

## DAFTAR PUSTAKA

- Abd-ALKareem Abd, D., Mohammed Lafta, F. and Fayyadh Alwan, Y. (2022), “The association between plasma IL-6 levels and several thalassemia-related clinical features in Iraqi patients”, *International Journal of Health Sciences*, Vol. 6 No. March, pp. 548–561, doi: 10.53730/ijhs.v6ns6.10343.
- Agoro, R., Taleb, M., Quesniaux, V.F.J. and Mura, C. (2018), “Cell iron status influences macrophage polarization”, *Plos One Journal*, Vol. 13 No. 5, pp. 1–20, doi: 10.1371/journal.pone.0196921.
- Al-Hakeim, H.K., Najm, A.H., Al-Dujaili, A.H. and Maes, M. (2020), “Major Depression in Children with Transfusion-Dependent Thalassemia Is Strongly Associated with the Combined Effects of Blood Transfusion Rate, Iron Overload, and Increased Pro-inflammatory Cytokines”, *Neurotoxicity Research Journal*, Neurotoxicity Research, Vol. 38 No. 1, pp. 228–241, doi: 10.1007/s12640-020-00193-1.
- Anacélia Gomes, Ribeiro Junior, H.L., de Paula Borges, D., Okubo, B.M., de Sousa, J.C., Barbosa, M.C., de Castro, M.F., *et al.* (2017), “Interleukin-8 and nuclear factor kappa B are increased and positively correlated in myelodysplastic syndrome”, *Medical Oncology*, Vol. 34 No. 10, doi: 10.1007/s12032-017-1023-1.
- Ansari-Moghaddam, A., Adineh, H.A., Zareban, I., Mohammadi, M. and Maghsoodlu, M. (2018), “The survival rate of patients with beta-thalassemia major and intermedia and its trends in recent years in Iran”, *Epidemiology and Health Journal*, Vol. 40 No. 40, pp. 13–15, doi: 10.4178/epih.e2018048.
- Babitt, J.L. and Lin, H.Y. (2010), “Molecular Mechanisms of Heparin Regulation: Implications for the Anemia of CKD”, *American Journal of Kidney Diseases*, Elsevier Inc., Vol. 55 No. 4, pp. 726–741, doi: 10.1053/j.ajkd.2009.12.030.
- Basu, S. and Jalodia, K. (2018), “Small molecule inhibitors of NFκB reverse iron overload and hepcidin deregulation in a zebrafish model for Hereditary Hemochromatosis Type 3 Present address : Department of Pharmacology and Toxicology , University of Utah ”, *ACS Chemical Biology*, pp. 4–6, doi: 10.1021/acscchembio.8b00317.
- Basu, S., Jalodia, K., Ranjan, S., Yeh, J.R.J., Peterson, R.T. and Sachidanandan, C. (2018), “Small Molecule Inhibitors of NFκB Reverse Iron Overload and Heparin Deregulation in a Zebrafish Model for Hereditary Hemochromatosis Type 3”, *ACS Chemical Biology*, Vol. 13 No. 8, pp. 2143–2152, doi: 10.1021/acscchembio.8b00317.
- Bethesda. (2017b), “Deferoxamine”, *LiverTox: Clinical and Research Information on Drug- Induced Liver Injury*, National Institute of Diabetes and Digestive and Kidney Disease., United States.

- Bhosale, M., Chandanwale, A., Kinikar, A., Singh, D. and Chaudhary, R. (2015), "Impact of splenectomy on quality of life of children with  $\beta$ -thalassemia", *International Journal of Medicine and Public Health*, Vol. 5 No. 4, p. 322, doi: 10.4103/2230-8598.165963.
- Boshuizen, M., van Hezel, M.E., van Manen, L., Straat, M., Somsen, Y.B.O., Spoelstra-de Man, A.M.E., Blumberg, N., *et al.* (2019), "The effect of red blood cell transfusion on iron metabolism in critically ill patients", *The Journal of AAB*, Vol. 59 No. 4, pp. 1196–1201, doi: 10.1111/trf.15127.
- Bottero, V., Withoff, S. and Verma, I.M. (2006), "NF- $\kappa$ B and the regulation of hematopoiesis", *Nature Publishing Group*, Vol. 13 No. 5, pp. 785–797, doi: 10.1038/sj.cdd.4401888.
- Camaschella, C., Nai, A. and Silvestri, L. (2020), "Iron metabolism and iron disorders revisited in the hepcidin era", *Haematologica*, Vol. 105 No. 2, pp. 260–272, doi: 10.3324/haematol.2019.232124.
- Camaschella, C. and Silvestri, L. (2011), "Molecular mechanisms regulating hepcidin revealed by hepcidin disorders", *The Scientific World Journal*, Vol. 11, pp. 1357–1366, doi: 10.1100/tsw.2011.130.
- Cappellini, M.D., Porter, J.B., Viprakasit, V. and Taher, A.T. (2018), "A paradigm shift on beta-thalassaemia treatment: How will we manage this old disease with new therapies?", *Blood Reviews*, Vol. 32 No. 4, pp. 300–311, doi: 10.1016/j.blre.2018.02.001.
- Caprari, P., Profumo, E., Massimi, S., Buttari, B., Riganò, R., Regine, V., Gabbianelli, M., *et al.* (2023), "Hemorheological profiles and chronic inflammation markers in transfusion-dependent and non-transfusion-dependent thalassemia", *Frontiers in Molecular Biosciences*, Vol. 9 No. January, pp. 1–14, doi: 10.3389/fmolb.2022.1108896.
- Cazzola, M., Della Porta, M.G. and Malcovati, L. (2008), "Clinical relevance of anemia and transfusion iron overload in myelodysplastic syndromes.", *Hematology / the Education Program of the American Society of Hematology. American Society of Hematology. Education Program*, pp. 166–175, doi: 10.1182/asheducation-2008.1.166.
- Cepas, V., Collino, M., Mayo, J.C. and Sainz, R.M. (2020), "Redox signaling and advanced glycation endproducts (AGEs) in diet-related diseases", *Antioxidants*, Vol. 9 No. 2, pp. 1–20, doi: 10.3390/antiox9020142.
- Chaudhry, H.S. and Kasarla, M.R. (2019), "Microcytic Hypochromic Anemia", *StatPearls*, Pubmed Publisher, America, pp. 1–5.
- Creswell, J.W. and Creswell, J.D. (2018), *Mixed Methods Procedures*, edited by Neve, C. *Research Design: Qualitative, Quantitative, and Mixed Methods*

*Approaches*, 5th ed., SAGE, America.

