

DAFTAR PUSTAKA

1. World Health Organization. Resolution WHA67.1. Global strategy and targets for tuberculosis prevention, care and control after 2015. Geneva: World Health Organization; 2014 (http://apps.who.int/gb/ebwha/pdf_files/WHA67/A67_R1-en.pdf, accessed 20 July 2020)
2. World Health Organization. Global tuberculosis report 2020: WHO report 2020. Geneva, Switzerland, 2020.
3. Walzl G, Haks MC, Joosten SA, Kleynhans L, Ronacher K, Ottenhoff TH. Clinical Immunology and Multiplex Biomarkers of Human Tuberculosis. Cold Spring Harb Perspect Med. 2014. Abdalla AE, Li Q, Xie L, Xie J.
4. Storla DG, Yimer S, Bjune GA. A systematic review of delay in the diagnosis and treatment of tuberculosis. BMC Public Health 2008; 8: 15.
5. Pedoman Nasional Pelayanan Kedokteran tatalaksana tuberkulosis tahun 2019.
6. Ditjen P2P Kementerian Kesehatan RI 2019. Evaluasi Program penanggulangan tuberkulosis. Banda Aceh :Kemenkes RI.
7. Kebede, B. 2019. Tuberculosis Epidemiology, Pathogenesis, Drug and drug Resistance Development: A Review. J Biomed Sci, 8(3):1-10.

8. Nguyen, L. (2016) Antibiotic resistance mechanisms in *M. tuberculosis*: an update. *Arch Toxicol* 90, 1585–1604.
9. Saeedi, A.M. and Hajoj-A, S. (2017) Diversity and evolution of drug resistance mechanisms in *Mycobacterium tuberculosis*. *Infect Drug Resist* 10, 333–342.
10. Luthra, S., Rominski, A. and Sander, P. (2018) The role of antibiotic-target-modifying and antibiotic-modifying enzymes in *Mycobacterium abscessus* drug resistance. *Front.Microbiol* 9, 2179.
11. Nasiruddin, M., Neyaz, M.K. and Das, S. (2017) Nanotechnology-based approach in tuberculosis treatment. *Tuberc Res Treat* 2017, 1–12.
12. Smith, T., Wolff Kerstin, A. and Nguyen, L. (2013) Molecular biology of drug resistance in *Mycobacterium tuberculosis*. *Curr Top Microbiol Immunol* 374, 53–80.
13. Gygli, S.M., Borrell, S., Trauner, A. and Gagneux, S. (2017) Antimicrobial resistance in *Mycobacterium tuberculosis*: mechanistic and evolutionary perspectives. *FEMS Microbiol Rev* 41, 354–373
14. Nasiri, M.J., Haeili, M., Ghazi, M., Goudarzi, H., Pormohammad, A., Fooladi, A.A.I. and Feizabadi, M.M. (2017) New insights in to the intrinsic and acquired drug resistance mechanisms in *Mycobacteria*. *Front Microbiol* 8, 681.
15. Iacobino A, Fattorini L, Giannoni F. Review : Drug-Resistant Tuberculosis 2020 : Where We Stand. *Appl.Sci.* 2020 ; 10 : 2153

16. Piddock, L.J.V. (2006) Clinically relevant chromosomally encoded multidrug resistance efflux pumps in bacteria. *Clin Microbiol Rev* 19, 382–402
17. Blair, J.M., Webber, M.A., Baylay, A.J., Ogbolu, D.O. and Piddock, L.J. (2015) Molecular mechanisms of antibiotic resistance. *Nat Rev Microbiol* 13, 42–51.
18. Wang, J.-Y., Sun, H.-Y., Wang, J.-T., Hung, C.-C., Yu, M.-C., Lee, C.-H. and Lee, L.-N. (2015) Nine- to twelve-month anti-tuberculosis treatment is associated with a lower recurrence rate than 6–9-month treatment in human immunodeficiency virus-infected patients: a retrospective population-based cohort study in Taiwan. *PLoS ONE* 10, e0144136.
19. Koch, A., Mizrahi, V. and Warner, D.F. (2014) The impact of drug resistance on *Mycobacterium tuberculosis* physiology: what can we learn from rifampicin? *Emerg Microbes Infect* 3, e17.
20. Sharma SK, Mohan A. Multidrug-resistant tuberculosis. *Indian J Med Res.* 2004;354-76.
21. Ramaswamy S, Musser JM. Molecular genetic basis of antimicrobial agent resistance in *Mycobacterium tuberculosis*. *Tuber Lung Dis.* 1998;79:3-29
22. Eltringham IJ, Drobniewski F. Multiple drug resistant tuberculosis: aetiology diagnosis and outcome. *Br Med Bull.*2003;54:569-78.

