

DAFTAR PUSTAKA

- Abd-Elsalam, K. 2003. Bioinformatic tools and guideline for PCR primer design. *African J. Bio.*2(5): 91-95.
- Anonim. 2010. *Laporan Riskesdas*. Badan penelitian dan pengembangan Kementerian Kesehatan RI.
- Anonim. 2013. *Laporan Riskesdas*. Badan penelitian dan pengembangan Kementerian Kesehatan RI.
- Anonim. 2015. WHO Media Centre. 2015 update. Geneva, Switzerland: World Health Organization.
- Argyropoulos, G., Brown, A.M., Peterson, R., Likes, C.E., Watson, D.K., Garvey, W.T. 1998. Structure and organization of the human Uncoupling Protein 2 gene and identification of a common biallelic variant in Caucasian and African-American subject. *Diabetes*. 47: 685-687.
- Arsenijevic, D., Onuma, H., Pecqueur, C. 2000. Disruption of the uncoupling protein-2 gene in mice reveals a role in immunity and reactive oxygen soecies production. *Nat. Genet*. 26(4):435-9.
- Asiah, N. 2009. *Peran genetika pada penurunan berat badan*. Majalah Kedokteran Indonesia. Vol. 59. No. 7.
- Avesani, C.M., Kamimura, M.A., Utaka, S., Pecoits-Filho, R., Nordfors, L., Stenvinkel, P., Lindholm, B., Draibe, S.A., Cuppari, L. 2008. Is UCP2 gene polymorphism associated with decreased resting energy expenditure in nondialyzed chronic kidney disease patients?. *J. Ren. Nutr*. 18:489-494.
- Astrup, A., Toubro, S., Dalgaard, L.T., Urhammer, S.A., Sorensen, T.I., Pedersen, O., 1999. Impact of the v/v 55 polymorphism of the uncoupling protein 2 gene on 24-h energy expenditure and substrate oxidation. *Int. J. Obes. Relat. Metab. Disord*. 23: 1030–1034.
- Bauman, A.E. 2004. Updating the evidence that physical activity is good for health: an epidemiological review 2000-2003. *J. Sci. Med. Sport*. 7(1): Suppl: 6-19.
- Berentzen, T., Dalgaard, L.T., Petersen, L., Pedersen, O., Sorensen, T.I. 2005. Interactions between physical activity and variants of the genes encoding uncoupling protein-2 and -3 in relation to body weight changes during a 10-y follow up. *Int. J. Obes*. 29:93-99.
- Blair, S.N. & Nichaman, M.Z. 2002. The public health problem of increasing prevalence rates of obesity and what should be done about it. *Mayo. Clin. Proc* 77. (2): 109-113
- Bogardus, C., Lillioja, S., Ravussin, E. 1986. Familial dependence of the resting metabolic rate. *N. Engl. J. Med*. 315:96-100.
- Boulotta, A., Ludovico, O., Coco, A., Paola, R., Quattrone, A., Carella, M. 2005. The common -866G/A polymorphism in the promoter region of the UCP-2 gene is associated with reduced risk of type 2 diabetes in Caucasians from Italy. *J. Clin. Endocrinol. Met*. 90:1176–1180
- Dalgaard, L.T., Andersen, G., Larsen, L.H. Sorensen, T.I., Andersen, T., Drivsholm, T., Borch-Johnsen, K., Fleckner, J., Hansen, T., Din, N.,

- Pedersen, O., 2003. Mutational analysis of the UCP2 core promoter and relationships of variants with obesity. *Obes. Res.* 11:1420–1427.
- De Souza, B.M., Assmann, T.S., Kliemann, L.M., Gross, J.L., Canani, L.H., Crispim, D. 2011. The role of uncoupling protein 2 (UCP2) on the development of type 2 diabetes mellitus and its chronic complications. *Arq. Bras. Endocrinol. Metab.* 55(4):239-48.
- Diano, S. & Horvath, T.L., 2012. Mitochondrial uncoupling protein 2 (UCP2) in glucose and lipid metabolism. *Trends. Mol. Med.* 18:52–58.
- Drewnowski, A. & Popkin, B.M. 1997. The nutrition transition: new trends in the global diet. *Nutr. Rev.* 55: 31-43.