- D'Angelo, G. (2013), "Role of hepcidin in the pathophysiology and diagnosis of anemia", *Blood Research*, Vol. 48 No. 1, pp. 10–15, doi: 10.5045/br.2013.48.1.10.
- Dahlan, M.S. (2010), *Besar Sampel Dan Cara Pengambilan Sampel*, 3rd ed., Salemba Medika, Jakarta.
- Détivaud, L., Nemeth, E., Boudjema, K., Turlin, B., Troadec, M.B., Leroyer, P., Ropert, M., *et al.* (2005), "Hepcidin levels in humans are correlated with hepatic iron stores, hemoglobin levels, and hepatic function", *Blood*, Vol. 106 No. 2, pp. 746–748, doi: 10.1182/blood-2004-12-4855.
- Ding, J., Huang, Z., Jiang, X., Li, Q., Cao, Y. and Guo, Y. (2022), "The prevalence and genetic disorders spectrum of thalassemia among breast cancer patients in Jiangxi province, China", *Frontiers in Genetics*, Vol. 13 No. October, pp. 1–10, doi: 10.3389/fgene.2022.1001369.
- Dou, H., Qin, Y., Chen, G. and Zhao, Y. (2019), "Effectiveness and safety of deferasirox in thalassemia with iron overload: A meta-analysis", *Acta Haematologica*, Vol. 141 No. 1, pp. 32–42, doi: 10.1159/000494487.
- Eguchi, A., Mochizuki, T., Tsukada, M., Kataoka, K., Hamaguchi, Y., Oguni, S., Nitta, K., *et al.* (2012), "Serum hepcidin levels and reticulocyte hemoglobin concentrations as indicators of the iron status of peritoneal dialysis patients", *International Journal of Nephrology*, Vol. 2012, doi: 10.1155/2012/239476.
- Ehsan, H., Wahab, A., Anwer, F., Iftikhar, R. and Yousaf, M.N. (2020), "Prevalence of Transfusion Transmissible Infections in Beta-Thalassemia Major Patients in Pakistan: A Systemic Review", *Cureus*, Vol. 12 No. 8, pp. 15–20, doi: 10.7759/cureus.10070.
- Entezari, S., Haghi, S.M., Norouzkhani, N., Sahebazar, B., Vosoughian, F., Akbarzadeh, D., Islampanah, M., *et al.* (2022), "Iron Chelators in Treatment of Iron Overload", *Journal of Toxicology*, Vol. 2022, doi: 10.1155/2022/4911205.
- Escobar, G.A., Cheng, A.M., Moore, E.E., Johnson, J.L., Tannahill, C., Baker, H. V., Moldawer, L.L., *et al.* (2007), "Stored packed red blood cell transfusion up-regulates inflammatory gene expression in circulating leukocytes", *Annals of Surgery*, Vol. 246 No. 1, pp. 129–134, doi: 10.1097/01.sla.0000264507.79859.f9.
- Eshagh Hossaini, S.K., Haeri, M.R. and Seif, F. (2022), "The Effect of Long-Term Iron Chelator Therapy on Serum Levels of Hepcidin and Ferritin in Patients with Thalassemia Major and Intermediate", *Indian Journal of Hematology and Blood Transfusion*, Springer India, Vol. 38 No. 4, pp. 750–753, doi: 10.1007/s12288-022-01533-1.

- Farmakis, D., Porter, J., Taher, A., Cappellini, M.D., Angastiniotis, M. and Eleftheriou, A. (2022), “Thalassemia International Federation Guidelines For The Management Of Transfusion Dependent (TDT)”, *HemaSphere*, Vol. 1 No. 1.
- Fathi, Z.H., Mohammad, J.A., Younus, Z.M. and Mahmood, S.M. (2022), “Hepcidin as a Potential Biomarker for the Diagnosis of Anemia”, *Turkish Journal of Pharmaceutical Sciences*, Vol. 19 No. 5, pp. 603–609, doi: 10.4274/tjps.galenos.2021.29488.
- Fleming, R.E. (2007), “Hepcidin Activation During Inflammation: Make It STAT”, *Gastroenterology*, Vol. 132 No. 1, pp. 447–449, doi: 10.1053/j.gastro.2006.11.049.
- Ford, H., Agarwal, A.K. and Yee, J. (2019), “Hepcidin”, *Nephrology*, Vol. 26 No. 4, pp. 298–305.
- Gabar Hasoon, I., Sadoon Shani, W. and Mohammed Radi, A. (2020), “The association of hepcidin with some inflammatory markers in  $\beta$ -thalassemia major patients of Basrah Province”, *EurAsian Journal of BioSciences Eurasia J Biosci*, Vol. 14 No. January 2020, pp. 7285–7289.
- Gabay, C. (2006), “Interleukin-6 and chronic inflammation”, *Arthritis Research and Therapy*, Vol. 8 No. SUPPL. 2, pp. 1–6, doi: 10.1186/ar1917.
- Galanello, R. (2007), “Deferiprone in the treatment of transfusion-dependent thalassemia: A review and perspective”, *Therapeutics and Clinical Risk Management*, Vol. 3 No. 5, pp. 795–805.
- Ganz, T. (2019), “Erythropoietic regulators of iron metabolism”, *Free Radical Biology and Medicine*, Elsevier B.V., Vol. 133, pp. 69–74, doi: 10.1016/j.freeradbiomed.2018.07.003.
- Garbers, C., Heink, S., Korn, T. and Rose-John, S. (2018), “Interleukin-6: designing specific therapeutics for a complex cytokine”, *Nature Reviews Drug Discovery*, Vol. 17 No. 6, pp. 395–412, doi: 10.1038/nrd.2018.45.
- Garraud, O., Tariket, S., Sut, C., Haddad, A., Aloui, C., Chakroun, T., Laradi, S., *et al.* (2016), “Transfusion as an inflammation hit: Knowns and unknowns”, *Frontiers in Immunology*, Vol. 7 No. NOV, pp. 1–10, doi: 10.3389/fimmu.2016.00534.
- Gluba-Brzózka, A., Franczyk, B., Rysz-Górzyńska, M., Rokicki, R., Koziarska-Rościszewska, M. and Rysz, J. (2021), “Pathomechanisms of immunological disturbances in  $\beta$ -thalassemia”, *International Journal of Molecular Sciences*, Vol. 22 No. 18, doi: 10.3390/ijms22189677.

