

**DAFTAR PUSTAKA**

- Anderson EJ dan Weber SG, 2004. Rotavirus infection in adults. *Lancet Infection Diseases* 4(2): 91-99.
- Athiyyah AF, Utsumi T, Wahyuni RM, Dinana Z, Yamani LN, Soetjipto, et al. 2019. Molecular epidemiology and clinical features of rotavirus infection among pediatric patients in east java, indonesia during 2015–2018: dynamic changes in rotavirus genotypes from equine-like G3 to typical human G1/G3. *Frontiers in Microbiology*, 10(May): 1–10.
- Arana A, Montes M, Jere KC, Alkorta M, Iturriza-Gómara M, & Cilla G, 2016. Emergence and spread of G3P[8] rotaviruses possessing an equine-like VP7 and a DS-1-like genetic backbone in the Basque Country (North of Spain), 2015. *Infection, Genetics and Evolution* 44: 137–144.
- Arias CF, Silva-Ayala D, López S, 2015. Rotavirus entry: a deep journey into the cell with several exits. *Journal of Virology* 89: 890-893.
- Arnold MM dan Patton JT, 2011, Diversity of interferon antagonist activities mediated by NSP1 proteins of different rotavirus strains. *Journal of Virology* 85: 1970-1979.
- Au, KS, Mattion NM, & Estes MK, 1993. A subviral particle binding domain on the rotavirus nonstructural glycoprotein NS28. *Virology* 194: 665-673.
- Ball JM, Schroeder ME, Williams CV, Schroeder F, Parr RD, 2013. Mutational analysis of the rotavirus NSP4 enterotoxin domain that binds to caveolin-1. *Virology Journal* 10 (336): 1-15.
- Ball JM, Tian JP, Zeng CQ, Morris AP, Estes MK, 1996. Age-dependent diarrhea induced by a rotaviral nonstructural glycoprotein. *Science* 272: 101–104.
- Banerjee I, Ramani S, Primrose B, Moses P, Iturriza-gomara M, Gray JJ *et al*, 2006. Comparative study of the epidemiology of rotavirus in children from a community-based birth cohort and a hospital in south India. *Journal of Clinical Microbiology* 44(7): 2468–2474.
- Banyai K, Bogdan A, Szucs G, Arista S, De Grazia S, Kang G, *et al*, 2009. Assignment of the group A rotavirus NSP4 gene into genotypes using a hemi-nested multiplex PCR assay: a rapid and reproducible assay for strain surveillance studies. *Journal of Medical Microbiology* 58: 303-311.
- Banyai K dan Pitzer VE. 2016. Molecular Epidemiology dan Evolution of Rotavirus. *Viral Gastroenteritis* :279-299.
- Bappeda Bandar Lampung, 2016. RPJMD Kota Bandar Lampung tahun 2016-2021. Bappeda : Bandar Lampung.

- Barman P, Ghosh S, Samadjar S, Mitra U, Dutta P, Bhattacharya SK, *et al.* 2006. RT-PCR based diagnosis revealed importance of Human group B rotavirus infection in childhood diarrhea. *Journal of Clinical Virology* 36: 222-227.
- Ben Hadj Fredj M, Seller M, Fodha I, Helylen E, CHoukha A, Ranst MV, Matthijnssens J, Trabelsi A, 2012. Molecular characterization of the NSP4 gene of human group A rotavirus strains circulating in Tunisia from 2006 to 2008. *Infection, genetics and evolution* 12: 997-1004.
- Ben Hadj Fredj M, Ben Hamida-Rebaï M, Zeller M, Heylen E, Van Ranst M, Matthijnssens J, & Trabelsi A, 2014. Sequence and structural analyses of NSP4 proteins from human group A rotavirus strains detected in Tunisia. *Pathologie Biologie* 62(3): 146–151.
- Bertol JW, Fregolente MCD, Caruzo TAR, Da Silva MJ, Munford V, Sáfadi MAP, *et al.*, 2015. Molecular characterisation of the NSP4 gene of group A human rotavirus G2P[4] strains circulating in São Paulo, Brazil, from 1994 and 2006 to 2010. *Memorias Do Instituto Oswaldo Cruz* 110(6): 786–792.
- BNP2TKI, 2014. Data Penempatan Tenaga Kerja Indonesia periode 1 Januari.d 31 Juli 2014. BNP2TKI Republik Indonesia: Indonesia.
- Boni-cisse C, Meite S, Mlan AB, Zaba F, Guessan RN. 2018. Genotypic characterization of rotavirus in children under 5 years circulating in Côte D' Ivoire from 2010 to 2013. *Virology Journal* 15 : 1-6.
- Bowman GD, Nodelman IM, Levy O, Lin SL, Tian P, Zamb TJ, *et al.*, 2000. Crystal structure of the oligomerization domain of NSP4 from rotavirus reveals a core metal-binding site. *Journal of Molecular Biology* 304 : 861-871.
- Brooks, Geo F, Carroll, Karen C, Butel, Janet S, Morse *et al.*, 2013. *Jawetz, Melnick, & Adelberg Medical Microbiology 27<sup>th</sup> edition*. The McGraw-Hill Education and EGC medical Publisher, US.
- Browne EP, Bellamy AR, Taylor JA, 2019. Membrane-destabilizing activity of rotavirus NSP4 is mediated by a membrane-proximal amphipathic domain. *Journal Genetic Virology* 81: 1955–1959.
- Bresee JS, Hummelman E, Nelson EAS, Glass RI. 2005. Rotavirus in Asia: The Value of Surveillance for Informing Decisions about the Introduction of New Vaccines. *The Journal of Infectious Diseases* 192(s1): S1–S5.
- Cdr W, John BM, Amit C, & Barnali M, 2014. Prevalence of rotavirus infection in children below two years presenting with diarrhea. *Medical Journal Armed Forces India* 70: 116-119.

