

DAFTAR PUSTAKA

- Abdelsalam, A.Z.E., Ibrahim, M.M.M., Abdelwhab, E.M., dan Hafez, H.M., 2011. Development of duplex and triplex conventional RT-PCR for the detection of H5N1 avian influenza virus. *Arch. Geflügelk.*, 75 (3): 191–195.
- Abdelwhab, E.M., dan Hafez, H.M. 2011. An overview of the epidemic of highly pathogenic H5N1 avian influenza virus in Egypt : epidemiology and control challenges. *Epidemiol. Infect.*, 139: 647-657.
- Akarsu, H., Iwatsuki-Harimoto, K., Noda, T., Kawakami, E., Katsura, H., Baudin, F., Harimoto, T., dan Kawaoka, Y. 2011. Structure-based design of NS2 mutants for attenuated influenza A virus vaccines. *Virus Research.*, 155(1): 240-248.
- Alexander, D.J. 2000. A review of Avian Influenza in Different Bird Species, *Vet. Microbiol.*, 74: 3-13.
- Alexander, DJ. 2007. An overview of the epidemiology of avian influenza. *Vaccine*, 25: 5637–5644.
- Amorsolo, L., Suguitan, Jr., Matsuoka, Y., Lau, Y.F., Santos, C.P., Vogel, L., Cheng, L.I., Orandle, M. dan Subbarao, K. 2012. The multibasic cleavage site of the hemagglutinin of highly pathogenic A/Vietnam/1203/2004 (H5N1) avian influenza virus acts as a virulence factor in a host-specific manner in mammals. *J. Virol.*, 86 (5): 2706-2714.
- Andesfha, E., Ramlah, Natih K.K.N., Djusa, E.R., dan Mucharini, H. 2013. Identifikasi molekuler dinamika genetik virus avian influenza sub tipe H5N1 clade 2.1.3 dan 2.3.2. *Bul Penguj Mut Obat Hew.*, 20:34-45.
- Anggoro, D. 2015. Deteksi dan Karakterisasi Molekuler Gen Matriks dan Hemagglutinin Virus *Avian Influenza* H5N1 dari beberapa Peternakan yang Mnerapkan Sistem Vaksinasi Berkala di Yogyakarta, Tesis Program Studi Pascasarjana Sain Veteriner, Universitas Gadjah Mada.
- Anonim. 2004. Laporan Tahunan Balai Penyidikan dan Pengujian Veteriner Regional III Bandar Lampung.
- Anonim. 2005a. WHO. 2005. Evolution of H5N1 avian influenza viruses in Asia. The World Health Organization global influenza program surveillance network. *Emerg. Infect. Dis.*, (serial in the internet).
- Anonim. 2005b. Laporan Tahunan Balai Penyidikan dan Pengujian Veteriner Regional III Bandar Lampung.

- Anonim. 2008a. WHO/OIE/FAO H5N1 Evolution Working Group Toward a unified nomenclature system for highly pathogenic avian influenza virus (H5N1) Emerging Infectious Diseases. 2008;14:e1 doi: 10.3201/eid1407.071681.
- Anonim. 2008b. Sequencing of avian influenza, CSIRO-Australian Animal Health Laboratory (AAHL), Geelong, Australia.
- Anonim. 2010a. In-house tests for emergency disease diagnosis and test protocols under development: molecular characterization. Un published material and restricted usage. CSIRO Livestock Industries, Australian Animal Health Laboratory, Geelong, Australia.
- Anonim. 2010b. Southern African Development Community (MR). Detection of avian influenza subtypes H5/H7 by real-time RT-PCR. Mauritania (MR): SADC Diagnostic Sub-committee.
- Anonim. 2014a. OFFLU OIE/FAO Network of Expertise on Avian Influenza. Influenza A cleavage site.
- Anonim. 2014b. World Health Organization (WHO). Revised and updated nomenclature for highly pathogenic avian influenza A (H5N1) viruses. *Influenza Other Respir Viruses*, 8: 384–388.
- Anonim. 2015a. Dirjenakeswan. Perkembangan Kasus Avian Influenza (AI) pada Unggas Kondisi s/d Maret 2015. Online: <http://keswan.ditjenak.pertanian.go.id/index.php/blog/read/berta/perkembangan-kasus-avian-influenza-ai-pada-unggas-kondisi-sd-31-maret-2015>. (diakses tanggal 12 Januari 2017)
- Anonim. 2015b. [OIE] Office International des Epizooties. “OIE Terrestrial Manual 2015. Avian Influenza (Infection with Avian Influenza Viruses)” (Chapter 2.3.4):1-23.
- Anonim. 2016a. Dirjenakeswan. 12 Provinsi Rentan Flu Burung. 12 Provinsi Rentan Flu Burung _ Republika Online.html, diakses tanggal 12 Januari 2017.
- Anonim. 2016b. Peta Penyakit Hewan Tahun 2015. Balai Veteriner Lampung.
- Arranz, R., Coloma, R, Chichón, F.J., Conesa, J.J, Carrascosa, J.L, Valpuesta, J.M, Ortín, J., dan Martín-Benito, J. 2012. The Structure of Native Influenza Virion Ribonucleoproteins. *Science*, 338(6114):1634-1637.
- Auewarakul, P., O. Suptawiwat, A. Kongchanagul, C. Sangma, Y. Suzuki, K. Ungchusak, S. Louisiroatchanakul, H. Lerdsamran, P. Pooruk, A. Thitithanyanont, C. Pittayawonganon, C.T. Guo, H. Hiramatsu, W. Jampangern, S. Chunsutthiwat dan P. Puthavathana. 2007. An avian influenza H5N1 virus that binds to a human-type receptor. *J. Virol.*, 81: 9950-9955.

