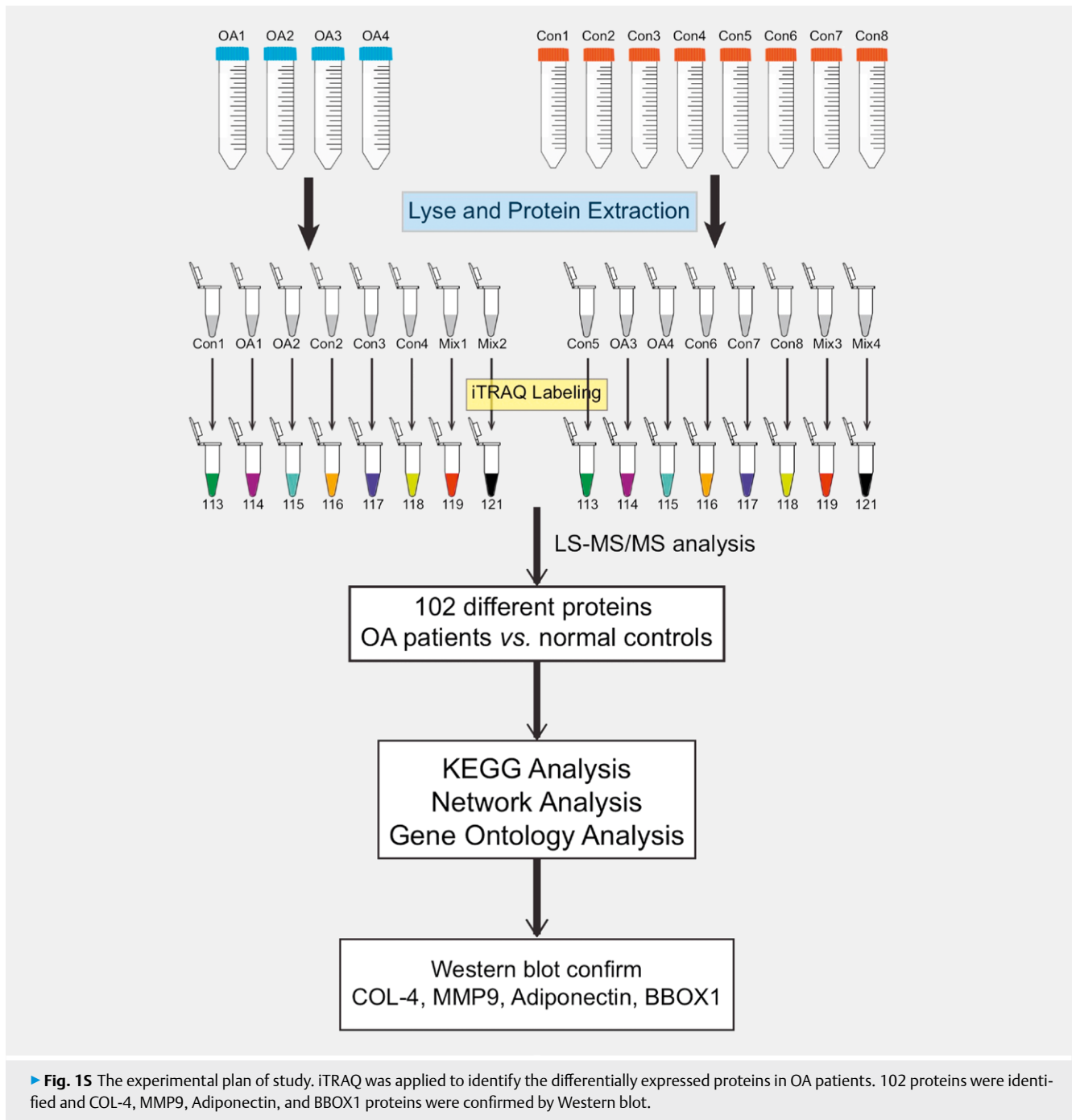


Supplementary Material



► **Fig. 1S** The experimental plan of study. iTRAQ was applied to identify the differentially expressed proteins in OA patients. 102 proteins were identified and COL-4, MMP9, Adiponectin, and BBOX1 proteins were confirmed by Western blot.