- CDC. Diarrhea: common illness, global killer. Centers for Disease Control and Prevention. 2012. p. 1–4
- Chacko AR, Arifullah M, Sastri NP, Jeyakanthan J, Ueno G, Sekar K, *et al.* 2011. Novel pentameric structure of the diarrhea-inducing region of the rotavirus enterotoxigenic protein NSP4, *Journal of Virology* 85(23): 12721– 12732.
- Chen DCL, Luongo ML, Nibert JT, Patton. 1999. Rotavirus open cores catalyze 5' –capping and methylation of exogenous RNA: evidence that VP3 is a methyltransferase. *Journal of Virology* 265: 120-130.
- Chakravarti A, Chauhan MS, Sharma A, Verma V, Hospital LN, Delhi N. 2010. Distribution of human rotavirus g and p genotypes in a hospital setting from Northern India. *Southeast Asian Journal Tropical Medical Public Health* 41(5): 1145–1152.
- Ciarlet M, F Liprandi ME, Conner, MK Estes, 2000. Species specificity and interspecies relatedness of NSP4 genetic groups by comparative NSP4 sequence analyses of animal rotaviruses. *Archives of Virology* 145(2): 371–83.
- Cowley D, Donato CM, Roczo-Farkas S, Kirkwood CD, 2016. Emergence of a novel equine-like G3P[8] intergenogroup reassortant rotavirus strain associated with gastroenteritis in Australian children. *Journal of General Virology* 97: 403-410.
- Cowley D, Nirwati H, Donato CM, Bogdanovic-Sakran N, Boniface K, Kirkwood CD, *et al.* 2018. Molecular characterisation of rotavirus strains detected during a clinical trial of the human neonatal rotavirus vaccine (RV3-BB) in Indonesia. *Vaccine* 36(39): 5872–5878.
- Crawford SE, John J, Babji S, Estes MK, Kang G, 2011. Protective effect of natural rotavirus infection in an indian birth cohort. *New England Journal Medicine* 365 (4): 337–346.
- Crawford SE, Ramani S, Tate JE, Parashar UD, Svensson L, Hagbom M, *et al.*, 2018. Rotavirus infection. *Natural Review Disease Primers* 3 : 1-39.
- Curns AT, Panozzo CA, Tate JE, *et al.*, 2011. Remarkable post vaccination spatio temporal changes inn United States rotavirus activity. *Pediatric Infection Disease* 30: S54-S55.
- Dennehy, PH. 2008. Rotavirus vaccine: an overview. *Clinical microbial Reviews* 21: 198-208.
- Dereci S, Çiçek AÇ, Acar SS, Bakkaloğlu Z, Özkasap S, & Kanber K *et al.*, 2015. Prevalence and genotype distribution of rotaviruses in children with gastroenteritis in Rize province, *Bosnian Journal of Basic Medicals Sciences*

15 (3): 35–39.

Deo RC, Groft CM, Rajashankar KR, Burley SK, 2002. Recognition of the rotavirus mRNA 3' consensus by asymmetric NSP3 homodimer. *Cell* 108: 71-81.

Desselberger, U dan Huppertz, H. 2011. Immune Response to Rotavirus Infection and Vaccination and Associated Correlates of Protection. *JID* 203: 188-195.

Doro R, Marton S, Bartokne AH, Lengyel G, Agocs Z, Jakab F, Banyai K, 2016. Equine-like G3 rotavirus in Hungary, 2015-is it a novel intergenogroup reassortant pandemic strain?. *Acta Microbiologica et Immunologica Hungarica* 63 (2): 243-255.