- Bahl, J., Vijaykrishna, D., Holmes, E.C., Smith, G.J.D., Guan, Y. 2009. Gene flow and competitive exclusion of avian influenza A virus in natural reservoir hosts. *Virology*, 390: 289–297.
- Batson, M. 2006. Influenza virus type A and avian influenza virus taqman PCR assays, molekular diagnosa at CSIRO Livestock Industries, Australia Animal Health Laboratory Geelong, Astralia : 1-32
- Bavinck V, Bouma A, van Boven M, Bos MEH, Stassen E, dan Stegeman JA. 2009. The role of backyard poultry flocks in the epidemic of highly pathogenic avian influenza virus (H7N7) in the Netherlands in 2003. *Preventive Veterinary Medicine*, 88: 247–254.
- Beato, M.S., Mancin, M., Yang, J., Buratin, A., Ruffa, M., Maniero, S., Fusaro, A., Terregino, C., Wan, X.F., dan Capua, I. 2013. Antigenic characterization of recent H5N1 highly pathogenic avian influenza viruses circulating in Egyptian poultry. *Virology*, 435:350-356.
- Bi Y, Zhang Z, Liu W, Yin Y, Hong J, Li X, Wang H, Wong G, Chen J, Li Y, Ru W, Gao R, Liu D, Liu Y, Zhou B, Gao GF, Shi W, dan Lei F. 2015. Highly Pathogenic Avian Influenza A(H5N1) Virus Struck Migratory Birds in China in 2015. *Sci Rep.*, 5: 12986.
- Bogs, J., Veits, J., Gorhbandt, S., Hundt, J., Stech, O., Breithaupt, A., Teifke, J.P., Mettenleiter, T.C. dan Stech, J. 2010. Highly pathogenic H5N1 influenza viruses carry virulence determinants beyond the polybasic hemagglutinin cleavage site. *Plos One*, 5(7) : e 11826.
- Boyce, W.M., Androck, C., Kreuder-Johnson C., Kelly T, dan Cardona C. 2009. Review Avian influenza viruses in wild birds: A moving target. *Comp Immunol, Microb and Infect Dis.*, 32: 275-286.
- Brown, T.A. 2006. Gen Cloning and DNA Analysis : an Introduction. 7th Eds, Willey Blackwell, USA :175-190.
- Bouvier, N.M. dan Lowen, A.C. 2010. Animal Models for Influenza Virus Pathogenesis and Transmission. *Viruses-Basel.*, 2(8): 1530-1563.
- Bright, R.A., Ross, T.M., Subbarao, K., Robinson, H.L., dan Katz, J.M., 2003. Impact of glycosylation on the immunogenicity of a DNA-based influenza H5 HA vaccine. *Virology*, 308: 270–278.
- Burke, D.F. dan Smith, D.J., 2014. A recommended numbering scheme for influenza A HA subtypes. *Plos One*, 9 (11): e112302. doi:10.1371/journal.pone.0112302.

- Campitelli, L., M. Ciccozzi, M. Salemi, F. Taglia, S. Boros, I. Donatelli dan G. Rezza. 2006. H5N1 influenza virus evolution: a comparison of different epidemics in birds and humans (1997-2004). *J. Gen. Virol.*, 87: 955-960.
- Cao, S., Liu, X., Yu, M., Li, J., Jia, X., Bi, Y., Sun, L., Gao, G.F., dan Liu, W. 2012. A nuclear export signal in the matrix protein of influenza A virus is required for efficient virus replication. *J. Virol.*, 12: 4883-4891
- Carman, W.F., Wallace, L.A., Walker, J., McIntyre, S., Noone, A., Christie, P., Millar, J. dan Douglas, D.J. 2000. Rapid virological surveillance of community influenza infection in general practice. *B.M.J.*, 321:736-737.
- Cattoli, G., Monne, I., Fusaro, A., Joannis, T.M., Lombin, L.H., Aly, M.M., Arafa, A.S., Sturm-Ramirez, K.M., Couacy-Hymann, E., Awuni, J.a., Batawui, K.B., Awoume, K.a., Aplogan, G.L., Sow, A., Ngangnou, A.C., El Nasri Hamza, I.M., Gamatié, D., Dauphin, G., Domenech, J.M., dan Capua, I., 2009. Highly pathogenic avian influenza virus subtype H5N1 in Africa: a comprehensive phylogenetic analysis and molecular characterization of isolates. *PLoS One* 4, e4842.
- Cattoli, G., Milani, A., Temperton, N., Zecchin, B., Buratin, A., Molesti, E., Aly, M.M., Arafa, A., dan Capua, I. 2011. Antigenic drift in H5N1 avian influenza virus in poultry is driven by mutations in major antigenic sites of the hemagglutinin molecule analogous to those for human influenza virus. *J. Virol.*, 85:8718-8724.
- Chen, R. dan Holmes, E.C., 2006. Avian influenza virus exhibits rapid evolutionary dynamics. *Mol. Biol. Evol.*, 23 (12): 2336-2341.
- Chen, W., Sun, S., dan Li, Z. 2012. Two glycosylation sites in H5N1 influenza virus hemagglutinin that affect binding preference by computer-based analysis. *PLoS One*, 7(6):1-11.
- Chenavas, S., Crépin, T., Delmas, B., Ruigrok, R.W., dan Slama-Schwok, A. 2013. Influenza virus nucleoprotein: structure, RNA binding, oligomerization and antiviral drug target. *Future Microbiology*, 8(12): 1537-1545.
- Cheng, X., modulaZengel, J.R., Xu, Q., dan Jin, H. 2012. Surface glycoproteins of influenza A H3N2 virus te virus replication in the respiratory tract of ferrets. *Virology*, 432(1): 91-98.
- Choi, J.G., Kang, H.M., Jeon, W.J., Choi, K.S., Kim, K.I., Song, B.M., Lee, H.S., Kim, J.H., dan Lee, Y.J. 2013. Characterization of Clade 2.3.2.1 H5N1 Highly Pathogenic Avian Influenza Virus Isolated from Wild Birds (Mandarin Duck and Eurasian Eagle Owl) in 2010 in Korea, *Viruses*, 5 : 1153-1174.

- Dankar, S.K., Shuai, W., Jihui, P., Nicole, E.F., Liya, K., Yishan, L., dan Earl, G.B. 2011. Influenza A virus NS1 gene mutations F103L and M106I Increase Replication and Virulence. *Virology Journal*, 8:13.
- Darminto .2006. *Mengenal Penyakit Flu Burung dan Strategi Pengendaliannya, An Introduction to Avian Influenza and It's Control Strategy*. Yogyakarta (ID): UGM Pr.
- Daszak, P., Cunningham, A.A. dan Hyatt, A.D. 2006. Emerging infectious diseases of wildlife: Threats to biodiversity and human health. *Science*, 287: 443 –449.
- de Chasseay, B., Aublin-Gex, A., Ruggieri, A., Meyniel-Schicklin, L., Pradezynski, F., Davoust, N., Chantier, T., Tafforeau, L., Mangeot, P., Ciancia, C., Perrin-Cocon, L., Bartenschlager, R., Andre, P., dan Lotteau, V. 2013. The Interactomes of Influenza Virus NS1 and NS2 Proteins Identify New Host Factors and Provide Insights for ADAR1 Playing a Supportive Role in Virus Replication. *Plos Pathogens*, 9(7).
- De Jong, M., dan Hien, T.T. 2006. Avian influenza A (H5N1). *J. Clin. Virol.*, 35: 2-13.
- Dharmayanti, N.L.P.I., Indriani, R., dan Adjid, R.M.A. 2006. Identifikasi virus avian influenza pada berbagai jenis unggas di Taman Margasatwa Ragunan dan upaya eradikasinya. *Media Kedokteran Hewan*, 22(2): 79-83
- Dharmayanti, N.L.P.I. dan Indriani, R. 2007. Patogenisitas molekuler virus Avian Influenza (AI) di Jakarta, Banten dan Jawa Barat pada wabah AI tahun 2005. *Media Kedokteran Hewan*, 23(2):68-73.
- Dharmayanti, N.L.P.I. dan Darminto. 2009. Mutasi Virus AI di Indonesia: Antigenic Drift Protein Hemagglutinin (HA) Virus Influenza H5N1 tahun 2003- 2006. *Media Kedokteran Hewan*, 25(1): 1-8
- Dharmayanti, N.L.P.I., 2010. Struktur dan peranan genom segmen 7 (protein matriks) dan segmen 8 (nonstruktural) dalam siklus hidup dan virulensi virus influenza. *Wartazoa*, 20(2): 55-67.
- Dharmayanti, N.L.P.I., Samaan, G., Ibrahim, F., Indriani, R., Darminto, dan Soebandrio, A. 2011. The genetic drift of Indonesian avian influenza A H5N1 viruses during 2003–2008. *Microbiol. Indones.*, 5(2):68-80.
- Dharmayanti, N.L.P.I., Dwiyanto, K. dan Bahri, S. 2012. Mewaspadai perkembangan Avian Influenza (AI) dan keragaman genetik virus AI/H5N1 di Indonesia. *Pengemb. Inov. Pert.*, 5(2):124-141.
- Dharmayanti NLPI, Hartawan R, Hewajui DA, Hardiman, Wibawa H, Pudjiatmoko. 2013. Karakteristik Molekuler dan Patogenisitas Virus

