

Supplementary Table 1 Anthropometric and biochemical characteristics of middle-aged Japanese women with normal glucose tolerance (NGT) and prediabetes

	NGT		Prediabetes		
	n=51		n=14		
Age (years)	48.8	± 3.3	49.4	± 3.5	
BMI (kg/m ²)	21.2	± 2.4	23.7	± 2.4	**
FMI (kg/m ²)	6.0	± 2.0	8.1	± 2.3	**
% body fat (%)	28.2	± 6.8	34.0	± 7.5	**
Waist circumference (cm)	76.3	± 7.1	83.9	± 8.0	**
Trunk/leg fat ratio	1.55	± 0.36	1.79	± 0.39	*
SMI (kg/m ²)	5.9	± 0.5	6.1	± 0.5	
Fasting glucose (mg/dL)	87	± 7	98	± 11	**
30-min glucose (mg/dL)	130	± 26	168	± 31	***
1-h glucose (mg/dL)	119	± 29	186	± 39	***
2-h glucose (mg/dL)	102	± 17	151	± 25	***
Fasting insulin (μU/mL)	4.4	± 2.3	5.9	± 4.0	
30-min insulin (μU/mL)	40	± 25	35	± 22	
1-h insulin (μU/mL)	41	± 20	48	± 34	
2-h insulin (μU/mL)	31	± 21	59	± 44	*
HbA1c (%)	5.4	± 0.3	5.5	± 0.4	
HOMA-IR	0.9	± 0.5	1.5	± 1.1	
Matsuda index	11.1	± 4.9	8.0	± 5.1	*
Insulinogenic index	1.2	± 1.1	0.5	± 0.3	***
Oral disposition index	12.0	± 12.1	3.0	± 1.7	***
AUCg (mg/dL,2h)	227	± 36	324	± 49	***

AUCi (μ U/mL,2h)	67 \pm 31	84 \pm 57	
Triglyceride (mg/dL)	80 \pm 39	82 \pm 40	
HDL Cholesterol (mg/dL)	77 \pm 17	69 \pm 10	
Leptin (ng/mL)	6.0 \pm 3.6	9.1 \pm 4.0	**
Adiponectin (mg/L)	11.9 \pm 5.4	9.4 \pm 4.3	
Orosomuroid (mg/dL)	137 \pm 26	191 \pm 33	***
hsCRP (μ g/dL)	24 \pm 70	40 \pm 69	
TNF- α (pg/mL)	0.7 \pm 0.3	0.6 \pm 0.2	

Mean \pm SD. FMI; fat mass index, SMI; skeletal muscle mass index, HOMA-IR; homeostasis model assessment-insulin resistance, IGI; insulinogenic index, AUCg and AUCi; area under the concentration curve of plasma glucose and serum insulin, respectively, hsCRP; high-sensitivity C-reactive protein, TNF- α ; tumor necrosis factor- α , *, $p < 0.05$, **, $p < 0.01$, ***, $p < 0.001$

Supplementary Table 2 Anthropometric and biochemical characteristics of middle-aged Japanese men with normal glucose tolerance (NGT), prediabetes and newly identified type 2 diabetes (DM)

	NGT	Prediabetes	DM	#
	n=32	n=23	n=4	
Age (years)	50.5 \pm 5.3	54.0 \pm 3.7	50.0 \pm 0.8	a
BMI (kg/m ²)	24.8 \pm 6.7	23.4 \pm 3.0	22.8 \pm 1.5	
FMI (kg/m ²)	5.67 \pm 1.81	5.44 \pm 2.24	4.19 \pm 2.24	
% body fat (%)	23.5 \pm 5.3	22.8 \pm 6.9	18.4 \pm 9.1	
Waist circumference (cm)	85.7 \pm 6.8	86.3 \pm 7.3	85.3 \pm 5.8	
Trunk/leg fat ratio	2.41 \pm 0.58	2.49 \pm 0.56	2.60 \pm 0.34	
SMI (kg/m ²)	7.75 \pm 0.67	7.53 \pm 0.94	7.78 \pm 0.46	
Fasting glucose (mg/dL)	89 \pm 7	102 \pm 7	130 \pm 38	abc
30-min glucose (mg/dL)	130 \pm 30	167 \pm 17	218 \pm 45	abc
1-h glucose (mg/dL)	137 \pm 42	181 \pm 34	291 \pm 47	abc

