

## DAFTAR PUSTAKA

- Adi-Kusumo, F., Aryati, L., Risdayani, S., and 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* , Vol. 2020: 1-8.
- Adi-Kusumo, F. and 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.
- Adi-Kusumo, F. and Wiraya, A., 2016, Mathematical Modeling of the Cells Repair Regulations in Nasopharyngeal Carcinoma, *Mathematical biosciences*, 277:108–116.
- Akdim, K., Ez-zetouni, A., Danane, J., and Allali, K. (2020). Stochastic viral infection model with lytic and nonlytic immune responses driven by Lévy noise. *Physica A: Statistical Mechanics and its Applications*, 549, 124367.
- Alhawaris, 2019, Hepatitis C: Epidemiologi, Etiologi, dan Patogenitas, *Jurnal Sains Dan Kesehatan*, 2(2), 139-150.
- Allen, L. J. S. and Lahodny, G. E., 2012, Extinction Thresholds in Deterministic and Stochastic Epidemic Models, *Journal of Biological Dynamics*, 6(2):590–611.
- Anggorowati, N., Yano, Y., Heriyanto, D. S., Rinonce, H. T., Utsumi, T., Mulya, D. P., Subronto, Y. W., and Hayashi, Y, 2012, Clinical and Virological Characteristics of Hepatitis B or C Virus Co-infection with HIV in Indonesian Patients, *Journal of medical virology*, 84(6):857–865.
- Aniji, M., Kavitha, N., and Balamuralitharan, S., 2020, Mathematical Modeling of Hepatitis B Virus Infection for Antiviral Therapy using LHAM, *Advances in Difference Equations*, 2020(1): 1-19.

Arnold, L., 1974, *Stochastic Differential Equations: Theory and applications*, New York: John Wiley and Sons.

Avendano, R., Esteva, L., Flores, J., Allen, J. F., G´omez, G., and L´opez-Estrada, J., 2002, A Mathematical Model for the Dynamics of Hepatitis C, *Journal of Theoretical Medicine*, 4(2):109–118.

Badshah, Q., Nisar, K. S., ur Rahman, G., Agarwal, R. P., and Islam, S., 2021, Stochastic Modeling of within Host Dynamics of HCV Model under Therapy. *Results in Physics*, 22, 103826: 1-34

Berrhazi, B. E., El Fatini, M., Laaribi, A., and Pettersson, R. (2018). A stochastic viral infection model driven by Lévy noise. *Chaos, Solitons and Fractals*, 114, 446-452.

Ble, G., Esteva, L., and Peregrino, A., 2018, Global Analysis of a Mathematical Model for Hepatitis C Considering the Host Immune System. *Journal of Mathematical Analysis and Applications*, 461(2):1378–1390.

Boukanjime, B. and Fatini, M. E., 2019, A Stochastic Hepatitis B Epidemic Model Driven by Lévy Noise, *Physica A: Statistical Mechanics and its Applications*, 521:796–806.

Bukh, J., 2016, The History of Hepatitis C Virus (HCV): Basic Research Reveals Unique Features in Phylogeny, Evolution and the Viral Life Cycle with New Perspectives for Epidemic Control, *Journal of hepatology*, 65(1):S2–S21.

Burrell, C. J., Howard, C. R., and Murphy, F. A., 2017, Viral Syndromes, *Fenner and White’s Medical Virology*, 537–556.

Calin, O. (2015). An informal introduction to stochastic calculus with applications.

Cheng, Y., Zhang, F., and Zhao, M., 2019, A Stochastic Model of HIV Infection Incorporating Combined Therapy of HAART Driven by Lévy Jumps, *Advances in Difference Equations*, 2019(1).