Durmaz R, Kalaycioglu AT, Acar S, Bakkaloglu Z, Karagoz A, Korukluoglu G., et al, 2014. Prevalence of rotavirus genotypes in children younger than 5 years of age before the introduction of a universal rotavirus vaccination program: report of rotavirus surveillance in Turkey. *PLoS ONE* 9(12): 1–19.

Esona MD, Armah GE, Steele AD, 2010. Rotavirus VP4 and VP7 genotypes circulating in Cameroon: identification of unusual types. *The Journal of Infectious Diseases* 202(S1): S205–S211.

Estes MK, 2001. Rotaviruses and their replication in Fields Virology Ed 4<sup>th</sup> Lippincott Williams and Wilkins, Philadelphia : hal 1426-1454.

Estes MK dan Kapikian AZ, 2007. Rotaviruses dalam *Field Virology ed 5<sup>th</sup>, vol 2*. Lippincott Williams & Wilkins, Philadelphia, PA: hal 1917-1974

Estes MK dan Greenberg HB. 2013. *Rotaviruses*, p 1347-1401. In Knipe DM, Howley PM (ed), *Fields virology, 6<sup>th</sup> ed. Vol 2*. Lippincott, William and Wilkins; Philadelphia. hal 1347-1401.

Franco MA, Angel J, Greenberg HB. 2006. Immunity and correlate of protection for rotavirus vaccine. *Vaccine* 24: 2781-2731.

Franco, Manuel A, Greenberg HB, 2009. *Clinical Virology 3th edition*. ASM Press : Washington DC.

Freedman SB, Eltorkey M, Gorelick M. 2010. Evaluation of a gastroenteritis severity score for use in outpatient settings. *Journal of Pediatrics* 125 : e1278–85.

Giaquinto C, Damme P Van, Gothefors L, Maxwell M, Todd P, 2007. Clinical consequences of rotavirus acute gastroenteritis in Europe, 2004 – 2005 : The reveal study. *The Journal of Infectious Disease* 195(Suppl 1): S26-35.

Glass RI, Bielfelt B, Banyai K, Griffin DD, Parashar UD, Jain V, et al, 2005. Serotype diversity and reassortment between human and animal rotavirus

- strains: implications for rotavirus vaccine programs. *The Journal of Infectious Diseases* 192(s1): S146–S159.
- Golantsova NE, Gorbunova EE, & Mackow ER, 2004. Discrete domains within the rotavirus VP5\* direct peripheral membrane association and membrane permeability. *Journal of Virology* 78: 2037-2044.
- Gomara I, Green J, Gray J. 2000. Methods of rotavirus detection, sero-and genotyping, sequencing, and phylogenic analysis. *Methods Molecular Medicine* 34: 189-216.
- González-Ochoa G, Menchaca GE, Hernández CE, Rodríguez C, Tamez RS, Contreras JF, 2013. Mutation distribution in the NSP4 protein in rotaviruses isolated from Mexican children with moderate to severe gastroenteritis. *Viruses* 5(3): 792–805.
- Gouvea V, Glass RI, Woods P, Taniguchi K, Clark HF, Forrester B, *et al*, 1990. Polymerase chain reaction amplification and typing of rotavirus nucleic acid from stool specimens. *Journal of Clinical Microbiology* 28(2): 276–282.
- Gunawan E, Utsumi T, Wahyuni RM, Dinana Z, Sudarmo SM, Shoji I, Soetjipto, Lusida MI, 2019. Post-vaccinated asymptomatic rotavirus infections: a community profile study of children in Surabaya, Indonesia. *Journal of Infection and Public Health*: 1-5.
- Habib A, Johargy A, Mahmood K, Humma. 2014. Design and determination of the sample size in medical research. *IOSR-JDMS* 13(5): 21-31.
- Heiman EM, McDonald SM, Barro M, Tarapolewa ZF, Bar-Magen T, Patton JT, 2008. Group A human rotavirus genomins: evidence that gene constellations are influenced by viral protein interactions. *Journal of Virology* 82 (22): 11106-11116.
- Horie Y, Masamune O, Nakagomi O, 1997. Three major alleles of rotavirus NSP4 proteins identified by sequence analysis. *Journal of General Virology* 78(9): 2341–2346.
- Hung LC, Wong SL, Chan LG, Rosli R, Ng ANA, Bresee JS, 2006. Epidemiology and strain characterization of rotavirus diarrhea in Malaysia. *International Journal of Infectious Diseases* 10(6): 470–474.
- Hupperzt H, Salman N, Giaquinoto, C, 2008. Risk Factor for Severe Rotavirus Gastroenteritis. *Pediatric Infectious Disease Journal* 27: S11-S19.
- Hyser JM, Collison-Pautz MR, Utama B, Estes MK. 2010. Rotavirus disrupts calcium homeostasis by NSP4 viroporin activity. *mBio* 1(5): e00265-10.