- Goh, L.P.W., Chong, E.T.J. and Lee, P.C. (2020), "Prevalence of alpha( $\alpha$ )-thalassemia in Southeast Asia (2010–2020): A meta-analysis involving 83,674 subjects", *International Journal of Environmental Research and Public Health*, Vol. 17 No. 20, pp. 1–11, doi: 10.3390/ijerph17207354.
- Gonnade, N., Bajpayee, A., Elhence, A., Lokhande, V., Mehta, N. and Mishra, M. (2017), "Establishment of Normal Reference Range of Serum Hcpidin in Indian Blood Donors", *Asian Journal of Transfusion Science*, Vol. 12 No. 2, pp. 105–111, doi: 10.4103/ajts.AJTS.
- Gray, J.P., Kim, J.R. and Ray, S.D. (2019), *Metals and Metal Antagonists, Side Effects of Drugs Annual*, 1st ed., Vol. 41, Elsevier B.V., doi: 10.1016/bs.seda.2019.07.010.
- Gray, J.P. and Ray, S.D. (2014), "Metal antagonists", *Side Effects of Drugs Annual*, Vol. 36, pp. 323–337, doi: 10.1016/B978-0-444-63407-8.00023-X.
- Gustiana, H., Gunantara, T. and Rathomi, H.S. (2020), "Kepatuhan Konsumsi Obat Kelasi Besi dan Kadar Serum Feritin Pasien Talasemia Beta-Mayor di RSUD Al-Ihsan Bandung", *Jurnal Integrasi Kesehatan & Sains*, Vol. 2 No. 1, pp. 26–30, doi: 10.29313/jiks.v2i1.5572.
- Haghpahan, S., Esmailzadeh, M., Honar, N., Hassani, F., Dehbozorgian, J., Rezaei, N., Abdollahi, M., *et al.* (2015), "Relationship between serum hepcidin and ferritin levels in patients with thalassemia major and intermedia in Southern Iran", *Iranian Red Crescent Medical Journal*, Vol. 17 No. 7, pp. 1–5, doi: 10.5812/ircmj.17(5)2015.28343.
- Hanifah, M.R. (2020), "Gambaran Anak Talasemia di Rumah Sakit Umum Daerah dr. Soediran Mangun Sumarso Wonogiri", *ASJN (Aisyiyah Surakarta Journal of Nursing)*, Vol. 1 No. 1, pp. 16–20, doi: 10.30787/asjn.v1i1.649.
- Haq, F., Mustofa, S. and Himayani, R. (2023), "Talasemia Beta: Etiologi, Klasifikasi, Faktor Risiko, Diagnosis dan Tatalaksana", *Agromedicine*, Vol. 10 No. 1, pp. 159–166.
- Hasoon, I.G., Shani, W.S. and Radi, A.M. (2020), "The association of hepcidin with some inflammatory markers in  $\beta$ -thalassemia major patients of Basrah Province", *EurAsian Journal of BioSciences*, Vol. 14 No. March, pp. 7285–7289.
- He, G. and Karin, M. (2011), "NF- $\kappa$ B and STAT3- key players in liver inflammation and cancer", *Cell Research*, Nature Publishing Group, Vol. 21 No. 1, pp. 159–168, doi: 10.1038/cr.2010.183.
- Indrakanti, D.L., Alvarado, A., Zhang, X., Birmingham, D.J., Hinton, A. and Rovin, B.H. (2017), "The interleukin-6-hepcidin-hemoglobin circuit in systemic lupus erythematosus flares", *Lupus*, Vol. 26 No. 2, pp. 200–203, doi: 10.1177/0961203316659153.

- Jamuar, S.S. and Lai, A.H.M. (2012), "Safety and efficacy of iron chelation therapy with deferiprone in patients with transfusion-dependent thalassemia", *Therapeutic Advances in Hematology*, Vol. 3 No. 5, pp. 299–307, doi: 10.1177/2040620712450252.
- Jarosch, S., Köhlen, J., Sarker, R.S.J., Steiger, K., Janssen, K.P., Christians, A., Hennig, C., *et al.* (2021), "Multiplexed imaging and automated signal quantification in formalin-fixed paraffin-embedded tissues by ChipCytometry", *Cell Reports Methods*, Vol. 1 No. 7, doi: 10.1016/j.crmeth.2021.100104.
- Jimi, E., Takakura, N., Hiura, F., Nakamura, I. and Hirata-Tsuchiya, S. (2019), "The role of NF- $\kappa$ B in physiological bone development and inflammatory bone diseases: Is NF- $\kappa$ B inhibition 'killing two birds with one stone'", *Cells*, Vol. 8 No. 12, doi: 10.3390/cells8121636.
- Kanamori, Y., Murakami, M., Sugiyama, M., Hashimoto, O., Matsui, T. and Funaba, M. (2017), "Interleukin-1 $\beta$  (IL-1 $\beta$ ) transcriptionally activates hepcidin by inducing CCAAT enhancer-binding protein  $\delta$  (C/EBP $\delta$ ) expression in hepatocytes", *Journal of Biological Chemistry*, Vol. 292 No. 24, pp. 10275–10287, doi: 10.1074/jbc.M116.770974.
- Kate Shannon. (2016), "HHS Public Access", *Physiology & Behavior*, Vol. 176 No. 1, pp. 139–148, doi: 10.1007/978-1-62703-002-1.
- Katsarou, A. and Pantopoulos, K. (2020), "Basics and principles of cellular and systemic iron homeostasis", *Molecular Aspects of Medicine*, Vol. 75 No. April, p. 100866, doi: 10.1016/j.mam.2020.100866.
- Kementerian Kesehatan Republik Indonesia. (2023), "Angka Pembawa Sifat Talasemia Tergolong Tinggi", *Kemendes Ditjen P2P*, available at: <https://p2p.kemkes.go.id/angka-pembawa-sifat-talasemia-tergolong-tinggi/>.
- Kesner, A.J., Calva, C.B. and Ikemoto, S. (2022), "Seeking motivation and reward: Roles of dopamine, hippocampus, and supramammillo-septal pathway", *Progress in Neurobiology*, Vol. 212 No. May 2021, p. 102252, doi: 10.1016/j.pneurobio.2022.102252.
- Khan, A., Khan, W.M., Ayub, M., Humayun, M. and Haroon, M. (2016), "Ferritin Is a Marker of Inflammation rather than Iron Deficiency in Overweight and Obese People", *Journal of Obesity*, Hindawi Publishing Corporation, Vol. 2016, doi: 10.1155/2016/1937320.
- Knovich, M.A., Storey, J.A., Coffman, L.G., Torti, S. V. and Torti, F.M. (2009), "Ferritin for the clinician", *Blood Reviews*, Vol. 23 No. 3, pp. 95–104, doi: 10.1016/j.blre.2008.08.001.
- Kosaryan, M., Vahidshahi, K., Karami, H., Forootan, M.A. and Ahangari, M.

