

## DAFTAR PUSAKA

- Aasheim ET, Bohmer T. Low preoperative vitamin levels in morbidly obese patients: A role of systemic inflammation? *Surg Obes Relat Dis* 2008;4:779–780.
- Acosta JC, O’Loghlen A, Banito A, Guijarro MV, Augert A, Raguz S, *et al.* Chemokine signaling via the CXCR2 receptor reinforces senescence. *Cell*. 2008;133(6):958–961.
- Adelman R. D., Restaino I. G., Alon U. S., Blowey D. L. Proteinuria and focal segmental glomerulosclerosis in severely obese adolescents. *J Pediatr*. 2001;138(4):481–485
- Adeosun SO, Gordon DM, Weeks MF, Moore KH, Hall JE, Hinds TD, *et al.* Loss of biliverdin reductase-A promotes lipid accumulation and lipotoxicity in mouse proximal tubule cells. *Am. J. Physiol. Ren. Physiol.* 2018; 315: F323–F331.
- Aguayo-Mazzucato C, van Haaren M, Mruk M, Lee TB, Crawford C, Hollister-Lock J, Sullivan BA, *et al.* Beta cell aging markers have heterogeneous distribution and are induced by insulin resistance. *Cell Metab*. 2017;25:898–910.e5.
- Altunkaynak ME, Ozbek E, Altunkayak BZ, Can I, Unal D, Unal B. The effects of high-fat diet on renal structure and morphometric parametric of kidneys in rats. *J Anat.* 2008; 212:845-852
- Amirkhizi F, Siassi F, Minaie S, Djalali M, Rahimi A, Chamari M. Is obesity associated with increased plasma lipid peroxidación and oxidative stress in women. *ARYA Atheroscler J*. 2007; 2:189–192.
- Andersen LF, Jacobs DR, Jr., Gross MD, Schreiner PJ, Williams OD, Lee DH. Longitudinal associations between body mass index and serum carotenoids: The CARDIA study. *Br J Nutr* 2006;95:358–365.
- Appel, G.B., Radhakrishnan, J., Avram, M.M., DeFronzo, R.A., Escobar-Jimenez, F., Campos, M.M., *et al.* Analysis of metabolic parameters as predictors of risk in the RENAAL study. *Diabetes Care* 2003, 26, 1402–1407.
- Aronson D, Rayfield EJ. How hyperglycemia promotes atherosclerosis: Molecular mechanisms. *Cardiovasc Diabetol* 2002;1:1
- Arıcı M, Brown J, Williams M, Harris KP, Walls J, Brunskill NJ. Fatty acids carried on albumin modulate proximal tubular cell fibronectin production: A role for protein kinase C. *Nephrol. Dial. Transplant.* 2002;17:1751–1757
- Axelsson J, Bergsten A, Qureshi AR, Heimbürger O, Barany P, Lonnqvist F, *et al.* Elevated resistin levels in chronic kidney disease are associated with decreased glomerular filtration rate and inflammation, but not with insulin resistance. *Kidney Int* 2006;69:596–604.
- Babish, JG, Dahlberg, C.J., Ou, J.J Keller, W.J.; Gao, W.; Kaadige, M.R. *et al.* Synergistic in vitro antioxidant activity and observational clinical trial of F105, a phytochemical formulation including Citrus bergamia, in subjects

- with moderate cardiometabolic risk factors. *Can J Physiol Pharmacol*. 2016; 186, 1–10
- Baker DJ, Wijshake T, Tchkonian T, LeBrasseur NK, Childs BG, van de Sluis B, *et al*. Clearance of p16Ink4a-positive senescent cells delays ageing-associated disorders. *Nature*. 2011;479(7372):232–236
- Baker DJ, Perez-Terzic C, Jin F, Pitel KS, Niederlander NJ, Jeganathan K. *et al*. Opposing roles for p16Ink4a and p19Arf in senescence and ageing caused by BubR1 insufficiency. *Nat Cell Biol*. 2008;10(7):825–836.
- Bakker SJ, IJzerman RG, Teerlink T, Westerhoff V, Gans RO, Heine RJ. Cytosolic triglycerides and oxidative stress in central obesity: The missing link between excessive atherosclerosis, endothelial dysfunction, and beta-cell failure? *Atherosclerosis*. 2000;148:17–21
- Bartelt A, Bruns OT, Reimer R, Hohenberg H, Ittrich H, Peldschus K, Kaul MG, Tromsdorf UI, Weller H, Waurisch C, Eychmüller A, Gordts PLSM, Rinninger F, Bruegelmann K, Freund B, Nielsen P, Merkel M, Heeren J. Brown adipose tissue activity controls triglyceride clearance. *Nat. Med*. 2011;17(2):200–206
- Basu S, Whiteman M, Matthey DL, Halliwell B. Raised levels of F(2)-isoprostanes and prostaglandin F(2alpha) in different rheumatic diseases. *Ann Rheum Dis* 2001;60:627–631.
- Baynes JW. Role of oxidative stress in development of complications in diabetes. *Diabetes* 1991;40:405–412.
- Beltowski J, Wojcicka G, Jamroz A. Leptin decreases plasma paraoxonase 1 (PON1) activity and induces oxidative stress: The possible novel mechanism for proatherogenic effect of chronic hyperleptinemia. *Atherosclerosis* 2003;170:21–29
- Bjørndal B, Burri L, Staalesen V, Skorve J, Berge RK. Different adipose depots: their role in the development of metabolic syndrome and mitochondrial response to hypolipidemic agents. *J Obes*. 2011;2011:490650
- Blüher M. The distinction of metabolically 'healthy' from 'unhealthy' obese individuals. *Curr Opin Lipidol* 2010;21:38–43.
- Bogacka I, Xie H, Bray GA, Smith SR. Pioglitazone induces mitochondrial biogenesis in human subcutaneous adipose tissue in vivo. *Diabetes* 2005;54:1392–1399.
- Bondia-Pons I, Ryan L, Martinez JA. Oxidative stress and inflammation interactions in human obesity. *J Physiol Biochem* 2012;68:701–711.
- Bonventre JV. Maladaptive proximal tubule repair: cell cycle arrest. *Nephron Clin Pract*. 2014;127:61–64
- Bournat JC, Brown CW. Mitochondrial dysfunction in obesity. *Curr Opin Endocrinol Diabetes Obes* 2010;17: 446–452.
- Brantsma AH, Bakker SJL, Hillege HL, de Zeeuw D, de Jong PE, Gansevoort RT, for the PREVEND Study Group. Cardiovascular and renal outcome in subjects with K/DOQI stage 1–3 chronic kidney disease: the importance of urinary albumin excretion. *Nephrol Dial Transplant*. 2008;23:3851–8.

