

## DAFTAR PUSTAKA

- Alcorn JF, Wright JR, 2004. Degradation of pulmonary surfactant protein D by *Pseudomonas aeruginosa* elastase abrogates innate immune function, *J Biol Chem*, 279, pp.30871-30879.
- Alhazmi A, 2015. *Pseudomonas aeruginosa*-Pathogenesis and Pathogenic Mechanism, *International Journal of Biology; Vol.7, No.2, Canadian Center of Science and Education, Canada*, pp 44-51.
- Alhede M, Bjarnsholt T, Jensen PO, Phipps RK, Moser C, Christophersen L, Givskov M in Alhazmi A, 2015. *Pseudomonas aeruginosa*-Pathogenesis and Pathogenic Mechanism, *International Journal of Biology; Vol.7, No.2, Canadian Center of Science and Education, Canada*, pp 44-51.
- Allen L, Dockrell DH, Pattery T, Lee DG, Cornelis P, Hellewell PG, Whyte MKB, 2005. Pyocyanin Production by *Pseudomonas aeruginosa* Induces Neutrophil Apoptosis and Impairs Neutrophil-Mediated Host Defenses In Vivo, *The Journal of Immunology*, 174, pp. 3643-3649.
- Al-Mujaini A, Al-Khanri N, Thakral A, and Wali UK, 2009. Bacterial Keratitis : Perspective on Epidemiology; Clinico-Pathogenesis, Diagnosis and Treatment, *Sultan Qaboos Univ. Med J* 9(2);184-195.
- Ashkenazi A, Dixit VM ,1998. *Death receptors: signaling and modulation*, in Nagata S, Nakano H, *Apoptotic and Non-apoptotic Cell Death*, Current Topics in Microbial and Immunology (2017), 403, pp.1-36.
- Asrorudin M, Nora RLD, Edwar L, Sjamsoe S, Susiyanti M, 2015. Various factors affecting the bacterial corneal ulcer healing : a 4-years study in referral eye hospital in Indonesia, *Medical Journal of Indonesia*, 24, 150-155.
- Alvarez S, Blanco A, Fresno M, Fernandez MAM, 2011. TNF- $\alpha$  Contributes to Caspase-3 Independent Apoptosis in Neuroblastoma Cells: Role of NFAT, *Plos ONE*, vol6/1/e161.00 [www.plosone.org](http://www.plosone.org)
- Bailey GM, 2013. *Sixth Layer to Human Cornea Discovered*, *Media Release Optometry Times*, diunduh pada tanggal 10 Mei 2017, <http://optometrytimes.modernmedicine.com/optometrytimes/content/tags/cornea/sixth-layer>.
- Barathi MJ, Ramakhrisnan R, Meenakshi R, Padmavathy S, Shivakumar C, 2007. *Microbial Keratitis in South India: influence of risk factors, climate, and geographical variation*. *Ophthalmic Epidemiol*, 14, pp. 61-69.
- Barathi MJ, Ramakhrisnan R, Shivakumar C, Meenaksi R, Lionalraj D, 2010. Etiology and antibacterial susceptibility pattern of community-acquired bacteria ocular infection in a tertiary eye care hospital in South India, *Indian J Ophthalmol* ,58, pp. 497-507.

- Barbieri JT & Sun J in Alhazmi A, 2015. *Pseudomonas aeruginosa*-Pathogenesis and Pathogenic Mechanism, *International Journal of Biology*, Vol.7, No.2, pp.44-55.
- Bardoel BW, van der Ent S, Pel MJ, Tommasse J, Pieterse CM, van Kessel KP, van Strijp JA, in Gellatly SL & Hancock REW, 2011. *Pseudomonas aeruginosa: new sights into pathogenesis and host defense*, *Pathogens and Disease*, 67, pp.159-173.
- Behzadi P, Ranjbar R, 2015. Caspases and Apoptosis. *Molecular Enzymology and Drug Target* vol 1 no 2:2. DOI:10.21767/2572-5475.10006
- Bergsbaken T, Fink SL, Cookson BT, 2009. Pyroptosis : host cell death and inflammation, *Nat Rev Microbiol* 7(2):99-109
- Bidere N, Su HC, Leonardo MJ, 2006. *Genetic disorders of programmed cell death in the immune system*, in Nagata S, Nakano H, *Apoptotic and Non-apoptotic Cell Death*, *Current Topics in Microbial and Immunology* (2017), 403, pp.1-36.
- Bielecki P, Gilik J, Kawecki M, dos Santos VAM, 2008. *Towards understanding Pseudomonas aeruginosa burn wound infection by profiling gene expression*. *Biotechnology letters*, 30(5), pp.777-790.
- Biswell R, 2010. *Cornea*, Vaughn and Asbury's General Ophthalmology 17<sup>th</sup> ed., McGraw-Hill Companies, New York, pp. 125-149.
- Boatright KM, Rensatus M, Scott FL, Sperandio S, Shin H et al, 2003. *A unified model for apical caspase activation*, in Nagata S, Nakano H, *Apoptotic and Non-apoptotic Cell Death*, *Current Topics in Microbial and Immunology* (2017), 403, pp.1-36.
- Bowling B, 2016. *Cornea*, Kanski's Clinical Ophthalmology, Elsevier, New South Wales, pp. 167-174.
- Bredenstein EBM, Fuente-Nunez Cdl, Hancock REW, 2011. *Pseudomonas aeruginosa : all roads lead to resistance*, *Trends in Microbiology*, Vol.19, No.8, pp. 419-426.
- Brenner D, Mark TW, 2000. *Mitochondrial cell death effectors*, in Nagata S, Nakano H, *Apoptotic and Non-apoptotic Cell Death*, *Current Topics in Microbial and Immunology* (2017), 403, pp.1-36.
- Bukowiecki A, Hos D, Cursiefen C, Eming SA, 2017. Wound Healing Studies in Cornea and Skin Parallels, Differences and Opportunities, *Int.J.Mol.Sci*, 18, 1257, doi:10.3390/ijms18061257
- Burns FR, Paterson CA, Gray RD, Wells JT, 1990. *Inhibition of Pseudomonas aeruginosa Elastase and Pseudomonas Keratitis Using a Thiol-Based Peptide*, *Antimicrobial Agents and Chemotherapy*, American Society for Microbiology, pp. 2065-2069.
- Broz P, 2015. Caspase target drives pyroptosis, *News & Views*, doi:10.1038/nature15632