- Ibrahim PSB, Badrelsabbah Ibrahim S, Abdelkader El-Bialy A, Soliman Mohammed M, Omar El-Sheikh A, Elhewala A, et al. 2015. Detection of rotavirus in children with acute gastroenteritis in zagazig university hospitals in egypt. *Electronic Physician* 7(5): 2008–5842.
- Intamaso U, Poomipak W, Chutoam P, Chotchuang P, Sunkkham W, Srisopha S, Likanonsakul S, 2017. Genotype distribution and phylogenetic analysis of rotaviruses in Thailand and emergence of uncommon genotypes. *Archives of Clinical Microbiology* 08 (4): 1-11.
- Intusoma U, Kanoksil M, Kluabwang P, Poonawagul U, Arporntip P, Bresee JS, et al. 2005. Epidemiology and burden of rotavirus diarrhea in thailand: results of sentinel surveillance. *The Journal of Infectious Diseases* 192(s1): S87–S93.
- Iskandar WJ, Sukardi W, Soenarto Y, 2015. Risk of nutritional status on diarrhea among under five children. *Paediatrica Indonesiana* 55(4): 235–238.
- Iturriza-Gòmara M, Anderton E, Kang G, Gallimore C, Phillips W, Desselberger U, et al, 2003. Evidence for genetic linkage between the gene segments encoding NSP4 and VP6 proteins in common and reassortant human rotavirus strains. *Journal of Clinical Microbiology* 41(8): 3566–3573.
- Jagannath MR, Kesavulu MM, Deepa R, Sastri PN, Kumar SS, Suguna K, et al. 2005. N- and c-terminal cooperation in rotavirus enterotoxin: novel mechanism of modulation of the properties of a multifunctional protein by a structurally and functionally overlapping conformational domain. *Journal of Virology* 80(1): 412–425.
- Junaid SA, Umeh C, Olabode AO, Banda JM. 2011. Incidence of rotavirus infection in children with gastroenteritis attending Jos university teaching hospital, Nigeria. *Virology Journal* 8(1):233.
- Kang, G. 2006. Rotavirus genotypes and severity of diarrheal disease. *Clinical Infectious Disease* 43: 315–316.
- Kapikian A, Hoshino Y, Chanock M, 2001. Rotaviruses, dalam *Field Virology* ed 4<sup>th</sup>. Lippincott Williams & Wilkins; Philadelphia : hal 1787-1833
- Kamiya H, Tacharoenmuang R, Ide T, Negoro M, Tanaka T, Asada K, et al. 2019. Characterization of an unusual DS-1-like G8P[8] rotavirus strain from Japan in 2017: Evolution of emerging DS-1-like G8P[8] strains through reassortment. *Japanese Journal of Infectious Diseases* 484.
- Kementerian Kesehatan (Kemenkes) Republik Indonesia. 2016. *Profil Kesehatan Indonesia 2015. Katalog Dalam Terbitan Kementerian Kesehatan RI*. Di download dari: <http://www.kemkes.go.id> diakses pada 10 Oktober 2017.