- Crotty, S., Cameron, C. E., and Andino, R. (2001). RNA virus error catastrophe: direct molecular test by using ribavirin. *Proceedings of the National Academy of Sciences*, 98(12), 6895-6900.
- Dahari, H., Layden-Almer, J. E., Kallwitz, E., Ribeiro, R. M., Cotler, S. J., Layden, T. J., and Perelson, A. S., 2009, A Mathematical Model of Hepatitis C Virus Dynamics in Patients with High Baseline Viral Loads or Advanced Liver Disease, *Gastroenterology*, 136(4):1402–1409.
- De Oliveira, T., Pybus, O. G., Rambaut, A., Salemi, M., Cassol, S., Ciccozzi, M., Rezza, G., Gattinara, G. C., D'Arrigo, R., Amicosante, M., et al., 2006, HIV-1 and HCV Sequences from Libyan Outbreak, *Nature*, 444(7121):836–837.
- Delves, P. J. and Roitt, I. M., 2000, The Immune System, *New England Journal of Medicine*, 343(1):37–49.
- Din, A., and Li, Y. 2022. Stochastic optimal control for norovirus transmission dynamics by contaminated food and water. *Chinese Physics B*, 31(2), 020202.
- Din, A. 2021. The stochastic bifurcation analysis and stochastic delayed optimal control for epidemic model with general incidence function. *Chaos: An Interdisciplinary Journal of Nonlinear Science*, 31(12).
- Dixit, N. M., Layden-Almer, J. E., Layden, T. J., dan Perelson, A. S. 2004. Modelling how ribavirin improves interferon response rates in hepatitis C virus infection. *Nature*, 432(7019), 922-924.
- Dontwi, I., Frempong, N., Bentil, D., Adetunde, I., and Owusu-Ansah, E., 2010, Mathematical Modeling of Hepatitis C Virus Transmission among Injecting Drug Users and the Impact of Vaccination, *Am J Sci Ind Res*, 1(1):41–46.
- Dustin, L., Bartolini, B., Capobianchi, M., and Pistello, M., 2016, Hepatitis C Virus: Life Cycle in Cells, Infection and Host Response, and Analysis of Molecular Markers Influencing the Outcome of Infection and Response to Therapy, *Clinical Microbiology and Infection*, 22(10):826–832.

- Elbasha, E. H. 2013. Model for hepatitis c virus transmissions. *Mathematical Biosciences and Engineering*, 10(4):1045-1065.
- Fanning, L., Kenny-Walsh, E., Levis, J., Choudhury, K. R., Cannon, B., Sheehan, M., ... and Shanahan, F. (2000). Natural fluctuations of hepatitis C viral load in a homogeneous patient population: a prospective study. *Hepatology*, 31(1), 225-229.
- Feng, T., , and Qiu, Z. 2019a. Global analysis of a stochastic TB model with vaccination and treatment. *Discrete and Continuous Dynamical Systems - B*, 24(6):2923–2939.
- Feng, T., , Qiu, Z., and, Meng, X. 2019b. Dynamics of a stochastic hepatitis C virus system with host immunity. *Discrete and Continuous Dynamical Systems - B*, 24(12):6367–6385.
- Gani, S. R., and Halawar, S. V., 2019, Optimal control analysis of deterministic and stochastic epidemic model with media awareness programs, *An International Journal of Optimization and Control: Theories dan Applications (IJOCTA)*, 9(1), 24-35.
- Genthon, A. 2020. The concept of velocity in the history of brownian motion. *The European Physical Journal H*, 45(1), 49-105.
- Gerold, G. and Pietschmann, T. 2014. The HCV life cycle: In vitro tissue culture systems and therapeutic targets. *Digestive Diseases*, 32(5):525–537.
- Gomes, A. D. O. (2011). Forward backward stochastic differential equations: existence, uniqueness, a large deviations principle and connections with partial differential equations (Doctoral dissertation).
- Gower, E., Estes, C., Blach, S., Razavi-Shearer, K., and Razavi, H. 2014. Global epidemiology and genotype distribution of the hepatitis C virus infection. *Journal of hepatology*, 61(1), S45-S57.