23. Tripathy S, Kumar R, Singh SD, Prevalence of multidrug resistant pulmonary tuberculosis in North Bihar. *J Clin Diagn Res.* 2015;9(11):9-12.
24. Mitnick CD, Appleton SC, Shin SS. Epidemiology and treatment of multidrug resistant tuberculosis. *Respir Crit Care Med.* 2008;29:499-524
25. Petunjuk teknis. Penatalaksanaan Tuberkulosis Resistan Obat di Indonesia. 2020.
26. Du, J. Huang, Z, Luo Q, Xiong G. Rapid Diagnosis of Pleural Tuberculosis by Xpert MTB/RIF Assay using pleural biopsy dan pleural fluid specimens. *J Res Med Sci*, 20-26-31.
27. Kementerian Kesehatan Republik Indonesia. 2014. *Petunjuk Manajemen terpadu Pengendalian Tuberkulosis resistensi Obat.* Jakarta : Kemenkes RI.
28. Purohit, M. & Mustafa, T. 2015. Laboratory diagnosis of Extra-Pulmonary Tuberculosis (EPTB) in Resource-Constrained setting. State of the art, Challenges and the Need. *J. Clin Diagn Res*, 9(4):1-6.
29. Nathavitharana, R.R. Cudhay, P.G.T., Schumacher, S.G. Steingart, K.R. Pai, M. & Denkinger, C.M. 2017 Accuracy of line probe assay for the diagnosis of Pulmonary and Multidrug-Resistant Tuberculosis : A Systemic Review and Meta-Analysis. *Eur Respir J*, 49-1601075
30. Tomasicchio, M Theron, G. Pietersen E, Streicher, E., Stanley-Josephus, D, Helden P.V. Warren, R. & Dheda K. 2016. The diagnostic

accuracy of the MDRTBDRplus and MTBDRsl Assay for Drug-Resistant TB Detection when performed on sputum and culture isolates. *Sci Rep*,6 :17850

31. Peraturan Menteri Kesehatan Republik Indonesia Nomor 67 tahun 2016. Penanggulangan Tuberkulosis.
32. A, Abualgasim Elgaili, L. Nzungize. D, Xiangke. 2016. Interleukin-10 Family and Tuberculosis: An Old Story renewed. Ivyspring Review. Interantional Journal of Biological Sciences.
33. Holt PG, Strickland DH, Wikstrom ME, Jahnsen FL. Regulation of immunological homeostasis in the respiratory tract. *Nat Rev Immunol* 2008;8:142–152.
34. Catherine A. Thornton. Gareth Morgan. Innate and adaptive Immune pathway tolerance. Karger AG, Basel, 2009. P: 45-61.
35. Kresno SB (2001), *Imunologi : Diagnosis dan prosedur laboratorium*. Edisi IV. Balai Penerbit Fakultas Kedokteran Universitas Indonesia. Jakarta. Indonesia
36. Handoyo I(2003). *Pengantar imunologi dasar*, cetakan pertama. Airlangga University Press, Surabaya.Indonesia.
37. Abbas AK, Litchman AH. Pober JS (1994) *Cytokines in cellular and molecular Immunology International edition* WB. Saunders Co. Philadelphia, London, Toronto, Monreal Sydney, Tokyo. P:240-260
38. Dheda K, Shean K, Zumla A, Badri M, Streicher EM, Page-Shipp L, Willcox P, John MA, Reubenson G, Govindasamy D, et al. Early

treatment outcomes and HIV status of patients with extensively drug-resistant tuberculosis in South Africa: a retrospective cohort study. *Lancet* 2010;375:1798–1807