- (2007), "Survival of thalassemic patients referred to the Boo Ali Sina Teaching Hospital, Sari, Iran", *Hemoglobin*, Vol. 31 No. 4, pp. 453–462, doi: 10.1080/03630260701641294.
- Laghari. (2018), "Distribution of ABO Blood Groups and Rhesus Factor In  $\beta$ -Thalassemia Patients at Thalassemia Care Center NawabShah, Pakistan", *Sindh University Research Journal -Science Series*, Vol. 50 No. 001, pp. 123–128, doi: 10.26692/surj/2018.01.0021.
- Lal, A., Wong, T., Keel, S., Pagano, M., Chung, J., Kamdar, A., Rao, L., *et al.* (2021), "The transfusion management of beta thalassemia in the United States", *Transfusion*, Vol. 61 No. 10, pp. 3027–3039, doi: 10.1111/trf.16640.
- Leecharoenkiat, K., Lithanatudom, P., Sornjai, W. and Smith, D.R. (2016), "Iron dysregulation in beta-thalassemia", *Asian Pacific Journal of Tropical Medicine*, Elsevier B.V., Vol. 9 No. 11, pp. 1035–1043, doi: 10.1016/j.apjtm.2016.07.035.
- Liana, L. (2009), "Penggunaan MRA dengan SPSS untuk menguji pengaruh variabel moderating terhadap hubungan antara variabel independen dan variabel dependen", *Dinamik*, Vol. 14 No. 2, pp. 90–97.
- Liu, T., Zhang, L., Joo, D. and Sun, S.C. (2017), "NF- $\kappa$ B signaling in inflammation", *Signal Transduction and Targeted Therapy*, Vol. 2 No. March, doi: 10.1038/sigtrans.2017.23.
- Lombardi, L., Maisetta, G., Batoni, G. and Tavanti, A. (2015), "Insights into the antimicrobial properties of hepcidins: Advantages and drawbacks as potential therapeutic agents", *Molecules*, Vol. 20 No. 4, pp. 6319–6341, doi: 10.3390/molecules20046319.
- Lukman. (2018), "Karakter Usia", *Jurnal Masalah Kesehatan Sosial*, Vol. 11 No. 1, p. 47, doi: 10.22212/aspirasi.v11i1.1589.
- Lyles, K. V. and Eichenbaum, Z. (2018), "From host heme to iron: The expanding spectrum of heme degrading enzymes used by pathogenic bacteria", *Frontiers in Cellular and Infection Microbiology*, Vol. 8 No. JUN, pp. 1–13, doi: 10.3389/fcimb.2018.00198.
- Macdougall, I.C., Malyszko, J., Hider, R.C. and Bansal, S.S. (2010), "Current status of the measurement of blood hepcidin levels in chronic kidney disease", *Clinical Journal of the American Society of Nephrology*, Vol. 5 No. 9, pp. 1681–1689, doi: 10.2215/CJN.05990809.
- Macsend. (2021), "Deferiprone - mechanism of action, uses, dosage, side effects", *Macsen Lab*.
- Mahmoud, S.M. and Aziz, S.B. (2013), "Evaluation of Certain Inflammatory Markers in Transfusion Dependent  $\beta$ -Thalassemic Patients", *Tikrit Journal of*

- Mani, L., Fatimah-Muis, S. and Kartini, A. (2020), “Korelasi kadar hepcidin dan asupan makanan dengan serum transferrin reseptor dan hemoglobin pada remaja stunted overweight”, *Jurnal Gizi Indonesia*, Vol. 8 No. 1, p. 51, doi: 10.14710/jgi.8.1.51-59.
- Mansoor, S., Othman, Z., Othman, A. and Husain, M. (2018), “A descriptive study on quality of life among adolescents with beta-thalassemia major in the Maldives”, *International Medical Journal*, Vol. 25 No. 4, pp. 211–214.
- Maras, J.S., Das, S., Sharma, S., Sukriti, S., Kumar, J., Vyas, A.K., Kumar, D., *et al.* (2018), “Iron-Overload triggers ADAM-17 mediated inflammation in Severe Alcoholic Hepatitis”, *Scientific Reports*, Vol. 8 No. 1, pp. 1–14, doi: 10.1038/s41598-018-28483-x.
- Mariani, R., Trombini, P., Pozzi, M. and Piperno, A. (2009), “Iron metabolism in thalassemia and sickle cell disease”, *Mediterranean Journal of Hematology and Infectious Diseases*, doi: 10.4084/mjhid.2009.006.
- Mayeur, C., Leyton, P.A., Kolodziej, S.A., Yu, B. and Bloch, K.D. (2014), “BMP type II receptors have redundant roles in the regulation of hepatic hepcidin gene expression and iron metabolism”, *Blood*, Vol. 124 No. 13, pp. 2116–2123, doi: 10.1182/blood-2014-04-572644.
- Menteri Kesehatan Republik Indonesia. (2018), *Pedoman Nasional Pelayanan Kedokteran Tata Laksana Thalassemia, Keputusan Menteri*, INDONESIA.
- Mercadel, L., Metzger, M., Haymann, J.P., Thervet, E., Boffa, J.J., Flamant, M., Vrtovsnik, F., *et al.* (2014), “The relation of hepcidin to iron disorders, inflammation and hemoglobin in chronic kidney disease”, *Plos One Journal*, Vol. 9 No. 6, pp. 1–7, doi: 10.1371/journal.pone.0099781.
- Miao, R., Fang, X., Zhang, Y., Wei, J., Zhang, Y. and Tian, J. (2023), “Iron metabolism and ferroptosis in type 2 diabetes mellitus and complications: mechanisms and therapeutic opportunities”, *Cell Death and Disease*, Springer US, Vol. 14 No. 3, pp. 1–9, doi: 10.1038/s41419-023-05708-0.
- Micha, R. (2017), “HHS Public Access”, *Physiology & Behavior*, Vol. 176 No. 1, pp. 100–106, doi: 10.1177/0022146515594631.Marriage.
- Mihara, M., M, H., H, Y., M, S. and M., S. (2012), “IL-6/IL-6 receptor system and its role in physiological and pathological conditions”, *Clin Sci (Lond)*, Vol. 4 No. 122, pp. 143–159, doi: 10.1042/CS20110340.
- Milic, S., Mikolasevic, I., Orlic, L., Devcic, E., Starcevic-Cizmarevic, N., Stimac, D., Kapovic, M., *et al.* (2016), “The role of iron and iron overload in chronic liver disease”, *Medical Science Monitor*, Vol. 22, pp. 2144–2151, doi: 10.12659/MSM.896494.



