

Supplementary Table 1. MiRNA sequences

MiRNA	TaqMan ID	Sekvens	Reference
hsa-miR-29a-3p	002112	uagcaccaucugaaaucgguaa	(1–8)
hsa-miR-122-5p	002245	uggagugugacaauagguguug	(9–13)
hsa-miR-145-5p	002278	guccaguuuuuccaggaauccu	(13–15) *
hsa-miR-151-3p	002254	cuagacugaagcuccuugagg	(6,13,16)
hsa-miR-151-5p	002642	ucgaggagcucacagucuagu	(13)*
hsa-miR-223-3p	002295	ugucaguuugucaaaauaccca	(13,17–20)
hsa-miR-331-3p	000545	gccccugggccuaucuuagaa	(21,22)*
hsa-miR-342-3p	002260	ucucacacagaaaucgcacccgu	(13,23)*
hsa-miR-433-3p	001028	aucaugaugggcuccucggugu	(24)*
hsa-miR-518b	001156	caaagcgcuccuuuagaggu	*
hsa-miR-518f-3p	002388	gaaagcgcucucuuuagagg	(6)
hsa-miR-520c-3p	002400	aaagugcuuccuuuagagggu	(25)*
hsa-miR-572	001614	guccgcucggcgguggccca	*
hsa-miR-574-3p	002349	cagcucaugcacacaccaca	(6,13,26,27)
hsa-miR-636	002088	ugugcuugcucgucccgccgca	*
has-miR-664a-3p	002897	uauucauuuuaucccagccuaca	(13)*
hsa-miR-720	002895	ucucgcuggggccucca	(6,22) *
hsa-miR-769-5p	001998	ugagaccucuggguucugagcu	(13,28)*
hsa-miR-1225-3p	002766	ugagcccccugugcccgccccag	*
hsa-miR-1267	002885	ccuguugaaguguaaucccca	*
hsa-miR-1305	002867	uuuuaacucuaauaggagaga	*
hsa-miR-484	001821	ucaggcucagucccucccgau	control
ath-miR-159a	000338	uuuggauugaaggagcucua	Spike in
cel-miR-39-3p	000200	ucaccggguguaaaucagcuug	Spike In

*In house pilot study of 43 women with PCOS and 20 controls (Sørensen AE et al., unpublished)

1. Kong L, Zhu J, Han W, Jiang X, Xu M, Zhao Y, et al. Significance of serum microRNAs in pre-diabetes and newly diagnosed type 2 diabetes: a clinical study. *Acta Diabetol.* 2011 Mar 21;48(1):61–9.
2. Zhou Y, Gu P, Shi W, Li J, Hao Q, Cao X, et al. MicroRNA-29a induces insulin resistance by targeting PPAR δ in skeletal muscle cells. *Int J Mol Med.* 2016 Apr;37(4):931–8.
3. He A, Zhu L, Gupta N, Chang Y, Fang F. Overexpression of Micro Ribonucleic Acid 29, Highly Up-Regulated in Diabetic Rats, Leads to Insulin Resistance in 3T3-L1 Adipocytes. *Mol Endocrinol.* 2007 Nov;21(11):2785–94.
4. Pandey AK, Verma G, Vig S, Srivastava S, Srivastava AK, Datta M. miR-29a levels are elevated in the db/db mice liver and its overexpression leads to attenuation of insulin action on PEPCCK gene expression in HepG2 cells. *Mol Cell Endocrinol.* 2011 Jan 30;332(1–2):125–33.
5. Bagge A, Clausen TR, Larsen S, Ladefoged M, Rosenstjerne MW, Larsen L, et al. MicroRNA-29a is up-regulated in beta-cells by glucose and decreases glucose-stimulated insulin secretion. *Biochem Biophys Res Commun.* 2012 Sep 21;426(2):266–72.
6. Sørensen AE, Wissing ML, Englund ALM, Dalgaard LT. MicroRNA species in follicular fluid associating with polycystic ovary syndrome and related intermediary phenotypes. *J Clin Endocrinol Metab.* 2016;(January):jc.2015-3588.