► **Table 15** Demographic data of recruited participants. Four OA patients and eight controls without OA were enrolled into this study. OA was diagnosed by radiographic imaging and clinical examination. K-L grading was evaluated in the OA group. Age, Gender, BMI were recorded and matched. Confounding factors, such as osteoporosis and hyperlipemia were set as exclusion criteria.

Group	Gender	Age	BMI	K-L grading	Osteoporosis	Hperlipemia
OA 1	Female	60	26	Grade 4	No	No
OA 2	Female	59	27	Grade 4	No	No
OA 3	Female	58	28	Grade 4	No	No
OA 4	Female	57	28	Grade 4	No	No
Control 1	Female	55	27	-	No	No
Control 2	Female	56	28	-	No	No
Control 3	Female	57	26	-	No	No
Control 4	Female	61	26	-	No	No
Control 5	Female	57	27	-	No	No
Control 6	Female	58	28	-	No	No
Control 7	Female	60	27	-	No	No
Control 8	Female	59	28	-	No	No

► **Table 25** The detailed information of identified 102 proteins differently changed in abundance. 46 proteins were up-regulated and 56 proteins were significantly down-regulated in OA patients.

	Accession Number	Molecular Weight	p-vlues	OA/Control	LOG2(OA/Control)
1	CRK_HUMAN	34 kDa	0.0003	1.6133	0.6900
2	PGDH_HUMAN	29 kDa	0.0016	2.0940	1.0663
3	CADM3_HUMAN	43 kDa	0.0023	1.6316	0.7062
4	PEPC_HUMAN	42 kDa	0.0025	1.8277	0.8700
5	CD166_HUMAN	65 kDa	0.0027	1.6008	0.6788
6	MMP9_HUMAN	78 kDa	0.0032	3.6712	1.8763
7	FABPI_HUMAN	15 kDa	0.0035	2.8754	1.5238
8	CD209_HUMAN	46 kDa	0.0048	2.3315	1.2213
9	MSLN_HUMAN	69 kDa	0.0053	1.9742	0.9812
10	LCN1_HUMAN	19 kDa	0.0057	2.2521	1.1713
11	AFAM_HUMAN	69 kDa	0.0066	1.7097	0.7738
12	UPK3A_HUMAN	31 kDa	0.0076	2.6505	1.4063
13	GUC2B_HUMAN	12 kDa	0.0076	2.0527	1.0375
14	FABP4_HUMAN	15 kDa	0.0082	2.7606	1.4650
15	SAP3_HUMAN	21 kDa	0.0089	3.0446	1.6063
16	MYOC_HUMAN	57 kDa	0.0097	2.3970	1.2613
17	LYVE1_HUMAN	35 kDa	0.0099	2.1603	1.1113
18	GP1BA_HUMAN	72 kDa	0.0105	1.7808	0.8325
19	CYTM_HUMAN	17 kDa	0.0135	1.7901	0.8400
20	CXAR_HUMAN	40 kDa	0.0148	2.2521	1.1713
21	LYAM1_HUMAN	42 kDa	0.0158	1.6077	0.6850
22	EFNB1_HUMAN	38 kDa	0.0172	1.6644	0.7350
23	TGFR2_HUMAN	65 kDa	0.0179	2.0209	1.0150
24	MYDGF_HUMAN	19 kDa	0.0184	2.1177	1.0825
25	BAF_HUMAN	10 kDa	0.0185	2.2954	1.1988
26	FOLR2_HUMAN	29 kDa	0.0197	1.8970	0.9238
27	PTGDS_HUMAN	21 kDa	0.0205	1.7441	0.8025

► **Table 25** Continued.