- Cantor LB, Rapuano CJ, Cioffi, 2014. *Basic and Clinical Science Course in External Disease and Cornea*, American Academy of Ophthalmology, section 8, San Francisco, pp.147-152.
- Campondonico VL, Lliosa NJ, Grout M, Doring G, Maiara-Litran T, Pier GB, 2010. Evaluation of flagella and flagellin of *Pseudomonas aeruginosa* as vaccines, *Infect Immun.*Feb;78(2):746-55,doi:10.1128/IAI.00806-09
- Chidambaram JD, Kannambath S, Srikanthi P, Shah M, Lalitha P, Elakkiya S, Bauer J, Prajna NV, Holland MJ, Burton MJ, 2017.Persistence of Innate Pathways in Late Stage Human Bacterial and Fungal Keratitis: Result from a Comparative Transcriptome Analysis. *Front Cell Infect Microbiol* ;7;193.
- Chao A-N ,2011. Expression of TNF $\alpha$  and IL-6 in corneal cells after excimer laser ablation in Wistar rats, *Eye* (2011) 25, 534; doi:10.1038/eye.2010.223;
- Chao CC, Hans H, Hsiao H, Chung CT, Tan-Te H in Essam F, Al-Jumaily, Saleh BH,Hussain SM ,2013. Determination of lethal dose (LD50) of Exotoxin A from *Pseudomonas aeruginosa* 26A in mice histopathology, *IOSR Journal of Pharmacy and Biological Sciences*, Vol.7,Issue 6,pp.49-54.
- Chen D, Tang J, Yang L, Wei L, Stolz DB, Yu J, Zhang J, Zhang L,2018. PUMA amplifies necroptosis signaling by activating cytosolic DNA sensors, *PNAS* 115(15) 3930-3935, <https://doi.org/10-1073/pnas.1717190115>
- Cohen TS, Prince AS, 2013. Activation of inflammasome signaling mediates pathology of acute *Pseudomonas aeruginosa* pneumonia, *J Clin Invest.*,123,pp. 1630-1637.
- Cole N, Bao S, Willcox M, Husband AJ, 1999. *Expression of Interleukin-6 in the Cornea in Response to Infection with Different Strains of Pseudomonas aeruginosa*, *Infection and Immunity*, pp. 2497-2502.
- Cole N, Krockenberger M, Bao S, Beagley KW, Husband AJ, Willcox M,2001. *Effect of Exogenous Interleukin-6 during Pseudomonas aeruginosa Corneal Infection*, *Infection and Immunity*, American Society for Microbiology,pp. 4116-4119.
- Colussi PA, Kumar S,2017. *Targeted disruption of caspase genes in mice: what they tell us about the functions of individual caspases in apoptosis*, in Nagata S,Nakano H, *Apoptotic and Non-apoptotic Cell Death, Current Topics* , Microbial and Immunology ,403,pp.1-36.
- D'Agata E,2016. *Infectious Disease Essential* , diunduh 22 Februari 2018,<http://books.google.co.id>books>.
- Dasgupta N, Wolfgang MC, Goodman AL, Arora SK, Jyot J, Lory S, Ramphal R,2003. A four tiered transcriptional regulatory circuit controls flagellar biogenesis in *Pseudomonas aeruginosa*. *Molecular microbiology*,50(3),pp.809-824.