- Braun K, Oeckl J, Westermeier J, Li Y, Klingenspor M. Non-adrenergic control of lipolysis and thermogenesis in adipose tissues. *J Exp Biol.* 2018;221:1–14.
- Briffa JF, McAinch AJ, Poronnik P, Hryciw. Adipokines as a link between obesity and chronic kidney disease. *Am J Physiol Renal Physiol* 2013;305:F1629–F1636.
- Brown LA, Kerr CJ, Whiting P, Finan N, McEneny J, Ashton T. Oxidant stress in healthy normal-weight, overweight, and obese individuals. *Obesity.* 2009;17(3):460–466
- Bruunsgaard H, Pedersen BK. Age-related inflammatory cytokines and disease. *Immunol Allergy Clin North Am.* 2003;23(1):15–39.
- Burton DG. Cellular senescence, ageing and disease. *Age (Dordr).* 2009;31(1):1–9.
- Cai H, Harrison DG. Endothelial dysfunction in cardiovascular diseases: The role of oxidant stress. *Circ Res* 2000;87:840–844.
- Campisi J. Cellular senescence: putting the paradoxes in perspective. *Curr Opin Genet Dev.* 2011;21(1):107–112.
- Campisi J. Senescent cells, tumor suppression, and organismal aging: good citizens, bad neighbors. *Cell.* 2005;120(4):513–522.
- Campisi J, Andersen JK, Kapahi P, Melov S. Cellular senescence: a link between cancer and age-related degenerative disease? *Semin Cancer Biol.* 2011;21(6):354–359
- Campisi J, d’Adda di Fagagna F. Cellular senescence: when bad things happen to good cells. *Nat Rev Mol Cell Biol.* 2007;8(9):729–740.
- Carlstrom M, Lai EY, Ma Z, Steege A, Patzak A, Eriksson UJ, *et al.* Superoxide dismutase 1 limits renal microvascular remodeling and attenuates arteriole and blood pressure responses to angiotensin II via modulation of nitric oxide bioavailability. *Hypertension* 56: 907–913, 2010.
- Cattaneo A, Monasta L, Stamatakis E, Lioret S, Castetbon K, Frenken F, *et al.* Overweight and obesity in infants and pre-school children in the European Union: a review of existing data. *Obes Rev.* 2010;11:389–98
- Cavagni J, Wagner TP, Gaio EJ, Re^go ROCC, Torres ILS, Rosing CK. Obesity may increase the occurrence of spontaneous periodontal disease in Wistar rats. *Arch Oral Biol.* 2013;58:1034–1039
- Che, R., Yuan, Y., Huang, S., Zhang, A. Mitochondrial dysfunction in the pathophysiology of renal diseases. *Am J Physiol Ren Physiol.* 2014, 306, F367–F378.
- Chen W, Jiang Y, Han J, Hu J, He T, Yan T, *et al.* Atgl deficiency induces podocyte apoptosis and leads to glomerular filtration barrier damage. *FEBS J.* 2017; 284:1070–1081.
- Chrysohoou C., Panagiotakos D. B., Pitsavos C., Skoumas I, Papademetriou L, Economou M, *et al.* The implication of obesity on total antioxidant capacity in apparently healthy men and women: the ATTICA study. *Nutr Metab Cardiovasc Dis.* 2007;17(8):590–597
- Cohen G, Horl WH. Resistin as a cardiovascular and atherosclerotic risk factor and uremic toxin. *Semin Dial.* 2009;22:373–377.

- Coimbra TM, Janssen U, Grone HJ, Ostendorf T, Kunter U, Schmidt H, *et al.* Early events leading to renal injury in obese Zucker (fatty) rats with type II diabetes. *Kidney Int.* 2000; 57: 167-82
- Collado M, Blasco MA, Serrano M. Cellular senescence in cancer and aging. *Cell.* 2007;130(2):223–233.
- Coreia-Melo C, Marques FD, Anderson R, Hewitt G, Hewitt R, Cole J, *et al.* Mitochondria are required for pro ageing features of the senescent phenotype. *EMBO J.* 2016;35:724-742
- Daenen, K., Andries, A., Mekahli, D., Van Schepdael, A., Jouret, F., Bammens, B. Oxidative stress in chronic kidney disease. *Pediatr Nephrol.* 2019, 34, 975–991.
- Dandona P, Kumar V, Aljada A, Ghanim H, Syed T, Hofmayer D, *et al.* Angiotensin II receptor blocker valsartan suppresses reactive oxygen species generation in leukocytes, nuclear factor-kappa B, in mononuclear cells of normal subjects: Evidence of an antiinflammatory action. *J Clin Endocrinol Metab* 2003; 88:4496–4501.
- De Cecco M, Jeyapalan J, Zhao X, Tamamori-Adachi M, Sedivy JM. Nuclear protein accumulation in cellular senescence and organismal aging revealed with a novel single-cell resolution fluorescence microscopy assay. *Aging (Albany NY).* 2011;3(10):955–967
- de Vries AP, Ruggenenti P, Ruan XZ, Praga M, Cruzado JM, Bajema IM, *et al.* ERA-EDTA Working Group Diabetes. Fatty kidney: emerging role of ectopic lipid in obesity-related renal disease. *Lancet Diabetes Endocrinol.* 2014;2:417-26
- Decleves AE, Mathew AV, Cunard R, Sharma K. AMPK mediates the initiation of kidney disease induced by a highfat diet. *J Am Soc Nephrol.* 2011;22:1846–1855.
- Decsi T, Molnar D, Koletzko B. Reduced plasma concentrations of alpha-tocopherol and beta-carotene in obese boys. *J Pediatr.* 1997;130:653–655.
- Diaz-Meco MT, Moscat J. The atypical PKCs in inflammation: NF-kappaB and beyond. *Immunol Rev.* 2012;246: 154–167.
- Doumatey AP, Zhou J, Huang H, Adeleye J, Balogun W, Fasanmade O, *et al.* Circulating adiponectin is associated with renal function independent of age and serum lipids in west africans. *Int J Nephrol.* 2012; 2012:730920
- Dulloo, A.G.; Jacquet, J.; Solinas, G.; Montani, J.P.; Schutz, Y. Body composition phenotypes in pathways to obesity and the metabolic syndrome. *Int. J. Obes.* 2010, 34 (Suppl. 2), S4–S17
- Eddy AA. Proteinuria and interstitial injury. *Nephrol Dial Transplant.* 2004;19:277-81.
- Egan BM, Greene EL, Goodfriend TL. Insulin resistance and cardiovascular disease. *Am J Hypertens.* 2001;14: 116S-125S.
- Ellington AA, Malik AR, Klee GG, Turner ST, Rule AD, Mosley TH Jr, *et al.* Association of plasma resistin with glomerular filtration rate and albuminuria in hypertensive adults. *Hypertension.* 2007;50:708-14.