	Accession Number	Molecular Weight	p-values	OA/Control	LOG2(OA/Control)
28	S100P_HUMAN	10 kDa	0.0211	2.0940	1.0663
29	SH3L3_HUMAN	10 kDa	0.0235	1.7231	0.7850
30	PLMN_HUMAN	91 kDa	0.0275	1.5815	0.6612
31	ADIPO_HUMAN	26 kDa	0.0279	2.4326	1.2825
32	SHSA5_HUMAN	26 kDa	0.0283	4.3057	2.1063
33	MSMB_HUMAN	13 kDa	0.0284	1.6486	0.7213
34	KV307_HUMAN	12 kDa	0.0301	1.5316	0.6150
35	MIME_HUMAN	34 kDa	0.0339	2.2994	1.2013
36	PI16_HUMAN	49 kDa	0.0360	1.8308	0.8725
37	1433B_HUMAN	28 kDa	0.0369	1.9036	0.9288
38	TMED7_HUMAN	25 kDa	0.0375	2.1287	1.0900
39	CAYP1_HUMAN	21 kDa	0.0384	1.7563	0.8125
40	INAR2_HUMAN	58 kDa	0.0389	1.8119	0.8575
41	AMBP_HUMAN	39 kDa	0.0399	1.8119	0.8575
42	SYUG_HUMAN	13 kDa	0.0400	2.0509	1.0363
43	IDHC_HUMAN	47 kDa	0.0431	2.4368	1.2850
44	C1QR1_HUMAN	69 kDa	0.0464	1.5223	0.6063
45	UPAR_HUMAN	37 kDa	0.0490	1.5026	0.5875
46	LGUL_HUMAN	21 kDa	0.0499	1.6231	0.6987
47	SPB3_HUMAN	45 kDa	0.0004	0.3638	-1.4588
48	CRNN_HUMAN	54 kDa	0.0005	0.3715	-1.4288
49	SPB13_HUMAN	44 kDa	0.0010	0.4743	-1.0763
50	KLK13_HUMAN	31 kDa	0.0017	0.4780	-1.0650
51	SPB12_HUMAN	46 kDa	0.0019	0.5538	-0.8525
52	CALL3_HUMAN	17 kDa	0.0024	0.4613	-1.1163
53	A2ML1_HUMAN	161 kDa	0.0027	0.4784	-1.0638
54	PRS27_HUMAN	32 kDa	0.0030	0.5885	-0.7650
55	IL1R1_HUMAN	65 kDa	0.0036	0.5729	-0.8037
56	BODG_HUMAN	45 kDa	0.0038	0.6003	-0.7362
57	NFASC_HUMAN	150 kDa	0.0040	0.6247	-0.6788
58	NEUS_HUMAN	46 kDa	0.0044	0.5704	-0.8100
59	TM11D_HUMAN	46 kDa	0.0046	0.4689	-1.0925
60	ECM1_HUMAN	61 kDa	0.0077	0.6013	-0.7338
61	S10A9_HUMAN	13 kDa	0.0083	0.4093	-1.2888
62	FGL2_HUMAN	50 kDa	0.0090	0.6108	-0.7113
63	CEL_HUMAN	79 kDa	0.0094	0.6428	-0.6375
64	PVR_HUMAN	45 kDa	0.0100	0.6451	-0.6325
65	CR1_HUMAN	224 kDa	0.0106	0.4771	-1.0675
66	IST1_HUMAN	40 kDa	0.0114	0.6592	-0.6013
67	KLK10_HUMAN	30 kDa	0.0120	0.6285	-0.6700
68	EGF_HUMAN	134 kDa	0.0149	0.6204	-0.6888
69	KLK6_HUMAN	27 kDa	0.0160	0.5548	-0.8500
70	AT1B1_HUMAN	35 kDa	0.0161	0.6263	-0.6750
71	ANPRA_HUMAN	119 kDa	0.0171	0.5962	-0.7463
72	GLCM_HUMAN	60 kDa	0.0177	0.6236	-0.6813
73	LDHB_HUMAN	37 kDa	0.0180	0.6329	-0.6600
74	CRYAB_HUMAN	20 kDa	0.0186	0.6008	-0.7350

► Table 25 Continued.