- Davies DG, Parsek MR, Pearson JP, Iglewski BH, Costerton JW, Greenberg EP in Alhazmi A, 2015. Pseudomonas aeruginosa-Pathogenesis and Pathogenic, *International Journal of Biology*, Vol.7, No2, pp. 44-55.
- Degterev A, Ofengheim D, Yuan J, 2019. Targeting RIPK1 for the treatment of human diseases, *PNAS*, vol 116 no 20, www.pnas.org/cgi/doi/10.1073/pnas.1901179116
- Diggle SP, Cornelis P, Williams P, Camara M in Alhazmi A, 2015. Pseudomonas aeruginosa-Pathogenesis and Pathogenic, *International Journal of Biology*, Vol.7, No2, pp. 44-55.
- Dillon CP, Weinlich R, Rodriguez DA, Cripps JG, Quarato G et al, 2014. *RIPK1 blocks early postnatal lethality mediated by caspase-8 and RIPK3*, in Nagata S, Nakano H, *Apoptotic and Non-apoptotic Cell Death*, Current Topics in Microbial and Immunology (2017), 403, pp.1-36.
- Du X, Youle RJ, FitzGerald DJ, Pastan I, 2010. Pseudomonas Exotoxin A-Mediated Apoptosis Is Bak Dependent and Preceded by the Degradation of Mcl-1. *Mol Cell Biol*. Jul30 (14):3444-3452, doi:10.1128/MCB:00813-09
- Evans DJ, Fleiszig SMJ, 2013. Why Does The Healthy Cornea Resist Pseudomonas aeruginosa Infection? *Am J Ophthalmol*; 155(6)pp.961-970.
- Farias R, Pinho L, Reinaldo S, 2017. Epidemiological profile of infectious keratitis, *Rev Bras Oftalmol*, 76(3), pp116-120.
- Feghali CA and Timothy MW, 1997. Cytokines in Acute and Chronic Inflammation. *J. Bioscience*, vol.2, pp2-16.
- Fleiszig SMJ, Zaidi TS, Fletcher EL, Preston MJ, Pier GB, 1994. Pseudomonas aeruginosa Invades Corneal Epithelial Cells during Experimental Infection, *Infection and Immunity*, pp. 3485-3493.
- Franchi L, Stoolman J, Kanneganti TD, Verma A, Ramphal R, Nunez G, 2007. Critical role for Ipaf in Pseudomonas aeruginosa - induce caspase 1 activation, *European journal of immunology*, 37(11), pp. 3030-3039.
- Frank DW, Goranson J, Hovey AK, Yahr TL in Alhazmi A, 2015. Pseudomonas aeruginosa-Pathogenesis and Pathogenic Mechanism, *International Journal of Biology*, Vol.7, No.2, pp.44-55.
- Gabbeloni ML, Trevani AS, Sabatte J, Geffner J, 2013. Mechanism regulating neutrophil survival and cell death. *Semin Immunopathol* DOI 10.1007/s00281-013-0364-x.
- Galle M, Carpenter I, and Beyaert R, 2012. *Structure and Function of the Type III Secretion System of Pseudomonas aeruginosa*, Current Protein and Peptide Science, 13, 831-842.
- Galloway DR, 1991. Pseudomonas aeruginosa elastase and elastolysis revisited: recent developments. *Mol Microbiol*, 5, pp.2315-2321.

- Green DR, 2011. Means to an end : apoptosis and other cell death mechanism. Cold Spring Harbor Laboratory Press, Cold Spring Harbor
- Green DR, 2015. Apoptosis in Nagata S, Nakano H, *Apoptotic and Non-apoptotic Cell Death*, Current Topics in Microbiology and Immunology, p3.
- Green M, Apel A, Stlapeton F, 2008. Risk factor & causative organism in microbial keratitis, *Cornea*, 27, pp. 22-27.
- Hahn HP, 1996. The type-4 pilus is the major virulence-associated adhesin of *Pseudomonas aeruginosa* – a review, *Gene* 192(1997), pp. 99-108.
- Hauser AR, 2009. *Pseudomonas aeruginosa*-Pathogenesis and Pathogenic Mechanism, *International Journal of Biology*, Vol.7, No.2, pp.44-55.
- Hauser RA & Ozer AE (2011). *Pseudomonas aeruginosa*. Nature Review Microbiology, 9(3). Poster produced with support from Cubist Pharmaceuticals.
- Hayashi F, Smith KD, Ozynski A, Hawn TR, Yi EC, Goodlett DR, Aderem A, 2001. The innate immune response to bacterial flagellin is mediated by Toll-like receptor 5, *Nature*, 410 (6832), pp. 1099-1103.
- Hazlett LD, 2007. Bacterial infection of the cornea (*Pseudomonas aeruginosa*), *Chem Immunol Allergy* 92:185-194
- Hazlett LD, Berk RS, Iglewski BH, 1981. Microscopic Characterization of Ocular Damage Produced by *Pseudomonas aeruginosa* Toxin A, *Infection and Immunity*, vol.34, No.3, pp. 1025-1035.
- Henao-Mejia J, Elinav E, Strowig T, Flavell RA, 2012. Inflammasomes: far beyond inflammation. *Nat Immunol* 13(4):321324
- Henriksson JT, McDermott AM, Bergmanson JPG, 2009. Dimension and Morphology of the Cornea in the Three strains of Mice. *Invest Ophthalmol Vis Sci.*; 50(8): 3648-3654. doi: 10.1167/iops.08-2941.
- Heine H, Rietschel ET, Ulmer AJ, 2001. The biology of endotoxin. *Mol Biotechnol*, 19, pp. 279-296.
- Heurlier K, William F, Heeb S, Dormond C, Pessi G, Singer D, Haas D in Alhazmi A, 2015. *Pseudomonas aeruginosa*-Pathogenesis and Pathogenic, *International Journal of Biology*, Vol.7, No2, pp. 44-55.
- Hirakawa H & Tomita H in Alhazmi A, 2015. *Pseudomonas aeruginosa*-Pathogenesis and Pathogenic, *International Journal of Biology*, Vol.7, No2, pp. 44-55.
- Hobden JA, Masinick SA, Barrett RP, Hazlett LD, 1997. Proinflammatory Cytokine Deficiency and Pathogenesis of *Pseudomonas aeruginosa* Keratitis in Aged Mice, *Infection and Immunity*, pp. 2754-2758.