- Elsayed EF, Sarnak MJ, Tighiouart H, Griffith JL, Kurth T, Salem DN, *et al.* Waist-to-hip ratio, body mass index, and subsequent kidney disease and death. *Am J Kidney Dis.* 2008;52:29-38
- Evans JL, Goldfine ID, Maddux BA, Grodsky GM. Oxidative stress and stress-activated signaling pathways: A unifying hypothesis of type 2 diabetes. *Endocr Rev.* 2002;23: 599–622.
- Fernández-Sánchez A, Madrigal-Santillán E, Bautista M, Esquivel-Soto J, Morales-González Á, Esquivel-Chirino C, *et al.* Inflammation, Oxidative Stress, and Obesity. *Int J Mol Sci.* 2011;12:3117-3132
- Folz RJ, Crapo JD. Extracellular superoxide dismutase (SOD3): tissue-specific expression, genomic characterization, and computer-assisted sequence analysis of the human EC SOD gene. *Genomics* 22: 162–171, 1994.
- Fonseca-Alaniz, M.H., Takada, J., Alonso-Vale, M.I., Lima, F.B. Adipose tissue as an endocrine organ: From theory to practice. *J. Pediatr.* 2007, 83 (Suppl. 5), S192–S203
- Forbes JM., Coughlan MT., Cooper ME. Oxidative Stress as a Major Culprit in Kidney Disease in Diabetes. *Diabetes.* 2008;57:1446-1454
- Forouzanfar MH, Alexander L, Anderson HR, Bachman VF, Biryukov S, Brauer M, *et al.* Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks in 188 countries, 1990- 2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet.* 2015;386:2287-323
- Fortuno A, Bidegain J, Baltanas A, Moreno MU, Montero L, Landecho MF, *et al.* Is leptin involved in phagocytic NADPH oxidase overactivity in obesity? Potential clinical implications. *J Hypertens.* 2010;28: 1944–1950
- Foster MC, Hwang SJ, Larson MG, Lichtman JH, Parikh NI, Vasan RS, *et al.* Overweight, obesity, and the development of stage 3 CKD: the Framingham Heart Study. *Am J Kidney Dis.* 2008; 52: 39-48
- Foster, M.C., Hwang, S.J., Massaro, J.M., Hoffmann, U., Deboer, I.H., Robins, S.J., *et al.* Association of subcutaneous and visceral adiposity with albuminuria: The framingham heart study. *Obesity.* 2011, 19, 1284–1289.
- Foster MC, Hwang SJ, Porter SA, Massaro JM, Hoffmann U, Fox CS. Fatty kidney, hypertension, and chronic kidney disease: the Framingham Heart Study. *Hypertension.* 2011;58:784-90
- Frayn K. Adipose tissue as a buffer for daily lipid flux. *Diabetologia.* 2002;45(9):1201–1210
- Freund A, Patil CK, Campisi J. P38mapk is a novel DNA damage response-independent regulator of the senescence-associated secretory phenotype. *EMBO J* 2011;30:1536–48.
- Freund A, Orjalo AV, Desprez PY, Campisi J. Inflammatory networks during cellular senescence: causes and consequences. *Trends Mol Med.* 2010;16(5):238–246
- Frisbee JC, Maier KG, Stepp DW. Oxidant stress-induced increase in myogenic activation of skeletal muscle resistance arteries in obese Zucker rats. *Am J Physiol Heart Circ Physiol.* 2002;283:H2160–H2168.



- Furukawa S, Fujita T, Shimabukuro M, Iwaki M, Yamada Y, Nakajima Y, *et al.* Increased oxidative stress in obesity and its impact on metabolic syndrome. *J Clin Invest.* 2004;114:1752–1761
- Gai Z, Wang T, Visentin M, Kullak-Ublick GA, Fu X, Wang Z. Lipid accumulation and chronic disease. *Nutrients.* 2019 ;11:722-742
- Gao, X., Wu, J., Qian, Y., Fu, L., Wu, G., Xu, C., *et al.* Oxidized high-density lipoprotein impairs the function of human renal proximal tubule epithelial cells through CD36. *Int J Mol Med.* 2014, 34, 564–572.
- Gao CL, Zhu C, Zhao YP, Chen XH, Ji CB, Zhang CM, *et al.* Mitochondrial dysfunction is induced by high levels of glucose and free fatty acids in 3T3-L1 adipocytes. *Mol Cell Endocrinol.* 2010; 320:25–33.
- Gelsomino, L., Naimo, G.D., Catalano, S., Mauro, L., Andò, S. The Emerging Role of Adiponectin in Female Malignancies. *Int. J. Mol. Sci.* 2019; 20:2127-2146.
- German AJ, Ryan VH, German AC, Wood IS, Trayhurn P. Obesity, its associated disorders and the role of inflammatory adipokines in companion animals. *Vet J.* 2010;185:4–9
- Golan R, Shelef I, Rudich A, Gepner Y, Shemesh E, Chassidim Y, Harman-Boehm I, Henkin Y, Schwarzfuchs D, Ben Avraham S, Witkow S, Liberty IF, Tangi-Rosental O, Sarusi B, Stampfer MJ, Shai I. Abdominal superficial subcutaneous fat: a putative distinct protective fat subdepot in type 2 diabetes. *Diabetes Care.* 2012;35(3):640–7.
- Gorritz JL, Martinez-Castelao A. Proteinuria: detection and role in native renal disease progression. *Transplant Rev.* 2012;26:3-13
- Halbesma N, Kuiken DS, Brantsma AH, Bakker SJ, Wetzels JF, De Zeeuw D, *et al.* Macroalbuminuria is a better risk marker than low estimated GFR to identify individuals at risk for accelerated GFR loss in population screening. *J Am Soc Nephrol* 2006;17:2582-90.
- Halliwell, B. Cell culture, oxidative stress, and antioxidants: avoiding pitfalls. *Biomed. J.* 2014;37:99–105.
- Hariri N, Thibault L. High-fat diet-induced obesity in animal models. *Nutr Res Rev.* 2010;23:270-299
- Harris CA, Haas JT, Streeper RS, Stone SJ, Kumari M, Yang K, Han X, Brownell N, Gross RW, Zechner R, Farese R V Jr. DGAT enzymes are required for triacylglycerol synthesis and lipid droplets in adipocytes. *J Lipid Res.* 2011;52(4):657–667.
- Hartwich J., Goralska J., Siedlecka D., Gruca A., Trzos M., Dembinska-Kiec A. Effect of supplementation with vitamin E and C on plasma hsCRP level and cobalt-albumin binding score as markers of plasma oxidative stress in obesity. *Genes Nutr.* 2007;2(1):151–154.
- He L, Wei Q, Liu J, Yi M, Liu Y, Liu H, *et al.* AKI on CKD: heightened injury, suppressed repair, and the underlying mechanisms. *Kidney Int.* 2017; 92: 1071–1083
- Henegar JR, Bigler SA, Henegar LK, Tyagi SC, Hall JE. Functional and structural changes in the kidney in the early stages of obesity. *J Am Soc Nephrol* 2001;12:1211-7.

- Herman MA, Peroni OD, Villoria J, Schön MR, Abumrad NA, Blüher M, Klein S, Kahn BB. A novel ChREBP isoform in adipose tissue regulates systemic glucose metabolism. *Nature*. 2012;484(7394):333–338
- Hill NR, Fatoba ST, Oke JL, Hirst JA, Callaghan AO, Lasserson DS *et al*. Global prevalence of chronic kidney disease-a systematic review and meta-analysis. *PLoS One*. 2016;1-18
- Hoffler U, Hobbie K, Wilson R, Bai R, Rahman A, Malarkey D, *et al*. Diet-induced obesity is associated with hyperleptinemia, hyperinsulinemia, hepatic steatosis, and glomerulopathy in C57Bl/6J mice. *Endocrine J*. 2009; 36: 311- 25
- Horiuchi, M., Tsutsui, M., Tasaki, H., Morishita, T., Suda, O., Nakata, S., *et al*. Upregulation of vascular extracellular superoxide dismutase in patients with acute coronary syndromes. *Arterioscler. Thromb. Vasc. Biol*. 2004; 24: 106–101
- Houkin K, Nakayama N, Kamada K, Noujou T, Abe H, Kashiwaba T. Neuroprotective effect of the free radical scavenger MCI-186 in patients with cerebral infarction: clinical evaluation using magnetic resonance imaging and spectroscopy. *J Stroke Cerebrovasc Dis* 7: 315–322, 1998.
- Huang Q, Guo Y, Zeng H, Xie W, Yan H, Ding H. Visfatin stimulates a cellular renin-angiotensin system in cultured rat mesangial cells. *Endocr Res* 2011;36:93–100.
- Inoguchi T, Li P, Umeda F, Yu HY, Kakimoto M, Imamura M, *et al*. High glucose level and free fatty acid stimulate reactive oxygen species production through protein kinase C—dependent activation of NAD(P)H oxidase in cultured vascular cells. *Diabetes*. 2000;49:1939–1945.
- Jennette J. C., Charles L., Grubb W., Glomerulomegaly and focal segmental glomerulosclerosis associated with obesity and sleep-apnea syndrome. *Am J Kidney Dis*. 1987;10(6): 470–72
- Jeyapalan JC, Ferreira M, Sedivy JM, Herbig U. Accumulation of senescent cells in mitotic tissue of aging primates. *Mech Ageing Dev*. 2007;128(1):36–44.
- Jeyapalan JC, Sedivy JM. Cellular senescence and organismal aging. *Mech Ageing Dev*. 2008; 129(7-8):467–474.
- Ji LL. Exercise, oxidative stress, and antioxidants. *Am J Sports Med* 1996;24:S20–S24.
- Jiang G, Li Z, Liu F, Ellsworth K, Dallas-Yang Q, Wu M, *et al*. Prevention of obesity in mice by antisense oligonucleotide inhibitors of stearyl-CoA desaturase-1. *J Clin Invest* 2005; 115: 1030-8.
- Johnson D, Dixon AK, Abrahams PH. The abdominal subcutaneous tissue: computed tomographic, magnetic resonance, and anatomical observations. *Clin. Anat*. 1996;9(1):19–24.
- Kaidar-Person O, Person B, Szomstein S, Rosenthal J. Nutritional deficiencies in morbidly obese patients: A new form of malnutrition? Part A: Vitamins. *Obes Surg*. 2008;18: 870–876.
- Kaimori JY, Takenaka M, Nakajima H, Hamano T, Horio M, Sugaya T, *et al*. Induction of glia maturation factor-beta in proximal tubular cells leads to

