of cancer?, *Cancer Research*, 75(23), 5014–5022.

- Yin, Z., Zhang, Y., & Wang, X. (2021). Advances in chimeric antigen receptor T-cell therapy for B-cell non-Hodgkin lymphoma, *Biomarker Research*, 9(58), 1–18.
- Zeng, D., Desai, A., Yan, F., Gong, T., Ye, H., Ahmed, M., Nomie, K., Romaguera, J., Champlin, R., Li, S., & Wang, M. (2019). Challenges and Opportunities for High-grade B-Cell Lymphoma with MYC and BCL2 and/or BCL6 Rearrangement (Double-hit Lymphoma), *American Journal of Clinical Oncology: Cancer Clinical Trials*, 42(3), 304–316.
- Zhang Z., & Kattan, M. W. (2017). Drawing Nomograms with R: applications to categorical outcome and survival data, *Annals of translational medicine*, 5(10), 211.
- Zhao, P., Zang, L., Zhang, X., Chen, Y., Yue, Z., Yang, H., Zhao, H., Yu, Y., Wang, Y., Zhao, Z., Zhang, Y., & Wang, X. (2018). Novel prognostic scoring system for diffuse large B-cell lymphoma, *Oncology Letters*, 15(4), 5325–5332.
- Zhao, P., Zhu, L., Li, L., Zhou, S., Qiu, L., Qian, Z., Xu, W., & Zhang, H. (2021). A modified prognostic model in patients with diffuse large B - cell lymphoma treated with immunochemotherapy, *Oncology Letters*, 21(3), 1–8.
- Zhong, Q., & Shi, Y. (2021). Development and Validation of a Novel Risk Stratification Model for Cancer-Specific Survival in Diffuse Large B-Cell Lymphoma, *Frontiers in Oncology*, 10, 1-12.
- Zhou, H., Luo, Y., Zhu, S., Wang, X., Zhao, Y., Ou, X., Zhang, T., & Ma, X. (2018). The efficacy and safety of anti-CD19/CD20 chimeric antigen receptor- T cells immunotherapy in relapsed or refractory B-cell malignancies: A meta-analysis, *BMC Cancer*, 18(1), 929.
- Zhou, Z., Sehn, L. H., Rademaker, A. W., Gordon, L. I., Lacasce, A. S., Crosby-Thompson, A., Vanderplas, A., Zelenetz, A. D., Abel, G. A., Rodriguez, M. A., Nademanee, A., Kaminski, M. S., Czuczman, M. S., Millenson, M., Niland, J., Gascoyne, R. D., Connors, J. M., Friedberg, J. W., & Winter, J. N. (2014). An

enhanced International Prognostic Index (NCCN-IPI) for patients with diffuse large B-cell lymphoma treated in the rituximab era, *Blood*, 123(6), 837–842.

Zhu, Q., Yang, Y., Zeng, Y., Chen, K., Zhang, Q., Wang, L., Huang, Y., & Jian, S. (2024). The significance of CD8+ tumor-infiltrating lymphocytes exhaustion heterogeneity and its underlying mechanism in diffuse large B-cell lymphoma. *International immunopharmacology*, 137, 112447.