39. Morrison J, Pai M, Hopewell PC. Tuberculosis and latent tuberculosis infection in close contacts of people with pulmonary tuberculosis in low-income and middle-income countries: a systematic review and meta-analysis. *Lancet Infect Dis* 2008;8:359–368.
40. Herrera MT, Torres M, Nevels D, Perez-Redondo CN, Ellner JJ, Sada E, Schwander SK. Compartmentalized bronchoalveolar IFN-g and IL-12 response in human pulmonary tuberculosis. *Tuberculosis (Edinb)* 2009;89:38–47
41. Jeyanathan M, Mu J, McCormick S, Damjanovic D, Small CL, Shaler C, Kugathasan K, Xing Z. Mechanisms of airway luminal anti-tuberculosis memory. *Am J Respir Crit Care Med* 2010;181:862–872
42. Pasquinelli V, Townsend JC, Jurado JO, Alvarez IB, Quiroga MF, Barnes PF, Samten B, Garcia VE. IFN-g production during active tuberculosis is regulated by mechanisms that involve IL-17, SLAM and CREB. *J Infect Dis* 2009;199:661–665.
43. Pasquinelli V, Townsend JC, Jurado JO, Alvarez IB, Quiroga MF, Barnes PF, Samten B, Garcia VE. IFN-g production during active tuberculosis is regulated by mechanisms that involve IL-17, SLAM and CREB. *J Infect Dis* 2009;199:661–665.

44. Khader SA, Bell GK, Pearl JE, Fountain JJ, Rangel-Moreno J, Cilley GE, Shen F, Eaton SM, Gaffen SL, Swain SL, et al. IL-23 and IL-17 in the establishment of protective pulmonary CD41 T cell responses after vaccination and during *Mycobacterium tuberculosis* challenge. *Nat Immunol* 2007;8:369–377
45. Joosten SA, van Meijgaarden KE, Savage ND, de Boer T, Triebel F, van der Wal A, de Heer E, Klein MR, Geluk A, Ottenhoff TH. Identification of a human CD81 regulatory T cell subset that mediates suppression through the chemokine CC chemokine ligand 4. *Proc Natl Acad Sci USA* 2007;104:8029–8034
46. Stephan, Schwander, Dheda Keertan. Human Lung Immunity Against *Mycobacterium tuberculosis* insight into pathogenesis and protection. 2011. *Am J Respir Crit Care Med* Vol 183. pp 696–707, 2011
47. Gilla Kaplan, Frank A. Post, Andre L. Moreira, Helen Wainwright. *Mycobacterium tuberculosis* Growth at the cavity surface : a microenvironment failed immunity. *Infection and immunity* 2003.p:7099-7108.
48. Freeman S, Post FA, Bekker LG, Harbacheuski R, Steyn LM, Ryffel B, Connell ND, Kreiswirth BN, Kaplan G. *Mycobacterium tuberculosis* H37Ra and H37Rv differential growth and cytokine/chemokine induction in murine macrophages in vitro. *J Interferon Cytokine Res* 2006; 26: 27-33 [PMID: 16426145]

49. Surewicz K, Aung H, Kanost RA, Jones L, Hejal R, Toossi Z. The differential interaction of p38 MAP kinase and tumor necrosis factor- α in human alveolar macrophages and monocytes induced by *Mycobacterium tuberculosis*. *Cell Immunol* 2004; 228: 34-41 [PMID: 15203318]
50. Sun YJ, Lim TK, Ong AK, Ho BC, Seah GT, Paton NI. Tuberculosis associated with *Mycobacterium tuberculosis* Beijing and non-Beijing genotypes: a clinical and immunological comparison. *BMC Infect Dis* 2006; 6: 105 [PMID: 16820066]
51. Ditjen P2P Kementerian Kesehatan RI 2019. Evaluasi Program penanggulangan tuberkulosis. Banda Aceh :Kemenkes RI.
52. Storla DG, Yimer S, Bjune GA. A systematic review of delay in the diagnosis and treatment of tuberculosis. *BMC Public Health* 2008; 8: 15
53. Moore KW, de Waal Malefyt R, Coffman RL, O'Garra A: Interleukin-10 and the interleukin-10 receptor. *Annu Rev Immunol* 2001;19:683–765.
54. Almeras L, Prin L. Genetic polymorphism of IL-10 and relevance to immune function. In: Marincola FM, editors. *Interleukin-10*. Texas: Landes Bioscience. 2006. p 1-10.
55. Kryworuchko M, Creery WD, Kumar A. IL-10: role in infectious diseases. In: Marincola FM, editor. *Interleukin-10*. Georgetown: Eureka/Landes Bioscience. 2006. p 109-27.