2-h glucose (mg/dL)	104 ± 19	141 ± 31	241 ± 104	abc
Fasting insulin (µU/mL)	5.9 ± 4.1	5.2 ± 3.2	6.0 ± 3.8	
30-min insulin (µU/mL)	44 ± 36	29 ± 18	19 ± 14	
1-h insulin (µU/mL)	63 ± 96	48 ± 33	45 ± 30	
2-h insulin (µU/mL)	40 ± 40	44 ± 25	38 ± 30	
HbA1c (%)	5.3 ± 0.3	5.6 ± 0.3	6.5 ± 0.8	abc
HOMA-IR	1.3 ± 1.0	1.3 ± 0.8	1.7 ± 0.8	
Matsuda index	12.8 ± 9.1	10.5 ± 6.9	6.2 ± 2.9	
Insulinogenic index	1.8 ± 3.1	0.4 ± 0.3	0.2 ± 0.1	a,b
Oral Disposition index	20.9 ± 43.7	4.0 ± 6.8	0.7 ± 0.4	abc
AUCg (mg/dL,2h)	242 ± 48	315 ± 38	480 ± 104	abc
AUCi (µU/mL,2h)	91 ± 106	73 ± 43	64 ± 42	
Triglyceride (mg/dL)	166 ± 188	109 ± 58	196 ± 213	
HDL Cholesterol (mg/dL)	58 ± 14	59 ± 14	63 ± 24	
Leptin (ng/mL)	3.6 ± 2.2	3.7 ± 2.4	3.2 ± 2.6	
Adiponectin (mg/L)	6.5 ± 3.3	7.6 ± 3.4	5.0 ± 3.2	
Orosomuroid (mg/dL)	148 ± 37	189 ± 26	295 ± 52	abc
hsCRP (µg/dL)	36 ± 87	24 ± 36	17 ± 22	
TNF-α (pg/mL)	0.8 ± 0.4	0.8 ± 0.3	0.6 ± 0.0	

Mean ± SD. Abbreviations are the same as in supplementary Table 1. #; p<0.05 or less by Bonferroni's multiple comparison procedures; a; NGT vs. preDM, b; NGT vs. DM, c; preDM vs. DM

Supplementary Table 3 Comparison between isolated IFG and IGT with and without IFG (IGT group)

	IFG		IGT group		p values
	n=12		n=25		
Orosomuroid (mg/dL)	177	± 24	196	± 29	0.057
BMI (kg/m ²)	24.3	± 3.1	23.2	± 2.6	0.269

FMI (kg/m ²)	6.46 ± 2.59	6.41 ± 2.65	0.954
Trunk/Low Body	2.30 ± 0.48	2.19 ± 0.66	0.617
Fasting glucose (mg/dL)	104 ± 4	98 ± 10	0.025
30-min glucose (mg/dL)	169 ± 20	167 ± 24	0.821
1-h glucose (mg/dL)	160 ± 33	194 ± 31	0.004
2-h glucose (mg/dL)	110 ± 17	162 ± 16	<0.001
Fasting insulin (μU/mL)	6.0 ± 2.9	5.2 ± 3.8	0.513
30-min insulin (μU/mL)	35 ± 18	29 ± 21	0.438
1-h insulin (μU/mL)	52 ± 35	45 ± 32	0.544
2-h insulin (μU/mL)	42 ± 31	53 ± 35	0.357
HbA1c (%)	5.5 ± 0.3	5.6 ± 0.3	0.124
HOMA-IR	1.54 ± 0.72	1.31 ± 1.03	0.491
Matsuda index	9.9 ± 7.4	9.4 ± 5.9	0.834
Insulinogenic index	0.50 ± 0.34	0.36 ± 0.21	0.145
Oral disposition index	5.6 ± 9.3	2.6 ± 1.5	0.292
AUC _g (mg/dL,2h)	285 ± 30	334 ± 38	<0.001
AUC _i (μU/mL,2h)	79 ± 48	76 ± 49	0.875

Mean ± SD. Abbreviations are the same as in Table 1.

Supplementary Table 4 Sex-adjusted
correlation coefficient of serum
orosomuroid

Age (years)	0.074	
BMI (kg/m ²)	0.018	
FMI (kg/m ²)	0.067	
% body fat (%)	0.028	
Waist circumference (cm)	0.131	
Trunk/leg fat ratio	0.251	**
SMI (kg/m ²)	0.056	
Fasting glucose (mg/dL)	0.659	***
30-min glucose (mg/dL)	0.879	***
1-h glucose (mg/dL)	0.933	***
2-h glucose (mg/dL)	0.753	***
Fasting insulin (μU/mL)	0.113	
30-min insulin (μU/mL)	0.063	
1-h insulin (μU/mL)	0.115	
2-h insulin (μU/mL)	0.317	***
HbA1c (%)	0.569	***
HOMA-IR	0.205	*
Matsuda index	0.313	**
Insulinogenic index ^a	0.645	***
AUC _g (mg/dL,2h)	0.964	***
AUC _i (μU/mL,2h)	0.140	
Triglyceride (mg/dL)	0.102	
HDL Cholesterol (mg/dL)	0.083	
Leptin (ng/mL)	0.004	
Adiponectin (mg/L)	0.244	
hsCRP (μg/dL)	0.266	
TNF-α (pg/mL)	0.082	

Abbreviations are the same as in Table 1.

*; p<0.05, **; p<0.01, ***; p<0.001. a;

logarithmically transformed