- vulnerability to oxidative injury through the p38 pathway and changes in antioxidant enzyme activities. *J. Biol. Chem.* 2003; 278: 33519-33527
- Kambham N, Markowitz GS, Valeri AM, Lin J, D'Agati VD. Obesity-related glomerulopathy: an emerging epidemic. *Kidney Int* .2001;59:1498-509
- Kaminski KA, Bonda TA, Korecki J, Musial WJ. Oxidative stress and neutrophil activation—the two keystones of ischemia/reperfusion injury. *Int J Cardiol* 2002;86:41–59
- Kasike BL, Napier J. Glomerular sclerosis in patients with massive obesity. *Am J Nephrol* 1985; 5: 45-50
- Kelley DE, Thaete FL, Troost F, Huwe T, Goodpaster BH. Subdivisions of subcutaneous abdominal adipose tissue and insulin resistance. *Am. J. Physiol Metab.* 2000;278(5):E941–E948
- Kennedy DJ, Chen Y, Huang W, Viterna J, Liu J, Westfall K, et al. CD36 and Na/K-ATPase- $\alpha$ 1 form a proinflammatory signaling loop in kidney. *Hypertension*. 2013, 61, 216–224
- Kersten S. Physiological regulation of lipoprotein lipase. *Biochim Biophys Acta – Mol Cell Biol Lipids*. 2014;1841(7):919–933.
- Kim SR, Jiang K, Ogrodnik M, Chen XJ, Zhu XY, Lohmeier H, et al. Increased renal cellular senescence in murine high-fat diet: effect of the senolytic drug quercetin. *Transl Res*. 2019;213:112-123
- Kim WY, Sharpless N E. The regulation of INK4/ ARF in cancer and aging. *Cell* 2006;127:265–75. 28. Quelle DE, Zindy F, Ashmun RA, Sherr CJ. Alternative reading frames of the INK4a tumor suppressor gene encode two unrelated proteins capable of inducing cell cycle arrest. *Cell* 1995;8:993–1000.
- Kim YS, Gupta Vallur P, Phaëton R, Mythreye K, Hempel N . Insights into the dichotomous regulation of SOD2 in cancer. *Antioxidants* . 2017;6:E86
- Kipling D, Davis T, Ostler EL, Faragher RG. What can progeroid syndromes tell us about human aging? *Science*. 2004;305(5689):1426–1431
- Kitada M, Xu J, Ogura Y, Monno I, Koya D. Manganese superoxide dismutase dysfunction and the pathogenesis of kidney disease. *Front Physiol*. 2020;11:755-765
- Keaney Jr J F. , Larson M. G., Vasani R. S., Wilson PWF, Lipinska I, Corey D, et al. Obesity and systemic oxidative stress: clinical correlates of oxidative stress in the Framingham study. *Arterioscler Thromb Vasc Biol*. 2003;23(3)434–439
- Knight SF, Quigley JE, Yuan J, Roy SS, Elmarakby A, Imig JD. Endothelial dysfunction and the development of renal injury in spontaneously hypertensive rats fed a high-fat diet. *Hypertension*. 2008;51:352-9.
- Kobayashi R, Akamine EH, Davel AP, Rodrigues MA, Cavalho CR, Rossoni LV. Oxidative stress and inflammatory mediators contribute to endothelial dysfunction in high-fat diet-induced obesity in mice. *J Hypertens* 2010, 28(10):2111–2119.
- Koh EH, Park JY, Park HS, Jeon MJ, Ryu JW, Kim M, et al. Essential role of mitochondrial function in adiponectin synthesis in adipocytes. *Diabetes*. 2007;56:2973–2981



- Konior A, Schramm A, Czesnikiewicz-Guzik M, Guzik TJ. NADPH oxidases in vascular pathology. *Antioxid Redox Signal*. 2014;20:2794–2814.
- Kovesdy, C.P., Czira, M.E., Rudas, A., Ujszaszi, A., Rosivall, L., Novak, M., *et al.* Body mass index, waist circumference and mortality in kidney transplant recipients. *Am. J. Transplant*. 2010, 10, 2644–2651.
- Kovesdy, C.P., Furth, S., Zoccali, C. Obesity and kidney disease: Hidden consequences of the epidemic. *Brunei Int. Med. J.* 2017, 13, 1–11.
- Kramer H, Luke A, Bidani A, Cao G, Cooper R, McGee D. Obesity and prevalent and incident CKD: the Hypertension Detection and Follow-Up Program. *Am J Kidney Dis*. 2005; 46: 587-94.
- Krishnamurthy J, Torrice C, Ramsey MR, Kovalev GI, Al-Regaiey K, Su L, *et al.* Ink4a/Arf expression is a biomarker of aging. *J Clin Invest*. 2004;114:1299–07.
- Krizhanovsky V, Yon M, Dickins RA, Hearn S, Simon J, Miething C, *et al.* Senescence of activated stellate cells limits liver fibrosis. *Cell*. 2008;134(4):657–667.
- Ksiazek K, Mikula-Pietrasik J, Olijslagers S, Jorres A, von Zglinicki T, Witowski J. Vulnerability to oxidative stress and different patterns of senescence in human peritoneal mesothelial cell strains. *Am J Physiol Regul Integr Comp Physiol*. 2009;296(2):R374–R382.
- Kuilman T, Michaloglou C, Mooi WJ, Peeper DS. The essence of senescence. *Genes Dev*. 2010;24(22):2463–2479.
- Kuilman T, Michaloglou C, Vredeveld LCW, Douma S, van Doorn, Desmet CJ, *et al.* Oncogene-induced senescence relayed by an interleukin-dependent inflammatory network. *Cell*. 2008;133(6):958–961.
- Kume S, Uzu T, Araki S, Sugimoto T, Isshiki K, Kanasaki M, Sakaguchi M, Kubota N, Terauchi Y, Kadowaki T, Haneda M, Kashiwagi A, Koya D. Role of Altered Renal Lipid Metabolism in the Development of Renal Injury Induced by a High-Fat Diet. *J Am Soc Nephrol*. 2007;18:2715-2715.
- Lazzerini Denchi E, Attwooll C, Pasini D, Helin K. Deregulated E2F activity induces hyperplasia and senescence-like features in the mouse pituitary gland. *Mol Cell Biol* 2005;25:2660–72.
- Lee MP, Madani S, Sekula D, Sweeney G. Leptin increases expression and activity of matrix metalloproteinase-2 and does not alter collagen production in rat glomerular mesangial cells. *Endocr Res*. 2005;31:27–37.
- Lee MP, Orlov D, Sweeney G. Leptin induces rat glomerular mesangial cell hypertrophy, but does not regulate hyperplasia or apoptosis. *Int J Obes (Lond)* 2005;29: 1395–1401.
- Li L., Zhao Z, Xia J, Xin L, Chen Y, Yang S, *et al.* A Long-Term High-Fat/High-Sucrose Diet Promotes Kidney Lipid Deposition and Causes Apoptosis and Glomerular Hypertrophy in Bama Minipigs. *PLoS ONE*; 2015;10(11):1-16
- Liao P, Yang D, Liu D, Zheng Y. Glp-1 and ghrelin attenuate high glucose/high lipid-induced apoptosis and senescence of human microvascular endothelial cells. *Cell Physiol Biochem* 2017;44:1842–55