H5N1 *Clade* 2.3.2 asal Indonesia. *Jurnal Ilmu Ternak dan Veteriner* 18(2): 99-113.

- Dharmayanti, N.L.P.I., Hartawan, R., Pudjiatmoko., Wibawa, H., Hardiman., Balish, A., Donis, R., Davis, C.T. dan Samaan, G. 2014. Genetic characterization of clade 2.3.2.1 avian influenza A (H5N1) viruses Indonesia. *Emerg. Infec. Dis.* 20 (4): 671-674.
- Donis, R. O., Smith, G. J., World Health Organization/World Organisation for Animal, H. F. & Agriculture Organization, H. E. W. G. 2015. Nomenclature updates resulting from the evolution of avian influenza A(H5) virus clades 2.1.3.2a, 2.2.1, and 2.3.4 during 2013– 2014. *Influenza Other Resp Viruses* 212: 183–194.
- Ducatez, M.F., Bahl, J., Griffin, Y., Stigger-Rosser, E., Franks, J., Barman, S., Vijaykr-ishna, D., Webb, A., Guan, Y., Webster, R.G., Smith, G.J., dan Webby, R.J., 2011. Feasibility of reconstructed ancestral H5N1 influenza viruses for cross-cladeprotective vaccine development. *Proc. Natl. Acad. Sci. U. S. A.* 108: 349–354.
- Duvvuri, V.R.S.K., Duvvuri, B., Cuff, W.R., Wu, G.E., dan Wu, J., 2009. Role of positive selection pressure on the evolution of H5N1 hemagglutinin, *Gen. Prot. Bioinform.*, 7 (1): 47-56.
- Eagles, D., Siregar, E.S., Dung, D.H., Weaver, J., Wong, F. dan Daniels P. 2009. H5N1 highly pathogenic avian influenza in Southeast Asia. *Rev Sci Tech Off Int Epiz.* 28(1):341-348.
- Edinger, T.O., M.O. Pohl, dan S. Stertz. 2014. Entry of influenza A virus: host factors and antiviral targets. *Journal of General Virology* 95: 263-277.
- Ekiert, D.C., dan Wilson, I.A., 2012. Broadly neutralizing antibodies againstinfluenza virus and prospects for universal therapies. *Curr. Opin. Virol.* 2: 134–141.
- El-Shesheny, R., Kandeil, A., Bagato, O., Maatouq, A.M., Moatasim, Y., Rubrum, A., Song, M., Webby, R.J., Ali, M.A., dan Kayali, G., 2014. Molecular characterization of avian influenza H5N1 virus in Egypt and the emergence of a novel endemic subclade, *J. Gene. Virol.*, 95: 1444–1463.
- Emilia, Ramlah, Rahajeng S, Suryati Y. 2013. Pengkajian Mutu Vaksin Avian Influenza (AI) pada Beberapa Provinsi di Indonesia. Gunung Sindur, Bogor. Balai Besar Pengujian Mutu dan Sertifikasi Obat Hewan. <http://bbpmsoh.ditjennak.pertanian.go.id>

- Fitch, W.M., Bush, R.M., Bender, C.A., dan Cox, N.J. 1997. Long term trends in the evolution of H(3) HA1 human influenza type A. *Proc. Natl. Acad. Sci. USA*94: 7712-7718.
- Fodor, E. 2013. The RNA polymerase of influenza A virus: mechanisms of viral transcription and replication. *Acta Virologica*, 57(2): 113-122.
- Gall, A., Hoffmann, B., Harder, T., Grund, C., Hoper, D., dan Bee, M. 2009. Design and Validation of a Microarray for Detection, Hemagglutinin Subtyping, and Pathotyping of Avian Influenza Viruses. *J of Clin Microbiol* 47: 327-334.
- Gambaryan, A., A. Tuzikov, G. Pazynina, N., dan Bovin, A. Balish And A. Klimov. 2006. Evolution of the receptor binding phenotype of influenza A (H5) viruses. *Virology* 344: 432-438.
- Guan, Y., Smith, G.J.D., Webby, R., dan Webster, R.G., 2009. Molecular epidemiology of H5N1 avian influenza. *Revue Scientifique et Technique (International Office of Epizootics)* 28: 39-47.
- Gutierrez, R.A., Naughtin, M.J., Horm, S.V., San, S. dan Buchy P. 2009. A(H5N1) virus evolution in South-east Asia. *Viruses*.I:335-361.
- Ha, Y., Stevens, D.J., Skehel, J.J., dan Wiley, D.C., 2001. X-ray structures of H5 avian and H9 swine influenza virus hemagglutinins bound to avian and human receptor analogs. *Proc. Natl. Acad. Sci.*, 98: 11181-11186.
- Harimoto, T. dan Kawaoka, Y. 2005 Influenza: lessons from past pandemics, warnings from current incidents. *Nat. Rev. Microbiol.* 3: 591-600.
- Helmi, T.Z. 2016. Kloning dan Karakterisasi Gen HA Virus *Highly Pathogenic Avian Influenza* (HPAI) Subtipe H5N1 Isolat Puyuh Asal Aceh. Disertasi Program Doktor Sain Veteriner, Universitas Gadjah Mada.
- Heider, A., Mochalova, L., Harder, T., Tuziko, A., Bovin, A., Wolff, T., Matrosovich, M, dan Schweiger, B., 2015. Alteration in hemagglutinin receptor-binding specificity accompany the emergence of highly pathogenic avian influenza viruses. *J. Virol*, 89 (10): 5395-5405.
- Herfst, S., Schrauwen, E. J., Linster, M., Chutinimitkul, S., de Wit, E., Munster, V. J., Sorrell, E. M., Bestebroer, T. M., Burke, D. F. dan other authors. 2012. Airborne transmission of influenza A/H5N1 virus between ferrets. *Science* 336: 1534-1541.
- Hewajuli, D.A dan Dharmayanti, N.L.P. 2008. Karakterisasi dan identifikasi virus avian influenza (AI). *Wartazoa*. 24(1): 16-29.