- Gray, A., Greenhalgh, D., Hu, L., Mao, X., and Pan, J. 2011. A stochastic differential equation SIS epidemic model. *SIAM Journal on Applied Mathematics*, 71(3):876–902.
- Guedj, J., Rong, L., Dahari, H., and Perelson, A. S. (2010). A perspective on modelling hepatitis C virus infection. *Journal of viral hepatitis*, 17(12), 825-833.
- Hadi, H. A., 2017, *A Mathematical Model of Hepatitis C Virus Infection Incorporating Immune Responses and Cell Proliferation* (Doctoral dissertation).
- Hairany, A. 2007. Mengenal bahaya penyakit hepatitis c. *Biotrends*, 2(2):38–42.
- Hasan I, Gani R A, Sulaiman A S, Lesmana C R A, Kurniawan J, and Jasirwan C O M 2017 Konsensus nasional penatalaksanaan hepatitis C di Indonesia 2017 (National consensus on hepatitis C management in Indonesia). Jakarta: Perhimpunan Peneliti Hati Indonesia.
- Hu, X., Li, J., dan Feng, X. (2021). Threshold dynamics of a HCV model with virus to cell transmission in both liver with CTL immune response and the extrahepatic tissue. *Journal of Biological Dynamics*, 15(1), 19-34.
- Hu, G. and Wang, K. 2011. Existence and uniqueness theorem for stochastic differential equations with self-exciting switching. *Discrete Dynamics in Nature and Society*, 2011:1–12.
- Huda, S., Weigelin, B., Wolf, K., Tretiakov, K. V., Polev, K., Wilk, G., Iwasa, M., Emami, F. S., Narojczyk, J.W., Banaszak, M., Soh, S., Pilans, D., Vahid, A., Makurath, M., Friedl, P., Borisy, G. G., Kandere-Grzybowska, K., and Grzybowski, B. A. 2018. L´evy-like movement patterns of metastatic cancer cells revealed in microfabricated systems and implicated in vivo. *Nature Communications*, 9(1).
- Hung, H.-F., Wang, Y.-C., Yen, A. M.-F., and Chen, H.-H. 2013. Stochastic model for hepatitis b virus infection through maternal (vertical) and environmental

(horizontal) transmission with applications to basic reproductive number estimation and economic appraisal of preventive strategies. *Stochastic Environmental Research and Risk Assessment*, 28(3):611–625.

Imran, M., Hassan, M., Dur-E-Ahmad, M., and Khan, A. 2013. A comparison of a deterministic and stochastic model for hepatitis c with an isolation stage. *Journal of Biological Dynamics*, 7(1):276–301.

Ishikawa, M., 2012, Stochastic optimal control of an SIR epidemic model with vaccination, *In Proceedings of the ISCIE International Symposium on Stochastic Systems Theory and its Applications* (Vol. 2012, pp. 57-62), The ISCIE Symposium on Stochastic Systems Theory and Its Applications.

Jafari, S., Copes, R., Baharlou, S., Etminan, M., and Buxton, J. 2010. Tattooing and the risk of transmission of hepatitis c: a systematic review and meta-analysis. *International journal of infectious diseases*, 14(11):e928–e940.

Ma, J., and Yong, J. 1999. *Forward-backward stochastic differential equations and their applications* (No. 1702). Springer Science and Business Media.

Kayser, F. H., Bienz, K. A., Eckert, J., and Zinkernagel, R. M. 2005. *Medical microbiology*. Thieme Stuttgart, New York.

Kementrian Kesehatan Republik Indonesia. 2012. Pedoman pengendalian hepatitis virus. Jakarta: Kementrian Kesehatan Republik Indonesia.

Khalil, H.K., 2002, *Nonlinear Systems*, Upper Saddle River.

Khan, T., Khan, A., and Zaman, G. 2018. The extinction and persistence of the stochastic hepatitis B epidemic model. *Chaos, Solitons and Fractals*, 108, 123-128.

Khasminskii, R. 2011. *Stochastic stability of differential equations*, volume 66. Springer Science and Business Media.

- Khatun, M. S. and Biswas, M. H. A. 2020. Optimal control strategies for preventing hepatitis b infection and reducing chronic liver cirrhosis incidence. *Infectious Disease Modelling*, 5:91–110.
- Khatun, Z., Islam, M., and Ghosh, U., 2020, Mathematical modeling of hepatitis B virus infection incorporating immune responses. *Sensors International*, 1:100017.
- Khodaei-Mehr, J., Tangestanizadeh, S., Sharifi, M., Vatankhah, R., and Eghtesad, M., 2020, Hepatitis C Virus Epidemic Control Using a nonlinear adaptive strategy, *arXiv preprint arXiv:2007.13522*.
- Klenke, A., 2013, *Probability theory: a comprehensive course*, Springer Science and Business Media.
- Kloeden, P. E., and Platen, E., 1992, *Stochastic differential equations. In Numerical Solution of Stochastic Differential Equations (pp. 103-160)*, Springer, Berlin, Heidelberg.
- Kurniawan, H., 2013, Analisis genotipe virus hepatitis C (VHC) pada pasien dengan infeksi VHC kronik, *Indones J Heal Sci*, 4(1), 15-20.
- Lestari, D. and Ambarwati, R. D., 2015, A local stability of mathematical models for cancer treatment by using gene therapy. *International Journal of Modeling and Optimization*, 5(3):202.
- Lestari, D. and Candrawati, L., 2016, Global stability of SACR epidemic model for hepatitis C on injecting drug users, *Proceeding*.
- Lestari, D., Megawati, N. Y., Susyanto, N., and Adi-Kusumo, F., 2022, Qualitative behaviour of a stochastic hepatitis C epidemic model in cellular level. *Math. Biosci. Eng*, 19(2), 1515-1535.
- Lestari, D., Adi-Kusumo, F., Megawati, N. Y., and Susyanto, N., 2023, A minimum principle for stochastic control of hepatitis C epidemic model. *Boundary Value Problems*, 2023(1), 52.