- Hoshino K, Takeuchi O, Kawai T, Sanyo H, Ogawa T, Takeda Y, Akira S, 1999. Cutting edge: Toll-like receptor 4 (TLR4)-deficient mice are hyporesponsive to lipopolysaccharide: evidence for TLR4 as the Lps gene product. *The Journal of Immunology*,162(7),pp. 3749-3752.
- Huang X, Du W, McClellan SA, Barrett RP, Hazlett LD, 2006. TLR4 Is Required for Host Resistance in Pseudomonas aeruginosa Keratitis, *Invest Ophthalmol Vis Sci*,47, pp. 4910-4916.
- Iba T, Hasiguchi N, Nagaoka I, Tabe Y, Murai M.,2013. Neutrophil cell death in response to infection and its relation to coagulation. *J.Intensive Care*1(1):13. Doi:10.1186/2052-0492-1-13
- IKKB ( human),2003-2018. <https://www.phosphosite.org/uniprotAccAction?id=O14920>
- Jendrossek V,Grassme H, Muller I in Essam F, Al-Jumaily, Saleh BH,Hussain SM,2013. Determination of lethal dose (LD50) of Exotoxin A from Pseudomonas aeruginosa 26A in mice histopathology, *IOSR Journal of Pharmacy and Biological Sciences*,Vol.7,Issue 6,pp.49-54.
- Jenkins CE, Swiatnionowski A, Issekutz A, LinTJ,2004. Pseudomonas aeruginosa Exotoxin A Induced Human Mast Cell Apoptosis by a caspase-8 and caspase-3 dependent Mechanism, *JBC* vol 279,No35 pp.37201-37207. doi.10.1074/jbc.M405594200
- Jensen PO, Bjarnsholt T, Phipps R, Rasmussen TB, Calum H, Christoffersen L, Hoiby N in Alhazmi A,2015. Alhazmi A,2015. Pseudomonas aeruginosa-Pathogenesis and Pathogenic, *International Journal of Biology*,Vol.7,No2,pp. 44-55.
- Jimenez RB, Navas A, Lizarraga EPL, de Ribot FM, Pena A et al, 2015. Ocular Surface as Barrier of Innate Immunity, *Open Ophthalmol J*,9:49-55, doi:102174/187436101509010049
- Jorgensen I, Miao EA,2015. Pyroptotic cell death defense against intracellular pathogens, *Immunol Rev* 265(1):130-142
- Kalha S, Kuony A, Michon T, 2018. Corneal Epithelial Abrasion with Ocular Burr As a Model for Corneal Wound Healing, *Journal of Visualized Experiments* (137)e58071, doi:10.3791/58071
- Kaiser WJ, Upton JW,Long AB, Livingstone-Rosanoff D, Daley-Bauer LP,2017. *RIP3 mediates the embryonic lethality of caspase-8 deficient mice*, in Nagata S,Nakano H, *Apoptotic and Non-apoptotic Cell Death*, Current Topics in Microbial and Immunology ,403,pp.1-36.
- Kearney CJ, Cullen SP, Tynan GA, Henry CM, Clancy D, Lavelle EC, Martin SJ,2015. *Necroptosis suppresses inflammation via termination of TNF-or LPS-induced cytokine and chemokine production*, *Cell Death and Differentiation advance online publication*, Macmillan Publishers Limited,pp1-15.

- Khurana AK, 2007. *Anatomy and Development of The Eye in Comprehensive Ophthalmology 4<sup>th</sup>*, New Age International Limited, New Delhi- India, pp 3-12.
- Kim JJ, Jo EK, 2013. NLRP3 inflammasome and host protection against bacterial infection, *Journal of Korean medical science*, 28(10),pp. 1415-1423.
- Kipnis E, Sawa T, Wiener-Kronish J, 2006. Targeting mechanism of *Pseudomonas aeruginosa* pathogenesis, *Medecine et maladies infectieuses*, 36(2), PP.78-91.
- Kohler T, Curty LK, Barja F, Van Delden C, Pechere JC, 2000. Swarming of *Pseudomonas aeruginosa* is dependent on cell-to-cell signaling and requires flagella and pili. *Journal of bacteriology*, 182(21), PP. 5990-5996.
- Kono H, Rock KL, 2008. *How dying cells alert the immune system to danger*, in Nagata S, Nakano H, *Apoptotic and Non-apoptotic Cell Death*, Current Topics in Microbial and Immunology (2017), 403, pp.1-36.
- Kuang Z, Hao J, Walling BE, Jeffries JL, Ohman DE, Lau GW, 2011. *Pseudomonas aeruginosa* elastase provides an escape from phagocytosis by degrading the pulmonary surfactant protein-A, diunduh 22 Februari 2018, <http://dx.doi.org/10.1371/journal.pone.0027091>.
- Kumar A, Hazlett LD, Yu FSX, 2007. *Flagellin Suppresses the Inflammatory Response and Enhances Bacterial Clearance in a Murine Model of Pseudomonas aeruginosa Keratitis*, *Infection and Immunity*, pp. 89-96.
- Lakhundi S, Siddiqui R, Khan NA, 2016. Pathogenesis of microbial keratitis, *Microbial Pathogenesis* 104, pp.97-109.
- Laarman AJ, Bardoel BW, Ruyken M, Fernie J, Milder FJ, van Strijp JA, Rooijackers SH, 2012. *Pseudomonas aeruginosa* alkaline protease blocks complement activation via the classical and lectin pathways, *J Immunol*, 188, pp. 386-393.
- LaRock CN, Cookson BT, 2013. Burning down the house: cellular action during pyroptosis, *PloS Pathog* 9(12):e1003793
- Leist M, Jaateela M, 2001. *Four deaths and a funeral : from caspases to alternative mechanisms*, in Nagata S, Nakano H, *Apoptotic and Non-apoptotic Cell Death*, Current Topics in Microbial and Immunology (2017), 403, pp.1-36.
- Li J, McQuadet, Siemer AB, Napetschnig j, Moriwaki K et al, 2012. The RIP1/RIP3 Necrosome Forms a Functional Amyloid Signaling Complex Required for Programmed Necrosis, *Cell*: 150(2):339-350 doi:10.1016/j.cell.2012.06.019
- Linkerman A, Green DR, 2014. Necroptosis, *N Engl J Med* ;370(5):455-465. doi:10.1056/NEJMra1310050
- Liu X, Zang Z, Ruan J, Pon Y, Magupali VG, Wu H, Liberman J, 2016. Inflammasome-activated gasdermin D causes pyroptosis by forming membrane pores., *Nature* 7:535(7610):153-8. doi:10.1038/nature18629