- Hewajuli, D.A., dan Dharmayanti, N.L.P.I. 2012. Hubungan AI dan unggas air dalam menciptakan keragaman genetik serta epran serta unggas air sebagai reservoir pada penyebaran virus AI. *Wartazoa*, 22: 12-23.
- Hulse, D.J., Webster, R.G., Russell, R.J. dan Perez, D.R. 2004. Molecular determinants within the surface proteins involved in the pathogenicity of H5N1 influenza viruses in chickens. *J. Virol.* 78: 9954-9964.
- Holmes, E.C., 2010. The comparative genomics of viral emergence. *Proceedings of the National Academy of Sciences of the United States of America* 107: 1742–1746.
- Hoper, D., Kalthoff, D., Hoffmann, B., dan Beer, M., 2012. Highly pathogenic avianinfluenza virus subtype H5N1 escaping neutralization: more than HA variation. *J. Virol.* 86: 1394–1404.
- Hu, W., 2012. Molecular features of highly pathogenic avian and human H5N1 influenza A viruses in Asia. *Sci. Res.*, 2: 45-49.
- Hu, J., Zhao, K., Liu, X., Wang, X., Chen, Z. dan Liu, X. 2013. Two highly pathogenic avian influenza H5N1 viruses of clade 2.3.2.1 with similar genetic background but with different pathogenicity in mice and ducks. *Transbound Emerg Dis* 60: 127–139.
- Jiao, P., Tian, G., Li, Y., Deng, G. dan Jiang, Y. 2008. A Single-Amino-Acid Substitution In The NS1 Protein Changes The Pathogenicity of H5N1 Avian Influenza Viruses In Mice. *J Virol.* 82: 1146–1154.
- Kaplan, B.S. dan Webby, R.J., 2013. The avian and mammalian host range of highly pathogenic avian H5N1 influenza. *Vir. Res.*, 178: 3-11.
- Kaverin N. 2010. Postreassortment amino acid substitutions in influenza A viruses. *Future Microbiol* 5:705–715.
- Kayali, G., Webby, R.J., Ducatez, M.F., El Shesheny, R.A., Kandeil, A.M., Govorkova, E.A., Mostafa, A., dan Ali, M.A. 2011. The epidemiological and molecular aspects of influenza H5N1 viruses at the human–animal interface in Egypt. *PLoS One* 6,e17730.
- Keawcharoen, J., J.V.D. Broek, A. Bouma, T. Tiensin, A.D.M.E. Osterhaus, dan Heesterbeek, H. 2011. Wild birds and increased transmission of highly pathogenic avian influenza (H5N1) among poultry, Thailand. *Emerging Infectious Diseases.* 17(6):1016-1022.
- Kim, M.J., A.G. Latham, dan R.M. Krug. 2002. Human influenza viruses activate an interferon- independent transcription of cellular antiviral genes: Outcome with influenza A virus is unique. *Proceedings of the National Academy of Sciences of the United States of America*, 99(15): 10096-10101.

- Koel, B.F., van der Vliet, S., Burke, D.F., Bestebroer, T.M., Bharoto, E.E., Yasa, I.W., Herliana, I., Laksono, B.M., Xu, K., Skepner, E., Russell, C.A., Rimmelzwaan, G.F., Perez, D.R., Osterhaus, A.D., Smith, D.J., Prajitno, T.Y., dan Fouchier, R.A. 2014. Antigenic variation of clade 2.1 H5N1 virus is determined by a few amino acid substitutions immediately adjacent to the receptor binding site. *MBio* 5, e01070-01014.
- Kovacova, A., Ruttkay-Nedecky, G., Haverlik, I.K., dan Janecek, S., 2002. Sequence similarities and evolutionary relationships of influenza virus A hemagglutinins. *Virus Genes*, 24 (1): 57-63.
- Krejcová, L., Mivchalek, P., Hynek, D., Adam, V., dan Kizek, R. 2015. Structure of influenza virus, connected with influenza life cycle. *Journal of Metallomics and Nanotechnologies*, 1 : 13-19.
- Kuo, R.L., Yag, S.L., Liu, Y.C., Chen, L.T., Mok, C.K., Kuo, M.S., Shih, S.R. dan Tsao, K.C. 2014. Influenza A/B Virus Detection and Influenza A Virus Subtyping with Emphasis on the Novel H7N9 Virus by Using Multiplex Real Time RT-PCR, *J. Virol. Method.* 208:41-46.
- Kwon, Y.L., Joh, S.J., Kim, M.C., Sung, H.W., Lee, Y.J., Choi, J. G., Lee, E. K., dan Kim, J. H. 2005. Highly Pathogenic Avian Influenza (H5N1) in the Commercial Domestic Ducks of South Korea. *Avian Pathol.*; 34(4): 367-70.
- Lebarbenchon C, Feare, Renaud CJ, Thomas F, Gauthier-Clerc M. 2010. Persistence of Highly Pathogenic Avian Influenza Viruses in Natural Ecosystem. *Emerging Infectious Disease* 16 (7): 1057-1062.
- Lee, C.W dan Saif, Y.M. 2009. Avian Influenza Virus. *Comparative Immunology, Microbiology and Infectious Disease* 32 (4): 301-310.
- Lee, M.S., Chang, P.C., Shien, J.H., Cheng, M.C. dan Shieh, S.K. 2001. Identification and Subtyping of Avian Influenza Viruses by Reverse Transcription PCR, *J. Virol. Method.*, 97 : 13-22.
- Lee, E. K., Kang, H. M., Kim, K. I., Choi, J. G., To, T. L., Nguyen, T. D., Song, B. M., Jeong, J., Choi, K. S. dan other authors .2015. Genetic evolution of H5 highly pathogenic avian influenza virus in domestic poultry in Vietnam between 2011 and 2013. *Poult Sci* 94: 650–661.
- Li, K.S., Guan, Y., Wang, J., Smith, G.J., Xu, K.M., Duan, L., Rahardjo, A.P., Puthavathana, P., Buranathai, C., Nguyen, T.D., Estoepangestie, A.T., Chaisingh, A., Auewarakul, P., Long, H.T., Hanh, N.T., Webby, R.J., Poon, L.L., Chen, H., Shortridge, K.F., Yuen, K.Y., Webster, R.G., dan Peiris, J.S. 2004. Genesis of a highly pathogenic and potentially pandemic H5N1 influenza virus in eastern Asia. *Nature* 430:209-13.

