



上海中醫藥大學

Shanghai University Of TCM

About OMICS Group

OMICS Group International is an amalgamation of [Open Access publications](#) and worldwide international science conferences and events. Established in the year 2007 with the sole aim of making the information on Sciences and technology 'Open Access', OMICS Group publishes 500 online open access [scholarly journals](#) in all aspects of Science, Engineering, Management and Technology journals. OMICS Group has been instrumental in taking the knowledge on Science & technology to the doorsteps of ordinary men and women. Research Scholars, Students, Libraries, Educational Institutions, Research centers and the industry are main stakeholders that benefitted greatly from this knowledge dissemination. OMICS International also organizes 500 [International conferences](#) annually across the globe, where knowledge transfer takes place through debates, round table discussions, poster presentations, workshops, symposia and exhibitions.



上海中醫藥大學

Shanghai University Of TCM

About OMICS International Conferences

OMICS International is a pioneer and leading science event organizer, which publishes around 500 open access journals and conducts over 300 Medical, Clinical, Engineering, Life Sciences, Pharma scientific conferences all over the globe annually with the support of more than 1000 scientific associations and 30,000 editorial board members and 3.5 million followers to its credit.

OMICS International has organized 500 conferences, workshops and national symposiums across the major cities including San Francisco, Las Vegas, San Antonio, Omaha, Orlando, Raleigh, Santa Clara, Chicago, Philadelphia, Baltimore, United Kingdom, Valencia, Dubai, Beijing, Hyderabad, Bengaluru and Mumbai.



上海中醫藥大學
Shanghai University Of TCM

Metal Element on Non-alcoholic Fatty Liver Disease (NAFLD)

Yongyu Zhang

Shanghai University of Traditional Chinese Medicine
(State Administration of TCM key Laboratory of Metabonomics)

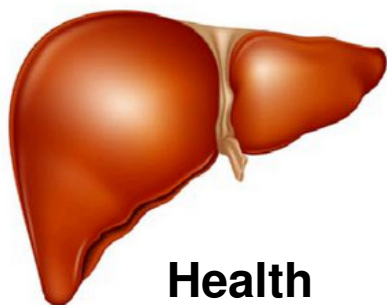
dryyz@sina.com
zyy@shutcm.edu.cn





上海中醫藥大學

Shanghai University Of TCM



Health



Metal Element



NAFLD



ShangHanLun



Bupleurum



Scutellaria



ICP-MS

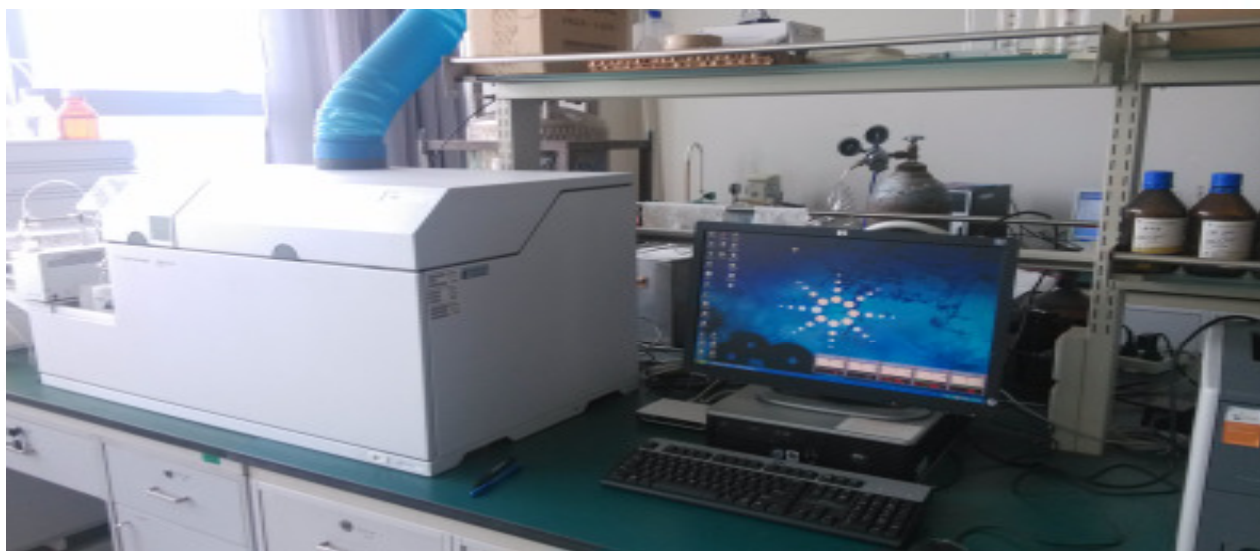
Mixed standard solution (26):
such as Na、Mg、K、Ca、Fe、
Cu、Zn、V、Mn、Cr