- Levinson, W. and Jawetz, E., 1996, *Medical microbiology and immunology: examination and board review*, Appleton and Lange.
- Lim, A. G., Qureshi, H., Mahmood, H., Hamid, S., Davies, C. F., Trickey, A., ... and Vickerman, P., 2018, Curbing the hepatitis C virus epidemic in Pakistan: the impact of scaling up treatment and prevention for achieving elimination, *International journal of epidemiology*, 47(2):550–560.
- Liu, Q., Jiang, D., Shi, N., Hayat, T., and Alsaedi, A., 2017, Dynamics of a stochastic tuberculosis model with constant recruitment and varying total population size, *Physica A: Statistical Mechanics and its Applications*, 469:518–530.
- Liu, Y., Zhang, Y., and Wang, Q., 2020, A stochastic SIR epidemic model with Lévy jump and media coverage, *Advances in Difference Equations*, 2020(1).
- Lusida, M. I., Sakugawa, H., Nagano-Fujii, M., Handajani, R., Setiawan, P. B., Nidom, C. A., ... and Hotta, H. (2003). Genotype and subtype analyses of hepatitis B virus (HBV) and possible co-infection of HBV and hepatitis C virus (HCV) or hepatitis D virus (HDV) in blood donors, patients with chronic liver disease and patients on hemodialysis in Surabaya, Indonesia. *Microbiology and immunology*, 47(12), 969-975.
- Mao, X., 2007, *Stochastic differential equations and applications*, Elsevier.
- Mao, X., Marion, G., and Renshaw, E., 2002, Environmental brownian noise suppresses explosions in population dynamics, *Stochastic Processes and their Applications*, 97(1):95–110.
- Martin, N. K., Pitcher, A. B., Vickerman, P., Vassall, A., dan Hickman, M. (2011). Optimal control of hepatitis C antiviral treatment programme delivery for prevention amongst a population of injecting drug users. *PLoS One*, 6(8), e22309
- Mast, E. E., Hwang, L.-Y., Seto, D. S., Nolte, F. S., Nainan, O. V., Wurtzel, H., and Alter, M. J., 2005, Risk factors for perinatal transmission of hepatitis C virus (HCV) and the natural history of hcv infection acquired in infancy, *The Journal of infectious diseases*, 192(11):1880–1889.



- Means, S., Ali, M. A., Ho, H., and Heffernan, J., 2020, Mathematical modeling for hepatitis B virus: Would spatial effects play a role and how to model it? *Frontiers in Physiology*, 11.
- Medzhitov, R. and Janeway, C., 2000, Innate immunity, *New England Journal of Medicine*, 343(5):338–344.
- Merdan, M., Bekiryazici, Z., Kesemen, T., and Khaniyev, T., 2017, Deterministic Stability and Random Behavior of a Hepatitis C Model, *PloS one*, 12(7), e0181571.
- Miao, Z., Xie, Z., Miao, J., Ran, J., Feng, Y., and Xia, X., 2017, Regulated Entry of Hepatitis C Virus into hepatocytes, *Viruses*, 9(5):100.
- Miao, A., Wang, X., Zhang, T., Wang, W., and Sampath Aruna Pradeep, B. G., 2017, Dynamical analysis of a stochastic SIS epidemic model with nonlinear incidence rate and double epidemic hypothesis. *Advances in Difference Equations*, 2017(1), 1-27.
- Miao, A., Zhang, J., Zhang, T., and Pradeep, B. G., 2017, Threshold dynamics of a stochastic model with vertical transmission and vaccination. *Computational and mathematical methods in medicine*.
- Mode, C. J. and Sleeman, C. K., 2000, Stochastic processes in epidemiology: HI-V/AIDS, other infectious diseases and computers, *World Scientific*.
- Mörters, P. and Peres, Y., 2010, *Brownian motion*, volume 30, Cambridge University Press.
- Mohd Hanafiah, K., Groeger, J., Flaxman, A. D., and Wiersma, S. T., 2013, Global epidemiology of hepatitis C virus infection: new estimates of age-specific antibody to HCV seroprevalence, *Hepatology*, 57(4), 1333-1342.
- Muljono, D. H., 2017, Epidemiology of hepatitis B and C in Republic of Indonesia, *Euroasian journal of hepato-gastroenterology*, 7(1), 55.