- Li, W., Wang, G., Zhang, H., Xin, G., Zhang, D., Zeng, J., Chen, X., Xu, Y., Cui, Y. dan Li, K. 2010. Effects of NS1 Variants of H5N1 Influenza Virus on Interferon Induction, TNF α Response And P53 Activity. *Cellular & Molecular Immunology* 7: 235-242.
- Li, Z., Liu, Z., Ma, C., Zhang, L., Su, Y., Gao, G. F., Li, Z., Cui, L., dan He, W. 2011. Identification of amino acids in highly pathogenic avian influenza H5N1 virus hemagglutinin that determine avian influenza species specificity. *Arch. Virol.* 156:1803-1812.
- Li, Y., Zhang, X., Xu, Q., Fu, Q., Zhu, Y., Chen, S., Peng, D., and Liu, X., 2013. Characterisation and haemagglutinin gene epitope mapping of a variant strain of H5N1 subtype avian influenza virus. *Vet. Microbiol.*, 162: 614–622.
- Liu, Y.F., Lou, Z.Y., Mark, B., dan ZiHe, R.A.O., 2009. Structure function studies of the influenza virus RNA polymerase PA subunit. *Sci. China Ser. C-Life Sci.*, 52 (5): 450-458.
- Ma, W., Brenner, D., Wang, Z., Dauber, B., Ehrhardt, C., Hogner, K., Herold, S., Ludwig, S., Wolff, T., Yu, K., Richt, J.A., Planz, O. dan Pleschka, S. 2010. The NS Segment of an H5N1 Highly Pathogenic Avian Influenza Virus (HPAIV) Is Sufficient To Alter Replication Efficiency, Cell Tropism, and Host Range of an H7N1 HPAIV. *J Virol* 84(4): 2122–2133.
- Mair, C.M., Ludwig, K., Herrmann, A., dan Sieben, C. 2014. Receptor Binding and PH Stability- How Influenza A virus Hemagglutinin Affects Host-Specific Virus Infection, *B.B.A.*, 1838: 1153-1168.
- Matsuoka, Y., Swayne, D.E., Thomas, C., Rameix-Welti, M.A., Naffakh, N., Warnes, C., Altholtz, M., Donis, R., dan Subbarao, K. 2009. Neuraminidase stalk length and additional glycosylation of the hemagglutinin influence the virulence of influenza H5N1 viruses for mice. *J Virol* 83, 4704-4708.
- Matrosovich, M. N., Matrosovich, T. Y., Gray, T., Robert, N. A., dan Klenk, H. D. 2004. Human and avian influenza viruses target different cell types in cultures of human airway epithelium. *The National Academy of Sciences of the USA*. Vol 101 (No. 13) : 4620-4624.
- Marinova-Petkova, A., Georgiev, G., Seiler, P., Darnell, D., Franks, J., Krauss, S., Webby, R. J. dan Webster, R. G. 2012. Spread of influenza virus A (H5N1) clade 2.3.2.1 to Bulgaria in common buzzards. *Emerg Infect Dis* 18: 1596–1602.
- Medina, R.A. dan Garcia-Sastre, A. 2011. Influenza A viruses: new research developments. *Nat. Rev. Microbiol.* 9: 590–603.
- Mehle, A. 2014. Unusual influenza A viruses in bats. *Viruses*. 6:3438-3449.

- Mertens, E., Dugan, V.G., Stockwell, T.B., Lindsay, L.L., Plancarte, M., dan Boyce, W.M., 2013. Evaluation of phenotypic markers in full genome sequences of avian influenza isolates from California. *Comp. Immunol. Microbiol. Infect. Dis.* 36: 521–536.
- Moeller, A., Kirchdoerfer, R.N., Potter, C.S., Carragher, B., dan Wilson, I.A. 2012. Organization of the Influenza Virus Replication Machinery. *Science*, 338(6114): 1631-1634.
- Moya, A., Holmes, E.C. dan Gonzalez-Candelas, F. 2004. The population genetics and evolutionary epidemiology of RNA viruses. *Nat Rev.* 2: 279 – 288.
- Munch, M., Nielsen, L.P., Handberg, K.J. dan Jorgensen, P.H. 2001. Detection and subtyping (H5 and H7) of avian type A influenza virus by reverse transcription-PCR and PCR-ELISA. *Arch. Virol.* 146: 87-97.
- Neumann, G., Macken, C. A., Karasin, A. I., dan Fouchier R. A. M. and Kawaoka, Y. 2012. “Egyptian H5N1 Influenza Viruses— Cause for Concern. *PLoS Pathogens*, Vol. 8, No. 11, p. e1002932.
- Pabbaraju, K., Tellier, R., Wong, S., Li, Y., Bastien, N., Tang, J. W., Drews, S. J., Jang, Y., Davis, C. T. dan other authors .2014. Fullgenome analysis of avian influenza A(H5N1) virus from a human, North America, 2013. *Emerg Infect Dis* 20: 887–891.
- Palese, P. 2004. Influenza: old and new threats. *Nat Med* 10: S82-S87.
- Parry, J. 2005, WHO confirms four human cases of avian flu in Indonesia. *Bmj* 331: 796.
- Payungporn, S.P., Phakdeewirot, S., Chutinimitkul, A., Theamboonlers, J., Keawchroen, K., Raveerakul, A., Amonsin. dan Poovorawan, Y. 2004. Single step multilex reverse transcription-polymerase chain rection (RT-PCR) for influenza A virus subtype H5N1 detection. *Viral Immunol.* 17 :588-593.
- Payungporn, S., Chutinimitkul, S., Chaisingh, A., Damrongwantanapokin, S., Buranathai, C., Amonsi, A., Theamboonlers, A., dan Poovorawan, Y. 2006. Single step multiplex real time RT-PCR for H5N1 influenza A virus detection. *Journal of virological methods* 131:143-147.
- Perdue, M.L. 2008. *Molecular Determinants of Pathogenicity for Avian Influenza Viruses*. Di dalam Swayne DE, editor *Avian Influenza*. Iowa (US): Blackwell Publishing :23-42.