- Duarte, N.L., Colagiuri, S., Palu, T., Wang, X.L., Wilcken, D.E. 2003. A 45-bp insertion/deletion polymorphism of uncoupling protein 2 in relation to obesity in Tongans. *Obes. Res.* (4): 512-7.
- Ello-Martin, J.A., Ledikwe, J.E., Rolls, B.J. 2005. The influence of food portion size and energy density on energy intake: implications for weight management. *Am. J. Clin. Nutr.* 82: 236S-241S.
- Esterbauer, H., Schneitler, C., Oberkofler, H., Ebenbichler, C., Paulweber, B., Sandhofer, F., Ladurner, G., Hell, E., Strosberg, A.D. Patsch, J.R. 2001. A common polymorphism in the promoter of UCP2 is associated with decreased risk of obesity in middleaged humans. *Nat. Genet.* 28: 178–183.
- Fleury, C., Neverova, M., Collins, S., Raimbault, S., Champigny, O., Levi Meyrueis, C., Bouillaud, F., Seldin, M.F., Surwit, R.S., Ricquier, D., Warden, C.H. 1997. Uncoupling protein-2: a novel gene Linked to obesity and hyperinsulinemia. *Nat. Genet.* 15: 269–272.
- Food and Agriculture Organization. 1998. *Obesity in developing countries: causes and implications*. Rome, Italy: Food and Agriculture Organization.
- Froguel, P. & Boutin, P. 2001. Genetics of pathways regulating body weight in the development of obesity in humans. *Exp. Biol. Med.* 226(11):991-996.
- Gavras, I., Manolis, A., Gavras, H. 1999. Genetics epidemiology of essential hypertension. *J. Hum. Hypertens.* 13(4):225-229
- Guyton, A.C., Hall, J.E. 2007. *Insulin, Glukagon dan Diabetes Mellitus*. Buku Ajar Fisiologi Kedokteran. 11th ed. Jakarta: EGC pp. 110.
- Hashemi, M., Rezaei, H., Kaykhaei, M.A., Taheri, M. 2014. A 45-bp insertion/deletion polymorphism of UCP2 gene is associated with metabolic syndrome. *J. Diab. Met. Disord.* (13):1-5
- Heidari, J., Akrami, S.M., Heshmat, R., Amiri, P., Fakhzadeh, H., Pajouhi, M. 2010. Association Study of the –866G/A UCP2 Gene Promoter Polymorphism with Type 2 Diabetes and Obesity in a Tehran Population: A Case Control Study. *Arc. Iranian. Med.* 13(5):384-390
- Hession, M. 2008. Systematic review of randomized controlled trials of low-carbohydrate vs low-fat/low calorie diets in the management of obesity and it's comorbidities. *Obes. Rev.* 10(1):36-50
- Huriyati, E. 2015. Hubungan Antara Interaksi Polimorfisme Gen Uncoupling Protein 2 (UCP2), K⁺ channel, inwardly rectifying subfamily J, member 11 (KCNJ11), dan Transcription Factor 7-Like 2 (TCF7L2) dengan

Asupan Tinggi Lemak dan Karbohidrat Sederhana dalam Kaitannya dengan Kejadian Obesitas pada Remaja. *Disertasi Program Doktor*. Fakultas Kedokteran UGM. Yogyakarta.

- Jiffri, E.H. 2012. Association of the UCP2 45-bp insertion/deletion polymorphism with diabetes type 2 and obesity in Saudi population. *Egypt. J. Med. Hum. Gen.* 13:257-262.
- Katzmarzyk, P.T., Perusse, L., Rice, T. Gagnon, J., Skinner, J.S., Wilmore, J.H., Leon, A.S., Rao, D.C., Bouchard, C. 2000. Familial resemblance for coronary heart disease risk: the HERITAGE Family Study. *Ethn. Dis.* 10(2): 138-47.
- Kimm, Y.S., Glynn, N.W., Aston, C.E., Damcott, C.M., Poehlman, E.T., Daniels, S.R, Ferrell, R.E. 2002. Racial differences in the relation between uncoupling protein genes and resting energy expenditure. *Am. J. Clin. Nutr.* (75): 714-9.
- Kosuge, K., Soma, M., Nakayama, T., Aoi, N., Sato, M., Haketa, A., Uwabo, J., Izumi, Y., Matsumoto, K. 2008. Human uncoupling protein 2 and 3 genes are associated with obesity in Japanese. *Endocrine.* 34(1-3):87-95.
