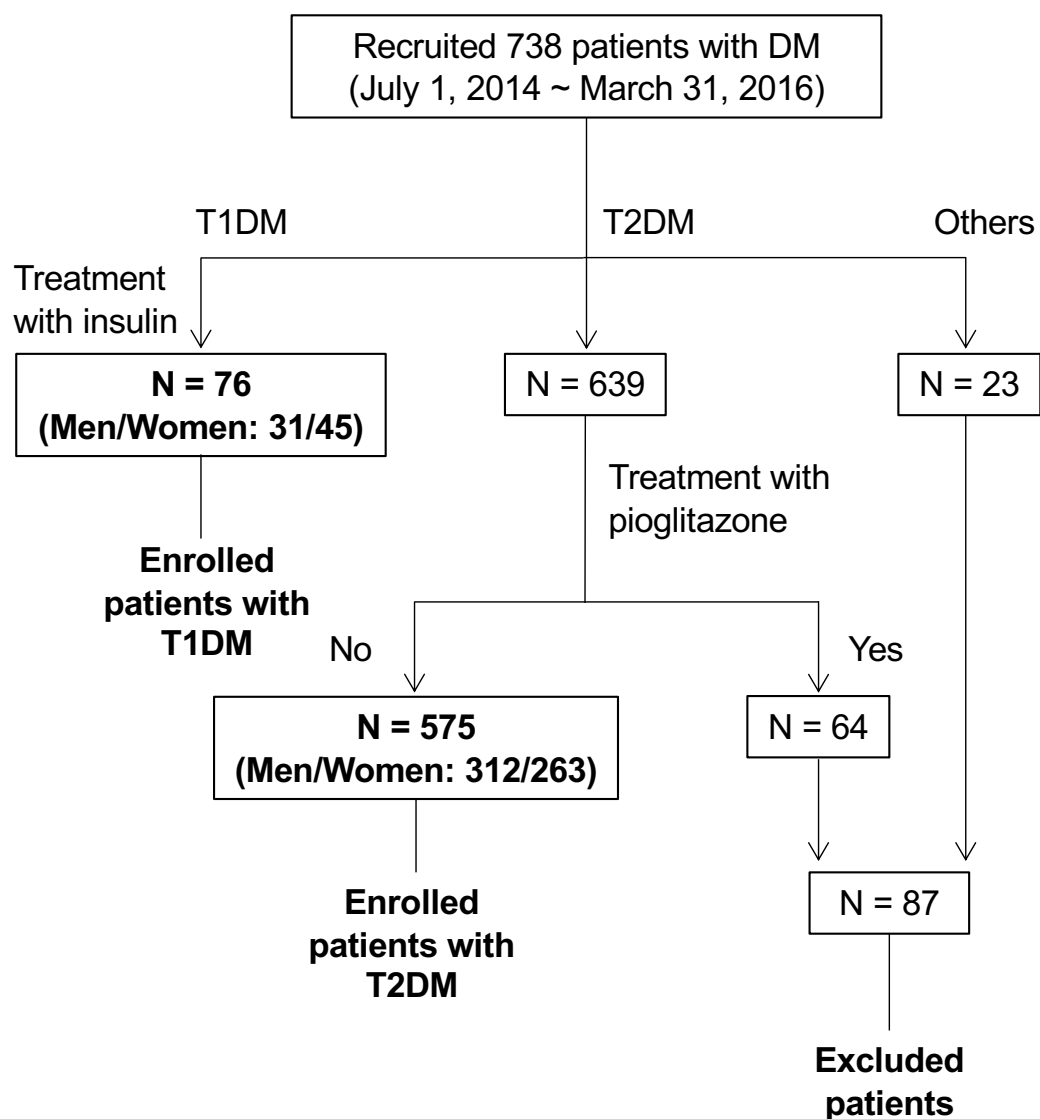Supplementary Figure S1

Supplementary Figure S1. Selection of study participants.
Among 738 patients with diabetes mellitus (DM), a total of 76 patients with type 1 DM (T1DM, n = 76) and type 2 DM (T2DM, n = 575) were finally recruited for analyses in the present study.