- Kementerian Kesehatan Republik Indonesia. 2015. *Profil Kesehatan Indonesia 2014. Katalog Dalam Terbitan Kementerian Kesehatan RI*. Di download dari: <http://www.kemkes.go.id> diakses pada 10 Oktober 2017.
- Kelkar SD, Purohit SG, Boralkar AN, Verma SP, 2001. Prevalence of rotavirus diarrhea among out- patients and hospitalized patients : a comparison. *Southeast Asian Journal Tropical Medicine Public Health* 32(3): 494-499.
- Kilgore PE, Meng CY, Kirkwood C, Nyambat B, Vansith K, Rin E, *et al*, 2009. Hospital-based surveillance for rotavirus diarrhoea in Phnom Penh, Cambodia, March 2005 through February 2007. *Vaccine* 27: F81–F84.
- Kirkwood CD, Palombo E, 1997. Genetic characterization of the rotavirus nonstructural protein NSP4. *Virology* 236(236): 258–265.
- Kordasti S, Sjoval, Ludgren O, Svesson L, 2004. Serotonin and vasoactive intestinal peptide antagonis attenuate rotavirus diarrhea. *Gut* 53: 952-957.
- Kovbasnjuk O, Crawford SE, Conner ME, Zachos NC, Saxena K, Ettayebi K, *et al*, 2015. Human intestinal enteroids: a new model to study human rotavirus infection, host restriction, and pathophysiology. *Journal of Virology* 90(1): 43–56.
- Lee C, Wang Y, Kao C, Zao C, Lee C, Chen H. 2000. NSP4 gene analysis of rotaviruses recovered from infected children with and without diarrhea. *Journal of Clinical Microbiology* 38(12): 4471–4477.
- Lemeshow S, Hosmer DW, Klar J, Ogston SA, Lwanga SK. 2006. Adequacy of Sample Size in Health Studies. *Biometrics*, 47(1): 347.
- Lesmana M, Tjaniadi P, Taslim J, Campbell J, Simanjuntak C, Frazier E, *et al*, 2006. Incidence of Norwalk-like viruses, rotavirus and adenovirus infection in patients with acute gastroenteritis in Jakarta, Indonesia. *FEMS Immunology & Medical Microbiology* 33(1): 27–33.
- Levy K, Hubbard AE, Eisenberg JN, 2009. Seasonality of rotavirus disease in the tropics: a systematic review and meta-analysis. *Intestine Journal of Epidemiology* 38: 1487-1496.
- Lewis K, 2011. Vesikari clinical severity scoring system manual. Path-a catalyst for global health. Ver 1.3.
- Linhares AC, Verstraeten T, Wolleswinkel-van den Bosch J, Clemens R, Breuer T, 2006. Rotavirus serotype G9 is associated with more-severe disease in Latin America. *Clinical Infectious Diseases* 43(3): 312–314.
- Listiyaningsih E, 2012. Peran faktor genetik rotavirus terhadap keparahan diare infeksi akut pada bayi dan anak balita di Indonesia. Disertasi, Universitas

Indonesia, Indonesia.

- Loo DF, Wright EM, Zeuthen, T, 2002. Water pumps. *Journal of Physiology* 542: 53-60.
- Lopez S, & Arias CF, 2006. Early steps in rotavirus cell entry. *Current Topic of Microbiology Immunobiology*, 309, 39-66.
- Lorrot M, Benhamadouche-Casari H, Vasseur M, 2006. Mechanisms of net chloride secretion during rotavirus diarrhoea in young rabbits: do intestinal villi secrete chloride?, *Cell Physiology Biochemistry* 18(1-3): 103-112.
- Lundgren O, & Svensson L, 2001. Pathogenesis of Rotavirus diarrhea. *Microbes and Infection* 3(13): 1145–1156.
- Lundgren O, Peregrin AT, Persson K, Kordasti S, Uhnöo I, Svensson L. 2000. Role of the enteric nervous system in the fluid and electrolyte secretion of rotavirus diarrhea. *Science* 287(5452): 491–495.
- Mascarenhas JDAP, Leite JPG, Lima JC, Heinemann MB, Oliveira DS, Araújo IT, *et al*, 2007. Detection of a neonatal human rotavirus strain with VP4 and NSP4 genes of porcine origin. *Journal of Medical Microbiology* 56(4): 524–532.
- Matthijnssens J, Rahman M, Ciarlet M, Zeller M, Heylen E, Nakagomi T, *et al*, 2010. Reassortment of human rotavirus gene segments into G11 rotavirus strains. *Emerging Infectious Diseases* 16(4): 625–630.
- Matthijnssens J, Ciarlet M, McDonald SM, Attoui H, Bányai K, Brister JR, *et al*. 2011. Uniformity of rotavirus strain nomenclature proposed by the Rotavirus Classification Working Group (RCWG). *Archives of Virology* 156(8): 1397–1413.
- Macedo CI, Christofolletti A, Munford V, Rácz ML. 2007. G and P rotavirus genotypes in stool samples from children in Teresina, State of Piauí. *Revista Da Sociedade Brasileira de Medicina Tropical* 40(4): 381–384.
- Mlera L, Jere KC, van Dijk AA, O'Neill HG. 2011. Determination of the whole-genome consensus sequence of the prototype DS-1 rotavirus using sequence-independent genome amplification and 454® pyrosequencing. *Journal of Virological Methods* 175(2): 266–271.
- Moe K, Thu HM, Oo WM, Aye KM, Shwe TT, Mar W, Kirkwood CD, 2009. Genotyping of rotavirus isolates collected from children less than 5 years of age admitted for diarrhoea at the Yangon Children's Hospital, Myanmar. *Vaccine* 27(SUPPL. 5): 89–92.