- Perez, J.T., Varble, A., Sachidanandam, R., Zlatev, I., Manoharan, M., Garcia-Sastre, A., dan tenOver, B.R. 2010. Influenza A virus-generated small RNAs regulate the switch from transcription to replication. *Proceedings of the National Academy of Sciences of the United States of America*, 107(25): 11525-11530.
- Pestana EA, Belak S, Diallo A, Crowther JR, dan Viljoen GJ. 2010. *Early, Rapid, and Sensitive Veterinary Molecular Diagnostics Real-Time PCR Application*. Dordrecht (NL): Springer.
- Pfeiffer, J., Pantin-Jackwood, M., To, T.L., Nguyen, T., dan Suarez, D.L. 2009. Phylogenetic and biological characterization of highly pathogenic H5N1 avian influenza viruses (Vietnam 2005) in chicken and ducks. *Virus Research*, 142: 108-120.
- Plotkin, J.B. dan Dushoff, J. 2003. Codon bias and frequency-dependent selection on the hemagglutinin epitopes of influenza A virus. *Proc. Natl. Acad. Sci. USA*. 100: 7152-7157.
- Portela, A dan Digard. 2002. The influenza virus nucleoprotein: a multifunctional RNA-binding protein pivotal to virus replication. *J. Gen. Virol.*, 83: 723-734.
- Qiu, B.F., Liu, W.J., Peng, D.X., Hu, S.L., Tang, Y.H. dan Liu, X.F. 2009. A Reverse Transcription-PCR for Subtyping of the Neuraminidase of Avian Influenza Viruses, *J. Virol. Method.*, 155: 193-198.
- Raharjo, J. dan Nidom, C.A. 2004. Avian Influenza: Pencegahan, Pengendalian dan Pemberantasannya. Hasil Investigasi Kasus Lapangan. GITA Pustaka.
- Rossman, J.S., dan Lamb, R.A.. 2011. Influenza virus assembly and budding. *Virology*, 411(2): 229-236.
- Saberfar, E., Forghani-Fard, M.M., dan Mosavi, M., 2007. Multiplex Reverse Transcriptase-PCR Assay for typing and subtyping of influenza A (H5 & H9) virus in Iran. *Iranian. Biomed. J.*, 11 (2): 69-74.
- Saptana dan Sumaryanto. 2009. Kebijakan Antisipatif terhadap Peraturan dan Kebijakan Perunggasan Pemerintah DKI 2010. Analisis Kebijakan Pertanian. Volume 7 No. 4. Desember 2009 : 319-335.
- Schulze, I. T. 1997. Effect of Glycosylation on the properties and function of influenza virus hemagglutinin. *The Journal of Infectious Disease* 176 (Suppl) : 24-28.
- Shih, A.C-C., Hsiao, T-C., Ho, M-S., dan Li, W.H., 2007. Simultaneous amino acid substitutions at antigenic sites drive influenza A hemagglutinin evolution. *P.N.A.S.*, 104 (15): 6283-6288.

- Shore, D.A., Yang, H., Balish, A.L., Shepard, S.S., Carney, P.J., Chang, J.C., Davis, C.T., Donis, R.O., Villanueva, J.M., Klimov, A.I., dan Stevens, J., 2013. Structural and antigenic variation among diverse Clade 2 H5N1 viruses. *Plos One*, 8 (9): e75209.
- Skehel, J.J. dan D.C. Wiley. 2000. Receptor binding and membrane fusion in virus entry: The influenza hemagglutinin. *Annual Review of Biochemistry*, 69: 531-569.
- Smith, G.J.D., Naipospos, T.S.P., Nguyen, T.D., de Jong, M.D., Vijaykrishna, D., Usman, T.B., Hasan, S.S., Nguyen, T.V., Dao, T.V., Bui, N.A., Leung, Y.H.C., Cheung, C.L., Rayner, J.M., Zhang, J.X., Zhang, L.J., Poon, L.L.M., Li, K.S., Nguyen, V.C., Hien, T.T., Farrar, J., Webster, R.G., Chen, H., Peiris, J.S.M. dan Guan, Y. 2006. Evolution and adaptation of H5N1 virus in avian and human hosts in Indonesia and Vietnam. *J. Virol.*, 305 : 258-268.
- Smith, G.J. Vijaykrishna, D., Lycett, S.J., Worobey, M., Pybus, O.G., Ma, S.K., Cheung, C.L., Raghvani, J., Bhatt, S., Peiris, J.S., Guan, Y., dan Rambaut, A. 2009. Origins and evolutionary genomics of the 2009 swine-origin H1N1 influenza A epidemic. *Nature* 459:1122–1125.
- Soonberg S, Webby RJ, dan Webster RG. 2013. Natural history of highly pathogenic avian influenza H5N1. *Virus Res* 178:63-77.
- Spackman, E., Senne, D.A., Myers, T.J., Bulaga, L.L., Garber, L.P., Erdue, M.L., Lohman, K., Daum, L.T. dan Suarez, D.L. 2002. Development of a real-time reverse transcriptase PCR assay for type A influenza virus and the avian H5 and H7 hemagglutinin subtype. *J. Clin. Microbiol*, 40 (9) : 3256-3260.
- Spiro, R.G. 2002. Protein glycosylation: nature, distribution, enzymatic, information and disease implications of glycopeptide bonds. *Glycobiology* 4: 43-56.
- Srihanto, E.A. 2013. Analisis Genetik Gen Hemagglutinin Virus Avian Influenza Subtipe H5N1 Isolat Lampung Tahun 2008-2013, Dalam Tesis Universitas Gadjah Mada, Yogyakarta.
- Srihanto, E.A., Asmara, W., dan Wibowo, M.H., 2015. Analisis molekuler filogenetik dan struktur antigenic virus avian influenza subtipe H5N1 isolat lampung tahun 2008-2013. *Jurnal Kedokteran Hewan*, 9 (1): 83-88.
- Steinhauer, D.A., 1999. Role of hemagglutinin cleavage for the pathogenicity of influenza virus. *Virol.* 258: 1-20.
- Steinhauer, D.A dan Skehel, J.J., 2002. Genetics of 33. Influenza Viruses. *Annu. Rev. Genet.*, 36:305-332.