Sample collection

Sample testing

Data processing

Result analysis



	A	B	C	D	E	F	G	H	I	J	K
1	CV%	XT/STD	0-0-1	0-0-2	0-0-3	0-0-4	0-0-5	0-0-6	0-0-7	0-0-8	0-0-9
2	100	5.64	1.7255	1.7028	1.951	1.3265	2.4197	0.86154	5.6425	6.6377	0.015248
3	107	5.88	61.819	99.723	310.13	94.324	2.5806	17.012	43.399	2.8573	70.74
4	131	5.94	1.6825	0.77316	0.85175	7.725	1.8037	1.5995	0.67724	0.846	0.38793
5	64	6.53	1.5079	2.0301	5.6693	2.8511	12.845	13.398	7.7217	9.0834	6.5216
6	76	6.85	18.352	9.071	9.4263	10.239	7.1339	6.33	7.0931	4.25	3.0977
7	73	7.11	14.311	13.478	16.271	29.014	9.6294	7.8561	6.8738	13.301	4.7329
8	140	7.22	6.4482	3.0577	3.4674	5.636	5.8819	5.7677	2.4855	2.6377	1.1319
9	101	7.28	22.76	235.65	281.7	134.41	99.315	47.795	26.237	8.5432	13.737
10	102	7.28	28.544	88.838	81.913	45.302	26.159	348.84	68.789	1.3438	9.8395
11	88	7.33	6.545	14.424	12.788	3.9873	11.997	14.152	12.142	5.1545	1.254
12	105	7.48	9.0409	6.3652	2.1001	35.649	7.453	2.9893	8.6927	47.041	33.774
13	123	7.58	1.8924	4.1935	8.4879	5.1218	11.884	2.6327	7.1438	0.41602	1.1138
14	70	7.75	13.713	319.77	13.015	8.2153	9.0434	12.143	8.5796	37.269	3.1393
15	116	7.77	32.838	9.3182	15.137	7.7187	60.225	62.879	36.239	42.63	30.607
16	128	7.88	13.954	4.7598	8.8368	2.5188	2.7921	2.4681	4.3838	1.0094	2.6361
17	82	7.98	170.98	66.241	61.971	102.16	123.52	126.34	47.307	59.001	25.088
18	113	7.99	60.866	17.302	32.83	10.223	6.2157	5.1495	20.971	53.052	38.089
19	91	8.25	30.675	51.685	109.86	88.645	29.126	164.36	34.095	13.442	37.739
20	85	8.27	13.043	11.865	20.632	13.327	11.44	8.2907	14.152	7.1257	2.5513
21	169	8.36	23.64	0.19565	12.521	19.5	0.6333	21.484	7.9064	0.75016	3.747
22	141	8.49	4.8961	1.4857	2.3917	1.3924	0.96588	0.96679	2.0889	1.012	2.8521
23	116	8.6	146	182.14	2.7716	171.89	86.226	58.466	350.5	143.92	62.13
24	142	8.64	20.778	9.2414	13.84	15.893	23.337	19.363	9.339	10.62	5.069
25	143	8.72	5.332	5.1186	4.2995	3.493	4.715	2.7297	1.7405	0.9502	1.5185
26	102	8.79	851.79	1269.8	1157.7	450.69	414.13	2.0045	1002.2	2699.4	1798
27	74	8.8	902.12	441.61	347.4	62.498	1656.1	1727.4	995.55	1171.1	840.83
28	115	8.92	1.9254	2.6423	2.7593	3.5658	1.7806	1.2255	2.1985	1.1911	7.992



