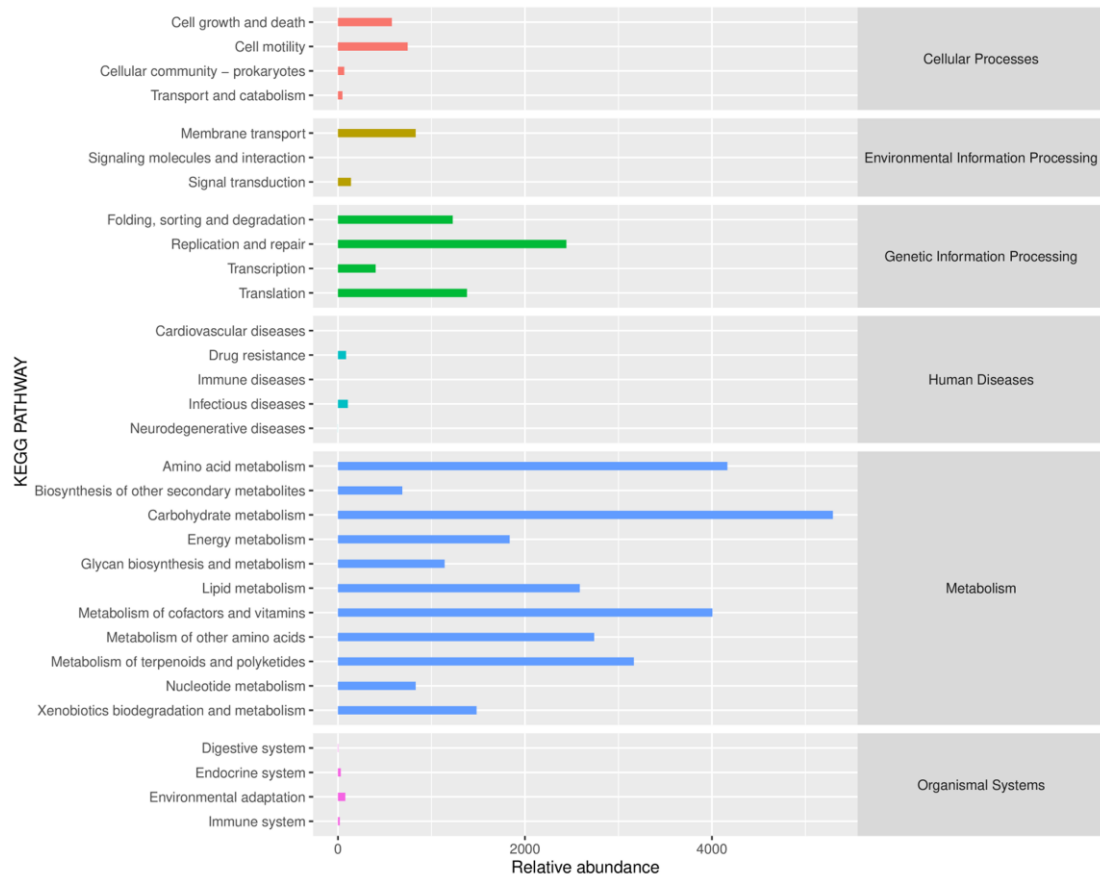


Supplementary Figure 1 Impacts of duodenal mucosal resurfacing procedure on gut microbiota. A: Phylum; B: Genus levels. DMR: Duodenal mucosal resurfacing; NC: Normal control; T2D: Type 2 diabetes.



Supplementary Figure 2 Predicting related pathways by Mapping the gene families of 16S rRNA characteristic sequences to the Kyoto Encyclopedia of Genes and Genomes database.