- Stevens, J., Blixt, O., Tumpey, T.M., Taubenberger, J.K., Paulson, J.C. dan Wilson, I.A. 2006. Structure and receptor specificity of the hemagglutinin from an H5N1 influenza virus. *Science*, 312: 404–410.
- Storch, G.A. 2007. Diagnostic virology. In: Knipe DM, Howley PM, editors. *Fields Virol vol 1*. Philadelphia (Pennsylvania): Lippincott Williams & Wilkins: 565-604.
- Sturm-Ramirez K.M., Hulse-Post, D.J., Govorkova, E.A., Humberd, J., Seiler, P., Puthavathana, P., Buranathai, C., Nguyen, T.D., Chaisingh, A., Long, H.T., Naipospos, T.S., Chen, H., Ellis, T.M., Guan, Y., Peiris, J.S. and dan Webster, R.G. 2005. Are Ducks Contributing to the Endemicity of Highly Pathogenic HB5BNB1B Influenza Viruses in Asia, *Journal of Virology*, Sept. : 11269-11279
- Su, Y., Yang, H. Y., Zhang, B. J., Jia, H. L. dan Tien, P. 2008. Analysis of a point mutation in H5N1 avian influenza virus hemagglutinin in relation to virus entry into live mammalian cells. *Arch Virol* 153: 2253–2261.
- Suarez, D.L., dan Schultz-Cherry, S. 2000. Immunology of avian influenza virus : a review. *Dev. Comp. Immunol* 24 (2-3): 269-283.
- Suartha IN, Anthara IMS, Wiryana IKS, Sukada IM, Wirata IW, Dewi NMRK, Mahardika IGNK. 2010. Peranan Pedagang Unggas dalam Penyebaran Virus Avian Influenza. *J. Veteriner*, 11 (4): 220-225.
- Suguitan, A.L., Matsuoka, Y., Lau, Y.F., Santos, C.P., Vogel, L., Cheng, L.L., Orandle, M. dan Subbarao, K. 2012. The multibasic cleavage site of the hemagglutinin of highly pathogenic A/Vietnam/1203/2004 (H5N1) avian influenza virus acts as a virulence facyor in a host-specific manner in mammals. *J. Virol*, 86(5): 2706-2714.
- Sun, S., Wang, Q., Zhao, F., Chen, W., dan Li, Z., 2011. Glycosilation site alterarion in the evolution of influenza A (H1N1) viruses. *PLoS One*, 6 (7): e22844. doi:10.1371/journal.pone.0022844.
- Susanti, R. 2008. Analisis molekuler fragmen gen penyandi hemagglutinin virus avian influenza subtipe H5N1 dari unggas air [disertasi]. Bogor (ID): Institut Pertanian Bogor.
- Suzuki, Y, dan Nei M. 2002. Origin and evolution of influenza virus hemagglutinin genes. *Mol Biol Evol.*, 19(4):501-509.
- Swayne, D.E. 2007. Understanding the complex pathobiology of high pathogenicity avian influenza viruses in birds. *Avian Dis* 51 (1 Suppl): 242-249.
- Swayne, D.E., dan Halvorson, D.A. 2008. Influenza in : Disease of Poultry 12th Ed. Blackwell Publishing Profesional, Ames, Iowa, USA, pp. 153-174.

- Swayne, D.E and Pantin-Jackwood M. 2008. *Pathobiology of Avian Influenza Virus in Birds and Mammals*. Di dalam Swayne DE, editor *Avian Influenza*. Iowa (US): Blackwell Publishing: 87-122.
- Takano, R., Nidom, C.A., Kiso, M., Muramoto, Y., Yamada, S., Sakai-Tagawa, Y., Macken, C. dan Kawaoka Y. 2009. Phylogenetic characterization of H5N1 avian influenza viruses isolated in Indonesia from 2003-2007. *Virology*.390: 13-21.
- Tarigan, S., Indriani, R. dan Darminto. 2007. Karakterisasi aktivitas enzimatik neuraminidase virus avian influenza H5N1. *J.I. T. V.*, 12 (2): 153-159.
- Tamura, K., Stecher, G., Peterson D., Filipski, A., dan Kumar, S., 2013. MEGA 6: Molecular Evolutionary Genetics Analysis version 6.0. *Mol. Biol. Evo.*, 30: 2725-2729 .
- Taubenberger, J.K. 2006. The origin and virulence of the 1918 ‘Spanish’ influenza virus. *Proc. Am. Philos. Soc.* 150: 86–112.
- Tong, S., Y. Li, P. Rivaller, C. Conrardy, D.A. Castillo, L.M. Chen, S. Recuenco, J.A. Ellison, C.T. Davis, I.A. York, A.s. Turmelle, D. Moran, S. Rogers, M. Shi, Y. Tao, M.R. Weil, K. Tang, L.A. Rowe, S. Sammons, X. Xu, M. Frace, K.A. Lindblade, N.J. Cox, L.J. Anderson, C.E. Rupprecht, dan R.O. Donis. 2012. A distinct lineage of influenza A virus from bats. *Proceedings of the National Academy of Sciences*. 109(11): 4269-4274.
- Tong, S., X. Zhu, Y. Li, M. Shi, Z. Jing, M. Bourgeois, Y. Hua, X. Chen, R. Sergio, J. Gomes, L.M. Chen, A. Johnson, Y. Tao, C. Drefus, W. Yu, R.M. Bride, P.J. Carney, A.T. Gilbert, J. Chang, Z. Guo, C.T. Davis, J.C. Paulson, J. Steven, C.E. Rupprecht, E.C. Holmes, I.A. Wilson, dan R.O. Donis. 2013. New world bats harbor diverse influenza A viruses. *PloS Pathog.* 9(10):e1003657.
- Tsukamoto, K., Ashizawa, H., Nakanishi, K., Kaji, N., Suzuki, K., Okamatsu, M., Yamaguchi, S. dan Mase, M. 2008. Subtyping of avian influenza viruses H1 to H5 on the basis of hemagglutinin genes by PCR assay and molecular determination of pathogenic potential. *J. Clin. Microbiol.*, 46 (9) : 3048-3055.
- Tung, D. H., Van Quyen, D., Nguyen, T., Xuan, H. T., Nam, T. N. dan Duy, K. D. 2013. Molecular characterization of a H5N1 highly pathogenic avian influenza virus clade 2.3.2.1b circulating in Vietnam in 2011. *Vet Microbiol.*, 165: 341–348.
- Urbaniak, K. dan Markowska-Daniel, I. 2014. In vivo reassortment of influenza viruses. *Act Bioch Polonica*, 61 (3) : 427-431.