上海中醫藥大學

Shanghai University Of TCM



Control group: 8

Model group : 8

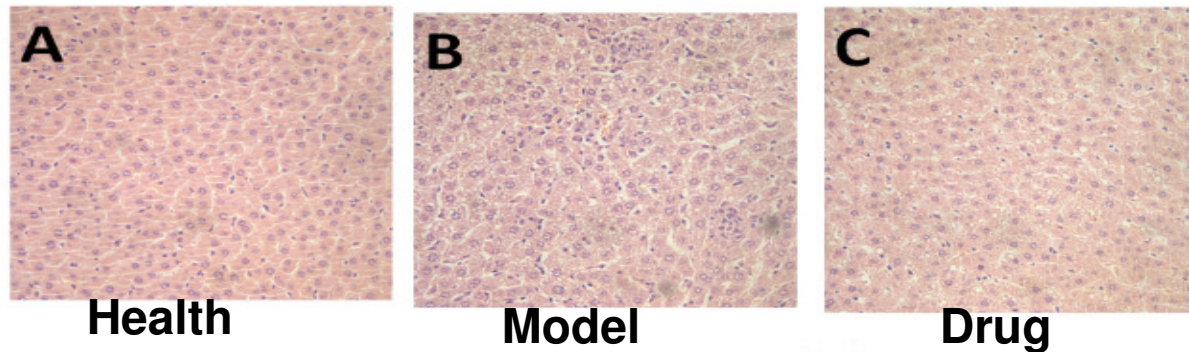
Herb group : 8

- **Herb group**
- **once/day(by gavage) 4 weeks**
- **Collect serum liver**
- **liver function indexes detection
histological study**

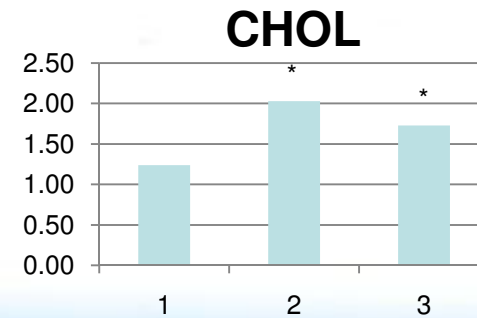
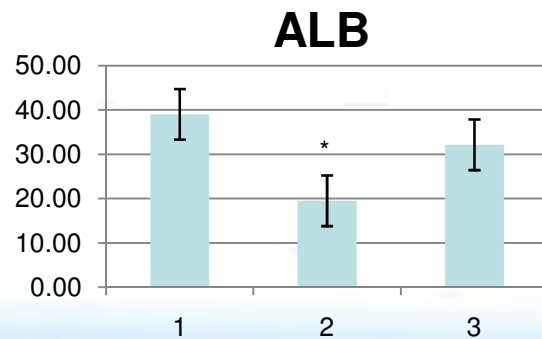
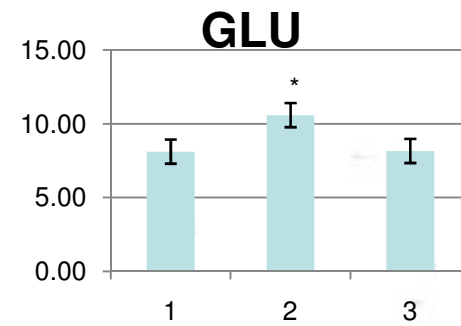
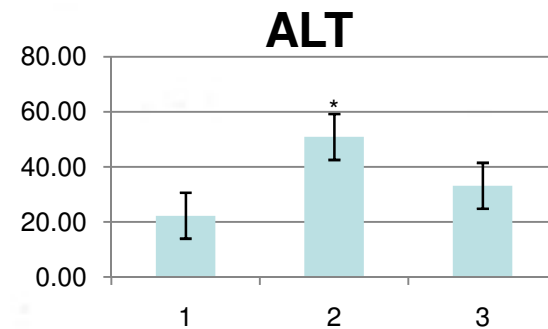