- Krempler, F. 2002. A functional polymorphism in the promoter of UCP2 enhances obesity risk but reduces type 2 diabetes risk in obese middle-aged humans. *Diabetes.* 51: 3331-3335
- Kubota T, Mori H, Tamori Y, Okazawa H, Fukuda T, Miki M, Ito C, Bouilaud F, Kasuga M. 1998. Molecular screening of uncoupling protein 2 gene in patients with noninsulin-dependent diabetes mellitus or obesity. *J. Clin. Endocrinol. Metab.* 83:2800-2804.
- Lapice, E., Pinelli, M., Pisu, E., Monticelli, A., Gambino, R., Pagano, G., Valsecchi, S., Cocozza, S., Riccardi, G., Vaccaro, O. 2010. Uncoupling protein 2 G(-866)A polymorphism: a new gene polymorphism associated with C-reactiveprotein in type 2 diabetic patients. *Card. Diab.* 9(1):68.
- Lee, Y.H., Kim, W., Yu, B.C., Park, B.L., Kim, L.H., Shin, H.D. 2008. Association of the ins/del polymorphisms of uncoupling protein 2 (UCP2) with BMI in a Korean population. *Biochem. Biophys. Res. Commun.* 371:767-771.
- Lemeshow, S.D.W., Hosmer Jr, Klar, J., Lwanga, S.K. 1997. Adequacy of Sampel Size in Health Studies. WHO. John Wiley & Sons Ltd. England.
- Liu, Y.J., Liu, P.Y., Long, J., Lu, Y., Elze, L., Recker, R.R., Deng, H.W. 2005. Linkage and association analyses of the UCP3 gene with obesity phenotypes in caucasian families. *Physiol. Gen.* 22:197-203.
- Low, S. 2009. Review on epidemic obesity. *Ann. Acad. Med. Singapore.* 38(1): 57-59
- Milner, J.A. 2004. Molecular targets for bioactive food components. Supplements: nutrien and gene interaction. *J. Nutr.* 132:2492S-8S.
- Misnadierly. 2007. Obesitas Sebagai Faktor Resiko Berbagai penyakit. Jakarta : Pustaka Obor Populer.
- Moll, P. P., Burns, T. L., Lauer, R. M. 1991. The genetic and environmental sources of body mass index variability: the Muscatine Ponderosity Family Study. *Am. J. Hum. Gen.* 49: 1243-55

- Myers, M.G., Jr., Leibel, R.L., Seeley, R.J., Schwartz, M.W. 2010. Obesity and Leptin Resistance: Distinguishing Cause from Effect. *Trends Endocrinol. Metab.* (11): 643–651.
- Oberkofler, H., Liu, Y.M., Esterbauer, H., Hell, E., Krempler, F., Patsch, W., 1998. Uncoupling protein-2 gene: reduced mRNA expression in intraperitoneal adipose tissue of obese humans. *Diabetologia.* 41: 940–946.
- Ochoa, M.C., Santos, J.L., Azcona, C., Moreno-Aliaga, M.J., Martinez-Gonzalez, M.A., Martinez, J.A., Marti, A. 2007. Association between obesity and insulin resistance with UCP2-UCP3 gene variants in Spanish children and adolescents. *Mol. Genet. Metab.* (4): 351-8
- Oguzkan-Balci, S., Col-Araz, N., Nacak, M., Araz, M., Sabanci, H., Balat, A., Pehlivan, S. 2013. Mitochondrial uncoupling protein 2 (UCP2) gene polymorphisms are associated with childhood obesity and related metabolic disorders. *J. Ped. Endocrinol. Met.* (26):277–283.
- Oktavianthi, S., Trimarsanto, H., Febinia, C.A., Suastika, K., Saraswati, M.R., Dwipayana, P., Arindrarto, W., Sudoyo, H., Malik, S.G. 2012. Uncoupling protein 2 gene polymorphisms are associated with obesity. *Card. Diab.* 11:41.
- Pankow, J.S., Folsom, A.R., Cushman, M., Borecki, I.B., Hopkins, P.N., Eckfeldt, J.H., Tracy, R.P. 2001. Familial and genetic determinants of systemic markers of inflammation: the NHLBI family heart study. *Atherosclerosis.* 154:681-9.