- Varble, A., et al. 2010. Engineered RNA viral synthesis of microRNAs. *Proceedings of the National Academy of Sciences of the United States of America*, 107(25): 11519-11524.
- Vijaykrishna, D., Bahl, J., Riley, S., Duan, I., Zhang, J.X., dan Chen, H. 2008. Evolutionary dynamics and emergence of panzootic H5N1 influenza viruses. *Plos One*, 4:e1000161.
- Wan, X., Nguyen, T., Davis, C.T., Smith, C.B., Zhao, Z., Carrel, M., Inui, K., Do, H.T., Mai, D.T., Jadhao, S., Balish, A., Shu, B., Luo, F., Emch, M., Matsuoka, Y., Lindstrom, S.E., Cox, N.J., Nguyen, C.V., Klimov, A., dan Donis, R.O., 2008. Evolution of highly pathogenic H5N1 avian influenza viruses in Vietnam between 2001 and 2007. *PLos One*, 3: e3462.
- Wang, W., Lu, B., Zhou, H., Suguitan, A. L. Jr, Cheng, X., Subbarao, K., Kemble, G. dan Jin, H. 2010. Glycosylation at 158N of the hemagglutinin protein and receptor binding specificity synergistically affect the antigenicity and immunogenicity of a live attenuated H5N1 A/Vietnam/1203/2004 vaccine virus in ferrets. *J. Virol.*, 84:6570–6577.
- Wang, Z.G., Jiang, V.W., dan Liu, S. 2012. Increased substitution rate in H5N1 avian influenza virus during mass vaccination on poultry. *Chin. Sci. Pull* : 2419-2424.
- Wasito, R., Wuryastuti, H., Pambudy, R., dan Maes, R.K. 2016. Clinical signs and pathologic lesions of highly pathogenic avian influenza in Indonesia : A threat to Indonesian poultry. *MRJMBS* 4: 18-21.
- Watanabe, Y., Ibrahim, M. S., Suzuki, Y. dan Ikuta, K. 2012. The changing nature of avian influenza A virus (H5N1). *Trends in Microbiology*, Vol. 20, No. 1.
- Webster, R.G., Bean, W.J, Gorman, O.T, Chambers, T.M, and Kawaoka, Y., 1992. Evolution and ecology of influenza A Viruses. *Microbiol. Rev.*, 56: 152-79.
- Webster, R.G., Guan, Y., Poon, L., Krauss, S., Webby, R., Govorkovai, E., dan Peiris, M., 2005. The spread of the H5N1 bird flu epidemic in Asia in 2004. *Arch. Virol. Suppl.*, 19:117–129.
- Webster, R.G., dan Govorkova, E.A., 2006. H5N1 influenza – continuing evolution and spread. *N. Engl. J. Med.*, 355: 2174–2177.
- Webster, R.G., Hulse-Post, D.J., Sturm-Ramirez, K.M., Guan, Y., Peiris, M., Smith, G., dan Chen, H., 2007. Changing epidemiology and ecology of highly pathogenic avian H5N1 influenza viruses. *Avian Dis.*, 51: 269–272.

- Wibawa, H., Henning, J., Wong, F., Selleck, P., Junaidi, A., Bingham, J., Daniels, P., dan Meers, J., 2011. A molecular and antigenic survey of H5N1 highly pathogenic avian influenza virus isolates from smallholder duck farms in Central Java, Indonesia during 2007–2008. *Virol. J.*, 8: 425.
- Wibawa, H., Prijono, W.B., Dharmayanti, N.L.P.I., Irianingsih, S.H., Miswati, Y., Rohmah, A., Andesya, E., Romlah, Daulay, R.S.D. dan Safitria, K. 2012. Investigasi wabah penyakit pada itik di Jawa Tengah, Yogyakarta, dan Jawa Timur: identifikasi sebuah clade baru virus Avian Influenza sub tipe H5N1 di Indonesia. *Bul Lab Vet.* 12(4):2-9.
- Wibawa, H., Bingham, J., Nuradji, H., Lowther, S., dan Payne, J., 2014. Experimentally infected domestic ducks show efficient transmission of Indonesian H5N1 highly pathogenic avian influenza virus, but lack persistent viral shedding. *PLoS One*, 9(1): e83417.
- Wibowo, M.H., Srihanto, E.A., Putri, K., Asmara, W., dan Tabbu, C.R., 2013. The development of pathogenicity of avian influenza virus isolated from Indonesia. *Indon. J. Biotech.*, 18 (2): 133-143.
- Wilks, S., Graff, M., Smith, D.J., dan Burke, D.F. 2012. A review of influenza hemagglutinin receptor binding as it relates to pandemic properties. *Vaccine*, 130: 4369-4376.
- Wiyono, A. 2010. Kebijakan Pemerintah dalam Pengendalian Flu Burung di Indonesia, Bahan Seminar yang disampaikan pada acara rapat Koordinasi Komnas Flu Burung di Semarang tanggal 8-9 Oktober 2010.
- Wu, W.L., Chen, Y., Wang, P., Song, W., Lau, S-Y, Rayner, J.M., Smith, G.J.D., Webster, R.G., Peiris, J.M., Lin, T., Xia, N., Guan, Y., dan Chen, H., 2008. Antigenic profile of avian H5N1 viruses in Asia from 2002 to 2007. *J. Virol.*, 82 (4): 1798-1807. Wu Y, Wu Y, Tefsen B, Shi Y, Gao GF. 2014. Bat-derived influenza-like viruses H17N10 and H18N11. *Trends Microbiol.*, 22:183–191.
- Xu, X., Subbarao, Cox, N.J., dan Guo, Y., 1999. Genetic characterization of the pathogenic influenza A/Goose/Guangdong/1/96 (H5N1) virus: similarity of its hemagglutinin gene to those of H5N1 viruses from the 1997 outbreaks in Hong Kong. *Virology* 261: 15–19.
- Xu, R., McBride, R., Paulson, J.C., Basler, F., dan Wilson, I.A. 2010. Structure, Receptor Binding, and Antigenicity of Influenza Virus Hemagglutinins from the 1957 H2N2 Pandemic. *Journal of Virology*, 84(4): 1715-1721.
- Yang, Z. Y., Wei, C. J., Kong, W. P., Wu, L., Xu, L., Smith, D. F. dan Nabel, G. J. 2007. Immunization by avian H5 influenza hemagglutinin mutants with altered receptor binding specificity. *Science* 317: 825–828.

- Ying Fang, L., Zhi Yong, L., Bartlam, M., dan Zihe, R., 2009. Structure function studies of the influenza virus RNA polymerase PA subunit. *Sci. China Ser. C-Life Sci.*, 52 (5): 450-458.
- Zhang, Y., Sun, Y., Sun, H., Pu, J., Bi, Y., Shi, Y., Lu, X., Li, J., Zhu, Q., Gao, G.F., and Liu, J., 2012. A single amino acid at the hemagglutinin cleavage site contributes to the pathogenicity and neurovirulence of H5N1 influenza virus in mice. *J. Virol.*, 86 (12): 6924-6931.
- Zhang, H., Hale, B.G., dan Sun, B., 2013. Viral and host factors required for avian H5N1 influenza a virus replication in mammalian cells. *Viruses*, 5: 1431-1446.
- Zheng, W. dan Y.J. Tao. 2013. Structure and assembly of the influenza A virus ribonucleoprotein complex. *Febs Letters*, 587(8): 1206-1214.
- Zhou, J.J., Fu, J., Fang, D.Y., Yan, H.J., Tian, J., Zhou, J.M., Liang, dan Y., Jiang, L.F., 2007. Molecular characterization of the surface glycoprotein genes of an H5N1 influenza virus isolated from a human in Guangdong China. *Arch. Virol.*, 152: 1515-1521.