- Lovicu FJ, Kao WW, Overbeek PA, 1999. Ectopic gland induction by lens-specific expression of keratinocyte growth factor (KGF-7) in transgenic mice, *Mech Dev* 88:43-53.
- Marquart MC, O'Callahan RJ, Infectious keratitis secreted bacterial protein that mediated ocular damaged. *J Ophthalmol* ID: 369094.
- Martinez J, 2017. *Prix Fixe: Efferocytosis as a Four-Course Meal in Nagata S, Nakano H, Apoptotic and Non-apoptotic Cell Death*, Current Topics in Microbiology and Immunology, Springer, pp.1-12.
- McIlwain DR, Berger T, Mak TW, 2015. Caspase functions in cell death and disease. *Cold Spring Harb Perspect Biol* 7(4)
- McKee HD, Irion LC, Carley FM, Brahma AK, Jafarinasab MR, Rahmati-Kamel M, Kanavi MR, Feizi S, 2013. Human Corneal Anatomy Redefined : a Novel Pre-Descemet Layer ( Dua's layer), *Ophthalmology*, vol.120, pp. 1778-1785, diunduh 20 Mei 2017, <http://www.ncbi.nlm.nih.gov/pubmed/24560565>.
- Mc Clellan SA, Jerome A, Suvas S, Hazlett LD, 2017. NLRC4 regulates caspase-1 and IL-1 beta production in a CD11b<sup>low</sup> Ly6G<sup>low</sup> population of cells required for resistance to *Pseudomonas aeruginosa* keratitis, *PloS ONE* 12(9):e0185718 <https://doi.org/10.1371/journal.pone0185718>
- Meng J, Lien E, Golenbock DT, 2010. MD-2-mediated Ionic Interactions between Lipid A and TLR4 Are Essential for Receptor Activation. *The Journal Of Biological Chemistry*, Vol.285, No.12, pp.8695-8702.
- Meng L, Jin W, Wang X, 2015. RIP3-mediated necrotic cell death accelerates systematic inflammation and mortality, *PNAS* vol 112 no 35; 11007-11012, [www.pnas.org/cgi/doi/10.1073/pnas.1514730112](http://www.pnas.org/cgi/doi/10.1073/pnas.1514730112).
- Miao EA, Ernst RK, Dors M, Mao DP, Aderem A, 2008. *Pseudomonas aeruginosa* activates caspase 1 through Ipaf, *Proc.Natl.Acad.Sci.USA* 105, pp.2562-2567.
- Michalska M & Wolf P, 2015. *Pseudomonas Exotoxin A* : optimized by evolution for effective killing, *Front Microbiol* 6:963 doi:10.3389/fmicb.2015.00963
- Mochizuki Y, Suzuki T, Oka N, Zhang Y, Hayashi Y et al., 2014. *Pseudomonas aeruginosa* MucD Protease Mediated Keratitis by Inhibiting Neutrophil Recruitment and Promoting Bacterial Survival. *Invest Ophthalmol Vis Sci*, 55, pp.240-246.
- Moriwacki K, Chan FK, 2014. Necrosis-dependent and independent signaling of the RIP kinase in inflammation. *Cytokine Growth Factor Rev.* 2014; 25:167-174. (PubMed: 24412261)
- Mun JJ, Tam C, Kowbel D, Hawgood S, Barnett MJ, Evans DJ, Fleiszig SM, 2009. Clearance of *Pseudomonas aeruginosa* from a healthy ocular surface involves surfactant protein



- D and is compromised by bacterial elastase in a murine null-infection model, *Infect Immun* 77, pp.2392-2398.
- Munder A, Tumler B, 2014. Assessing Pseudomonas Virulence Using Mammalian Models: Acute Infection Model in Filloux A, Ramos JL(eds) Pseudomonas Methods and Protocols , Methods in Molecular Biology (Methods and Protocols), vol 1149, Humana Press, NY, [http://doi.org/10.1007/978-1-4939-0473-0\\_59](http://doi.org/10.1007/978-1-4939-0473-0_59)
- Muzio M, Stockwell BR, Stennicke HR, Salvesen GS, Dixit VM, 1998. *An induced proximity model for caspase-8 activation*, in Nagata S, Nakano H, *Apoptotic and Non-apoptotic Cell Death Current Topics* , Microbial and Immunology (2017), 403, pp.1-36.
- Nagata S, Nakano H, 2017. Apoptotic and Non-apoptotic Cell Death, Current Topics in Microbiology and Immunity 403:1-36 DOI 10.1007/82\_2015467
- Najjar M, Saleh D, Zelic M, Nogusa S, Shah S et al, 2016. RIPK1 and RIPK3 kinase promote cell death-independent inflammation by Toll-like receptor4, *Immunity* 19:45(1):46-59. Doi:10.1016/j.immuni.2016.06.007
- Narimatsu A, Hattori T, Koike N, Tajima K, Nakagawa H et al, 2019. Corneal lymphangiogenesis ameliorates corneal inflammation and edema in late stage of bacterial keratitis, *Scientific reports* 9: 2984, <https://doi.org/10.1038/s41598-019-39876-x>
- Nikoletopoulou V, Markaki M, Palikaras K, Tavernarakis N (2013). Crosstalk between apoptosis, necrosis and autophagy. *Biochim Biophys Acta* 1883(12):3448-3459
- Nishida T, Saika S, Monshige N, 2017. *Cornea and Sclera Anatomy and Physiology in Cornea* , Mannis MJ, Holland EJ, IV ed, Elsevire.
- Newton K, 2015. *RIPK1 and RIPK3: critical regulators of inflammation and cell death*, in Nagata S, Nakano H, *Apoptotic and Non-apoptotic Cell Death Current Topics in Microbial and Immunology* (2017), 403, pp.1-36.
- Norman B, Davis J, Piatigorsky J, 2004. Postnatal gene expression in the normal mouse cornea by SAGE, *Invest Ophthalmol Vis Sci* 45: 429-440.
- Novus Biological, 2015. Caspase-3, the executioner of apoptosis, <https://www.novusbio.com>>Antibody News.
- Oberst A, Dillon CP, Weinlich R, McCormick LL, Fitzgerald P, Pop C, Hakem R, Salvesen GS, Green DR, 2011. Catalytic activity of the caspase-8-Flip(L) complex inhibits RIPK3-dependent necrosis, *Nature* 471(7338):363-367
- Oh J, Li XH, Kim SK, Lee JH, 2017. Post-secretional activation of Protease IV by quorum sensing in *Pseudomonas aeruginosa*, South Korea, diunduh 22 Februari 2018, [www.nature.com/scientificreports](http://www.nature.com/scientificreports).