- Monnier NK, Higo-Moriguchi ZY, Sun BV, Prasad K, Taniguchi PR, Dormitzer, 2006. High resolution molecular and antigen structure of the VP8\* core of sialic acid-independent human rotavirus strain. *Journal of Virology* 80: 1513–1523.
- Mota-hernández F, Calva JJ, Villa-contreras S, Arias CF, Guiscafré-gallardo H, Lourdes MDe, *et al*, 2003. Rotavirus diarrhea severity is related to the VP4 type in mexican children. *Journal of Clinical Microbiology* 41(7): 3158–3162.
- Moussa A, Ben M, Fredj H, Fodha I, Benhamida-rebaï M, Kacem S,*et al*, 2019. Distribution of rotavirus VP7 and VP4 genotypes circulating in Tunisia from 2009 to 2014: Emergence of the genotype G12. *Journal of Medicine Microbiology* 65: 1028–1037.
- Mukherjee A, Ghosh S, Bagchi P, Dutta D, Chattopadhyay, Kobayashi N, Chawla-Sarkar M. 2011. Full genomic analysis of human rotavirus G4P[4], G4P[6], G9P[19], G10P[6] strains from North-eastern India: evidence for interspecies transmission and complex reassortment events. *Clinical Microbiology and Infection* 17: 1343-1346.
- Nejmeddine M, Trugnan G, Sapin C, Kohli E, Svensson L, Lopez S, *et al*. 2002. Rotavirus spike protein VP4 is present at the plasma membrane and is associated with microtubules in infected cells. *Journal of Virology* 74(7): 3313–3320.
- Nirwati H, Donato CM, Ikram A, Aman AT, Wibawa T, Kirkwood CD, Soenarto Y, Pan Q, Hakim MS, 2019. Phylogenetic and immunoinformatic analysis of VP4, VP7, and NSP4 genes of rotavirus strains circulating in children with acute gastroenteritis in indonesia. *Medical Virology (epub ahead of print)*.
- Nguyen TA, Khamrin P, Takanashi S, Le Hoang P, Pham LD, Hoang KT, *et al*. 2007. Evaluation of immunochromatography tests for detection of rotavirus and norovirus among Vietnamese children with acute gastroenteritis and the emergence of a novel norovirus GII.4 variant. *Journal of Tropical Pediatrics* 53(4):264–9.
- Nirwati H, Hakim MS, Aminah S, Dwija IBNP, Pan Q, Aman AT, 2017. RV strains in Indonesia. *The Malaysian Journal of Medical Sciences* 24(2): 68–77.
- Nirwati H, Wibawa T, Aman AT, Wahab A, Soenarto Y, 2016. Detection of group A rotavirus strains circulating among children with acute diarrhea in Indonesia. *SpringerPlus* 5(1): 97.
- Nordgren J, Nitiema LW, Ouermi D, Simpore J, Svensson L, 2013. Host genetic factors affect susceptibility to norovirus infections in Burkina Faso. *PLoS ONE* 8(7): 23–25.

- O'Brien JA, Taylor JA, Bellamy AR. 2000. Probing the structure of rotavirus NSP4: a short sequence at the extreme C terminus mediates binding to the inner capsid particle. *Journal of Virology* 74(11): 5388–5394.
- Oh HK, Hong SH, Ahn BY, & Min HK, 2012. Phylogenetic analysis of the rotavirus genotypes originated from children < 5 years of age in 16 cities in south korea, between 2000 and 2004. *Osong Public Health and Research Perspectives* 3(1): 36–42.
- Patterson R, Boehning D, Snyder SH, 2004. Inositol 1,4,5-trisphosphate receptors as signal integrators. *Annual Reviews Biochemistry* 73: 437–65.
- Patton JT, 2012, Rotavirus diversity and evolution in the post-vaccine world. *Discovery Medicine* 13(68): 85-97.
- Patton JT, Silvestri LS, Tortorici MA, Vasquez-Del Carpio R, Taraporewala ZF, 2006. Rotavirus genome replication and morphogenesis: role of the viroplasm. *Current Tropical Microbiology Immunobiology* 309: 169-187.
- Parashar UD, Gibson CJ, Bresse JS, Glass RI, 2006. Rotavirus and severe childhood diarrhea. *Emergence Infectious Disease* 12: 304-306.
- Poncet D, Lindenbaum P, L'Haridon R, Cohen J. 1997. In vivo and in vitro phosphorylation of rotavirus NSP5 correlates with its localization in viroplasms. *Journal of Virology* 71: 34-41.
- Pradhan GN dan Chitambar SD, 2018. Genetic analysis of rotavirus G2P[4] strains in Pune , Western India : circulation of a novel reassortant bearing E6 NSP4 genotype. *Archives of Virology* 163(5): 1391–1394.
- Putnam SD, Sedyaningsih ER, Listiyaningsih E, Pulungsih SP, Komalarini, Soenarto Y, *et al*, 2007. Group A rotavirus-associated diarrhea in children seeking treatment in Indonesia. *Journal of Clinical Virology* 40(4): 289–294.
- Rainsford EW dan McCrae MA. 2007. Characterization of the NSP6 protein product of rotavirus genen 11. *Virology Research* 67: 193-201.
- Ramani S dan Kang G, 2008. Burden of disease & molecular epidemiology of group A rotavirus infections in India. *Indian Journal Medicinal Researh* 125(5): 619–632.
- Ramig RF. 2004. Pathogenesis of intestinal and systemic rotavirus infection. *Journal of Virology* 78(19): 10213-10220.
- Ramig RF. 1997. Genetics of the Rotaviruses. *Annual Review of Microbiology* 51(1): 225–255.