- Liu D, Hornsby PJ. Senescent human fibroblasts increase the early growth of xenograft tumors via matrix metalloproteinase secretion. *Cancer Res.* 2007;67(7):3117–3126.
- Liu Z, Wu KKL, Jiang X, Xu A, Cheng KKY. The role of adipose tissue senescence in obesity- and ageing-related metabolic disorders. *Clin Sci.* 2020;134(2):315-330
- Luo L, Liu M. Adipose tissue in control of metabolism. *J Endocrinol.* 2016;231(3):R77–R99
- Luyckx VA, Tonelli M, Stanifer JW. The Global Burden of kidney disease and the sustainable development goals. *Bull. World Health Organ.* 2018;96:414-422C
- Mailloux RJ. Teaching the fundamentals of electron transfer reactions in mitochondria and the production and detection of reactive oxygen species. *Redox Biol.* 2015; 4:381–398
- Makino A, Skelton MM, Zou AP, and Cowley AW, Jr. Increased renal medullary H<sub>2</sub>O<sub>2</sub> leads to hypertension. *Hypertension* 42: 25–30, 2003.
- Makino A, Skelton MM, Zou AP, Roman RJ, and Cowley AW, Jr. Increased renal medullary oxidative stress produces hypertension. *Hypertension* 39: 667–672, 2002.
- Malafaia AB, Nassif PAN, Ribas CAPM, Ariede BL, Sue KN, Cruz MA. Obesity induction with high fat sucrose in rats. *Arq Bras Cir Dig.* 2013; 26 (Suplemento 1):17-21
- Malyszko J, Malyszko JS, Mysliwiec M. Visfatin, a new adipocytokine, is predominantly related to inflammation/ endothelial damage in kidney allograft recipients. *Transplant Proc* 2009;41:150–153
- Mandal AK. Pathogenesis and prevention of progression of chronic kidney disease. *Open J Intern Med.* 2015;5:58-73
- Manna P, Jain SK. Obesity, Oxidative Stress, Adipose Tissue Dysfunction, and the Associated Health Risks: Causes and Therapeutic Strategies. *Metab Syndr Relat Disord.* 2015;13(10):423-44
- Maingrette F, Renier G. Leptin increases lipoprotein lipase secretion by macrophages: Involvement of oxidative stress and protein kinase C. *Diabetes* 2003;52:2121–2128.
- Manna P, Jain SK. Obesity, oxidative stress, adipose tissue dysfunction, and the associated health risks: Causes and therapeutic strategies. *Metab Syndr Relat Disord.* 2015;13(10):423–444
- Margioris AN. Fatty acids and postprandial inflammation. *Curr Opin Clin Nutr Metab Care* 2009;12:129–137
- Marlatt KL, Ravussin E. Brown Adipose Tissue: an Update on Recent Findings. *Curr. Obes. Rep.* 2017;6(4):389–396
- Marques C, Meireles M, Norberto S, Leite J, Freitas J, Pestana D, et al. High-fat diet-induced obesity Rat model: a comparison between Wistar and Sprague-Dawley Rat. *Adipocyte.* 2016;5(1):11-21
- Martinez JA. Mitochondrial oxidative stress and inflammation: An slalom to obesity and insulin resistance. *J Physiol Biochem* 2006;62:303–306.

- Matsuda, M.; Shimomura, I. Increased oxidative stress in obesity: Implications for metabolic syndrome, diabetes, hypertension, dyslipidemia, atherosclerosis, and cancer. *Obes. Res. Clin. Pract.* 2013; 7, e330–e341.
- Meng A, Wang Y, Van Zant G, Zhou D. Ionizing radiation and busulfan induce premature senescence in murine bone marrow hematopoietic cells. *Cancer Res* 2003;63:5414–19.
- Menzaghi C, Salvemini L, Fini G, Thompson R, Mangiacotti D, Paola RD, *et al.* Serum resistin and kidney function: A family-based study in non-diabetic, untreated individuals. *PLoS One* 2012;7:e38414.
- Milagro FI, Campion J, Martinez JA. Weight gain induced by high-fat feeding involves increased liver oxidative stress. *Obesity (Silver Spring)* 2006;14:1118–1123
- Minamino T, Orimo M, Shimizu I, Kunieda T, Yokoyama M, Ito T, *et al.* A crucial role for adipose tissue p53 in the regulation of insulin resistance. *Nat Med* 2009;15:1082–7.
- Molofsky AV, He S, Bydon M, Morrison SJ, Pardal R. Bmi-1 promotes neural stem cell self-renewal and neural development but not mouse growth and survival by repressing the p16Ink4a and p19Arf senescence pathways. *Genes Dev* 2005;19: 1432–37.
- Molofsky AV, Pardal R, Iwashita T, Park IK, Clarke MF, Morrison SJ. Bmi-1 dependence distinguishes neural stem cell self-renewal from progenitor proliferation. *Nature* 2003;425:962–67
- Mondola P, Damiano S, Sasso A, Santillo M. The Cu, Zn superoxide dismutase: not only a dismutase enzyme. *Front Physiol.* 2016; 7:11-8
- Nakao C, Ookawara T, Sato Y, Kizaki T, Imazeki N, Matsubara O, *et al.* Extracellular superoxide dismutase in tissues from obese (ob/ob) mice. *Free Radic Res.* 2000;33(3):229-41
- Nedergaard J, Bengtsson T, Cannon B. New Powers of Brown Fat: Fighting the Metabolic Syndrome. *Cell Metab.* 2011;13(3):238–240
- Neuen BL, Chadban SJ, Demaio AR, Johnson DW, Perkovic. Chronic kidney disease and the global NCDs agenda. *BMJ Glob Heal.* 2017;2:1-5
- Nielsen TS, Jessen N, Jorgensen JOL, Moller N, Lund S. Dissecting adipose tissue lipolysis: molecular regulation and implications for metabolic disease. *J Mol Endocrinol.* 2014;52(3):R199–R222
- Noeman SA, Hamooda HE, Baalash AA. Biochemical study of oxidative stress markers in the liver, kidney and heart of high fat diet induced obesity in rats. *Diabetol Metab Syndr.* 2011;3:17-24
- Olaya B, Moneta MV, Pez O, Bitfoi A, Carta MG, Eke C, *et al.* Country-level and individual correlates of overweight and obesity among primary school children: a cross-sectional study in seven European countries. *BMC Public Health* 2015;15:475
- Ookawara T, Imazeki N, Matsubara O, Kizaki T, Oh-Ishi S, Nakao C, *et al.* Tissue distribution of immunoreactive mouse extracellular superoxide dismutase. *Am J Physiol* 275: C840–C847, 1998.