56. O'Garra A, Vieira P. T(H)1 cells control themselves by producing interleukin-10. *Nat Rev Immunol* 2007;7:425–428
57. Sharma SK, Mohan A. Multidrug-resistant tuberculosis. *Indian J Med Res.* 2004;354-76.
58. Ramaswamy S, Musser JM. Molecular genetic basis of antimicrobial agent resistance in *Mycobacterium tuberculosis*. *Tuber Lung Dis.* 1998;79:3-29.
59. Allan SE, et al. CD41 T-regulatory cells: toward therapy for human diseases. *Immunol. Rev* 2008;223:391–421.
60. Dillon S, et al. Yeast zymosan, a stimulus for TLR2 and dectin-1, induces regulatory antigen-presenting cells and immunological tolerance. *J Clin Invest* 2006;116:916–928.
61. Handoyo I(2003). Pengantar imunologi dasar, cetakan pertama. Airlangga University Press, Surabaya.Indonesia.
62. Theze J (1999). The cytokine network and immune function. Oxford University Press, New York.
63. Roncarolo MG, Battaglia M. Regulatory T-cell immunotherapy for tolerance to self antigens and alloantigens in humans. *Nat Rev Immunol* 2007;7:585–598.
64. Donnelly RP, Sheikh F, Kotenko SV, Dickensheets H. The expanded family of class II cytokines that share the IL-10 receptor-2 (IL-10R2) chain. *J Leukoc Biol* 2004;76: 314–321→64

65. Murray PJ. The JAK-STAT signaling pathway: input and output integration. *J Immunol* 2007;178:2623–2629
66. Barrat FJ, et al. In vitro generation of interleukin 10-producing regulatory CD4(+)T cells is induced by immunosuppressive drugs and inhibited by T helper type 1 (Th1)- and Th2-inducing cytokines. *J Exp Med* 2002;195:603–616
67. Ramaswamy S, Musser JM. Molecular genetic basis of antimicrobial agent resistance in *Mycobacterium tuberculosis*. *Tuber Lung Dis.* 1998;79:3-29.
68. Maglione PJ, Xu J, Chan J. B cells moderate inflammatory progression and enhance bacterial containment upon pulmonary challenge with *Mycobacterium tuberculosis*. *J Immunol* 2007; 178:7222-7234 [PMID: 17513771]
69. Maglione PJ, Xu J, Chan J. B cells moderate inflammatory progression and enhance bacterial containment upon pulmonary challenge with *Mycobacterium tuberculosis*. *J Immunol* 2007; 178:7222-7234 [PMID: 17513771]
70. Romero-Adrián TB, Leal-Montiel J, Monsalve-Castillo F, Mengual-Moreno E, McGregor EG, Perini L, Antúnez A. *Helicobacter pylori*: bacterial factors and the role of cytokines in the immune response. *Curr Microbiol* 2010; 60: 143-155

71. Holtz Timothy H, Sternberg M, Kammerer S et al. Time to sputum culture conversion in multidrug-resistant tuberculosis: Predictors and relationship to treatment outcome. *Ann Intern Med.* 2006;144:650-9.
72. Mota, PC. Carvalho A, Valente Im Braga R. Duarte R. Predictors of delayed sputum smear and culture conversion among a Portuguese population with pulmonary tuberculosis. *Rev Port Pneumol.* 2012;18(2):72-9.
73. Pajankar Sumant, Khandekar Rajiv, Al.Amir MA, Al Lawati MR. Factor influencing sputum smear conversion at one and two months of tuberculosis treatment. *Oman Med Jour.* 2008; 23:263-8
74. Lee HY, Chae KO, Lee CH, Choi SM, Lee J, Park YS, et al. Culture conversion rate at 2 months of treatment according to diagnostic methods among patients with culture-positive pulmonary tuberculosis. *PloS one.* 2014; 9(8):e103768. <https://doi.org/10.1371/journal.pone.0103768> PMID: 25105410
75. Caetano Mota P C A, Valente I, Braga R, Duarte R. Predictors of delayed sputum smear and culture conversion among a Portuguese population with pulmonary tuberculosis. *Rev Port Pneumol.* 2012;18(2):72–9. <https://doi.org/10.1016/j.rppneu.2011.12.005> PMID: 22277838.
76. Nainggolan HRN. Faktor yang berhubungan dengan gagal konversi pada pasien TB paru kategori 1 pada akhir pengobatan fase intensif di kota Medan. Tesis. USU. 2013.p18-26