- Murase, A., Sasaki, T., and Kajiwara, T., 2005, Stability analysis of pathogen-immune interaction dynamics, *Journal of Mathematical Biology*, 51(3):247–267.
- Neumann, A. U., Lam, N. P., Dahari, H., Gretch, D. R., Wiley, T. E., Layden, T. J., and Perelson, A. S., 1998, Hepatitis C viral dynamics in vivo and the antiviral efficacy of interferon- therapy, *Science*, 282(5386):103–107.
- Nguyen, T. and Guedj, J., 2015, HCV kinetic models and their implications in drug development, *CPT: Pharmacometrics and Systems Pharmacology*, 4(4):231–242.
- Nowak, M. A. and Bangham, C. R. M., 1996, Population dynamics of immune responses to persistent viruses, *Science*, 272(5258):74–79.
- Øksendal, B., 2003, *Stochastic differential equations: an introduction with applications* Springer.
- Øksendal, B. K., and Sulem, A., 2007, *Applied stochastic control of jump diffusions* (Vol. 498). Berlin: Springer.
- Pearson, J. E., Krapivsky, P., and Perelson, A. S., 2011, Stochastic theory of early viral infection: Continuous versus burst production of virions, *PLoS Computational Biology*, 7(2):e1001058.
- Peregrino, A., Esteva, L., and Ble, G., 2018, Optimal control applied to hepatitis c therapy considering immune system, *Journal of Pure and Applied Mathematics: Advances and Applications*, 19(1):9–35.
- Pitcher, A. B., Borquez, A., Skaathun, B., and Martin, N. K., 2019, Mathematical modeling of hepatitis C virus (HCV) prevention among people who inject drugs: A review of the literature and insights for elimination strategies, *Journal of theoretical biology*, 481:194–201.
- Platen, E., and Bruti-Liberati, N. (2010). *Numerical solution of stochastic differential equations with jumps in finance* (Vol. 64). Springer Science and Business Media.

Perhimpunan Peneliti Hati Indonesia (PPHI), 2017, Konsensus Penatalaksanaan Hepatitis C di Indonesia, Jakarta: PPHI.

Privault, N. and Wang, L., 2021, Stochastic SIR Lévy jump model with heavy-tailed increments, *Journal of Nonlinear Science*, 31(1).

Rao, F., 2014, Dynamics analysis of a stochastic SIR epidemic model, *Abstract and Applied Analysis*, 2014:1–9.

Raza, A., Awrejcewicz, J., Rafiq, M., Ahmed, N., and Mohsin, M., 2022, Stochastic analysis of nonlinear cancer disease model through virotherapy and computational methods. *Mathematics*. 10(3), pp.368.

Raza, A., Awrejcewicz, J., Rafiq, M., Ahmed, N., Ehsan, M. S., and Mohsin, M., 2022 , Dynamical analysis and design of computational methods for nonlinear stochastic leprosy epidemic model. *Alexandria Engineering Journal*. 61(10), pp.8097-8111.

Rong, L., Ribeiro, R. M., and Perelson, A. S., 2012, Modeling quasispecies and drug resistance in hepatitis C patients treated with a protease inhibitor, *Bulletin of Mathematical Biology*, 74(8), 1789-1817.

Ross, S. M., Kelly, J. J., Sullivan, R. J., Perry, W. J., Mercer, D., Davis, R. M., Washburn, T. D., Sager, E. V., Boyce, J. B., and Bristow, V. L., 1996, *Stochastic processes*, volume 2. Wiley New York.

Ross, S. M., 2014, *Introduction to probability models*, Academic press.

Ross, S. L., 1984. *Differential Equation*, Jhon Wiley and Sons. Inc. New York.

Sabbar, Y. (2021). Mathematical Analysis of Some Stochastic Infectious Disease Models with White Noises and Lévy Jumps (Doctoral dissertation, Université Sidi Mohamed Ben Abdellah de Fès (Maroc)).