Supplementary Table S1

Supplementary Table S1. Characteristics of the enrolled and excluded patients

	Enrolled n = 651	Excluded n = 87	P
Age, years	65 ± 13	64 ± 13	0.573
Sex, Men	343 (52.7)	55 (63.2)	0.068
BMI	24.7 ± 4.4	25.5 ± 5.4	0.101
Systolic BP, mmHg	139 ± 18	136 ± 19	0.115
Diastolic BP, mmHg	78 ± 12	76 ± 12	0.253
Heart rate, per minute	81 ± 14	80 ± 13	0.491
Current smoking habit	109 (17.0)	14 (16.3)	0.998
Alcohol drinking habit	162 (25.3)	16 (18.6)	0.229
Duration of DM, years	14 [6-22]	15 [9-20]	0.776
Family history			
DM	375 (57.6)	50 (57.5)	0.999
Comorbidity			
Hypertension	375 (57.6)	50 (57.5)	0.702
Cardiovascular disease	224 (34.5)	30 (34.5)	1.000
Medication			
Anti-diabetic drugs			
Insulin	288 (44.2)	26 (29.9)	0.011
GLP-1 analogs	32 (4.9)	2 (2.3)	0.414
Sulfonylureas	166 (25.5)	41 (47.1)	< 0.001
Biguanides	320 (49.2)	46 (52.9)	0.569
α-glucosidase inhibitors	100 (15.4)	23 (26.4)	0.014
DPP-4 inhibitors	432 (66.4)	59 (67.8)	0.904
Glinides	49 (7.5)	5 (5.7)	0.665
SGLT2 inhibitors	10 (1.5)	1 (1.1)	0.998
Anti-dyslipidemic drugs			
Statin	331 (50.8)	57 (65.5)	0.012
Biochemical data			
Total protein, g/dL	7.3 ± 0.5	7.3 ± 0.5	0.690
AST, IU/L	21 [17-27]	19 [16-26]	0.114
ALT, IU/L	19 [14-28]	17 [13-26]	0.473
γGTP, IU/L	25 [17-46]	27 [19-40]	0.925
BUN, mg/dL	17 ± 8	16 ± 4	0.418
Creatinine, mg/dL	0.80 [0.64-1.00]	0.80 [0.60-1.00]	0.760
eGFR, mL/min/1.73m^2	67 ± 23	71 ± 24	0.154
Uric acid, mg/dL	5.3 ± 1.4	5.3 ± 1.5	0.804
TC, mg/dL	183 ± 35	181 ± 36	0.629
LDL-C, mg/dL	106 ± 28	104 ± 23	0.423
HDL-C, mg/dL	53 ± 15	55 ± 13	0.248
Non-HDL-C, mg/dL	130 ± 33	126 ± 29	0.301
Triglycerides, mg/dL	104 [74-158]	94 [76-155]	0.675
CRP, mg/dL	0.10 [0.06-0.20]	0.08 [0.06-0.15]	0.170
Glucose, mg/dL	141 [118-175]	142 [121-167]	0.939
Hemoglobin A1c, %	7.2 [6.6-7.9]	7.2 [6.6-7.8]	0.822
C-peptide, ng/mL	1.52 [0.94-2.46]	1.49 [0.96-2.58]	0.746
TNFR1, ng/mL	1.58 [1.25-2.16]	1.52 [1.29-2.01]	0.545
TNFR2, ng/mL	3.38 [2.70-4.52]	3.40 [2.75-4.23]	0.747
FABP4, ng/mL	16.5 [11.5-23.8]	24.2 [16.3-33.5]	< 0.001

Variables are expressed as number (%), means ± standard deviation or medians [interquartile ranges].
ALT, alanine transaminase; AST, aspartate transaminase; BMI, body mass index; BP, blood pressure; BUN, blood urea nitrogen; CRP, C-reactive protein; DM, diabetes mellitus; DPP-4, dipeptidyl peptidase-4; eGFR, estimated glomerular filtration rate; FABP4, fatty acid-binding protein 4; GLP-1, glucagon-like peptide-1; γGTP, γ-glutamyl transpeptidase; HDL-C, high-density lipoprotein cholesterol; LDL-C, low-density lipoprotein cholesterol; SGLT2, sodium-glucose co-transporter-2; TC, total cholesterol; TNFR, tumor necrosis factor receptor; T1DM, type 1 diabetes mellitus; T2DM, type 2 diabetes mellitus.