- Oka N, Suzuki T, Ishikawa E, Yamaguchi S, Hayashi N, Gotoh N, Ohashi Y, 2015. Relationship of Virulence Factors and Clinical Features in Keratitis Caused by *Pseudomonas aeruginosa*, *Invest Ophthalmol Vis Sci*;56;pp. 6892-6898.
- Pastrana DV, Hanson AJ, Knisely J, Guojun B, FitzGerald DJ, 2005. LRP1B functions as a receptor for *Pseudomonas* exotoxin, *Biochimica et Biophysica Acta* 1741,pp.234-239.
- Parmar P, Salman A, Kalavathy CM, Jesudasan CA, Thomas PA, 2003. Pneumococcal Keratitis : a clinical profile, *Clin Experiment Ophthalmol*, 31, pp. 44-47.
- Passador L & Iglewski W in Alhazmi A, 2015. *Pseudomonas aeruginosa* – Pathogenesis and Pathogenic Mechanism. *International Journal of Biology*, Vol.7, No.2, pp.44-55.
- Pier GB, Rampal R, 2005. *Pseudomonas aeruginosa* in *GL Mandel & JE Bennet*, Mandel, Douglas, and Bennett's principles and practice of infectious diseases, vol.2. pp. 223-228.
- Poltorak A, He X, Smirnova I, Liu MY, Van Huffel C, Du X, Beutler B, 1998. Defective LPS signaling in C3H/HeJ and C57BL/10ScCr mice: mutation in Tlr4 gene. *Science*, 282, pp. 2085-2088.
- Preston MJ, Fleiszig SM, Zaidi TS, Goldberg JB, Shortridge VD, Vasil ML, Pier GB, 1995. Rapid and sensitive method for evaluating *Pseudomonas aeruginosa* virulence factors during corneal infection in mice. *Infection and Immunity*, 63(9). pp. 3497-3501.
- Qureshi ST, Lariviere L, Leveque G, Clermont S, Moore KJ, Gros P, Malo D, 1999. Endotoxin-tolerant mice have mutations in Toll-like receptor 4 (Tlr4). *The Journal of experimental medicine*, 189(4), pp. 615-625.
- Rahme LG, Tan MW, Le L, Wong SM, Tompkin RG, Calderwood SB, Ausubel FM, 1997. Use of model plant hosts to identify *Pseudomonas aeruginosa* virulence factors. *Proceeding of the National Academy of Sciences*, 94(24), pp.13245-13250.
- Raffray M, Cohen GM, 1997. *Apoptosis and necrosis in toxicology*, in Nagata S, Nakano H, *Apoptotic and Non-apoptotic Cell Death*, Current Topics in Microbial and Immunology (2017), 403, pp.1-36.
- Riedl SJ, Shi, Y (2004). Molecular mechanism of caspase regulation during apoptosis. *Nat Rev Mol Cell Biol* 5(11):897-907
- Rodriguez DA, Weinlich R, Brown S, Guy L, Fitzgerald P, Dillon CP, Oberst A, Quarato G, Low J, Cripps JG, Chen T, Green DR, 2016. Characterization of RIPK3-mediated phosphorylation of the activation loop of MLKL during necroptosis. *Cell Death Differ*, 23(1): 76-78. Doi:10.1038/cdd.2015.70.
- Rudner XL, Kernacki KA, Barret RP, Hazlett LD, 2000. Prolonged evaluation of IL-1 in *Pseudomonas aeruginosa* ocular infection regulates macrophage –inflammatory protein-2 production, polymorphonuclear neutrophil persistence, and corneal perforation, *J Immunol* 164:6576-6582

