

DAFTAR PUSTAKA

- Arikkatt, J., Ullah, M.A., Short, K.R., Zhang, V., Gan, W.J., Loh, Z., Werder, R.B., Simpson, J., Sly, P.D., Mazzone, S.B., Spann, K.M., Ferreira, M.A.R., Upham, J.W., Sukkar, M.B., Phipps, S. 2017. RAGE deficiency predisposes mice to virus-induced paucigranulocytic asthma. *Elife*, 6: 1–25.
- Asim, A., Kumar, A., Muthuswamy, S., Jain, S., Agarwal, S. 2015. ‘down syndrome: An insight of the disease’. *J Biomed Sci*, 22(1): 1–9.
- Bendtsen, K., Hansen, P.R., Rieneck, K., Sørensen, S.F., Nielsen, H., Schou, M., Skjødt, H., Jacobsen, S., Nielsen, S.M., Peters, N.D. 2003. Spironolactone inhibits production of proinflammatory cytokines, including tumour necrosis factor- α and interferon- γ and has potential in the treatment of arthritis. *Clin Exp Immunol*, 134(1): 151–158.
- Benhaourech, S., Drighil, A., El Hammiri, A. 2016. Congenital heart disease and down syndrome: Various aspects of a confirmed association. *Cardiovasc J Afr*, 27(5): 287–290.
- Bryniarski, P., Nazimek, K., Marcinkiewicz, J. 2022. Captopril combined with furosemide or hydrochlorothiazide affects macrophage functions in mouse contact hypersensitivity response. *Int J Mol Sci*, 23(1).
- Bull, M., J. 2020. Down syndrome. *N Engl J Med*, 382: 2344–52.
- Carmichael, S.L. 2014. Birth defects epidemiology. *ejmg*. 03(02).
- Chen, L., Deng, H., Cui, H., Fang, J., Zuo, Z., Deng, J., Li, Y., Wang, X., Zhao, L. 2018. Oncotarget 7204 www.impactjournals.com/oncotarget Inflammatory responses and inflammation-associated diseases in organs. *Oncotarget*, 9(6): 7204–7218.
- Chiavaroli, V., D’Adamo, E., Giannini, C., De Giorgis, T., De Marco, S., Chiarelli, F., Mohn, A. 2012. Serum levels of receptors for advanced glycation end products in normal-weight and obese children born small and large for gestational age. *Diabetes Care*, 35(6): 1361–1363.
- Detoraki, A., Gil, A.P.R., Spiliotis, B.E. 2009. Association between serum levels of the soluble receptor (sRAGE) for advanced glycation endproducts (AGEs) and their receptor (RAGE) in peripheral blood mononuclear cells of children with type 1 diabetes mellitus. *J Pediatr Endocrinol Metab*, 22(10): 895–904.
- Dinarti, L.K., Murni, I.K., Anggrahini, D.W., Dewanto, V.C., Pritazahra, A., Hadwiono, M.R., Fajarwati, P., Hartopo, A.B. 2021. The screening of congenital heart disease by cardiac auscultation and 12-lead electrocardiogram among Indonesian elementary school students. *Cardiol Young*, 31(2): 264–273.
- Egaña-Gorroño, L., López-Díez, R., Yepuri, G., Ramirez, L.S., Reverdatto, S., Gugger, P.F., Shekhtman, A., Ramasamy, R., Schmidt, A.M. 2020. Receptor for advanced glycation end products (Rage) and mechanisms and therapeutic opportunities in diabetes and cardiovascular disease: Insights from human subjects and animal models. *Front Cardiovasc Med*, 7(March): 1–15.
- Fishman, S.L., Sonmez, H., Basman, C., Singh, V., Poretsky, L. 2018. The role of advanced glycation end-products in the development of coronary artery disease in patients with and without diabetes mellitus: A review. *Mol Med*, 24(1): 1–12.
- García-Salido, A., Melen, G., Gómez-Pinã, V., Onño-Otero, G., Serrano-González, A., Casado-Flores, J., Ramírez, M. 2018. Circulating soluble RAGE and cell surface RAGE on peripheral blood mononuclear cells in healthy children. *J Pediatr Endocrinol Metab*, 31(6): 649–654.
- Geroldi, D., Falcone, C., Emanuele, E. 2006. Soluble Receptor for Advanced Glycation End Products: From Disease Marker to Potential Therapeutic Target. *Curr Med Chem*, 13(17):