- Musallam, K.M., Lombard, L., Kistler, K.D., Arregui, M., Gilroy, K.S., Chamberlain, C., Zagadailov, E., *et al.* (2023), “Epidemiology of clinically significant forms of alpha- and beta-thalassemia: A global map of evidence and gaps”, *American Journal of Hematology*, Vol. 98 No. 9, pp. 1436–1451, doi: 10.1002/ajh.27006.
- Musallam, K.M., Taher, A.T., Cappellini, M.D., Hermine, O., Kuo, K.H.M., Sheth, S., Viprakasit, V., *et al.* (2022), “Untreated Anemia in Nontransfusion-dependent  $\beta$ -thalassemia: Time to Sound the Alarm”, *HemaSphere*, Vol. 6 No. 12, p. E806, doi: 10.1097/HS9.0000000000000806.
- Naeem, U., Baseer, N., Khan, M.T.M., Hassan, M., Haris, M. and Yousafzai, Y.M. (2021), “Effects of transfusion of stored blood in patients with transfusion-dependent thalassemia.”, *American Journal of Blood Research*, Vol. 11 No. 6, pp. 592–599.
- Nakagawa, H., Tamura, T., Mitsuda, Y., Goto, Y., Kamiya, Y., Kondo, T., Wakai, K., *et al.* (2014), “Inverse correlation between serum interleukin-6 and iron levels among Japanese adults: A cross-sectional study”, *BMC Hematology*, *BMC Blood Disorders*, Vol. 14 No. 1, pp. 1–6, doi: 10.1186/2052-1839-14-6.
- Nemeth, E. (2010), “Hepcidin in  $\beta$ -thalassemia Elizabetha”, *Hepcidin in Beta Thalassemia*, Vol. 1202, pp. 31–35, doi: 10.1111/j.1749-6632.2010.05585.x.Hepcidin.
- Nemeth, E. and Ganz, T. (2021), “Hepcidin-ferroportin interaction controls systemic iron homeostasis”, *International Journal of Molecular Sciences*, Vol. 22 No. 12, doi: 10.3390/ijms22126493.
- Nemeth, E. and Ganz, T. (2023), “Hepcidin and Iron in Health and Disease”, *Annual Review of Medicine*, Vol. 74, pp. 261–277, doi: 10.1146/annurev-med-043021-032816.
- Nemeth, E., Rivera, S., Gabayan, V., Keller, C., Taudorf, S., Pedersen, B.K. and Ganz, T. (2004), “IL-6 mediates hypoferremia of inflammation by inducing the synthesis of the iron regulatory hormone hepcidin”, *Journal of Clinical Investigation*, Vol. 113 No. 9, pp. 1271–1276, doi: 10.1172/JCI200420945.
- Nemeth, E., Valore, E. V., Territo, M., Schiller, G., Lichtenstein, A. and Ganz, T. (2003), “Hepcidin, a putative mediator of anemia of inflammation, is a type II acute-phase protein”, *Blood*, Vol. 101 No. 7, pp. 2461–2463, doi: 10.1182/blood-2002-10-3235.
- Nienhuis, A.W. and Nathan, D.G. (2012), “Pathophysiology and clinical manifestations of the  $\beta$ -thalassemias”, *Cold Spring Harbor Perspectives in Medicine*, Vol. 2 No. 12, pp. 1–13, doi: 10.1101/cshperspect.a011726.
- Nithichanon, A., Tussakhon, I., Samer, W., Kewcharoenwong, C., Ato, M.,

- Bancroft, G.J. and Lertmemongkolchai, G. (2020), “Immune responses in beta-thalassaemia: heme oxygenase 1 reduces cytokine production and bactericidal activity of human leucocytes”, *Scientific Reports*, Nature Publishing Group UK, Vol. 10 No. 1, pp. 1–12, doi: 10.1038/s41598-020-67346-2.
- Novitasari, W.F., Nugraha, J., Andarsini, M.R. and Tambunan, B.A. (2024), “Analysis of Hepcidin and Interleukin-6 Levels among Transfusion-Dependent Thalassemia Patients With and Without Alloimmunization/Autoimmunization”, *Pharmacognosy Journal*, Vol. 16 No. 1, pp. 60–66, doi: 10.5530/pj.2024.16.9.
- Núñez, M.T. (2010), “Regulatory mechanisms of intestinal iron absorption - Uncovering of a fast-response mechanism based on DMT1 and ferroportin endocytosis”, *BioFactors*, Vol. 36 No. 2, pp. 88–97, doi: 10.1002/biof.84.
- Ondei, L. de S., Estevão, I. da F., Rocha, M.I.P., Percário, S., Souza, D.R.S., Pinhel, M.A. de S. and Bonini-Domingos, C.R. (2013), “Oxidative stress and antioxidant status in beta-thalassemia heterozygotes”, *Revista Brasileira de Hematologia e Hemoterapia*, Vol. 35 No. 6, pp. 409–413, doi: 10.5581/1516-8484.20130122.
- Öztürk, O., Yaylim, I., Aydin, M., Yilmaz, H., Ağaçhan, B., Demiralp, E. and Isbir, T. (2001), “Increased plasma levels of interleukin-6 and interleukin-8 in  $\beta$ -thalassaemia major”, *Haematologia*, Vol. 31 No. 3, pp. 237–244, doi: 10.1163/15685590152763782.
- Pagani, A., Nai, A., Silvestri, L. and Camaschella, C. (2019), “Hepcidin and Anemia: A Tight Relationship”, *Frontiers in Physiology*, Vol. 10 No. October, pp. 1–7, doi: 10.3389/fphys.2019.01294.
- Pagano, M.B. and Tobian, A.A.R. (2014), *Complications of Transfusion, Pathobiology of Human Disease: A Dynamic Encyclopedia of Disease Mechanisms*, doi: 10.1016/B978-0-12-386456-7.06214-6.
- Paköz, Z.B., Çekiç, C., Arabul, M., Sartaş Yüksel, E., Ipek, S., Vatansever, S. and Ünsal, B. (2015), “An evaluation of the correlation between hepcidin serum levels and disease activity in inflammatory bowel disease”, *Gastroenterology Research and Practice*, Vol. 2015 No. January 2013, doi: 10.1155/2015/810942.
- Parmar, D., Sedai, A., Ankita, K., Lalith, Agarwal, R.K., Hegde, S., Ramaswami, G., *et al.* (2020), “Life expectancy and risk factors for early death in patients with severe thalassemia syndromes in South India”, *Blood Advances*, Vol. 4 No. 7, pp. 1448–1457, doi: 10.1182/bloodadvances.2019000760.
- Pasricha, S.R., Frazer, D.M., Bowden, D.K. and Anderson, G.J. (2013a), “Transfusion suppresses erythropoiesis and increases hepcidin in adult