Supplementary Table S2

Supplementary Table S2. Characteristics of the enrooled patients with DM divided by sex

	T1DM		T2DM	
	Men (n = 31)	Women (n =45)	Men (n = 312)	Women (n = 263)
Age, years	60 ± 13	59 ± 15	66 ± 12	65 ± 14
BMI	23 ± 3	23 ± 4	24 ± 4	25 ± 5
Systolic BP, mmHg	135 ± 15	134 ± 18	139 ± 18	140 ± 18
Diastolic BP, mmHg	81 ± 9	74 ± 12	79 ± 12	77 ± 11
Heart rate, per minute	81 ± 14	81 ± 13	80 ± 14	83 ± 14
Current smoking habit	8 (25.8)	2 (4.7)	80 (25.8)	19 (7.4)
Alcohol drinking habit	16 (51.6)	1 (2.3)	125 (40.3)	20 (7.8)
Duration of DM, years	12 [6-20]	15 [6-27]	15 [7-22]	13 [7-22]
Family history				
DM	13 (41.9)	23 (51.1)	169 (54.2)	170 (64.6)
Comorbidity				
Hypertension	20 (64.5)	27 (60.0)	229 (73.4)	193 (73.4)
Cardiovascular disease	6 (19.4)	9 (20.0)	132 (42.3)	77 (29.4)
Medication				
Anti-diabetic drugs				
Insulin	31 (100)	45 (100)	122 (39.1)	90 (34.2)
GLP-1 analogs	1 (3.1)	0 (0)	14 (4.5)	17 (66.5)
Sulfonylureas	0 (0)	0 (0)	82 (26.3)	84 (31.9)
Biguanides	5 (16.1)	6 (13.3)	155 (49.7)	154 (58.6)
α-glucosidase inhibitors	2 (6.5)	3 (6.7)	54 (17.3)	41 (15.6)
DPP-4 inhibitors	6 (19.4)	12 (26.7)	225 (72.1)	189 (71.9)
Glinides	0 (0)	0 (0)	31 (9.9)	18 (6.8)
SGLT2 inhibitors	0 (0)	0 (0)	5 (1.6)	5 (1.9)
Anti-dyslipidemic drugs				
Statin	8 (25.8)	21 (46.7)	154 (49.4)	148 (56.3)
Biochemical data				
Total protein, g/dL	7.0 ± 0.4	7.3 ± 0.4	7.3 ± 0.5	7.3 ± 0.5
AST, IU/L	22 [19-26]	20 [16-25]	22 [17-29]	21 [17-26]
ALT, IU/L	19 [15-25]	16 [11-22]	20 [14-29]	18 [13-28]
γGTP, IU/L	28 [18-53]	16 [12-26]	30 [20-55]	22 [16-36]
BUN, mg/dL	17 ± 7	18 ± 7	18 ± 9	16 ± 7
Creatinine, mg/dL	0.80 [0.72-0.90]	0.70 [0.60-0.80]	0.90 [0.80-1.10]	0.64 [0.57-0.80]
eGFR, mL/min/1.73m^2	73 ± 18	68 ± 28	64 ± 21	70 ± 25
Uric acid, mg/dL	5.4 ± 1.2	4.3 ± 1.5	5.7 ± 1.3	5.0 ± 1.2
TC, mg/dL	189 ± 31	193 ± 29	177 ± 36	187 ± 33
LDL-C, mg/dL	108 ± 25	114 ± 21	102 ± 29	110 ± 27
HDL-C, mg/dL	65 ± 16	62 ± 17	49 ± 14	54 ± 13
Non-HDL-C, mg/dL	121 ± 26	131 ± 25	128 ± 35	133 ± 32
Triglycerides, mg/dL	72 [50-85]	81 [58-110]	118 [80-172]	103 [75-159]
CRP, mg/dL	0.06 [0.04-0.11]	0.08 [0.06-0.21]	0.11 [0.06-0.23]	0.10 [0.06-0.17]
Glucose, mg/dL	124 [101-175]	179 [135-225]	141 [118-172]	139 [118-169]
Hemoglobin A1c, %	7.1 [6.5-7.5]	7.8 [7.1-8.4]	7.1 [6.5-7.8]	7.2 [6.7-8.1]
C-peptide, ng/mL	0.15 [0.15-0.47]	0.15 [0.06-0.21]	1.75 [1.12-2.62]	1.51 [1.13-2.45]
TNFR1, ng/mL	1.34 [1.04-1.74]	1.32 [1.06-2.10]	1.74 [1.40-2.35]	1.45 [1.16-1.97]
TNFR2, ng/mL	3.10 [2.36-3.94]	2.93 [2.43-4.61]	3.67 [2.99-4.81]	3.08 [2.52-4.28]
FABP4, ng/mL	13.9 [8.2-16.1]	14.3 [9.6-21.8]	15.7 [10.6-22.3]	18.9 [13.2-25.7]