- Papazoglou, D., Papathanasiou, P., Papanas, N., Papatheodorou, K., Chatziangeli, E., Nikitidis, I., Kotsiou, S., Maltezos, E.. 2012. Uncoupling protein-2 45-base pair insertion/deletion polymorphism: is there an association with severe obesity and weight loss in morbidly obese subjects? *Met. Syn. Relat. Disord.* (10):307–311.
- Pecqueur, C., Cassard-Doulcier, A.M., Raimbault, S., Miroux, B., Fleury, C., Gelly, C., Bouillaud, F., Ricquier, D. 1999. Functiona organization of the human uncoupling protein 2 gene, and juxtaposition to the uncoupling protein 3 gene. *Biochem. Biop. Res. Comm.* 255(1): 40-6.
- Pericas, J., Oliver, P., Guitard, R., Pico, C., Palou, A. 2001. Sexual dimorphism in age-related changes in UCP2 and leptin gene expression in subcutaneous adipose tissue in humans. *J. Nut. Biochem.* 12:444-449.
- Qin, L.J., Wen, Y., Qu, Y.L., Huang, Q.Y. 2013. Lack of association of functional UCP2 -866G/A and Ala55Val polymorphisms and type 2 diabetes in the Chinese population based on a case-control study and a meta-analysis. *Genet. Mol. Res.* 12(3): 3324-3334.
- Rankinen, T., Zuberi, A., Chagnon, Y.C., Weisnagel, S.J., Argyropoulos, G., Walts, B., Perusse, L., Bouchard, C. 2006. The human obesity gene map: the 2005 update. *Obesity.* 14(4):529-644.
- Ricquier, D. & Bouillaud, F. 2000. The uncoupling protein homologues: UCP1, UCP2, UCP3, StUCP and AtUCP. *Biochem. J.* 345(2): 161-79.
- Rolls, E.T. 2007. Understanding the mechanisms of food intake and obesity. *Ob. Rev.* 8 (Suppl. 1) 67-72

- Rousset, S., Alves-Guerra, M.C., Mozo, J., Miroux, B., Cassard, A.M., Bouillaud, F., Ricquier, D. 2004. The biology of mitochondrial uncoupling proteins. *Diabetes*. 53. Suppl 1: S130-5.
- Saleh, M.C., Wheeler, M.B., Chan, C.B. 2002. Uncoupling protein-2: evidence for its function as a metabolic regulator. *Diabetes*. 45: 174–187.
- Salopuro, T. 2009. Variation in the UCP2 and UCP3 genes associates with abdominal obesity and serum lipids: The Finnish Diabetes Prevention Study. *BMC Med. Gen.* 10:94
- Sudoyo, A.W., Setiyohadi, B., Alwi, I., Simadibrata, M., Setiasti, S., 2009. Buku Ilmu Penyakit Dalam. Jilid 3. 5th ed. Jakarta: Departemen Ilmu Penyakit Dalam Fakultas Kedokteran Universitas Indonesia. pp 1973-1940.
- Sunyer, P. 2000. Overnutrition and undernutrition as modifiers of metabolic processes in disease states. *Am. J. Clin. Nutr.* 72(2):533-7.
- Susilowati, R., Septyaningtrias, D. E., Ingriyani, C.G., Muhammad, H.F.L., Julia, M. 2013. Association between insulin resistance with UCP2 - 866G/A, UCP2 45BP INS/DEL, UCP3 -55C/T, GHSA1A RS2922126, GHSA1A RS509035 and PRO12ALA PPAR γ 2 gene polymorphisms in obese female adolescents in Yogyakarta, Indonesia. *Int. J. Ped. Endocrinol.* (Suppl 1):036.