- Ortega RM, Rodriguez-Rodriguez E, Aparicio A, Jimenez-Ortega AI, Palmeros C, Perea JM, *et al.* Young children with excess of weight show an impaired selenium status. *Int J Vitam Nutr Res* 2012;82:121–129.
- Othman M, Kavar B, El Nahas AM. Influence of obesity on progression of non-diabetic chronic kidney disease: a retrospective cohort study. *Nephron Clin Pract* 2009; 113: c16-23
- Ozata M, Mergen M, Oktenli C, Aydin A, Sanisoglu SY, Bolu E, *et al.* Increased oxidative stress and hypozincemia in male obesity. *Clin. Biochem.* 2002;35: 627–631
- Parola M, Marra F. Adipokines and redox signaling: Impact on fatty liver disease. *Antioxid Redox Signal* 2011; 15:461–483
- Parrinello S, Coppe JP, Krtolica A, Campisi J. Stromal-epithelial interactions in aging and cancer: senescent fibroblasts alter epithelial cell differentiation. *J Cell Sci.* 2005;118(pt 3):485–496.
- Passos JF, Nelson G, Wang C, Richter T, Simillion C, Proctor CJ, *et al.* Feedback between p21 and reactive oxygen production is necessary for cell senescence. *Mol Syst Biol* 2010;6:347.
- Patel C, Ghanim H, Ravishankar S, Sia CL, Viswanathan P, Mohanty P, *et al.* Prolonged reactive oxygen species generation and nuclear factor- $\kappa$ B activation after a high-fat, high-carbohydrate meal in the obese. *J Clin Endocrinol Metab* 2007;92:4476– 4479.
- Pellegrino D., La Russa D., Marronne A. Oxidative Imbalance and Kidney Damage: New Study Perspectives from Animal Models to Hospitalized Patients. *Antioxidants.* 2019 (8):594-605
- Pennathur S, Heinecke JW. Mechanisms of oxidative stress in diabetes: Implications for the pathogenesis of vascular disease and antioxidant therapy. *Front Biosci* 2004;9: 565–574.
- Pihl E., Zilmer K., Kullisaar T., Kairane C., Magi A., Zilmer M. Atherogenic inflammatory and oxidative stress markers in relation to overweight values in male former athletes. *Int J Obes.* 2006;30(1):141–146
- Piperi C, Adamopoulos C, Dalagiorgou G, Diamanti-Kandarakis E, Papavassiliou AG. Crosstalk between advanced glycation and endoplasmic reticulum stress: Emerging therapeutic targeting for metabolic diseases. *J Clin Endocrinol Metab* 2012;97:2231–2242
- Piva S. J., Duarte M. M. M. F., Da Cruz I. B. M., Coelho AC, Moreira APL, Tonello R, *et al.* Ischemia-modified albumin as an oxidative stress biomarker in obesity. *Clin Biochem.* 2011;44(4):345–347
- Postorino, M., Marino, C., Tripepi, G., Zoccali, C. Abdominal Obesity and All-Cause and Cardiovascular Mortality in End-Stage Renal Disease. *J. Am. Coll. Cardiol.* 2009, 53, 1265–1272.
- Praga M., Hernandez E., Morales E., Campos AP, Valero MA, Martinez MA *et al.* Clinical features and long-term outcome of obesity-associated focal segmental glomerulosclerosis. *Nephrol Dial Transpl.* 2001;16(9): 1790–1798, 2001
- Rajagopalan S, Kurz S, Munzel T, Tarpey M, Freeman BA, Griending KK, *et al.* Angiotensin II mediated hypertension in the rat increases vascular

- superoxide production via membrane NADH/NADPH oxidase activation. Contribution to alterations of vasomotor tone. *J Clin Invest* 1996;97:1916–1923.
- Ramos, L.F., Shintani, A., Ikizler, T.A., Himmelfarb, J. Oxidative Stress and Inflammation Are Associated with Adiposity in Moderate to Severe CKD. *J. Am. Soc. Nephrol.* 2008, 19, 593–599.
- Ratliff BB, Abdulmahdi W, Pawar R, Wolin MS. Oxidant mechanisms in renal injury and disease. *Antioxid Redox Sign.* 2016; 25(3): 119-146
- Ravussin Y, Xiao C, Gavrilova O, Reitman ML. Effect of Intermittent Cold Exposure on Brown Fat Activation, Obesity, and Energy Homeostasis in Mice. Aguila MB, ed. *PLoS One* 2014;9(1):e85876.
- Rayess H., Wang MB., Srivatsan ES. Cellular senescence and tumor suppressor gene p16. *Int J Cancer.* 2011;130:1715-1725
- Reitman A, Friedrich I, Ben-Amotz A, Levy Y. Low plasma antioxidants and normal plasma B vitamins and homocysteine in patients with severe obesity. *Isr Med Assoc J* 2002;4:590–593.
- Ressler S, Bartkova J, Niederegger H, Bartek J, Scharffetter-Kochanek K, Jansen Du'rr P, Wlaschek M. p16INK4A is a robust in vivo biomarker of cellular aging in human skin. *Aging Cell.* 2006;5:379–89.
- Reynisdottir I, Polyak K, Iavarone A, Massague J. Kip/Cip and Ink4 Cdk inhibitors cooperate to induce cell cycle arrest in response to TGF-beta. *Genes Dev* 1995;9:1831–45
- Richard AJ, White U, Elks CM, Stephens JM. Adipose tissue: physiology to metabolic dysfunction. <https://www.ncbi.nlm.nih.gov/books/NBK555602/>. 4 April 2020
- Riskesdas, 2018. Hasil Riset Kesehatan Dasar 2018
- Rodier F, Campisi J. Four faces of cellular senescence. *J Cell Biol.* 2011;192(4):547–556.
- Saetang J, Sangkhathat S. Role of innate lymphoid cells in obesity and metabolic disease. *Mol. Med. Rep.* 2018;17(1):1403–1412.
- Saiki S, Sato T, Kohzuki M, Kamimoto M, Yosida T. Changes in serum hypoxanthine levels by exercise in obese subjects. *Metabolism* 2001;50:627–630.
- Samuel VT, Shulman GI. Mechanisms for insulin resistance: Common threads and missing links. *Cell.* 2012;148:852-871
- Sánchez, F., García, R., Alarcón, F., Cruz, M. Adipocinas, tejido adiposo y su relación con células del sistema inmune. *Gac Méd Méx.* 2005, 141, 505–512.
- Santillo, M., Colantuoni, A., Mondola, P., Guida, B., and Damiano, S. NOX signaling in molecular cardiovascular mechanisms involved in the blood pressure homeostasis. *Front Physiol.* 2015; 6:1-8
- Schieber M and Chandel NS. ROS function in redox signaling and oxidative stress. *Curr Biol.* 24: R453–R462, 2014.
- Schiffrin EL. Beyond blood pressure: The endothelium and atherosclerosis progression. *Am J Hypertens.* 2002;15: 115S-122S.