Result

pathological
section



biochemical
indexes



1: control
2: model
3: Drug

*P<0.05 :compared with the control group

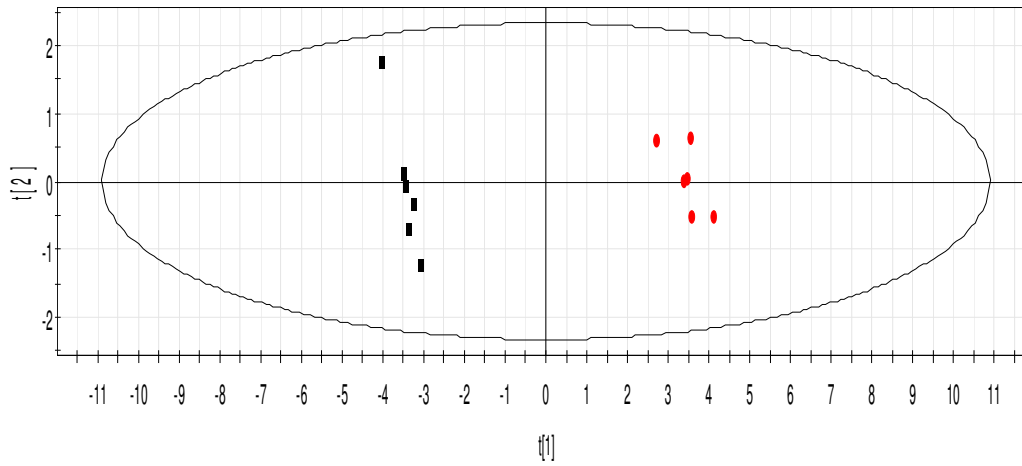


上海中醫藥大學

Shanghai University Of TCM

c-m-d血清.M1 (PCA-X)
t[Comp. 1]/t[Comp. 2]
Colored according to classes in M1

■ Control
● Model



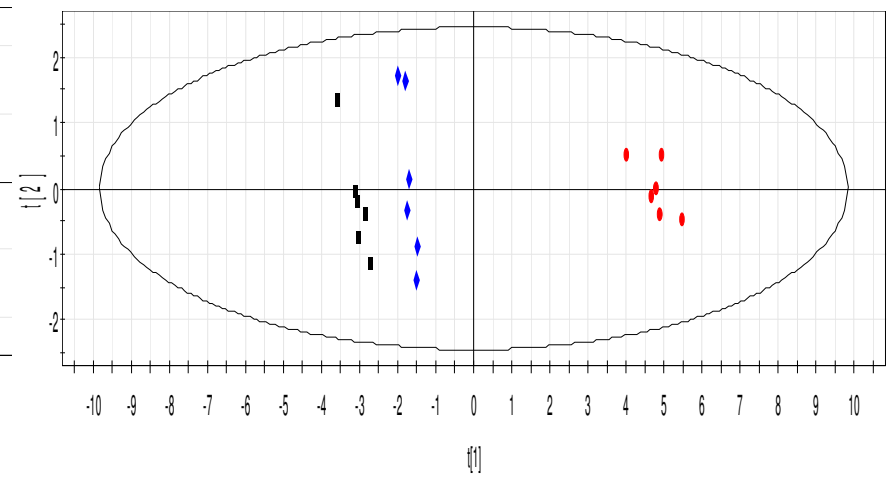
R2X[1] = 0.940804 R2X[2] = 0.0430903 Ellipse: Hotelling T2 (0.95)