	Accession Number	Molecular Weight	p-values	OA/Control	LOG2(OA/Control)
75	DSG3_HUMAN	108 kDa	0.0190	0.5839	-0.7763
76	RENK_HUMAN	39 kDa	0.0194	0.5322	-0.9100
77	SPB4_HUMAN	45 kDa	0.0208	0.4763	-1.0700
78	SLPI_HUMAN	14 kDa	0.0209	0.6312	-0.6638
79	XPP2_HUMAN	76 kDa	0.0212	0.5714	-0.8075
80	CRIS3_HUMAN	28 kDa	0.0229	0.5350	-0.9025
81	IL2RB_HUMAN	61 kDa	0.0233	0.6087	-0.7163
82	AK1BA_HUMAN	36 kDa	0.0234	0.5401	-0.8888
83	TGM3_HUMAN	77 kDa	0.0240	0.6280	-0.6712
84	RN150_HUMAN	48 kDa	0.0265	0.6362	-0.6525
85	TIP_HUMAN	68 kDa	0.0268	0.6329	-0.6600
86	ANXA1_HUMAN	39 kDa	0.0287	0.4319	-1.2113
87	CD177_HUMAN	46 kDa	0.0287	0.6484	-0.6250
88	PVRL3_HUMAN	61 kDa	0.0302	0.6490	-0.6238
89	LMNA_HUMAN	74 kDa	0.0314	0.5699	-0.8112
90	LYPD3_HUMAN	36 kDa	0.0318	0.5083	-0.9763
91	PPAP_HUMAN	45 kDa	0.0318	0.5299	-0.9163
92	CUTA_HUMAN	19 kDa	0.0320	0.5317	-0.9112
93	NHRF3_HUMAN	57 kDa	0.0333	0.6274	-0.6725
94	AMY2B_HUMAN	58 kDa	0.0358	0.5290	-0.9187
95	B4GT1_HUMAN	44 kDa	0.0401	0.6467	-0.6287
96	UCHL1_HUMAN	25 kDa	0.0406	0.6518	-0.6175
97	FZD1_HUMAN	71 kDa	0.0408	0.5758	-0.7962
98	CO4A2_HUMAN	168 kDa	0.0431	0.6156	-0.7000
99	FM25A_HUMAN	9 kDa	0.0438	0.6340	-0.6575
100	CLCA4_HUMAN	101 kDa	0.0468	0.5998	-0.7375
101	TPM4_HUMAN	29 kDa	0.0476	0.6362	-0.6525
102	PLD3_HUMAN	55 kDa	0.0485	0.6150	-0.7012

► **Table 35** The 16 composed networks by IPA software for 102 differentially expressed proteins. The IPA generates the score through to assess the degree of matching in a protein-protein interaction.

Network	Top Diseases and Functions	Score
1	Cardiovascular System Development and Function, Cellular Movement, Connective Tissue Disorders	43
2	Cell-To-Cell Signaling and Interaction, Hematological System Development and Function, Immune Cell Trafficking	27
3	Cell Cycle, DNA Replication, Recombination, and Repair, Cell Death and Survival	21
4	Cellular Growth and Proliferation, Cell Death and Survival, Cell Morphology	19
5	Carbohydrate Metabolism, Cellular Movement, Cellular Development	19
6	Cancer, Organismal Injury and Abnormalities, Reproductive System Disease	17
7	Dermatological Diseases and Conditions, Inflammatory Disease, Inflammatory Response	16
8	Cell Death and Survival, Dermatological Diseases and Conditions, Organismal Injury and Abnormalities	14
9	Dermatological Diseases and Conditions, Hereditary Disorder, Immunological Disease	2
10	Cell Death and Survival, Reproductive System Development and Function, Cellular Development	2
11	Developmental Disorder, Hereditary Disorder, Immunological Disease	2
12	Cellular Movement, Nervous System Development and Function, Embryonic Development	2
13	Developmental Disorder, Hematological Disease, Hereditary Disorder	2
14	Hereditary Disorder, Organismal Injury and Abnormalities, Skeletal and Muscular Disorders	2
15	Hereditary Disorder, Neurological Disease, Organismal Injury and Abnormalities	2
16	Embryonic Development, Organismal Development, Tissue Development	2