Variables are expressed as number (%), means ± standard deviation or medians [interquartile ranges].
ALT, alanine transaminase; AST, aspartate transaminase; BMI, body mass index; BP, blood pressure; BUN, blood urea nitrogen; CRP, C-reactive protein; DM, diabetes mellitus; DPP-4, dipeptidyl peptidase-4; eGFR, estimated glomerular filtration rate; FABP4, fatty acid-binding protein 4; GLP-1, glucagon-like peptide-1; γGTP, γ-glutamyl transpeptidase; HDL-C, high-density lipoprotein cholesterol; LDL-C, low-density lipoprotein cholesterol; SGLT2, sodium-glucose co-transporter-2; TC, total cholesterol; TNFR, tumor necrosis factor receptor; T1DM, type 1 diabetes mellitus; T2DM, type 2 diabetes mellitus.

Supplementary Table S3

Supplementary Table S3. Correlation analyses for Log FABP4 in patients with DM divided by sex

	T1DM				T2DM			
	Men (n = 31)		Women (n = 45)		Men (n = 312)		Women (n = 263)	
	r	P	r	P	r	P	r	P
Age	0.089	0.632	0.018	0.905	-0.027	0.636	0.030	0.625
BMI	0.081	0.677	0.526	<0.001	0.277	<0.001	0.331	<0.001
Systolic BP	0.385	0.033	0.086	0.573	0.034	0.545	0.073	0.237
Diastolic BP	0.382	0.034	-0.039	0.799	0.027	0.631	0.062	0.317
Heart rate	0.301	0.099	-0.275	0.067	0.085	0.136	0.034	0.584
Log [Duration of DM]	-0.025	0.893	0.328	0.052	0.089	0.129	0.056	0.375
Total protein	-0.161	0.386	-0.081	0.599	-0.016	0.778	-0.087	0.160
Log AST	0.392	0.029	0.277	0.065	0.039	0.492	0.057	0.357
Log ALT	0.410	0.022	0.268	0.075	0.079	0.164	0.077	0.212
Log γGTP	0.459	0.009	0.322	0.031	0.088	0.120	0.120	0.051
BUN	0.043	0.817	0.649	<0.001	0.200	<0.001	0.344	<0.001
Log Creatinine	-0.013	0.946	0.696	<0.001	0.389	<0.001	0.414	<0.001
eGFR	-0.068	0.718	-0.640	<0.001	-0.319	<0.001	-0.343	<0.001
Uric acid	0.158	0.394	0.329	0.026	0.259	<0.001	0.273	<0.001
TC	-0.037	0.846	-0.005	0.975	0.039	0.494	-0.105	0.089
LDL-C	0.072	0.702	-0.067	0.664	0.019	0.740	-0.065	0.296
HDL-C	-0.275	0.134	-0.109	0.478	-0.078	0.165	-0.269	<0.001
Non-HDL-C	0.126	0.498	0.069	0.652	0.072	0.205	-0.001	0.994
Log Triglycerides	0.333	0.067	0.309	0.039	0.135	0.017	0.158	0.010
Log CRP	0.083	0.656	0.187	0.224	0.143	0.011	0.109	0.079
Log Glucose	-0.055	0.770	0.067	0.666	0.014	0.800	-0.056	0.362
Log [Hemoglobin A1c]	-0.195	0.294	0.290	0.054	0.071	0.214	0.039	0.530
Log C-peptide	0.165	0.374	0.164	0.280	0.186	<0.001	0.245	<0.001
Log TNFR1	0.330	0.070	0.546	<0.001	0.394	<0.001	0.607	<0.001
Log TNFR2	0.347	0.056	0.578	<0.001	0.350	<0.001	0.423	<0.001

ALT, alanine transaminase; AST, aspartate transaminase; BMI, body mass index; BP, blood pressure; BUN, blood urea nitrogen; CRP, C-reactive protein; DM, diabetes mellitus; eGFR, estimated glomerular filtration rate; FABP4, fatty acid-binding protein 4; γGTP, γ-glutamyl transpeptidase; HDL-C, high-density lipoprotein cholesterol; LDL-C, low-density lipoprotein cholesterol; TC, total cholesterol; TNFR, tumor necrosis factor receptor; T1DM, type 1 diabetes mellitus; T2DM, type 2 diabetes mellitus.