SIMCA-P+ 11 - 2015/3/25 15:19:07

Health -Model PCA

c-m-d血清.M1 (PCA-X)
t[Comp. 1]/t[Comp. 2]
Colored according to classes in M1

■ Control
● Model
◆ Drug



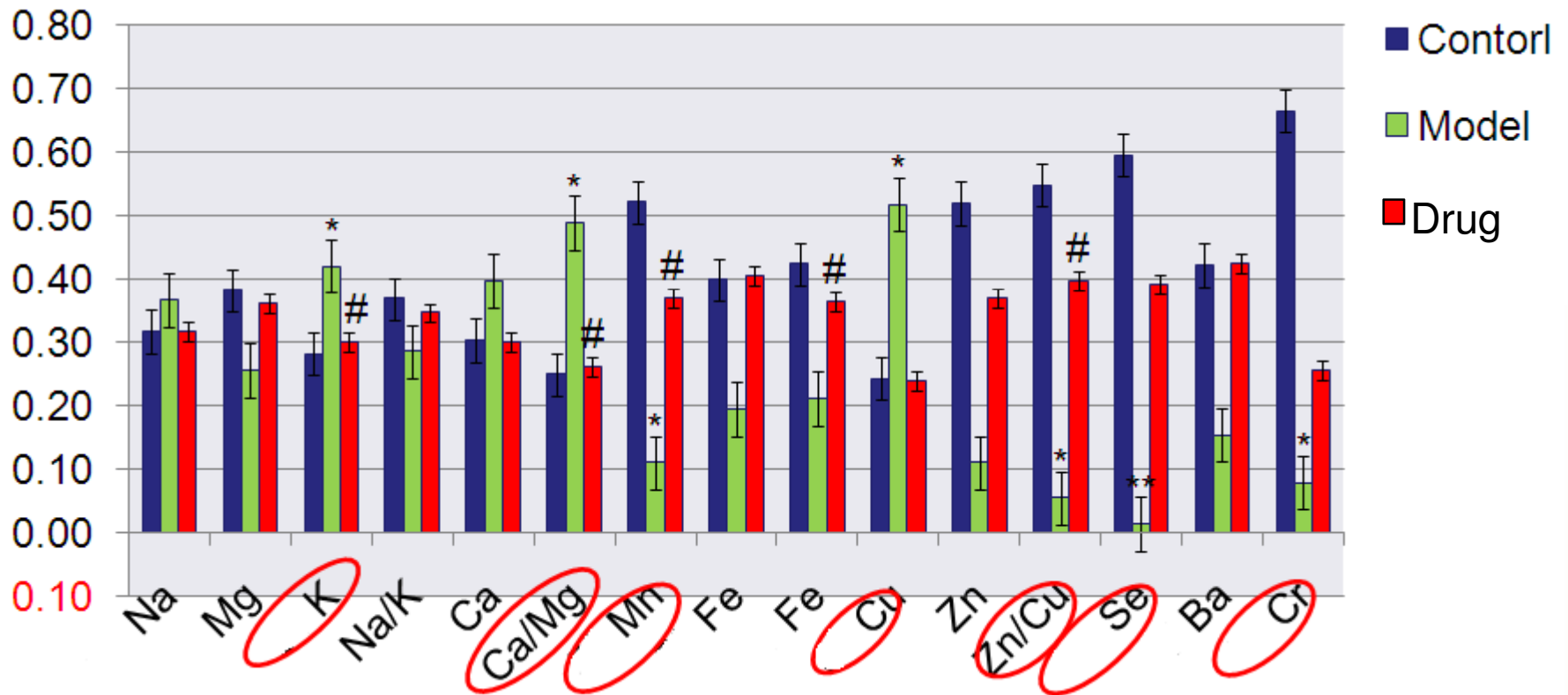
R2X[1] = 0.895426 R2X[2] = 0.0553123 Ellipse: Hotelling T2 (0.95)