- Hariyanti, L.R., Widjaja, S.L., Hidayah, D. 2022. TNF- α as a predictive factor of pulmonary hypertension in children with Down syndrome with and without congenital heart disease. *Paediatr Indones*, 62(1): 61–5.
- Hoffman, J.I.E. 2013. The global burden of congenital heart disease. *Cardiovasc J Afr*, 24(4): 141–145.
- Huang, Y., Liu, A., Liang, L., Jiang, J., Luo, H., Deng, W., Lin, G., Wu, M., Li, T., Jiang, Y. 2018. Diagnostic value of blood parameters for community-acquired pneumonia. *Int Immunopharmacol*, 64(August): 10–15.
- Hudson, B.I., Lippman, M.E. 2018. Targeting RAGE Signaling in Inflammatory Disease. *Annu Rev Med*, 69(October 2017): 349–364.
- Huggard, D., Doherty, D.G., Molloy, E.J. 2020. Immune Dysregulation in Children With Down Syndrome. *Front Pediatr*, 8(February): 1–10.
- Huggard, D., Kelly, L., Ryan, E., McGrane, F., Lagan, N., Roche, E., Balfe, J., Leahy, T.R., Franklin, O., Doherty, D.G., Molloy, E.J. 2020. Increased systemic inflammation in children with Down syndrome. *Cytokine*, 127(July 2019): 154938.
- Huggard, D., Koay, W.J., Kelly, L., McGrane, F., Ryan, E., Lagan, N., Roche, E., Balfe, J., Leahy, T.R., Franklin, O., Moreno-Oliveira, A., Melo, A.M., Doherty, D.G., Molloy, E.J. 2019. Altered Toll-Like Receptor Signalling in Children with down Syndrome. *Mediators Inflamm*, 2019.
- Ibrahim, Z.A., Armour, C.L., Phipps, S., Sukkar, M.B. 2013. RAGE and TLRs: Relatives, friends or neighbours? *Mol Immunol*, 56(4): 739–744.
- Ismail, M.T., Hidayati, F., Krisdinarti, L., Noormanto, Nugroho, S., Wahab, A.S. 2015. Epidemiological Profile of Congenital Heart Disease in a National Referral Hospital. *J Acta Cardiol Indones*, 1(2): 66–71.
- Kabak, M., Çil, B., Hocanlı, I. 2021. Relationship between leukocyte, neutrophil, lymphocyte, platelet counts, and neutrophil to lymphocyte ratio and polymerase chain reaction positivity. , 93(January): 1567–5769.
- Katakami, N. 2017. Can soluble receptor for advanced glycation end-product (sRAGE) levels in blood be used as a predictor of cardiovascular diseases? *Atherosclerosis*, 266: 223–225.
- Li, K., Peng, Y.G., Yan, R.H., Song, W.Q., Peng, X.X., Ni, X. 2020. Age-dependent changes of total and differential white blood cell counts in children. *Chin Med J (Engl)*, 133(16): 1900–1907.
- Lohwasser, C., Neureiter, D., Weigle, B., Kirchner, T., Schuppan, D. 2006. The receptor for advanced glycation end products is highly expressed in the skin and upregulated by advanced glycation end products and tumor necrosis factor-alpha. *J Invest Dermatol*, 126(2): 291–299.
- Morrison, M.L., McMahon, C.J. 2016. Congenital Heart Disease in Down Syndrome Provisional chapter Congenital Heart Disease in Down Syndrome. *intech open*.
- Musa, N.L., Hjortdal, V., Zheleva, B., Murni, I.K., Sano, S., Schwartz, S., Staveski, S.L. 2019. The global burden of paediatric heart disease.
- Na, M., Mohammad, M., Fei, Y., Wang, W., Holdfeldt, A., Forsman, H., Ali, A., Pullerits, R., Jin, T. 2018. Lack of receptor for advanced glycation end products leads to less severe staphylococcal skin infection but more skin abscesses and prolonged wound healing. *J Infect Dis*, 218(5): 791–800.
- Nassef, Y.E., Hamed, M.A., Aly, H.F. 2014. Inflammatory cytokines, apoptotic, tissue injury and remodeling biomarkers in children with congenital heart disease. *Indian J Clin Biochem*,