- patients with  $\beta$ -thalassemia major: A longitudinal study”, *Blood*, Vol. 122 No. 1, pp. 124–133, doi: 10.1182/blood-2012-12-471441.
- Pasricha, S.R., Frazer, D.M., Bowden, D.K. and Anderson, G.J. (2013b), “Transfusion suppresses erythropoiesis and increases hepcidin in adult patients with  $\beta$ -thalassemia major: A longitudinal study”, *Blood*, Vol. 122 No. 1, pp. 124–133, doi: 10.1182/blood-2012-12-471441.
- Pennell, D.J., Porter, J.B., Cappellini, M.D., El-Beshlawy, A., Chan, L.L., Aydinok, Y., Elalfy, M.S., *et al.* (2010), “Efficacy of deferasirox in reducing and preventing cardiac iron overload in  $\beta$ -thalassemia”, *Blood*, Vol. 115 No. 12, pp. 2364–2371, doi: 10.1182/blood-2009-04-217455.
- Pilo, F., Cilloni, D., Della Porta, M.G., Forni, G.L., Piperno, A., Santini, V. and Angelucci, E. (2022), “Iron-mediated tissue damage in acquired ineffective erythropoiesis disease: It’s more a matter of burden or more of exposure to toxic iron form?”, *Leukemia Research*, Elsevier Ltd, Vol. 114Pilo, F, p. 106792, doi: 10.1016/j.leukres.2022.106792.
- Pinyopornpanish, K., Tantiworawit, A., Leerapun, A., Soontornpun, A. and Thongsawat, S. (2023), “Secondary Iron Overload and the Liver: A Comprehensive Review”, *Journal of Clinical and Translational Hepatology*, Vol. 11 No. 4, pp. 932–941, doi: 10.14218/JCTH.2022.00420.
- Politou, M., Komninaka, V., Valsami, S., Kapsimali, V., Pouliakis, A., Koutsouri, T., Panayiotakopoulos, G., *et al.* (2020), “The effect of transfusion on immune responses in thalassemia”, *Blood Cells, Molecules, and Diseases*, Vol. 83 No. March, doi: 10.1016/j.bcnd.2020.102425.
- Purwanto, N. (2019), “Variabel Dalam Penelitian Pendidikan”, *Jurnal Teknodik*, Vol. 6115, pp. 196–215, doi: 10.32550/teknodik.v0i0.554.
- Rajaeefard, A., Hajipour, M., Tabatabaee, H.R., Hassanzadeh, J., Rezaeian, S., Moradi, Z., Sharafi, M., *et al.* (2015), “Analysis of survival data in thalassemia patients in Shiraz, Iran”, *Epidemiology and Health*, Vol. 37, p. e2015031, doi: 10.4178/epih/e2015031.
- Ravasi, G., Pelucchi, S., Trombini, P., Mariani, R., Tomosugi, N., Modignani, G.L., Pozzi, M., *et al.* (2012), “Hepcidin expression in iron overload diseases is variably modulated by circulating factors”, *Plos One Journal*, Vol. 7 No. 5, pp. 3–8, doi: 10.1371/journal.pone.0036425.
- Remy, K.E., Hall, M.W., Cholette, J., Juffermans, N.P., Nicol, K., Doctor, A., Blumberg, N., *et al.* (2018), “Mechanisms of red blood cell transfusion-related immunomodulation”, *Transfusion*, Vol. 58 No. 3, pp. 804–815, doi: 10.1111/trf.14488.
- Rivella, S. (2019), “Iron metabolism under conditions of ineffective erythropoiesis

in  $\beta$ -Thalassemia”, *Blood*, Vol. 133 No. 1, pp. 51–58, doi: 10.1182/blood-2018-07-815928.

Rodriguez, R., Jung, C.L., Gabayan, V., Deng, J.C., Ganz, T., Nemeth, E. and Bulut, Y. (2014), “Hepcidin induction by pathogens and pathogen-derived molecules is strongly dependent on interleukin-6”, *Infection and Immunity*, Vol. 82 No. 2, pp. 745–752, doi: 10.1128/IAI.00983-13.

Rose-John, S. (2012), “IL-6 trans-signaling via the soluble IL-6 receptor: Importance for the proinflammatory activities of IL-6”, *International Journal of Biological Sciences*, Vol. 8 No. 9, pp. 1237–1247, doi: 10.7150/ijbs.4989.

Roth, M.P., Meynard, D. and Coppin, H. (2019), “Regulators of hepcidin expression”, *Vitamins and Hormones*, Vol. 110, pp. 101–129, doi: 10.1016/bs.vh.2019.01.005.

Rujito, L. (2019), *Talasemia Genetik Dasar Dan Pengelolaan Terkini*, UNSOED Press.

Rungratanawanich, W., Qu, Y., Wang, X., Essa, M.M. and Song, B.J. (2021), “Advanced glycation end products (AGEs) and other adducts in aging-related diseases and alcohol-mediated tissue injury”, *Experimental and Molecular Medicine*, Springer US, Vol. 53 No. 2, pp. 168–188, doi: 10.1038/s12276-021-00561-7.

Said, E.A., Al-Reesi, I., Al-Shizawi, N., Jaju, S., Al-Balushi, M.S., Koh, C.Y., Al-Jabri, A.A., *et al.* (2021), “Defining IL-6 levels in healthy individuals: A meta-analysis”, *Journal of Medical Virology*, Vol. 93 No. 6, pp. 3915–3924, doi: 10.1002/jmv.26654.

Salsabila, T.R., Ringoringo, H.P., Panghiyangani, R., Hartoyo, E. and Rahmiati, R. (2022), “Prevalensi Reaksi Transfusi Darah Penderita Talasemia Beta Mayor yang Bergantung Transfusi di RSD Idaman Banjarbaru Tahun 2020-2021”, *Homeostasis*, Vol. 5 No. 1, p. 35, doi: 10.20527/ht.v5i1.5163.

Sanchez-Villalobos, M., Blanquer, M., Moraleda, J.M., Salido, E.J. and Perez-Oliva, A.B. (2022), “New Insights Into Pathophysiology of  $\beta$ -Thalassemia”, *Frontiers in Medicine*, Vol. 9 No. April, pp. 1–10, doi: 10.3389/fmed.2022.880752.

Sargeant, H.R., Miller, H.M. and Shaw, M.A. (2011), “Inflammatory response of porcine epithelial IPEC J2 cells to enterotoxigenic *E. coli* infection is modulated by zinc supplementation”, *Molecular Immunology*, Pergamon, Vol. 48 No. 15–16, pp. 2113–2121, doi: 10.1016/J.MOLIMM.2011.07.002.