77. Dorman SE, Johnson JL, Goldberg S, Muzanye G, Padayatchi N, Bozeman L, et al. Substitution of moxifloxacin for isoniazid during intensive phase treatment of pulmonary tuberculosis. *American journal of respiratory and critical care medicine*. 2009; 180(3):273–80. <https://doi.org/10.1164/rccm.200901-0078OC> PMID: 19406981 →26
78. Metlay JP K W, Fine MJ (1997). "Does this patient have community-acquired pneumonia? Diagnosing pneumonia by history and physical examination". *JAMA: the Journal of the American Medical Association*. 278 (17): 1440–5. PMID: 9356004.
79. Pickup, J. C. Inflammation and activated innate immunity in the pathogenesis of type 2 diabetes. *Diabetes Care* 27, 813–823 (2004)
80. Metanat M, Mood BS, Parsi M, Moghaddam SS. Effect of cigarette smoking on sputum smear conversion time among adult new pulmonary tuberculosis patients : A study from Iran Southeast. *Iranian Jour of clinic infect Dis*. 2010;5(1):14-7.
81. Lonroth K, Williams BG, Stadlin S, Jaramillo E, Dye C. Alcohol use risk factors for tuberculosis—a systemic review. *BMC Public Health*. 2008;8:289
82. Parikh R, Nataraj G, Kanade S, Khatri V, Mehta O. Time to sputum conversion in smear positive pulmonary TB patients on category I DOTS and delaying it. *JAPI*. 2012;60:22-6.
83. S. Greenberg, J. Xie, J. Kolls, S. Nelson, P. Didier, and C. Mason, "Ethanol suppresses Mycobacteria tuberculosis-induced mRNA

for nitric oxide synthase in alveolar macrophages, in vivo," *Alcoholism*, vol. 19, no. 2, pp. 394–401, 1995

84. Moncada S, Palmer RM, Higgs EA. Nitric oxide: Physiology, pathophysiology, and pharmacology. *Pharmacol Rev* 43: 109-142, 1991
85. Nelson S, Bagby G, Andresen J, et al: The effects of ethanol, tumor necrosis factor, and granulocyte colony-stimulating factor on lung antibacterial defenses. *Adv Exp Med Biol* 288:245-253, 1991
86. Fortun J. Sputum conversion among patients with pulmonary tuberculosis: are there implications for removal of respiratory isolation?. *JAC*.2007;59:794-8
87. Chandra, V.; Mahajan, S.; Saini, A.; Dkhar, H.K.; Nanduri, R.; Raj, E.B.; Kumar, A.; Gupta, P. Human il10 gene repression by reverbalpha ameliorates mycobacterium tuberculosis clearance. *J. Biol. Chem.* 2013, 288,10692–10702. [CrossRef] [PubMed]
88. Amalia E, Nindatama M.R, Hayati L, Handayani D. (2015). Identifi kasi Mutasi Gen rpob Ser531Leu Mycobacterium tuberculosis yang Berhubungan Dengan Resistensi Rifampsin. *Biomed J of Indo*, Vol. 1 No.1.
89. L, Claire. C, Alan. Balboa. Tuberculosis is associated with expansion of motile permissive and immunomodulatory CD16⁺Monocyte population via The IL10/STAT3axis. 2015. Nature original article.