- Rumbaugh KP, Griswold JA, Hamood AN, 2000. The role of quorum sensing in the *in vivo* virulence of *Pseudomonas aeruginosa*, *Microbes and infection*,2(14),pp.1721-1731.
- Ryu JK, Kim SJ, Rah SH, Park BS, Yoon TY, Kim HM, 2017. Reconstruction of LPS Transfer Cascade Reveals Structural Determination within LBP,CD14, and TLR4-MD2 for Efficient LPS Recognition and Transfer, *Immunity* 46, Elsevier,pp. 38-50.
- Saika S, Liu CY, Azhar M, Sanford LP, Doetschman T, Gendron RL, Kao CW, Kao WW, 2001. TGF $\beta$ 2 in corneal morphogenesis during mouse embryonic development, *Dev Biol* 240:419-432.
- Samadi PM, Gerami P, Elmi A, Khanalu K, Faezi S, 2019. *Pseudomonas aeruginosa* Keratitis : passive immunotherapi with antibodies raised against divalent flagellin, *Iran J Basic Med Sci*, Jan:22(1):58-64, doi:10.22038/ijbms.2018.31499.7643
- Santajit S, Seesnay W, Mahasongkram K, Sookrug N, Ampawong S, et al,2019. Human single chain antibodies that neutralize *Pseudomonas aeruginosa*-exotoxin A mediated cellular apoptosis, *Scientific Reports* 9: 14928 | <https://doi.org/10.1038/s41598-019-5108-w>
- Sato H & Frank DW, Yahr TL, Vallis AJ, Hancock MK, Barbieri JT, Frank DW in Alhazmi A,2015. *Pseudomonas aeruginosa*-Pathogenesis and Pathogenic Mechanism, *International Journal of Biology*,Vol.7,No.2,pp.44-55.
- Schultz MJ,Speelman P, Zaat SA, Hack CE, van Deventer SJ & van der Poll T in Gellatly SL, Hancock REW, 2013. *Pseudomonas aeruginosa*: new insights into pathogenesis and host defenses, *Pathogens and Disease*,67,pp.159-173.
- Shimazu R, Akashi S, Ogata H, Nagai Y, Fukudome K, Miyake K, Kimoto M, 1999. MD-2, a molecule that confers lipopolysachharida responsiveness on Toll-like receptor 4. *The Journal of experimental medicine* ,189(11), pp.1777-1782.
- Shimizu H ,Sakimoto T & Yamagami S, 2019. Proinflammatory role of NLRP3 inflammasome in experimental sterile corneal inflammation, *Scientific Reports*(9): 9595 <https://doi.org/10.1038/s41598-019-46116-9>
- Shiozaki EN, Chai J, Shi Y, 2002. *Oligomerization and activation of caspase-9, induce by Apaf-1 CARD*, in Nagata S,Nakano H, *Apoptotic and Non-apoptotic Cell Death*, Current Topics in Microbial and Immunology (2017),403,pp.1-36.
- Singh N and Bose K, 2015. Apoptosis : Pathways, Molecules and Beyond in *Proteases in Apoptosis: Pathways, Protocols and Translational Advances*, Springer International Publishing Switzerland,pp1-21.
- Smith RS, Harris SG, Phipps R, Iglewski B in Alhazmi A, 2015. *Pseudomonas aeruginosa*-Pathogenesis and Pathogenic Mechanism, *International Journal of Biology*,Vol.7,No.2,pp.44-55.
- Srinivasan ASM, Mascarenhas J, Lalitha P, Rajaraman R, Ravindran M, Oldenburg CE, Ray KJ, Glidden D, Zegans ME, Leod SDM, Lietman TM, Acharya NR, 2012.

- Pseudomonas aeruginosa* keratitis : outcome and response to corticosteroid treatment, *IOVS*,53,PP. 267-272.
- Steuhl KP, Doring G, Henni A, Thiel HJ, Botzenhart K,1987. Relevance of host derived and bacterial factors in *Pseudomonas aeruginosa* corneal infections. *Invest. Ophthalmol Vis Sci* 28:1559-1568.
- Sudiana IK, 2005. *Teknologi Ilmu Jaringan dan Imunohistokimia*, Jakarta, CV Sagung Seto, hal 2-50.
- Sudiana IK,2017. *Hantaran Sinyal pada Proses Inflamasi*, Airlangga University Press Surabaya, hal 29-59.
- Szlitzer EA, Lighvani S, Barret RP, Hazlett LD,2007. Vasoactive intestinal peptide balances pro- and anti-inflammatory cytokines in the *Pseudomonas aeruginosa*-infected cornea and protects against corneal perforations, *J Immunol*,178,pp. 1105-1114.
- Tamura M, Suzuki S, Sawada T,1992. Role of elastase as a virulence factor in experimental *Pseudomonas aeruginosa* infection in mice. *Microbial pathogenesis*,12(3)pp. 237-244.
- Tait SW, Green DR, 2010. *Mitochondria and cell death : outer membrane permeabilization and beyond*, in Nagata S, Nakano H, *Apoptotic and Non-apoptotic Cell Death*, Current Topics in Microbial and Immunology (2017),403,pp.1-36.
- Tamura Y, Suzuki S, Kijima M, Takahashi T, Nakamura M,1992. Effect of proteolytic enzyme on experimental infection of mice with *Pseudomonas aeruginosa*, *J Vet Med Sci* ,54,pp. 597-599.
- Tang HB, DiMango E, Bryan R, Gambello M, Iglewski BH, Goldberg JB, Prince A,1996. Contribution of *Pseudomonas aeruginosa* virulence factors to pathogenesis of pneumonia in a neonatal mouse model of infection. *Infection and Immunity*,64(1), pp.37-43.
- Taylor RC, Cullen SP, Martin SJ in Nagata S, Nakano H,2015. *Apoptotic and Non-apoptotic Cell Death*, *Current Topics in Microbiology and Immunology*,p3.
- Thayer MM, Flaherty KM, McKay DB,1991. Three-dimensional structure of the elastase of *Pseudomonas aeruginosa* at 1.5Å resolution,*J Biol Chem* 266,pp.2864-2871.
- Thoung M, Arvaniti K, Ruimy R, De la Salmoniere P, Scanvic-Hameg A, Lucet JC, Regnier B, 2003. Epidemiology of *Pseudomonas aeruginosa* and risk factors for carriage acquisition in an intensive care unit, *Journal of Hospital Infection*,53(4),pp. 274-282.
- Todar K, 2012. *Pseudomonas aeruginosa*, Madison, Wisconsin.
- Tolle L, Yu F, Kovach M, Ballinger MN, Newstead MW et al, 2015. Redundant and Cooperative interaction between TLR5 and NLRC4 in Protective Lung Mucosal Immunity against *Pseudomonas aeruginosa*, *J Innate Immun* 7(2) 177-178.