Sattarahmady, N., Heli, H., Moosavi-Movahedi, A.A. and Karimian, K. (2014), “Deferiprone: Structural and functional modulating agent of hemoglobin fructation”, *Molecular Biology Reports*, Vol. 41 No. 3, pp. 1723–1729, doi: 10.1007/s11033-014-3021-0.

- Scheller, J., Chalaris, A., Schmidt-Arras, D. and Rose-John, S. (2011), "The pro- and anti-inflammatory properties of the cytokine interleukin-6", *Biochimica et Biophysica Acta (BBA) - Molecular Cell Research*, Vol. 1813 No. 5, pp. 878–888, doi: 10.1016/J.BBAMCR.2011.01.034.
- Schmidt-Arras, D. and Rose-John, S. (2016), "IL-6 pathway in the liver: From physiopathology to therapy", *Journal of Hepatology*, European Association for the Study of the Liver, Vol. 64 No. 6, pp. 1403–1415, doi: 10.1016/j.jhep.2016.02.004.
- Setiyadi, A., Intan Parulian and Muhammad Ulfan. (2022), "Relationship Between Family Knowledge About Iron Chelation and Adherence To Giving Iron Chelation in Children With Thalassemia At Rscm Kiara", *Muhammadiyah International Public Health and Medicine Proceeding*, Vol. 2 No. 1, pp. 140–147, doi: 10.61811/miphmp.v1i2.250.
- Shafique, F., Ali, S., Almansouri, T., Van Eeden, F., Shafi, N., Khalid, M., Khawaja, S., *et al.* (2023), "Thalassemia, a human blood disorder", *Brazilian Journal of Biology*, Vol. 83 No. September, doi: 10.1590/1519-6984.246062.
- Shah, F.T., Sayani, F., Trompeter, S., Drasar, E. and Piga, A. (2019a), "Challenges of blood transfusions in  $\beta$ -thalassemia", *Blood Reviews*, Elsevier, Vol. 37, p. 100588, doi: 10.1016/j.blre.2019.100588.
- Shah, F.T., Sayani, F., Trompeter, S., Drasar, E. and Piga, A. (2019b), "Challenges of blood transfusions in  $\beta$ -thalassemia", *Blood Reviews*, Vol. 37, doi: 10.1016/j.blre.2019.100588.
- Sharma, S., Sharma, P. and Tyler, L.N. (2011), "Transfusion of blood and blood products: Indications and complications", *American Family Physician*, Vol. 83 No. 6, pp. 719–724.
- Sharp, P., Kaila Srail, S. and Submissions, O. (2007), "Molecular mechanisms involved in intestinal iron absorption Nathan Subramaniam, PhD, Series Editor", *World J Gastroenterol*, Vol. 13 No. 35, pp. 4716–4724.
- She, H., Xiong, S., Lin, M., Zandi, E., Giulivi, C. and Tsukamoto, H. (2002), "Iron activates NF- $\kappa$ B in Kupffer cells", *American Journal of Physiology - Gastrointestinal and Liver Physiology*, Vol. 283 No. 3 46-3, pp. 719–726, doi: 10.1152/ajpgi.00108.2002.
- Siemonsma, M., Cerami, C., Darboe, B., Verhoef, H., Prentice, A.M. and Jobe, M. (2024), "Alterations of Hepcidin and Iron Markers Associated with Obesity and Obesity-related Diabetes in Gambian Women", *Wellcome Open Research*, Vol. 1 No. 1, pp. 1–12.
- Sugiyono. (2020), *Metodologi Penelitian Kuantitatif, Kualitatif Dan R & D*, 13th ed., Alfabeta, Bandung.

- Suhada, R.I. and Artini, D. (2022), "Trend Perubahan Kadar Hemoglobin Pada Pasien Thalasemia Dengan Pemberian Packed Red Cells Di Rsud Kabupaten Sleman", *Jurnal Analisis Kesehatan Kendari*, Vol. 5 No. 1, pp. 24–29, doi: 10.46356/jakk.v5i1.219.
- Suryoadji, K.A., Alfian, I.M., Dokter, S.P., Kedokteran, F. and Indonesia, U. (2020), "Patofisiologi Gejala Penyakit Thalasemia Beta":, *Khazanah: Jurnal Mahasiswa*, Vol. 13 No. 2, pp. 56–60.
- Susanah, S. (2022), "Tata Laksana Terkini Talasemia : Terapi Target", *Sari Pediatri*, Vol. 24 No. 4, p. 279, doi: 10.14238/sp24.4.2022.279-85.
- Taher, A.T., Cappellini, M.D., Kattamis, A., Voskaridou, E., Perrotta, S. and Piga, A.G. (2022), "Luspatercept for the treatment of anaemia in non- transfusion-dependent  $\beta$ -thalassaemia (BEYOND): a phase 2, randomised, double-blind, multicentre, placebo-controlled trial", *The Lancet Haematology*, Vol. 9 No. 10, pp. 1–7.
- Talbot, N.P., Lakhal, S., Smith, T.G., Privat, C., Nickol, A.H., Rivera-Ch, M., León-Velarde, F., *et al.* (2012), "Regulation of hepcidin expression at high altitude", *Blood*, Vol. 119 No. 3, pp. 857–860, doi: 10.1182/blood-2011-03-341776.
- Tanaka, T., Narazaki, M. and Kishimoto, T. (2014), "patterns (DAMPs), which are released from damaged or dying cells in noninfectious inflammations such as burn or trauma, directly or indirectly promote inflammation. During sterile surgical operations, an increase in serum IL66 levels precedes elevation of", *Cold Spring Harbor Perspective in Biology*, Vol. 6 No. Kishimoto 1989, pp. 1–16.
- Tanaka, T., Ogata, A. and Narazaki, M. (2013), "Tocilizumab: An updated review of its use in the treatment of rheumatoid arthritis and its application for other immune-Mediated diseases", *Clinical Medicine Insights: Therapeutics*, Vol. 5, pp. 33–52, doi: 10.4137/CMT.S9282.
- Teawtrakul, N., Jetsrisuparb, A., Pongudom, S., Sirijerachai, C., Chansung, K., Wanitpongpun, C. and Fucharoen, S. (2018), "Epidemiologic study of major complications in adolescent and adult patients with thalassemia in Northeastern Thailand: the E-SAAN study phase I", *Hematology*, Taylor & Francis, Vol. 23 No. 1, pp. 55–60, doi: 10.1080/10245332.2017.1358845.
- Traivaree, C., Monsereenusorn, C., Rujkijyanont, P., Prasertsin, W. and Boonyawat, B. (2018), "Genotype–phenotype correlation among betathalassemia and beta-thalassemia/HbE disease in Thai children: Predictable clinical spectrum using genotypic analysis", *Journal of Blood Medicine*, Vol. 9, pp. 35–41, doi: 10.2147/JBM.S159295.