90. R, Audey Gracelia. N, Jusak. D, Yoes Prijatna. 2020. Perbedaan kadar Interleukin 18 dan Interleukin-10 pada pasien Tuberkulosis Resisten Rifampisin dan Rifampisin Resisten paru di RS dr. Soetomo Surabaya. Indonesian Journal of Tropical and infectious disease.
91. P, Verdy. A, Novita. I, Cut Gina. 2018. Hubungan tingkat pendidikan terhadap angka kejadian multidrug resistant Tuberculosis (MDR-TB) di RSUDZA Banda Aceh. Jurnal kedokteran Nanggroe Medika. ISSN:2615-3874.
92. J, Chandra. Soedarsono. 2019. Hubungan kadar interleukin 10 dan status konversi sputum BTA pada pasien TB paru RR.
93. Zachariah R, et al. (2002). *Moderate to severe malnutrition in patients with tuberculosis as a risk factor associated with early death*. Trans R Soc Trop Med Hyg. 2002. 96;291-4.
94. T, Tika Dwi. A, Asri C. B, Erlina. Indeks massa tubuh dan waktu terjadinya konversi sputum pada pasien tuberkulosis paru BTA positif di RSUP persahabatan tahun 2012. Jurnal epidemiologi kesehatan Indonesia. November 2016.
95. Mesfin, E. A. et al (2018). Drug resistance patterns of mycobacterium tuberculosis strains and associated risk factor among multi drug resistant tuberculosis suspected patients from Ethiopia. *Plos one*. United States, 13 (6), p.e0197737. doi:10.1371/journal.pone.0197737.
96. Forson, A. et al. (2018) 'A cross-sectional study of tuberculosis drug resistance among previously treated patients in a tertiary hospital in

Accra, Ghana: public health implications of standardized regimens
BMC infectious diseases. England, 18(1), p. 149. doi:
10.1186/s12879-018-3053-5.

97. F, Jesus. D, PilarMartin. M, Auxiliadora. 2007. Sputum conversion among patients with pulmonary tuberculosis : are there implications for removal of respiratory isolation?. Journal of antimicrobial chemotherapy 59,794-798. Doi:10.1093/jac/dkm025.
98. H, David. C, Joaquin. T, Adrian. 2009. Lack of IL-10 alters inflammatory and immune responses during pulmonary *Mycobacterium tuberculosis* infection. Tuberculosis 89 149-157.
99. K, Firew Tadasse. N, Teklehaimanot Mezgebe. G, Gebremedhin B. 2020. Assessment of knowledge and attitude of Tuberculosis patients in direct observation therapy program towards Multidrug-resistant Tuberculosis in Addis Ababa, Ethiopia : A Cross-sectional study. Tuberculosis research and treatment. Volume 2020. <https://doi.org/10.1155/2020/6475286>.
100. Soedarsono, M, Ni Made. S, Titiek. First line anti Tuberculosis drug resistance pattern in Multidrug resistant pulmonary tuberculosis patients correlate with acid fast bacilli microscopy grading. 2020. Original article. Indonesian Journal of Tropical and infectious disease vol 8 No, 2 May-August 2020. P:83-89

101. Hafez SA, Elhefnawy AM, Hatata EA, El Ganady AA, Ibrahiem MI. Detection of extensively drug resistant pulmonary tuberculosis. Egypt J Chest Dis Tuberc. 2013; 62(4):635-46.
102. E, Obeagu. I, Okoroiwu. 2019. Evaluation of interferon-Gamma, IL-6 and Interleukin 10 in Tuberculosis patients in Umuahia. Annals of clinical and laboratory research vol. 7 no.2:307.
103. Sahiratmadja E, Alisjahbana B, de Boer T, Adnan I, Maya A et al. 2006. Dynamic change in pro and anti inflammatory cytokine profile (IFN- γ , TNF α , IL-12/23 and IL-10) and IFN gamma receptor signaling integrity correlate with tuberculosis disease activity and response to curative. Infection and immunity J 1128:602-666.
104. Memon, A.R. & Naz R(2014). Protein dan albumin level in pulmonary tuberculosis Sindh, Pakistan. *New York Science Journal*;7 ; 8.
105. Maciel EL, Brioschi AP. Peres RL. Guidonin LM. Ribeiro FK. Smoking and 2 month culture conversion during anti tuberculosis treatment. Int J Tuberc Lung Dis. 2013; 17:225-8.
106. H, Penaloza. L, Noguera. C, Riedel. Expanding the current knowledge about the role interleukin 10 to major concerning bacteria. Front microbial. 2018;9:2047.doi:10.3389/fmicb.2018.02047.
107. Kidd, T. J. Mills, G., Sa-Pessoa. J. Dumigan A. Frank. A. *Klebsiella pneumoniae* antibiotic resistance mechanism that subdues host defences and promotes virulence.EMBO Mol. Med. 9, 430-447. Doi:10.15252/emmm.201607336.