- Susmiarsih, T. & Trimarsanto, H. 2013. Kajian Bioinformatika Uncoupling Protein 2 (UCP2) dan Mutasi Ala55Val UCP2 Pada Obesitas dan Diabetes Melitus Tipe 2 (DMT2). *Majalah Kesehatan Pharmamedika*. Vol 5:1
- Tischler. 2004. Neuroendocrinology: Obesity. *Lecture 2004*; 52: 1-12
- Turula, M., Kaprio, J., Rissanen, A., Koskenvuo, M. 1990. Body weight in the Finnish twin cohort. *Diab. Res. Clin. Pract.* 10 (Suppl. 1) S33-S36
- Urhammer, S.A., Dalgaard, L.T., Sørensen, T.I.A., Møller, A.M., Andersen, T., Hansen, A.T., Clausen, J.O., Vestergaard, H., Pedersen, O. 1997. Mutational analysis of the coding region of the uncoupling protein 2 gene in obese NIDDM patients: Impact of a common amino acid polymorphism on juvenile and maturity onset forms of obesity and insulin resistance. *Diabetologia*. (40): 1227-1230
- Vimalaswaran, K.S., Radha, V., Ghosh, S., Majumder, P.P., Sathyanarayana Rao, M.R., Mohan, V. 2011. Uncoupling protein 2 and 3 gene and their association with type 2 diabetes in asian indians. *Diab. Tech. Ther.* 13(1):19-25.
- Walder, K., Norman, R.A., Hanson, R.L., Schrauwen, P., Neverova, M., Jenkinson, C.P., Easlick, J., Warden, C.H., Pecqueur, C., Raimbault, S. 1998. Association between uncoupling protein polymorphisms (UCP2-UCP3) and energy metabolism/obesity in Pima indians. *Hum. Mol. Genet.* 7:1431–1435
- Wang, H., Chu, W.S., Lu, T., Hasstedt, S.J., Kern, P.A., Elbein, S.C. 2004. Uncoupling protein-2 polymorphisms in type 2 diabetes, obesity, and insulin secretion. *Am. J. Physiol. Endocrinol. Metab.* 286 (1): E1–E7.
- Wang, T.N., Huang, M.C., Lin, H.L., Hsiang, C.H., Ko, A.M., Chang, W.T., Ko, Y.C. 2007. UCP2 A55V variant is associated with obesity and related

- phenotypes in an aboriginal community in Taiwan. *Int. J. Obes.* 31(11):1746-52.
- Wijga, A.H. 2010. Comorbidities of obesity in school children: a cross-sectional study in the PIAMA birth cohort. *BMC Public Health.* 10:184.
- Wilborn, C., Beckham, J., Campbell, B., Harvey, T., Galbreath, M., Bounty, P.L., Nassar, E., Wismann, J., Kreider, R. 2005. Obesity: Prevalence, Theories, Medical Consequences, Management, and Research Directions. *J. Int. Soc. Sports Nutr.* 2(2): 4-31.
- Xu, K., Zhang, M., Cui, D., Fu, Y., Qian, L., Gu, R., Wang, M., Shen, C., Yu, R., Yang, T. 2011. UCP2 -866G/A and Ala55Val, and UCP3 - 55C/T polymorphisms in association with type 2 diabetes susceptibility: a meta-analysis study. *Diabetologia.* 54 (9):2315-24.
- Yajnik, C.S. & Yudkis, J.S. 2004. The Y-Y paradox. *Lancet.*(363): 163.
- Zhang, M., Wang, M., Zhao, Z.T. 2014. Uncoupling protein 2 gene polymorphisms in association with overweight and obesity susceptibility: A meta-analysis. *Meta Gene* 2: 143-159
- Zhang, C.Y., Baffy, G., Perret, P., Krauss, S., Peroni, O., Grujic, D., Hagen, T., Vidal-Puig, A.J., Boss, O., Kim, Y.B., Zheng, X.X., Wheeler, M.B., Shulman, G.I., Chan, C.B., Lowell, B.B. 2001. Uncoupling protein-2 negatively regulates insulin secretion and is a major link between obesity, beta cell dysfunction, and type 2 diabetes. *Cell.* 105: 745–755.
- Zhang, Y.Y., Proenca, R., Maffei, M., Barone, M., Leopold, L., Friedman, J.M. 1994. Positional Cloning of The Mouse Obese Gene and Its Human Homolog. *Nature.* 372: 425-432.
- Zhou, Y.T., Shimabukuro, M., Koyama, K., Lee, Y., Wang, M.Y., Trieu, F., Newgard, C.B., Unger, R.H. 1997. Induction by leptin of uncoupling protein-2 and enzymes of fatty acid oxidation. *Proc. Natl. Acad. Sci. USA.* 94(12): 6386-90.