Supplementary Table S4

Supplementary Table S4. Additional multivariable regression analyses for Log FABP4 in patients with DM

| | T1DM (n = 76) | | | | T2DM (n = 575) | | | |
| | Model 3 | | Model 4 | | Model 3 | | Model 4 | |
	β	P	β	P	β	P	β	P
Age	-0.052	0.688	-0.073	0.569	-0.110	0.016	-0.124	0.007
Sex (Men)	-0.097	0.364	-0.090	0.401	-0.235	<0.001	-0.235	<0.001
BMI	0.363	0.006	0.366	0.006	0.281	<0.001	0.287	<0.001
eGFR	-0.191	0.295	-0.241	0.143	-0.251	<0.001	-0.284	<0.001
Log Triglycerides	0.101	0.398	0.136	0.231	0.010	0.789	0.014	0.713
Current smoking habit	-0.004	0.970	-0.006	0.952	0.032	0.410	0.044	0.257
Insulin	-	-	-	-	0.056	0.175	0.065	0.115
GLP-1 analogs	-0.096	0.372	-0.106	0.332	-0.032	0.406	-0.032	0.433
Sulfonylureas	-	-	-	-	0.061	0.154	0.063	0.146
Biguanides	-0.080	0.502	-0.076	0.524	0.022	0.589	0.013	0.760
α-glucosidase inhibitors	0.098	0.335	0.095	0.349	0.008	0.825	0.001	0.969
DPP-4 inhibitors	0.210	0.183	0.106	0.372	0.069	0.083	0.069	0.084
Glinides	-	-	-	-	-0.076	0.039	-0.075	0.042
SGLT2 inhibitors	-	-	-	-	0.033	0.362	0.038	0.296
Log TNFR1	0.210	0.183	-	-	0.277	<0.001	-	-
Log TNFR2	-	-	0.170	0.225	-	-	0.239	<0.001
AIC	100		100		723		729	
R^2	0.443		0.440		0.326		0.319	
Adjusted R^2	0.342		0.339		0.308		0.301	
Statistical power (1 − β error)	0.991		0.990		1.000		1.000	

AIC, Akaike's information criterion; β, standardized regression coefficient; BMI, body mass index; DPP-4, dipeptidyl peptidase-4; eGFR, estimated glomerular filtration rate; FABP4, fatty acid-binding protein 4; SGLT2, sodium-glucose co-transporter-2; TNFR, tumor necrosis factor receptor; T1DM, type 1 diabetes mellitus; T2DM, type 2 diabetes mellitus.

Supplementary Table S5

Supplementary Table S5. Multivariable regression analyses for Log FABP4 in patients with DM

| | T1DM (n = 76) | | | | T2DM (n = 575) | | | |
| | Model 5 | | Model 6 | | Model 5 | | Model 6 | |
	β	P	β	P	β	P	β	P
Age	-0.614	0.207	-0.192	0.312	-0.102	0.022	-0.122	0.007
Sex (Men)	-0.137	0.182	-0.126	0.219	-0.227	<0.001	-0.215	<0.001
BMI	0.180	0.134	0.181	0.132	0.284	<0.001	0.288	<0.001
eGFR	-0.305	0.077	-0.361	0.020	-0.221	<0.001	-0.261	<0.001
Log Triglycerides	0.175	0.156	0.183	0.140	0.012	0.754	0.015	0.710
Log Glucose	0.020	0.851	0.017	0.875	-0.037	0.324	-0.031	0.411
Log CRP	-0.214	0.086	-0.203	0.099	0.014	0.178	-0.008	0.847
Cardiovascular disease	0.121	0.257	0.114	0.286	-0.005	0.890	0.001	0.977
Statin	0.099	0.345	0.105	0.318	0.016	0.662	0.012	0.753
Log TNFR1	0.326	0.053	-	-	0.293	<0.001	-	-
Log TNFR2	-	-	0.281	0.057	-	-	0.253	<0.001
AIC	103		103		742		749	
R^2	0.464		0.463		0.305		0.296	
Adjusted R^2	0.380		0.379		0.293		0.284	
Statistical power (1 − β error)	0.998		0.998		1.000		1.000	

AIC, Akaike's information criterion; β, standardized regression coefficient; BMI, body mass index; CRP, C-reactive protein; eGFR, estimated glomerular filtration rate; FABP4, fatty acid-binding protein 4; TNFR, tumor necrosis factor receptor; T1DM, type 1 diabetes mellitus; T2DM, type 2 diabetes mellitus.