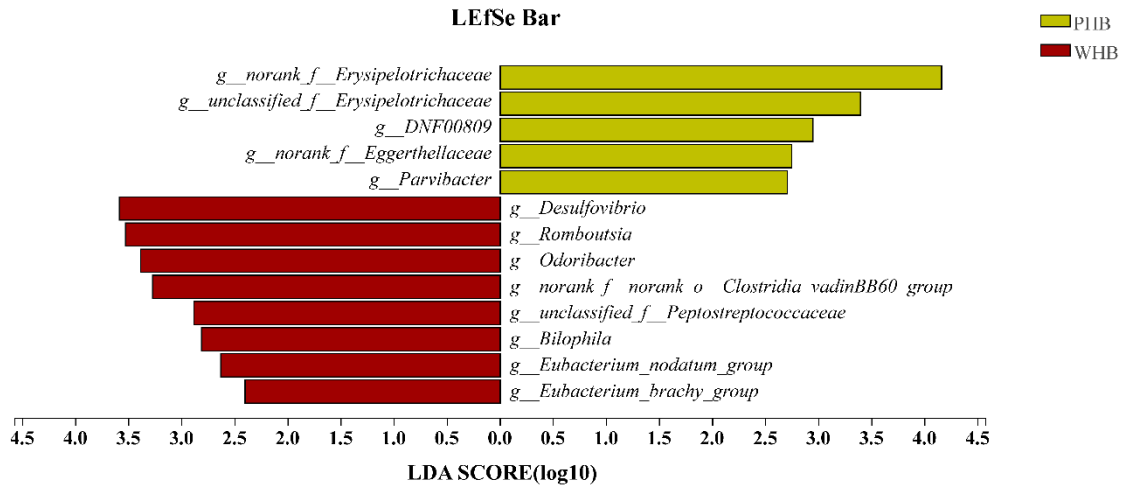


**Figure S1.** Linear discriminant analysis (LDA  $\geq 2.0$ ) scores derived from LEfSe analysis (NCD vs HFD). NCD, normal chow diet; HFD, high-fat diet.



**Figure S2.** Linear discriminant analysis (LDA  $\geq$  2.0) scores derived from LEfSe analysis (PHB vs WHB). PHB, HFD supplemented with 30% partially peeled hulless barley; WHB, HFD supplemented with 30% whole grain hulless barley.

**Table S1** Contents of macronutrients and functional components in PHB and WHB

	Starch (g/100g)	Protein (g/100g)	Fat (g/100g)	Total fiber (g/100g)	$\beta$ -glucan (g/100g)	Total phenolics (mg/kg)
PHB	52.5	11.1	4.5	8.9	4.5	4305.0
WHB	61.1	11.2	4.3	13.0	3.9	5633.2

Abbreviations: PHB, partially peeled hulless barley; WHB, whole grain hulless barley.

**Table S2** Specific formulas of different feeds

Ingredient (g/kg)	NCD	HFD	PHB	WHB
PHB or WHB flour, 60 mesh	0	0	300	300
Casein	200	258.46	224.27	218.70
L-Cystine	3	3.88	3.88	3.88
Corn Starch	506.2	0	0	0
Maltodextrin 10	125	161.54	0	0
Sucrose	68.8	88.91	33.42	45.89
Cellulose, BW200	50	64.62	25.99	23.84
Soybean Oil	25	32.31	22.06	17.36
Lard	20	316.61	316.60	316.61
Mineral Mix S10026	10	12.92	12.92	12.92
DiCalcium Phosphate	13	16.80	16.80	16.80
Calcium Carbonate	5.5	7.11	7.11	7.11
Potassium Citrate, 1 H <sub>2</sub> O	16.5	21.32	21.32	21.32
Vitamin Mix, V10001	10	12.92	12.92	12.92
Choline Bitartrate	2	2.58	2.58	2.58
FD&C Blue Dye #1	0.01	0.06	0	0.06
FD&C Yellow Dye #5	0.04	0	0	0
Total (g)	1000.00	1000.00	999.87	1000.00
Calculated energy (kcal%)				
Protein	20	20	20	20
Fat	10	60	60	60
Carbohydrate	70	20	20	20
$\beta$ -glucan (g/100g)	-	-	1.27	3.24

Abbreviations: NCD, normal chow diet; HFD, high-fat diet; PHB, HFD supplemented with 30% partially peeled hulless barley; WHB, HFD supplemented with 30% whole grain hulless barley.