- Diaz-Rodriguez J, Montava R, Garcia-Diaz A, Buesa J. 2005. Humoral Immune Response to Rotavirus NSP4 Enterotoxin in Spanish Children. *Journal of Medical Virology* 77: 317–322.
- Ruuska T dan Vesikari T, 1990. Rotavirus disease in finnish children: Use of numerical scores for clinical severity of diarrhoeal episodes. *Scandinavian Journal of Infectious Diseases* 22(3): 259–267.
- Sanger F dan Coulson AR, 1975. A rapid method for determining sequences in DNA by primed synthesis with DNA polymerase. *Journal of Molecular Biology* 94(3): 441–448.
- Santos N dan Hoshino Y. 2005. Global distribution of rotavirus serotypes/genotypes and its implication for the development and implementation of an effective rotavirus vaccine. *Review Medical Virology* 15: 29-56.
- Shetty RS, Kamath VG, Nayak DM, Hegde A, Saluja T, 2016. Rotavirus associated acute gastroenteritis among under-five children admitted in two secondary care hospitals in southern Karnataka, India. *Clinical Epidemiology and Global Health* 5(1): 1–5.
- Shim DH, Kim DY, Cho KY, 2016. Diagnostic value of the vesikari scoring system for predicting the viral or bacterial pathogens in pediatric gastroenteritis. *Korean Journal of Pediatrics* 59(3): 126– 131.
- Soenarto Y, Aman A T, Bakri A, Waluya H, Firmansyah A, Kadim M, *et al*, 2009. Burden of severe rotavirus diarrhea in indonesia. *The Journal of Infectious Diseases* 200(s1): S188– S194.
- Sowmyanarayanan TV, Ramani S, Sarkar R, Arumugam R, Warier JP, Moses PD, *et al*, 2012. Severity of rotavirus gastroenteritis in Indian children requiring hospitalization, *Vaccine* 30S : A167-A172.
- Srivastava S dan Jain A, 2015. Rotavirus nonstructural protein 4 (NSP4)-viral enterotoxin with multiple roles in pathogenesis of diarrhoea in children. *Journal of Applied Pharmaceutical Science* 5(7): 146– 153.
- Srivastava S, Jain A, Khan DN, Prakash S, Singh M, Awasthi S, 2015. Molecular characterization of the rotavirus enterotoxin NSP4 gene of strains causing diarrhoea in children aged 0-5 years in northern India. *Journal of Applied Pharmaceutical Science* 5(11): 43–49.
- Standaert B, Perez N, Tehard B, Colin X, Detournay B, 2008. Cost-effectiveness analysis of vaccination against rotavirus with RIX4414 in France. *Applied Health Economics and Health Policy* 6(4): 199–216.