- Schleicher RL, Carroll MD, Ford ES, Lacher DA. Serum vitamin C and the prevalence of vitamin C deficiency in the United States: 2003–2004 National Health and Nutrition Examination Survey (NHANES). *Am J Clin Nutr* 2009;90: 1252–1263.
- Scholze, A., Jankowski, J., Pedraza-Chaverri, J, Evenepoel, P. Editorial Oxidative Stress in Chronic Kidney Disease. *Oxid Med Cell Longev*. 2016;8375186
- Sfar S, Boussoffara R, Sfar MT, Kerkeni A. Antioxidant enzymes activities in obese Tunisian children. *Nutr J*. 2013;12:18-24
- Shao L, Li H, Pazhanisamy SK, Meng A, Wang Y, Zhou D. Reactive oxygen species and hematopoietic stem cell senescence. *Int J Hematol*. 2011;94:24-32
- Sharma K. The link between obesity and albuminuria: adiponectin and podocyte dysfunction. *Kidney Int* 2009;76:145- 8.
- Sharma K, Ramachandrarao S, Qiu G, Usui HK, Zhu Y, Dunn SR, *et al*. Adiponectin regulates albuminuria and podocyte function in mice. *J Clin Invest*. 2008;118:1645–1656.
- Shen HM, Pervaiz S. TNF receptor superfamily-induced cell death: Redox-dependent execution. *FASEB J*. 2006; 20:1589–1598.
- Shepard TY, Weil KM, Sharp TA, Grunwald GK, Bell ML, Hill JO, *et al*. Occasional physical inactivity combined with a high-fat diet may be important in the development and maintenance of obesity in human subjects. *Am J Clin Nutr*. 2001;73:703-708
- Sis B, Tasanarong A, Khosjou F, Dadras F, Solez K, Halloran PF. Accelerated expression of senescence associated cell cycle inhibitor p16INK4A in kidneys with glomerular disease. *Kidney Int*. 2007;71:218-226
- Sitte N, Merker K, Von Zglinicki T, Grune T, Davies KJ. Protein oxidation and degradation during cellular senescence of human BJ fibroblasts: part I — effects of proliferative senescence. *FASEB J*. 2000;14(15):2495–2502.
- Skalicky J, Muzakova V, Kandar R, Meloun M, Rousar T, Palicka V. Evaluation of oxidative stress and inflammation in obese adults with metabolic syndrome. *Clin Chem Lab Med*. 2008;46:499–505.
- Smith SJ, Cases S, Jensen DR, Chen HC, Sande E, Tow B, Sanan DA, Raber J, Eckel RH, Farese R V. Obesity resistance and multiple mechanisms of triglyceride synthesis in mice lacking Dgat. *Nat Genet*. 2000;25(1):87–90.
- Smith SR, Lovejoy JC, Greenway F, Ryan D, deJonge L, de la Bretonne J, Volafava J, Bray GA. Contributions of total body fat, abdominal subcutaneous adipose tissue compartments, and visceral adipose tissue to the metabolic complications of obesity. *Metabolism*. 2001;50(4):425–435.
- Song Z, Xiaoli AM, Yang F. Regulation and metabolic significance of de novo lipogenesis in adipose tissues. *Nutrients*. 2018;10(1383):1–22.
- Soto ME, Soria-Castro E, Lans VG, Ontiveros EM, Mejia BIH, Hernandez HJM, *et al*. Analysis of oxidative stress enzymes and structural and functional proteins on human aortic tissue from different aorthopathies. *Oxid Med Cell Longev*. 2014;1-14
- Strauss RS. Comparison of serum concentrations of alphotocopherol and beta-carotene in a cross-sectional sample of obese and nonobese children

- (NHANES III). National Health and Nutrition Examination Survey. *J Pediatr*. 1999; 134:160–165.
- Subauste A R, Burant C F. Role of FoxO1 in FFA-induced oxidative stress in adipocytes. *Am J Physiol Endocrinol Metab*. 2007: E159- E164
- Subramanian SV, Perkins JM, Özaltın E, Davey Smith G. Weight of nations: a socioeconomic analysis of women in low to middle-income countries. *Am J Clin Nutr*. 2011;93:413-21
- Sureshbabu A, Ryter SW, Choi ME. Oxidative stress and autophagy: crucial modulators of kidney injury. *Redox Biol*. 2015;4: 208-214
- Sutherland LN, Capozzi LC, Turchinsky NJ, Bell RC, Wright DC. Time course of high-fat diet-induced reductions in adipose tissue mitochondrial proteins: Potential mechanisms and the relationship to glucose intolerance. *Am J Physiol Endocrinol Metab*. 2008;295:E1076–E1083
- Sztalryd C, Brasaemle DL. The perilipin family of lipid droplet proteins: Gatekeepers of intracellular lipolysis. *Biochim Biophys Acta Mol Cell Biol Lipids*. 2017;1862 10 Pt B:1221–1232
- Tchkonia T, Morbeck DE, Von Zglinicki T, Van Deursen J, Lustgarten J, Scrable H, *et al*. Fat tissue, aging, and cellular senescence. *Aging cell*. 2010;9:667–84.
- Tchkonia T, Zhu Y, van Deursen J, Campisi J, Kirkland JL. Cellular senescence and the senescent secretory phenotype: therapeutic opportunities. *J Clin Invest*. 2013;123:966–72.
- Thaete LG, Crouch RK, Schulte BA, Spicer SS. The immunolocalization of copper-zinc superoxide dismutase in canine tissues. *J Histochem Cytochem* 31: 1399–1406, 1983.
- Thaete LG, Crouch RK, Spicer SS. Immunolocalization of copper-zinc superoxide dismutase. II. *Rat. J Histochem Cytochem* 33: 803–808, 1985
- Tilg H, Moschen AR. Adipocytokines: Mediators linking adipose tissue, inflammation and immunity. *Nat Rev Immunol*. 2006;6:772–783
- Tsuboi N, Utsunomiya Y, Kanzaki G, Koike K, Ikegami M, Kawamura T, *et al*. Low glomerular density with glomerulomegaly in obesity-related glomerulopathy. *Clin J Am Soc Nephrol*. 2012;7:735-41
- Tsujimoto T, Sairenchi T, Iso H, Irie F, Yamagishi K, Watanabe H, *et al*. The dose-response relationship between body mass index and the risk of incident stage  $\geq 3$  chronic kidney disease in a general Japanese population: the Ibaraki prefectural health study (IPHS). *J Epidemiol* 2014;24:444-51
- Tsygankov D, Liu Y, Sanoff HK, Sharpless NE, Elston TC. A quantitative model for age-dependent expression of the p16INK4a tumor suppressor. *Proc Natl Acad Sci USA* 2009;106:16562–67
- van der Heijden RA, Sheedfar F, Morrison MC, Hommelberg PPH, Kor D, Kloosterhuis NJ, *et al*. High-fat diet induced obesity primes inflammation in adipose tissue prior to liver in C57BL/6j mice. *Aging*. 2015;7:256–268.
- Verani R. R. Obesity-associated focal segmental glomerulosclerosis: pathological features of the lesion and relationship with cardiomegaly and hyperlipidemia. *Am J Kidney Dis*. 1992;20 (6); 629–634