SIMCA-P+ 11 - 2015/3/25 15:16:30

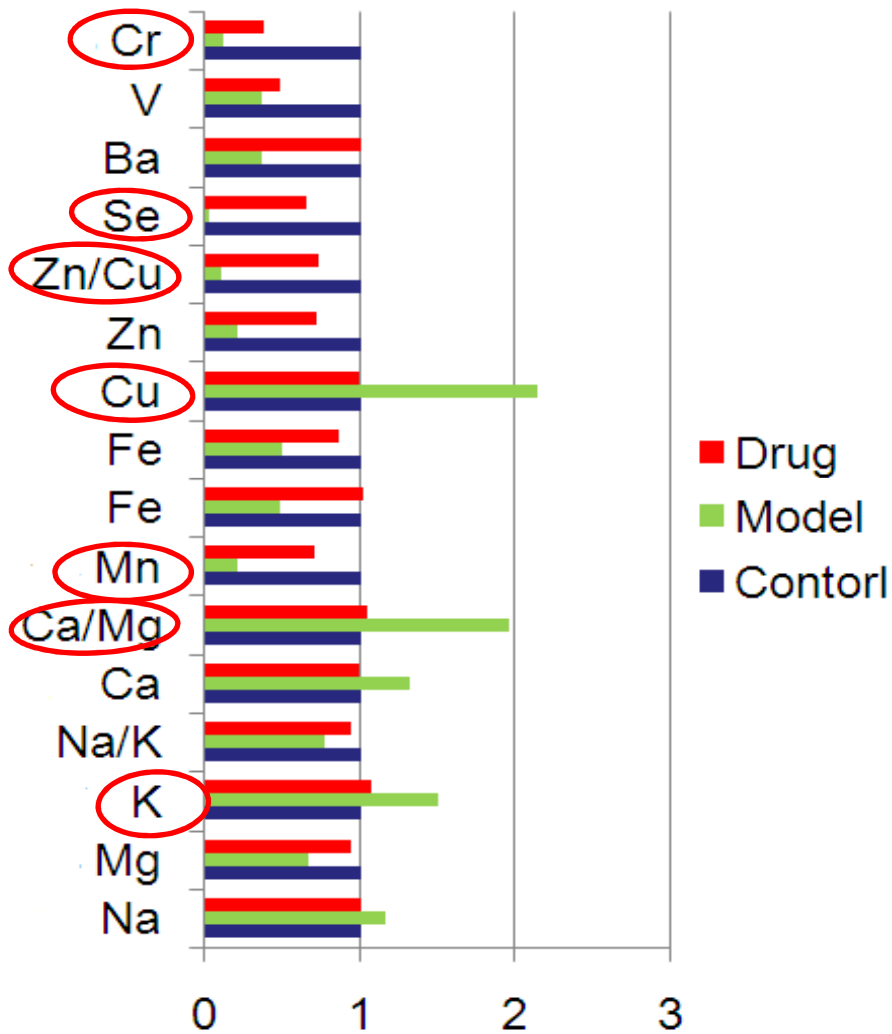
Health-Model -Herb PCA



Figure Relative changes of metal elements in Control-Model-Drug



*P<0.05; ** P<0.01 model group compared with the control group
P<0.05 model group compared with the Drug group



Changing trend of different elements

element	Model	Drug
Cr	down	up
Se	down	up
Zn/Cu	down	up
Cu	up	down
Ca/Mg	up	down
Mn	down	up
K	up	down

Fold change analysis of metal elements in Control-Model-Drug



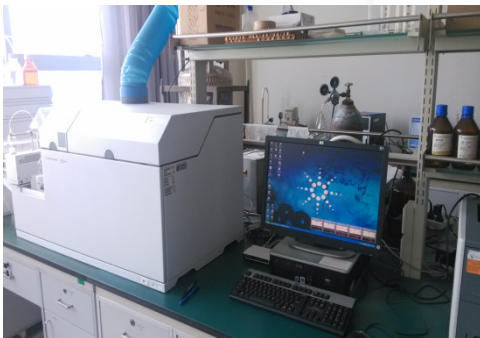
GC-MS



Metabonomics

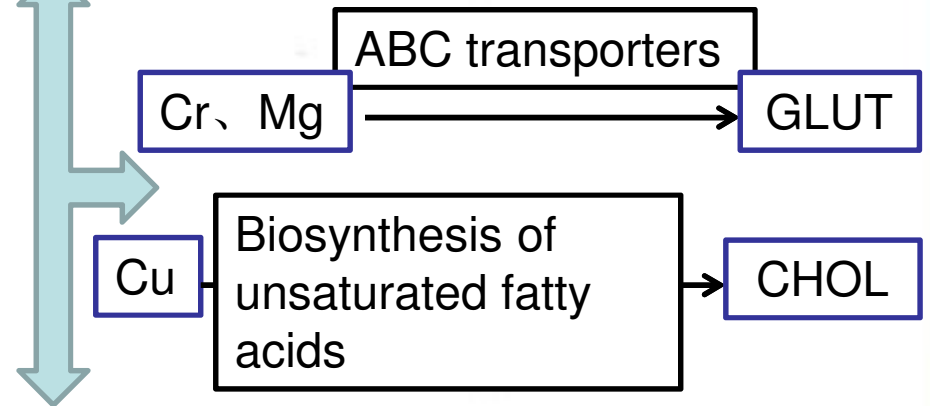
Biosynthesis of unsaturated fatty acids
Glucose Metabolism
ABC transporters
Mineral absorption
.....