Sanju'an, R. and Domingo-Calap, P., 2016, Mechanisms of viral mutation, *Cellular and molecular life sciences*, 73(23):4433–4448.

- Shen, M., Xiao, Y., Zhou, W., and Li, Z., 2015, Global dynamics and applications of an epidemiological model for hepatitis c virus transmission in China, *Discrete Dynamics in Nature and Society*, 2015:1–13.
- Singh, A., Razooky, B., Cox, C. D., Simpson, M. L., and Weinberger, L. S. 2010. Transcriptional bursting from the HIV-1 promoter is a significant source of stochastic noise in HIV-1 gene expression. *Biophysical journal*, 98(8), L32-L34.
- Srivastava, H. M., and Danane, J. 2022. Analysis of a stochastic SIRC epidemic model associated with the Lévy jump. *Applied Sciences*, 12(17), 8434.
- Tallan, A., and Feng, Z., 2020, Virus spread in the liver: mechanisms, commonalities, and unanswered questions, *Future Virology*, 15(10), 707-715
- Walpole, R. E., 1993, *Pengantar Statistik*, Jakarta: PT. Gramedia Pustaka Utama.
- Walsh, K., and Alexander, G. J. M. 2001. Update on chronic viral hepatitis. *Postgraduate medical journal*, 77(910), 498-505.
- Wang, L., Huang, H., Xu, A., and Wang, W., 2013, Stochastic extinction in an SIRS epidemic model incorporating media coverage, *Abstract and Applied Analysis*, 2013:1–8.
- WHO, 2016, *Guidelines for the Screening Care and Treatment of Persons with Chronic Hepatitis C Infection Updated Version April 2016: Guidelines*, World Health Organization.
- World Health Organisation 2021, Hepatitis C, The United Nations, accessed 1 September 2021, <https://www.who.int/news-room/fact-sheets/detail/hepatitis-c>.
- Wibawa, S. W., 2017, Mengenal Hepatitis C, infeksi bisu yang menghantui Indonesia, [www.sains.kompas.com](http://www.sains.kompas.com).
- Williams, D., 1991, *Probability with martingales*, Cambridge university press.
- Witbooi, P. J., Muller, G. E., and Schalkwyk, G. J. V., 2015, Vaccination control in a stochastic SVIR epidemic model, *Computational and Mathematical Methods in Medicine*, 2015:1–9.

- Wodarz, D., 2003, Hepatitis C virus dynamics and pathology: the role of CTL and antibody responses, *Journal of General Virology*, 84(7), 1743-1750.
- Wodarz, D., and Jansen, V. A. (2003). A dynamical perspective of CTL cross-priming and regulation: implications for cancer immunology. *Immunology letters*, 86(3), 213-227.
- Wodarz, D., 2007, *Killer cell dynamics mathematical and computational approaches to immunology*, Springer.
- Woodward, M. 2013. *Epidemiology: study design and data analysis*. CRC press.
- Yong, J., and Zhou, X. Y., 1999, *Stochastic controls: Hamiltonian systems and HJB equations* (Vol. 43). Springer Science and Business Media.
- Zeuzem, S., dan Herrmann, E. (2002). Dynamics of hepatitis C virus infection. *Annals of hepatology*, 1(2), 56-63.
- Zhang, Y., Li, Y., Zhang, Q., and Li, A., 2018, Behavior of a stochastic SIR epidemic model with saturated incidence and vaccination rules, *Physica A: Statistical Mechanics and its Applications*, 501:178–187.
- Zhang, S., and Xu, X., 2017, Dynamic analysis and optimal control for a model of hepatitis C with treatment, *Communications in Nonlinear Science and Numerical Simulation*, 46, 14-25.
- Zhao, P., Malik, S., and Xing, S. (2021). Epigenetic mechanisms involved in HCV-induced hepatocellular carcinoma (HCC). *Frontiers in Oncology*, 11, 677926.
- Zheng, Y., Serdukova, L., Duan, J., and Kurths, J. (2016). Transitions in a genetic transcriptional regulatory system under Lévy motion. *Scientific reports*, 6(1), 29274.
- Zhou, Y., Zhang, W., and Yuan, S., 2014, Survival and stationary distribution of a SIR epidemic model with stochastic perturbations, *Applied Mathematics and Computation*, 244:118–131.

Yayasan Spiritia, 2014, *Hepatitis C (HCV) dan HIV*, diakses di <https://spiritia.or.id/informasi/detail/11>