7. Kurtz CL, Peck BCE, Fannin EE, Beysen C, Miao J, Landstreet SR, et al. MicroRNA-29 fine-tunes the expression of key FOXA2-activated lipid metabolism genes and is dysregulated in animal models of insulin resistance and diabetes. *Diabetes*. 2014 Sep 1;63(9):3141–8.
8. Dooley J, Garcia-Perez JE, Sreenivasan J, Schlenner SM, Vangoitsenhoven R, Papadopoulou AS, et al. The microRNA-29 Family Dictates the Balance Between Homeostatic and Pathological Glucose Handling in Diabetes and Obesity. *Diabetes*. 2016 Jan 22;65(1):53–61.
9. Willeit P, Skrobilin P, Moschen AR, Yin X, Kaudewitz D, Zampetaki A, et al. Circulating MicroRNA-122 is associated with the risk of new-onset metabolic syndrome and type 2 diabetes. *Diabetes*. 2017 Feb;66(2):347–57.
10. Wang R, Hong J, Cao Y, Shi J, Gu W, Ning G, et al. Elevated circulating microRNA-122 is associated with obesity and insulin resistance in young adults. *Eur J Endocrinol*. 2015 Mar;172(3):291–300.
11. Esau C, Davis S, Murray SF, Yu XX, Pandey SK, Pear M, et al. miR-122 regulation of lipid metabolism revealed by in vivo antisense targeting. *Cell Metab*. 2006 Feb;3(2):87–98.
12. Nunez Lopez YO, Coen PM, Goodpaster BH, Seyhan AA. Gastric bypass surgery with exercise alters plasma microRNAs that predict improvements in cardiometabolic risk. *Int J Obes*. 2017 Jul 27;41(7):1121–30.
13. Ghai V, Kim T-K, Etheridge A, Nielsen T, Hansen T, Pedersen O, et al. Extracellular Vesicle Encapsulated MicroRNAs in Patients with Type 2 Diabetes Are Affected by Metformin Treatment. *J Clin Med*. 2019 May 7;8(5):617.
14. Heneghan HM, Miller N, McAnena OJ, O'Brien T, Kerin MJ. Differential miRNA expression in omental adipose tissue and in the circulation of obese patients identifies novel metabolic biomarkers. *J Clin Endocrinol Metab*. 2011 May;96(5):E846-50.
15. Jordan SD, Krüger M, Willmes DM, Redemann N, Wunderlich FT, Brönneke HS, et al. Obesity-induced overexpression of miRNA-143 inhibits insulin-stimulated AKT activation and impairs glucose metabolism. *Nat Cell Biol*. 2011 Apr 27;13(4):434–48.
16. Delic D, Eisele C, Schmid R, Luippold G, Mayoux E, Grempler R. Characterization of Micro-RNA Changes during the Progression of Type 2 Diabetes in Zucker Diabetic Fatty Rats. *Int J Mol Sci*. 2016 May 3;17(5):665.
17. Zampetaki A, Kiechl S, Drozdov I, Willeit P, Mayr U, Prokopi M, et al. Plasma microRNA profiling reveals loss of endothelial miR-126 and other microRNAs in type 2 diabetes. *Circ Res*. 2010 Sep 17;107(6):810–7.
18. Nunez Lopez YO, Garufi G, Seyhan AA. Altered levels of circulating cytokines and microRNAs in lean and obese individuals with prediabetes and type 2 diabetes. *Mol Biosyst*. 2017 Dec 20;13(1):106–21.
19. Wen D, Qiao P, Wang L. Circulating microRNA-223 as a potential biomarker for obesity. *Obes Res Clin Pract*. 2015 Jul;9(4):398–404.
20. Chuang T-Y, Wu H-L, Chen C-C, Gamboa GM, Layman LC, Diamond MP, et al. MicroRNA-223 Expression Is Upregulated in Insulin Resistant Human Adipose Tissue. *J Diabetes Res*. 2015;2015:1–8.
21. Raitoharju E, Seppälä I, Oksala N, Lyytikäinen LP, Raitakari O, Viikari J, et al. Blood microRNA profile associates with the levels of serum lipids and metabolites associated with glucose metabolism and insulin resistance and pinpoints pathways underlying metabolic syndrome. The cardiovascular risk in Young Finns Study. *Mol Cell Endocrinol*. 2014 Jun 25;391(1–2):41–9.
22. Catanzaro G, Besharat ZM, Chiacchiarini M, Abballe L, Sabato C, Vacca A, et al. Circulating MicroRNAs in Elderly Type 2 Diabetic Patients. *Int J Endocrinol*. 2018;2018:1–

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23. Oger F, Gheeraert C, Mogilenko D, Benomar Y, Molendi-Coste O, Bouchaert E, et al. Cell-Specific Dysregulation of MicroRNA Expression in Obese White Adipose Tissue. *J Clin Endocrinol Metab.* 2014 Aug 1;99(8):2821–33.
24. Wang M. miR-433 protects pancreatic β cell growth in high-glucose conditions. *Mol Med Rep.* 2017 Sep;16(3):2604–10.
25. Al-Rawaf HA. Circulating microRNAs and adipokines as markers of metabolic syndrome in adolescents with obesity. *Clin Nutr.* 38(5):2231–8.
26. Belarbi Y, Mejhert N, Gao H, Arner P, Rydén M, Kulyté A. MicroRNAs-361-5p and miR-574-5p associate with human adipose morphology and regulate EBF1 expression in white adipose tissue. *Mol Cell Endocrinol.* 2018 Sep 5;472:50–6.
27. Rome S. Are extracellular microRNAs involved in type 2 diabetes and related pathologies? Vol. 46, *Clinical Biochemistry.* 2013. p. 937–45.
28. Sookoian S, Pirola CJ. PNPLA3, the triacylglycerol synthesis/hydrolysis/storage dilemma, and nonalcoholic fatty liver disease. *World J Gastroenterol.* 2012 Nov 14;18(42).