Supplementary Table 1 The differential metabolites in colonic contents of rats

Metabolite	Class	NC	T2DM + Sham	T2DM + DMR
Alanine	Amino Acids	60.21 ± 10.14	69.88 ± 23.59	65.88 ± 23.49
Dimethylglycine	Amino Acids	9.08 ± 4.77	43.77 ± 15.56 ^b	21.69±14.16 ^d
Tyrosine	Amino Acids	388.97 ± 63.75	239.74 ± 61.26 ^b	358.12 ± 82.00 ^d
Phenylalanine	Amino Acids	443.12 ± 78.21	299.32 ± 52.12 ^a	459.69 ± 133.67 ^d
Citrulline	Amino Acids	939.07 ± 148.94	473.95 ± 125.72 ^b	754.47 ± 254.85 ^d
Valine	Amino Acids	847.60 ± 136.58	609.48 ± 153.93	1057.61 ± 323.48 ^e
Methionine	Amino Acids	425.21 ± 32.92	212.37 ± 57.00 ^c	317.83 ± 81.69 ^d
N-Acetylglutamine	Amino Acids	4.81 ± 3.85	0.49 ± 0.24 ^a	4.07 ± 1.86 ^d
Phenylpyruvic acid	Benzenoids	139.96 ± 75.35	25.93 ± 11.63 ^b	72.93 ± 24.12
4-Hydroxybenzoic acid	Benzoic Acids	8.29 ± 2.60	2.55 ± 1.18 ^c	4.09 ± 0.85
NorDCA	Bile Acids	3.57 ± 0.77	0.99 ± 0.07 ^c	2.01 ± 0.90 ^d
isoalloLCA	Bile Acids	96.10 ± 65.21	3.03 ± 2.68 ^b	19.37 ± 14.85
Maltose/Lactose	Carbohydrates	426.35 ± 188.88	2796.01 ± 1185.79 ^c	597.08 ± 505.33 ^e
Fructose	Carbohydrates	79.59 ± 7.65	42.28 ± 10.42 ^a	77.16 ± 34.59 ^d
Maltotriose	Carbohydrates	145.41 ± 73.35	682.14 ± 292.84 ^c	112.71 ± 76.12 ^f

3-Methyladipic acid	Fatty Acids	0.57 ± 0.33	38.59 ± 8.15 ^c	0.89 ± 0.79 ^f
Octanoic acid	Fatty Acids	173.80 ± 53.70	71.04 ± 16.98 ^b	119.25 ± 47.82
Oleic acid	Fatty Acids	875.36 ± 193.74	553.42 ± 230.66 ^a	1002.46 ± 248.54 ^e
alpha-Ketoisovaleric acid	Organic Acids	362.10 ± 167.17	71.12 ± 33.75 ^c	216.18 ± 73.39 ^d
Ketoleucine	Organic Acids	521.55 ± 219.53	90.54 ± 42.33 ^c	274.58 ± 97.44 ^d
3-Methyl-2-oxopentanoic acid	Organic Acids	558.36 ± 250.18	126.31 ± 61.48 ^b	357.25 ± 135.71 ^d
Pyruvic acid	Organic Acids	4701.81 ± 2683.60	1129.21 ± 369.39 ^b	3448.93 ± 1123.30 ^d
Oxoglutaric acid	Organic Acids	367.03 ± 120.89	74.39 ± 28.14 ^c	141.11 ± 52.12
p-Hydroxyphenylacetic acid	Phenols	81.05 ± 48.10	19.73 ± 6.56	93.97 ± 108.53
Phenyllactic acid	Phenylpropanoic Acids	2.46 ± 0.70	0.91 ± 0.70 ^b	2.59 ± 1.06 ^e

One-way analysis of variance. Data are shown as mean ± SD ($n = 5-6$ rats per group). ^a $P < 0.05$ vs NC group, ^b $P < 0.001$ vs. NC group, ^c $P < 0.001$ vs. NC group, ^d $P < 0.05$ vs T2D-Sham group, ^e $P < 0.01$ vs T2D-Sham group, ^f $P < 0.001$ vs T2D-Sham group. DMR: duodenal mucosal resurfacing; NC: normal control; T2D: type 2 diabetes.