- Oczypok, E.A., Perkins, T.N., Oury, T.D. 2017. All the “RAGE” in lung disease: The receptor for advanced glycation endproducts (RAGE) is a major mediator of pulmonary inflammatory responses. *Paediatr Respir Rev*, 23: 40–49.
- Prandota, J. 2002. Furosemide: progress in understanding its diuretic, anti-inflammatory, and bronchodilating mechanism of action, and use in the treatment of respiratory tract diseases. *Am J Ther*, 9(4): 317–328.
- Prasad, K. 2019. AGE-RAGE stress play a role in aortic aneurysm: A comprehensive review and novel potential therapeutic target. *Rev Cardiovasc Med*, 20(4): 201–208.
- Putranto, E.W., Murata, H., Yamamoto, K.-I., Kataoka, K., Yamada, H., Futami, J.-I., Sakaguchi, M., Huh, N.-H. 2013. Inhibition of RAGE signaling through the intracellular delivery of inhibitor peptides by PEI cationization. *Int J Mol Med*, 32(4).
- Rafii, M.S., Kleschevnikov, A., Sawa, M., Mobley, W.C. 2019. Down syndrome Down syndrome. *Handb Clin Neurol*, 167: 321–336.
- Ramasamy, R., Schmidt, A.M. 2012. Receptor for advanced glycation end products (RAGE) and implications for the pathophysiology of heart failure. *Curr Heart Fail Rep*, 9(2): 107–116.
- Rodríguez-Mortera, R., Luevano-Contreras, C., Solorio-Meza, S., Gómez-Ojeda, A., Caccavello, R., Bains, Y., Gugliucci, A., Garay-Sevilla, M.E. 2019. Soluble Receptor for Advanced Glycation End Products and Its Correlation with Vascular Damage in Adolescents with Obesity. *Horm Res Paediatr*, 92(1): 28–35.
- Roy, D., Ramasamy, R., Schmidt, A.M. 2021. Journey to a Receptor for Advanced Glycation End Products Connection in Severe Acute Respiratory Syndrome Coronavirus 2 Infection with Stops along the Way in the Lung, Heart, Blood Vessels, and Adipose Tissue. *Arterioscler Thromb Vasc Biol*, 41(2): 614–627.
- Russell, C.D., Parajuli, A., Gale, H.J., Bulteel, N.S., Schuetz, P., de Jager, C.P.C., Loonen, A.J.M., Merkoulias, G.I., Baillie, J.K. 2019. The utility of peripheral blood leucocyte ratios as biomarkers in infectious diseases: A systematic review and meta-analysis. *J Infect*, 78(5): 339–348.
- Saghafian-Hedengren, S., Mathew, J.L., Hagel, E., Singhi, S., Ray, P., Ygberg, S., Nilsson, A. 2017. Assessment of Cytokine and Chemokine Signatures as Potential Biomarkers of Childhood Community-acquired Pneumonia Severity: A Nested Cohort Study in India. *Pediatr Infect Dis J*, 36(1): 102–108.
- Sakaguchi, M., Kinoshita, R., Putranto, E.W., Ruma, I.M.W., Sumardika, I.W., Youyi, C., Tomonobu, N., Yamamoto, K.-I., Murata, H. 2017. Signal diversity of receptor for advanced glycation end products. *Acta Med Okayama*, 71(6).
- Sellegounder, D., Zafari, P., Rajabinejad, M., Taghadosi, M., Kapahi, P. 2020. Advanced glycation end products (AGEs) and its receptor, RAGE, modulate age-dependent COVID-19 morbidity and mortality. A review and hypothesis. *Psychiatry Res*, 14(4)(January): 293.
- Silva, L.B., dos Santos Neto, A.P., Maia, S.M.A.S., dos Santos Guimarães, C., Quidute, I.L., Carvalho, A. de A.T., Júnior, S.A., Leão, J.C. 2019. The Role of TNF- α as a Proinflammatory Cytokine in Pathological Processes. *Open Dent J*, 13(1): 332–338.
- Singhal, S., Pradeep, A., Kanoriya, D., Garg, V. 2016. Human soluble receptor for advanced glycation end products and tumor necrosis factor- α as gingival crevicular fluid and serum markers of inflammation in chronic periodontitis and type 2 diabetes. *J Oral Sci*, 58(4): 547–553.
- Slavov, E., Miteva, L., Prakova, G., Gidikova, P., Stanilova, S. 2010. Correlation between TNF-