- Staat, Mary A. 2005. *Rotavirus : Identification, Treatment, and Prevention*. Available from URL : [http://www.medscape.com/viewprogram/4--7\\_pnt](http://www.medscape.com/viewprogram/4--7_pnt). 15 April 2005:3- 15.
- Sudarmo SM, Shigemura K, Athiyyah AF, Osawa K, Wardana OP, Darma A, *et al*, 2015. Genotyping and clinical factors in pediatric diarrhea caused by rotaviruses: one-year surveillance in Surabaya, Indonesia. *Gut Pathogens* 7: 3
- Suraatmaja, Sudaryat. 2010. *Kapita Selekta Gastroenterologi*. Sagung Seto; Jakarta.
- Tamura K, Stecher G, Peterson D, Filipinski A, Kumar S, 2013. MEGA6: Molecular evolutionary genetics analysis version 6.0. *Molecular Biology and Evolution* 30(12): 2725–2729.
- Tate JE, Burton AH, Boschi-Pinto C, Steele AD, Duque J, Parashar UD. 2012. 2008 Estimate Of Worldwide Rotavirus Associated Mortality In Children Younger Than 5 Years Before The Introduction Of Universal Rotavirus Vaccination Programmes: A Sitematic Review And Meta-Analysis. *Lancet Infectious Disease* 12: 136-141.
- Tatsumi M, Nagaoka Y, Tsugawa T, Koto Y, Hori T, Tutsumi H, 2014. Characteristization of the NSP4 gene og group A human rotavirus G1P[8] strains circulating in Sapporo, Japan from 1987 to 2000. *Journal of Virology* 86(2): 354-359.
- Taraporewala Z, Chen D, Patton J, 1999. Multimers formed by the rotavirus nonstructural protein NSP2 bind to rna and have nucleoside triphosphat activity. *Journal of Virology* 73: 9934-9943.
- Tavares TDM, De Brito WMED, Fiaccadori FS, De Freitas ERL, Parente JA, Da Costa PSS, *et al*, 2008. Molecular characterization of the NSP4 gene of human group A rotavirus samples from the West Central region of Brazil. *Memorias Do Instituto Oswaldo Cruz* 103(3): 288–294.
- Taylor JA dan Bellamy AR, 2003. Interaction of the rotavirus nonstructural glycoprotein NSP4 with viral and cellular components. *Viral Gastroenteritis*: 225–235.
- Trask SD, McDonald SM, Patton JT, 2012. Structural insights into the coupling of virion assembly and rotavirus replication. *Nature Review* 10: 165-178.
- Teimoori A, Nejati M, Ebrahimi S, Makvandi M, Zandi M, Azaran A, 2018. Analysis of NSP4 gene and its association with genotyping of rotavirus group a in stool samples. *Iranian Biomedical Journal*, 22(1): 42–49.
- Theuns S, 2015. Minutes of the 7th Rotavirus Classification Working Group ( RCWG ) Meeting ( 9 Oct 2015 ) 12th International Double Stranded RNA

Virus Symposium 9 Oct 2015, Goa Marriott Beach Resort & Spa , Goa , India.

Tsugawa T, Tatsumi M, & Tsutsumi H, 2014. Virulence-associated genome mutations of murine rotavirus identified by alternating serial passages in mice and cell cultures. *Journal of Virology* 88(10): 5543–5558.

UNICEF, Kementerian PPN/Bappenas. SDG untuk Anak-anak di Indonesia- Profil singkat Provinsi Lampung. Unicef sheet.

Utsumi T, Mega R, Hai Y, Dinana Z, Soegijanto S. 2018. Equine- like G3 rotavirus strains as predominant strains among children in Indonesia in 2015 – 2016. *Infection, Genetics and Evolution* 61: 224–228.

Velázquez FR, Matson DO, Calva JJ, Guerrero ML, Morrow AI, Carter-Campbell S, Glass RI, Estes MK, Pickering Lk. R-PGM. 1996. Rotavirus infection in infants as protection against subsequent infections. *New England Journal Medicine* 15: 1022-1029.

Widdowson MA, Meltzer MI, Zhang X, Bresee JS, Parashar UD, Glass RI, 2007. Cost-effectiveness and potential impact rotavirus vaccination in the United States. *Pediatric* 119: 684-687.

Wilopo SA, Kilgore P, Kosen S, Soenarto Y, Aminah S, Cahyono A, et al. 2009. Economic evaluation of a routine rotavirus vaccination programme in Indonesia. *Vaccine* 27(SUPPL. 5): 67–74.

World Health Organization (WHO), 2009. *Manual of rotavirus detection and characterization methods*. Geneva, Switzerland. Available on internet [www.who.int/vaccines-documents/](http://www.who.int/vaccines-documents/).

World Health Organization (WHO), 2005. *Handbook: IMCI integrated management of childhood illness*. Geneva, Switzerland. Available on internet <https://apps.who.int/iris/handle/10665/42939>.

Xu A, Bellamy AR, & Taylor JA, 2000. Immobilization of the early secretory pathway by a virus glycoprotein that binds to microtubules, *European Molecular Biology Organization* 19(23): 6465–6474.

Yuwono, Triwibowo, 2005, *Biologi Molekuler*. Penerbit Erlangga; Jakarta.

Zaman K, Dang D, Victor J, et al. 2010. Efficacy of pentavalent rotavirus vaccine against severe rotavirus gastroenteritis in infants in developing countries in Asia: a randomized, double-blind, placebo-controlled trial". *Lancet* 376: 615–23.

Zhang M, Zeng CQY, Morris AP, Estes MK. 2000. A functional NSP4 enterotoxin peptide secreted from rotavirus-infected cells. *Journal of Virology* 74: 11663-11670.

Zhang M, Zeng CQY, Dong Y, Ball JM, Saif LJ, Morris AP, Estes MK. 1998. Mutations in Rotavirus Nonstructural Glycoprotein NSP4 Are Associated with Altered Virus Virulence. *Journal of Virology* 72(5): 3666–72.