ICP-MS



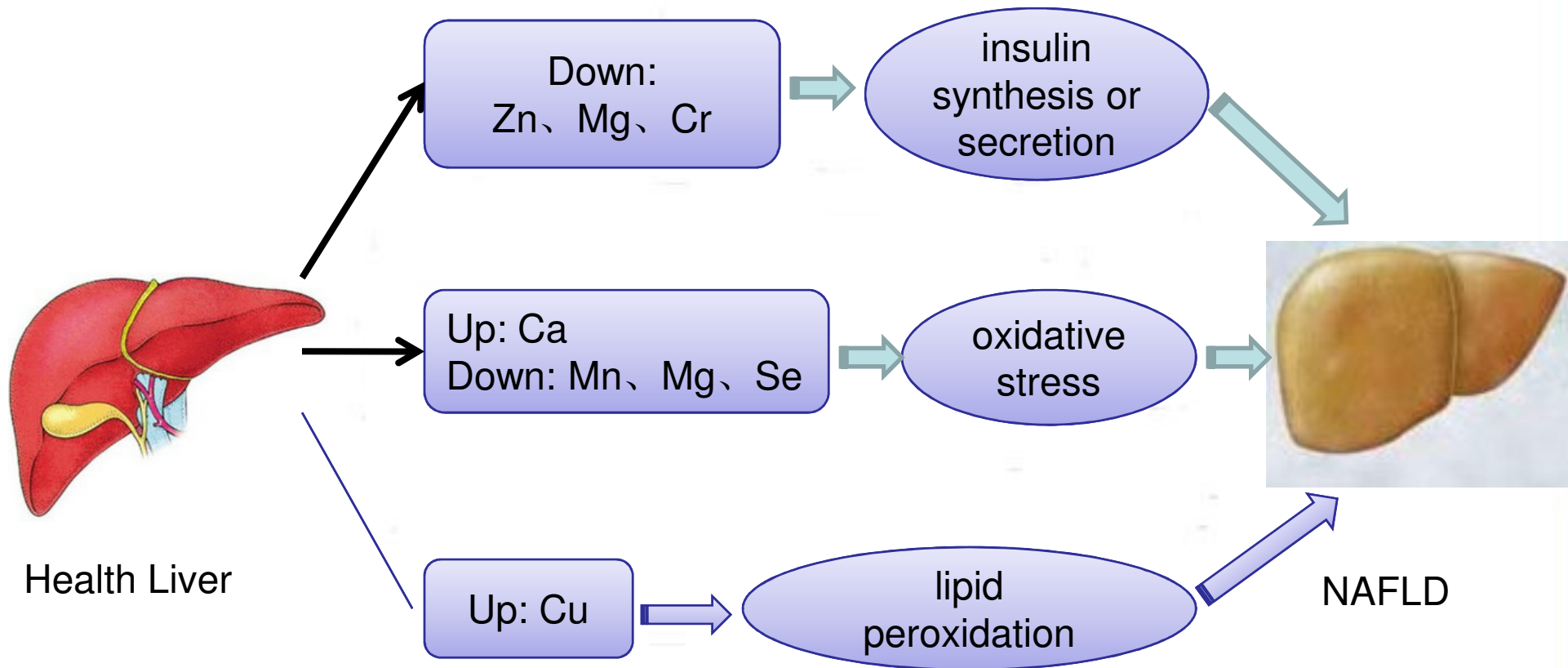
Metallomics

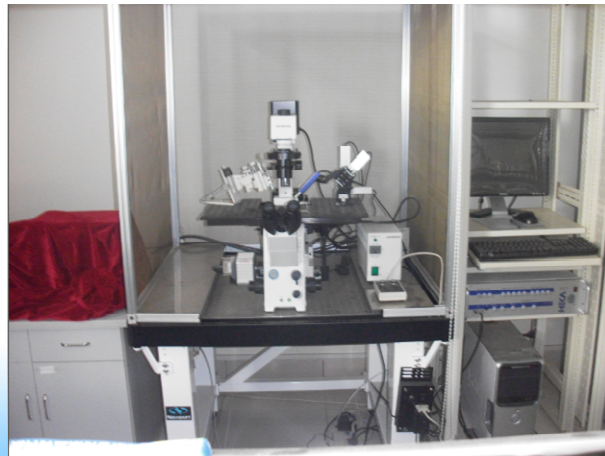
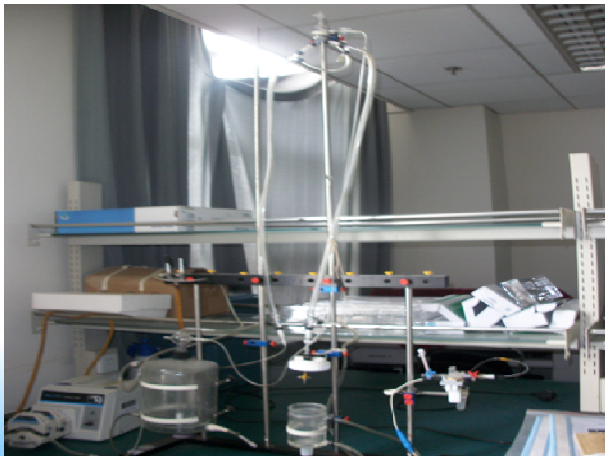
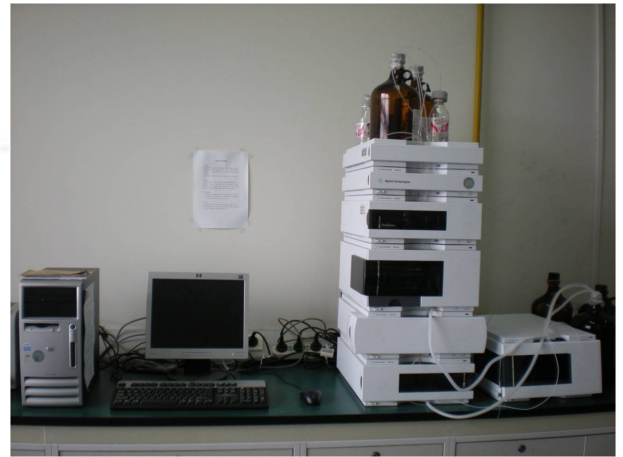
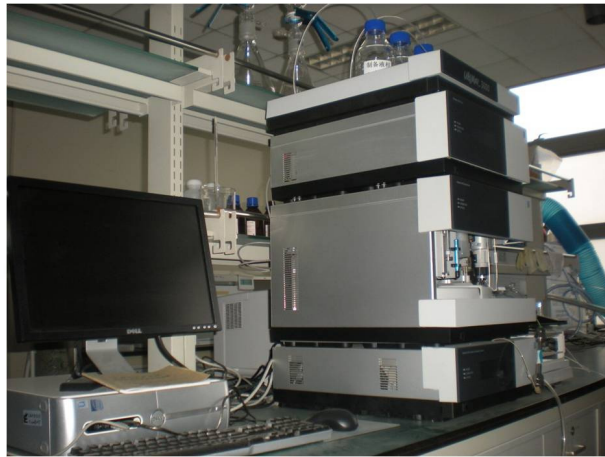
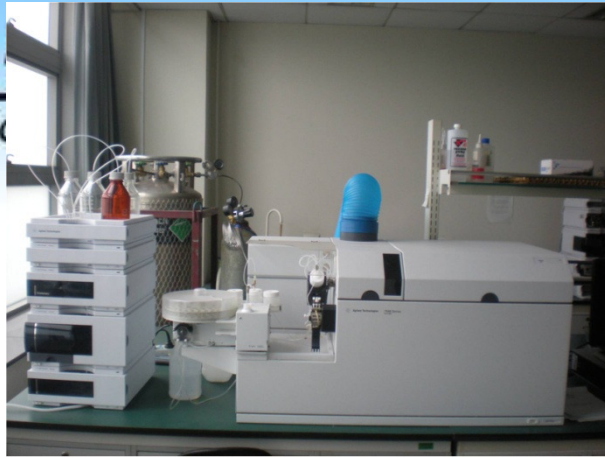
Down-regulation:
Mg、Mn、Se、Cr、Zn/Cu
Up-regulation:
Ca/Mg、Cu





Conclusion







上海中醫藥大學

Shanghai University Of TCM



Our team



上海中醫藥大學

Shanghai University Of TCM

***Thank you
for your attention!***

Welcome to china ; welcome to shanghai !



Let Us Meet Again

- We welcome you all to our future conferences of OMICS International

Please Visit:

www.metabolomicsconference.com

www.conferenceseries.com

<http://www.conferenceseries.com/clinical-research-conferences.php>