- Tubman, V.N., Fung, E.B., Vogiatzi, M., Thompson, A.A., Rogers, Z.R., Neufeld, E.J. and Kwiatkowski, J.L. (2015), “Guidelines for the Standard Monitoring of Patients With Thalassemia”, *Journal of Pediatric Hematology/Oncology*, Vol. 37 No. 3, pp. e162–e169, doi: 10.1097/mpH.0000000000000307.
- Tuo, Y., Li, Y., Li, Y., Ma, J., Yang, X., Wu, S., Jin, J., *et al.* (2024), “Global, regional, and national burden of thalassemia, 1990–2021: a systematic analysis for the global burden of disease study 2021”, *EClinicalMedicine*, The Author(s), Vol. 72 No. May, p. 102619, doi: 10.1016/j.eclinm.2024.102619.
- Ueda, N. and Takasawa, K. (2018), “Impact of inflammation on ferritin, hepcidin and the management of iron deficiency anemia in chronic kidney disease”, *Nutrients*, Vol. 10 No. 9, doi: 10.3390/nu10091173.
- Urner, M., Herrmann, I.K., Buddeberg, F., Schuppli, C., Z, B.R., Hasler, M., Schanz, U., *et al.* (2012), “Effects of Blood Products on Inflammatory Response in Endothelial Cells In Vitro”, *Plos One Journal*, Vol. 7 No. 3, doi: 10.1371/journal.pone.0033403.
- Valderrábano, R.J. and Wu, J.Y. (2019), “Bone and blood interactions in human health and disease”, *Bone*, Elsevier Inc, Vol. 119, pp. 65–70, doi: 10.1016/j.bone.2018.02.019.
- Vela, D. (2018), “Hepcidin, an emerging and important player in brain iron homeostasis”, *Journal of Translational Medicine*, BioMed Central, Vol. 16 No. 1, pp. 1–18, doi: 10.1186/s12967-018-1399-5.
- Vyoral, D. and Petrák, J. (2005), “Hepcidin: A direct link between iron metabolism and immunity”, *International Journal of Biochemistry and Cell Biology*, Vol. 37 No. 9, pp. 1768–1773, doi: 10.1016/j.biocel.2005.02.023.
- Walter, P.B., Macklin, E.A., Porter, J., Evans, P., Kwiatkowski, J.L., Neufeld, E.J., Coates, T., *et al.* (2008), “Inflammation and oxidant-stress in  $\beta$ -thalassemia patients treated with iron chelators deferasirox (ICL670) or deferoxamine: An ancillary study of the Novartis CICAL670A0107 trial”, *Haematologica*, Vol. 93 No. 6, pp. 817–825, doi: 10.3324/haematol.11755.
- White, U. and Stephens, J. (2011), “The gp130 Receptor Cytokine Family: Regulators of Adipocyte Development and Function”, *Current Pharmaceutical Design*, Vol. 17 No. 4, pp. 340–346, doi: 10.2174/138161211795164202.
- WHO. (2021), *Regional Desk Review of Haemoglobinopathies with an Emphasis on Thalassaemia and Accessibility and Availability of Safe Blood and Blood Products as per These Patients’ Requirement in South-East Asia Under Universal Health Coverage*.
- Yadav, P.K. and Singh, A.K. (2022), “A Review of Iron Overload in Beta-

Thalassemia Major, and a Discussion on Alternative Potent Iron Chelation Targets”, *Plasmatology*, Vol. 16, doi: 10.1177/26348535221103560.

Yani, W., Andriani, R. and Novhriyanti, D. (2023), “Hubungan dukungan keluarga terhadap kualitas hidup anak penyintas thalassemia di Rumah Sakit Bhayangkara Setukpa Lemdikpol Kota Sukabumi”, *Journal of Public Health Innovation*, Vol. 4 No. 01, pp. 68–76, doi: 10.34305/jphi.v4i01.810.

Yiannikourides, A. and Latunde-Dada, G. (2019), “A Short Review of Iron Metabolism and Pathophysiology of Iron Disorders”, *Medicines*, Vol. 6 No. 3, p. 85, doi: 10.3390/medicines6030085.

Yousif, M.M., Omer, H.M., Ibrahim, O.M.M.A. and Alnagar, A.K. (2022), “Assessment of Serum Hepcidin Levels and Iron Status in Anemic Patients Admitted to Medical Intensive Care Unit”, *Egyptian Journal of Hospital Medicine*, Vol. 87 No. 1, pp. 2032–2036, doi: 10.21608/EJHM.2022.232254.

Yu, G.-Y. (2013), “Oral and maxillofacial surgery: Current and future”, *Annals of Maxillofacial Surgery*, Vol. 3 No. 2, p. 111, doi: 10.4103/2231-0746.119209.

Zarghamian, P., Azarkeivan, A., Arabkhazaeli, A., Mardani, A. and Shahabi, M. (2020), “Hepcidin gene polymorphisms and iron overload in  $\beta$ -thalassemia major patients refractory to iron chelating therapy”, *BMC Medical Genetics*, pp. 1–5.

Zhang, X. and Rovin, B.H. (2010), “Hepcidin expression by human monocytes in response to adhesion and pro-inflammatory cytokines”, *Biochimica et Biophysica Acta - General Subjects*, Elsevier B.V., Vol. 1800 No. 12, pp. 1262–1267, doi: 10.1016/j.bbagen.2010.08.005.

Zhao, H., Zhou, H., Cao, Q., Wang, C., Bai, J., Lv, P. and Zhao, F. (2018), “Effect of allogeneic blood transfusion on levels of il-6 and sil-r2 in peripheral blood of children with acute lymphocytic leukemia”, *Oncology Journal*, Vol. 16 No. 1, pp. 849–852, doi: 10.3892/ol.2018.8760.

Zinatizadeh, M.R., Schock, B., Chalbatani, G.M., Zarandi, P.K., Jalali, S.A. and Miri, S.R. (2021), “The Nuclear Factor Kappa B (NF-kB) signaling in cancer development and immune diseases”, *Genes and Diseases*, Elsevier Ltd, Vol. 8 No. 3, pp. 287–297, doi: 10.1016/j.gendis.2020.06.005.

Zivot, A., Lipton, J.M., Narla, A. and Blanc, L. (2018), “Erythropoiesis: Insights into pathophysiology and treatments in 2017”, *Molecular Medicine*, Molecular Medicine, Vol. 24 No. 1, pp. 1–15, doi: 10.1186/s10020-018-0011-z.