- Venkatachalam G, Surana U, Clement MV. Replication stress-induced endogenous DNA damage drives cellular senescence induced by a sub-lethal oxidative stress. *Nucleic Acids Res.* 2017;45: 10564-10582.
- Verzola D, Gandolfo MT, Gaetani G, Ferreris A, Mangerini R, Ferrario F, *et al.* Accelerated senescence in the kidneys of patients with type 2 diabetic nephropathy. *Am J Physiol Renal Physiol.* 2008;295:F1563–73
- Vincent HK, Bourguignon CM, Taylor AG. Relationship of the dietary phytochemical index to weight gain, oxidative stress and inflammation in overweight young adults. *J Hum Nutr Diet.* 2010;23:20–29.
- Vincent HK, Morgan JW, Vincent KR. Obesity exacerbates oxidative stress levels after acute exercise. *Med Sci Sports Exerc* 2004;36:772–779
- Vincent HK, Powers SK, Dirks-Naylor AJ, Scarpace P. Mechanism for obesity-induced increase in myocardial lipid peroxidation. *Int J Obes Relat Metab Disord* 2001;25:378–388.
- Vincent H. K., Taylor A. G. Biomarkers and potential mechanisms of obesity-induced oxidant stress in humans. *Int J Obes.* 2006; 30(3):400–418
- Vincent HK, Vincent KR, Bourguignon C, Braith RW. Obesity and postexercise oxidative stress in older women. *Med Sci Sports Exerc.* 2005;37:213–219.
- Waaijer ME, Parish WE, Strongitharm BH, van Heemst D, Slagboom PE, de Craen AJM, *et al.* The number of p16INK4a positive cells in human skin reflects biological age. *Aging Cell.* 2012;11(4):722–725.
- Wallstrom P, Wirfalt E, Lahmann PH, Gullberg B, Janzon L, Berglund G. Serum concentrations of beta-carotene and alpha-tocopherol are associated with diet, smoking, and general and central adiposity. *Am J Clin Nutr* 2001;73:777–785.
- Wang, Y., Branicky, R., Noë, A., and Hekimi, S.. Superoxide dismutases: dual roles in controlling ROS damage and regulating ROS signaling. *J. Cell Biol.* 2018; 217: 1915–1928
- Wang Y, Schulte BA, Larue AC, Ogawa M, Zhou D. Total body irradiation selectively induces murine hematopoietic stem cell senescence. *Blood* 2006;107: 359–66
- Weisinger J. R. , Kempson R. L. , Eldridge F. L., Swenson R. S. The nephrotic syndrome: a complication of massive obesity, *Ann Intern Med.* 1974; 81(4):440–7
- Weyemi U, Dupuy C. ROS-generating NADPH oxidase NOX4 is a critical mediator in oncogenic H-Ras-induced DNA damage and subsequent senescence. *Oncogene.* 2012;31(9):1117–1129.
- Wheatcroft SB, Williams IL, Shah AM, Kearney MT. Pathophysiological implications of insulin resistance on vascular endothelial function. *Diabet Med.* 2003;20:255–268
- Wohlfarth V, Drumm K, Mildenerberger S, Freudinger R, Gekle M. Protein uptake disturbs collagen homeostasis in proximal tubule derived cells. *Kidney Int Suppl.* 2003;S103–S109.
- Wolf G, Hamann A, Han DC, Helmchen U, Thaïss F, Ziyadeh FN, *et al.* Leptin stimulates proliferation and TGF-beta expression in renal glomerular

- endothelial cells: Potential role in glomerulosclerosis [seecomments]. *Kidney Int.* 1999;56:860–872.
- Wolf G, Schroeder R, Ziyadeh FN, Stahl RA. Albumin upregulates the type II transforming growth factor-beta receptor in cultured proximal tubular cells. *Kidney Int.* 2004;66:1849–1858.
- Wolf G, Ziyadeh FN. Leptin and renal fibrosis. *Contrib Nephrol.* 2006;151:175-83
- Wolin MS, Ahmad M, Gupte SA. The sources of oxidative stress in the vessel wall. *Kidney Int.* 2005;67:1659–1661
- Wu H, Ma J, Wang P, Corpuz TM, Panchapakesan U, Wyburn KR, *et al.* HMGB1 contributes to kidney ischemia reperfusion injury. *J Am Soc Nephrol* 21: 1878–1890, 2010.
- Xue W, Zender L, Miething C, Dickins RA, Hernando E, Krizhanovsky V, *et al.* Senescence and tumour clearance is triggered by p53 restoration in murine liver carcinomas. *Nature.* 2007;445(7128):656–660.
- Yamamoto T, Takabatake Y, Takahashi A, Kimura T, Namba T, Matsuda J *et al.* High-Fat Diet-Induced Lysosomal Dysfunction and Impaired Autophagic Flux Contribute to Lipotoxicity in the Kidney. *J. Am. Soc. Nephrol.* 2017;8:1534-1551
- Yang P, Xiao Y, Luo X, Zhao Y, Zhao L, Wang Y, *et al.* Inflammatory stress promotes the development of obesity-related chronic kidney disease via CD36 in mice. *J Lipid Res.* 2017, 58, 1417–1427.
- Yilmaz MI, Saglam M, Carrero JJ, Qureshi AR, Caglar K, Eyileten T, *et al.* Serum visfatin concentration and endothelial dysfunction in chronic kidney disease. *Nephrol Dial Transplant* 2008;23:959–965.
- Yoon YS, Park HS, Yun KE, Kim SB. Obesity and metabolic syndrome-related chronic kidney disease in nondiabetic, nonhypertensive adults. *Metabolism* 2009; 58(12):1737-42
- Zein EM, Lubis VMT, Purba A. Efek Interval Training terhadap Indeks Lee, Kadar Adiponektin, dan IL-6 pada Tikus Model Obesitas. *Majalah Kesehatan Bandung.* 2017;49:15-21
- Zelko IN, Mariani TJ, Folz RJ. Superoxide dismutase multigene family: a comparison of the CuZn-SOD (SOD1), Mn-SOD (SOD2), and EC-SOD (SOD3) gene structures, evolution, and expression. *Free Radic Biol Med.* 2002;33(3):337-349
- Zhan CD, Sindhu RK, Pang J, Ehdaie A, Varizi ND. Superoxide dismutase, catalase and glutathione peroxidase in the spontaneously hypertensive rat kidney: effect of antioxidant-rich diet. *J Hypertens.* 2004;22:2025-2033
- Zhang H, Schmeisser A, Garlachs CD, Plotze K, Damme U, Mugge A, *et al.* Angiotensin II-induced superoxide anion generation in human vascular endothelial cells: Role of membrane-bound NADH-/ NADPH-oxidases. *Cardiovasc Res* 1999;44:215–222.
- Zhang X, Zhou D, Strakovsky R, Zhang Y, Pan YX. Hepatic cellular senescence pathway genes are induced through histone modifications in a diet-induced obese rat model. *Am J Physiol Gastrointest Liver Physiol.* 2012;302:G558–64.



- Zhao X, Dong Y, Zhang J, Li D, Hu G, Yao J, *et al.* Leptin changes differentiation fate and induces senescence in chondrogenic progenitor cells. *Cell Death Dis.* 2016;7:e2188.
- Zhou B, Wan Y, Chen R, Zhang C, Li X, Meng F, *et al.* The emerging role of cellular senescence in renal disease. *J Cell Mol Med.* 2020;00:1-11
- Zhu Y, Tchkonina T, Pirtskhalava T, Gower AC, Ding H, Giorgadze N, *et al.* The Achilles' heel of senescent cells: from transcriptome to senolytic drugs. *Aging Cell.* 2015;14:644– 658.
- Zindy F, Quelle DE, Roussel MF, Sherr CJ. Expression of the p16INK4a tumor suppressor versus other INK4 family members during mouse development and aging. *Oncogene* 1997;15:203–11.
- Zlobine I, Gopal K, Ussher JR. Lipotoxicity in obesity and diabetes-related cardiac dysfunction. *Biochim Biophys Acta.* 2016;1860(10):1555-1568