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KADAR SOLUBLE RECEPTOR FOR ADVANCED GLYCATION END PRODUCTS (sRAGE) DAN TUMOR NECROSIS FACTOR-ALFA (TNF-ALFA) DI SIKULASI DARAH PERIFER SEBAGAI PENANDA BIOLOGIS PENYAKIT JANTUNG BAWAAN PADA ANAK DENGAN DAN TANPA DOWN SYNDROME

ENDY WIDYA PUTRANTO, dr. Suryono Yudha Patria, Ph.D, Sp.AK; dr. Indah Kartika Murni, M.Kes, Ph.D, SpAK

- alpha and TNF- α containing cytokines in peripheral blood. *Technical Ind Health*, 26(8): 479–486.
- Sun, M., Chen, M., Dawood, F., Zurawska, U., Li, J.Y., Parker, T., Kassiri, Z., Kirshenbaum, L.A., Arnold, M., Khokha, R., Liu, P.P. 2007. Tumor necrosis factor- α mediates cardiac remodeling and ventricular dysfunction after pressure overload state. *Circulation*, 115(11): 1398–1407.
- Tanaka, N., Yonekura, H., Yamagishi, S.I., Fujimori, H., Yamamoto, Y., Yamamoto, H. 2000. The receptor for advanced glycation end products is induced by the glycation products themselves and tumor necrosis factor- α through nuclear factor- κ B, and by 17 β -Estradiol through sp-1 in human vascular endothelial cells. *J Biol Chem*, 275(33): 25781–25790.
- Weinhage, T., Wirth, T., Schütz, P., Becker, P., Lueken, A., Skryabin, B. V., Wittkowski, H., Foell, D. 2020. The Receptor for Advanced Glycation Endproducts (RAGE) Contributes to Severe Inflammatory Liver Injury in Mice. *Front Immunol*, 11(June): 1–14.
- Willim, H.A., Cristianto, Alice Inda Supit. 2020. Critical Congenital Heart Disease in Newborn: Early Detection, Diagnosis, and Management. *Biosci Med J Biomed Transl Res*, 5(1): 107–116.
- Wu, W., He, J., Shao, X. 2020. Incidence and mortality trend of congenital heart disease at the global, regional, and national level, 1990-2017. *Med (United States)*, 99(23).
- Yang, D.B., Dong, X.Q., Du, Q., Yu, W.H., Zheng, Y.K., Hu, W., Wang, K.Y., Chen, F.H., Xu, Y.S., Wang, Y., Chen, G. 2018. Clinical relevance of cleaved RAGE plasma levels as a biomarker of disease severity and functional outcome in aneurysmal subarachnoid hemorrhage. *Clin Chim Acta*, 486(August): 335–340.
- Yerkovich, S.T., Chang, A.B., Carroll, M.L., Petsky, H.L., Scrivener, G., Upham, J.W. 2012. Soluble receptor for advanced glycation end products (sRAGE) is present at high concentrations in the lungs of children and varies with age and the pattern of lung inflammation. *Respirology*, 17(5): 841–846.
- Zhang, S., Guo, G.L., Yang, L.L., Sun, L.Q. 2017. Elevated serum levels of ghrelin and TNF- α in patients with cyanotic and acyanotic congenital heart disease. *World J Pediatr*, 13(2): 122–128.
- Zicari, A.M., Zicari, A., Nebbioso, M., Mari, E., Celani, C., Lollobrigida, V., Marcelli, A.C., Occasi, F., Duse, M. 2014. High-mobility group box-1 (HMGB-1) and serum soluble receptor for advanced glycation end products (sRAGE) in children affected by vernal keratoconjunctivitis. *Pediatr Allergy Immunol*, 25(1): 57–63.