- Triyono J, Eddyanto, Debora K, 2016. Pola Bakteri dan Faktor Predisposisi Penderita Ulkus Kornea di RSUD Dr. Soetomo dan RS Mata Undaan Surabaya, *Jurnal Oftalmologi Indonesia(accepted)*, Surabaya.
- Tunggadewi APT, Endraswan PD, Debora K, Alimsardjono L,2018. A Profile of Microbial Keratitis in Dr. Soetomo Hospital , Surabaya, Indonesia in 1st International Scientific Meeting on Clinical Microbiology and Infetious Disease in conj with 10th National Congress of Indonesian Society for Clinical Microbiology and 12th National Symposium of Indonesian Antimicrobial Resistance Watch.
- Van Gennip M, Christensen LD, Alhede M, Phipps R, Jensen PO, Christophersen L, Bjarnsholt in Alhazmi A,2015. Pseudomonas aeruginosa-Pathogenesis and Pathogenic Mechanism, *International Journal of Biology*,Vol.7,No.2,pp.44-55.
- Varfolomeev EE, Schuchmann M, Luria V, Chiannilkulchai N, Beckmann JS ET AL, 1998. *Targetted disruption of the mouse Caspase 8 gene ablates cell death induction by the TNF receptors*, in Nagata S,Nakano H, *Apoptotic and Non-apoptotic Cell Death*, Current Topics in Microbial and Immunology (2017),403,pp.1-36.
- Vazirani J, Wurity S, Ali MH, 2015. Multidrug-Resistent Pseudomonas aeruginosa Keratitis : Risk Factors, Clinical Characteristics, and Outcomes, *Ophthalmology*,122(10):2110-4.doi:10.1016/j.ophtha.2015.06.07.Epub2015Jul15
- Vercammen D, Beyaert R, Denecker G, Goossens V, Van Loo G, Declercq W, Grooten J, FiersW, Vandenabeele P, 1998. Inhibition of caspases increases the sensitivity of L929 cells to necrosis mediated by tumor necrosis factor, *J Exp Med* 187(9):1477-1485
- Verma A, Arora SK, Kuravi SK, Ramphal R, 2005. Roles of specific amino acid in the N terminus of Pseudomonas aeruginosa flagellin and of flagellin glycosylation in the innate response, *Infection and Immunity*,73(12),pp. 8237-8246.
- Wang L, Fu H, Yang X,2016. Novel extracellular and nuclear caspase-1 and inflammasomes propogate inflammation and regulates gene expression: a comprehensive database runing study , *J. Hematol Oncol* :9: 122
- Wang H,Sun L, Su L, Rizo J, Liu L et al, 2014. *Mixed lineage kinase domain-like protein MLKL causes necrotic membrane disruption upon phosphorylation by RIP3*, in Nagata S,Nakano H, *Apoptotic and Non-apoptotic Cell Death*, Current Topics in Microbial and Immunology (2017),403,pp.1-36.
- Wang Q, Ma L, Lin T, Ge C, Zhou Q, Wei C, Shi W, 2019. TIPE2 Suppres Pseudomonas aeruginosa Keratitis by Inhibiting NFκB Signaling and the Infiltration Inflammatory Cells, *The Journal of Infectious Diseases* XX;1-11.
- Wegner KW, Saleh D, Degterev A, 2017. Complex Pathologic Roles of RIPK1 and RIPK3 : Moving Beyond Necroptosis, *Trends Pharmacol Sci*. March,38(3):202-225.doi:10.1016/j.tips.2016.12.005.

- Weinlich R, Green DR, 2014. The two faces of receptor interacting protein kinase-1, *Mol Cell* 54(1):133-146
- Weisenthal RW, Afshari NA, Bouchard CS, Colby CA, Elmer & YT, Freitas D, 2016. *Structure and Function of the External Eye and Cornea in External Disease and Cornea*. American Academy of Ophthalmology, San Fransisco, pp. 1-50
- Wilson SE, Liu JJ, Mohan RR, 1999. Stromal-Epithelial Interaction in The Cornea , *Prog Retin Eye Res*, vol.18, no.3, pp. 293-309, diunduh 2 Juni 2017, <https://www.ncbi.nlm.nih.gov>.
- Wright SD, Ramos RA, Tobias PS, Ulevitch RJ, Mathison JC, 1990. CD14, A receptor for complexes of LPS and LPS binding protein, *Science*, 249, pp. 1431-1433.
- Wu H, Hymowitz SG, 2010. Handbook of cell signaling ( second ed)
- Xue ML, Wakefield D, Willcox MDP, Lloyd AR, Girolamo ND, Cole N, Thakur A, 2003. Regulation of MMPs and TIMPs by IL-1 $\beta$  during Corneal Ulceration and Infection. *Investigative Ophthalmology & Visual Science*, vol.44, No.5, pp.2020-2025.
- Yang S, Wang J, Brand DD, Zheng SG, 2018. Role of TNF-TNFR Receptor 2 Signal in Regulatory of T cells and Its Theurapeutic Implications, *Front. Immunol.* 9:784 doi:10.3389/fimmu.2018.00784
- Yilmaz S, Ozturk I, Maden A, 2007. Microbial keratitis in West Anatolia, Turkey : a retrospective review, *Int Ophthal*, 27, pp. 261-268.
- Zhou Z, Wu M, Barrett RP, McClellan SA, Zhang Y, Hazlett LD, 2010. Role of the Fas Pathway in Pseudomonas aeruginosa Keratitis, *Investigative Ophthalmology & Visual Science*, Vol.51, No.5, pp. 2537-2547.