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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.

Combined metabolomic and transcriptomic profiling revealed the time-dependent effects of metformin on LoVo cells

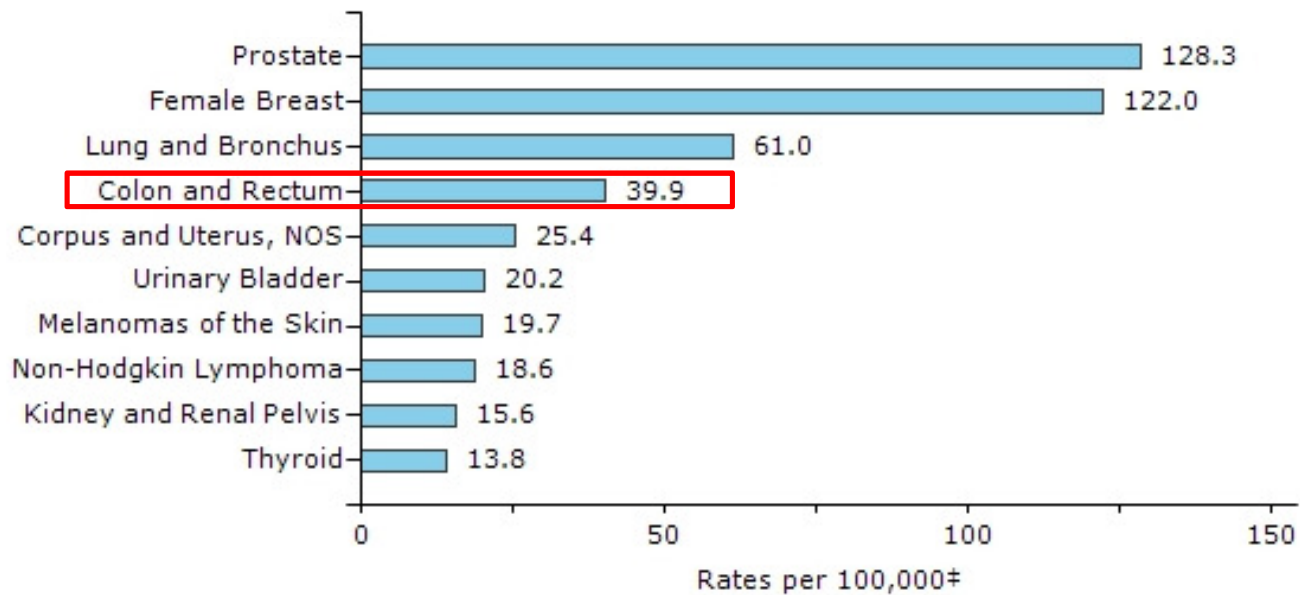
Houkai Li Dr.

Shanghai University of Traditional Chinese
Medicine, 201203, Shanghai, China



The incidence rates of cancers in US (2011)

Top 10 Cancer Sites: 2011, Male and Female, United States—All Races

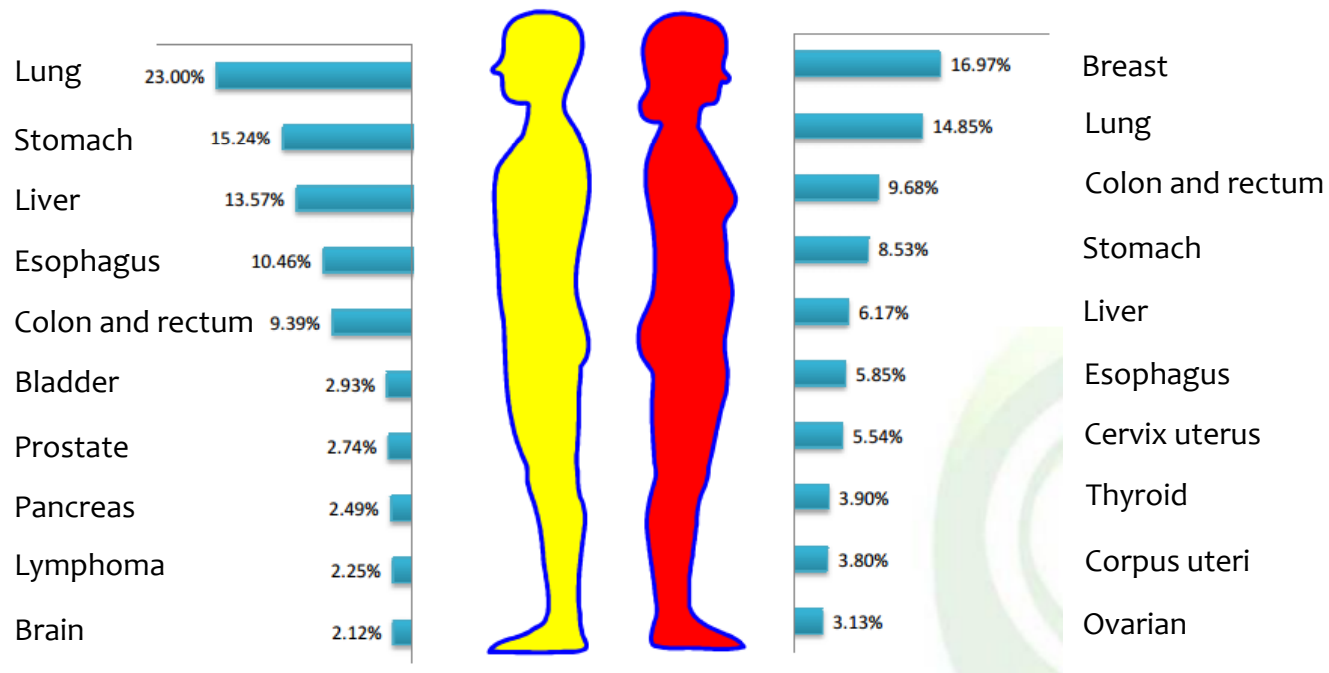


The incidence rates of cancers in China (2013)

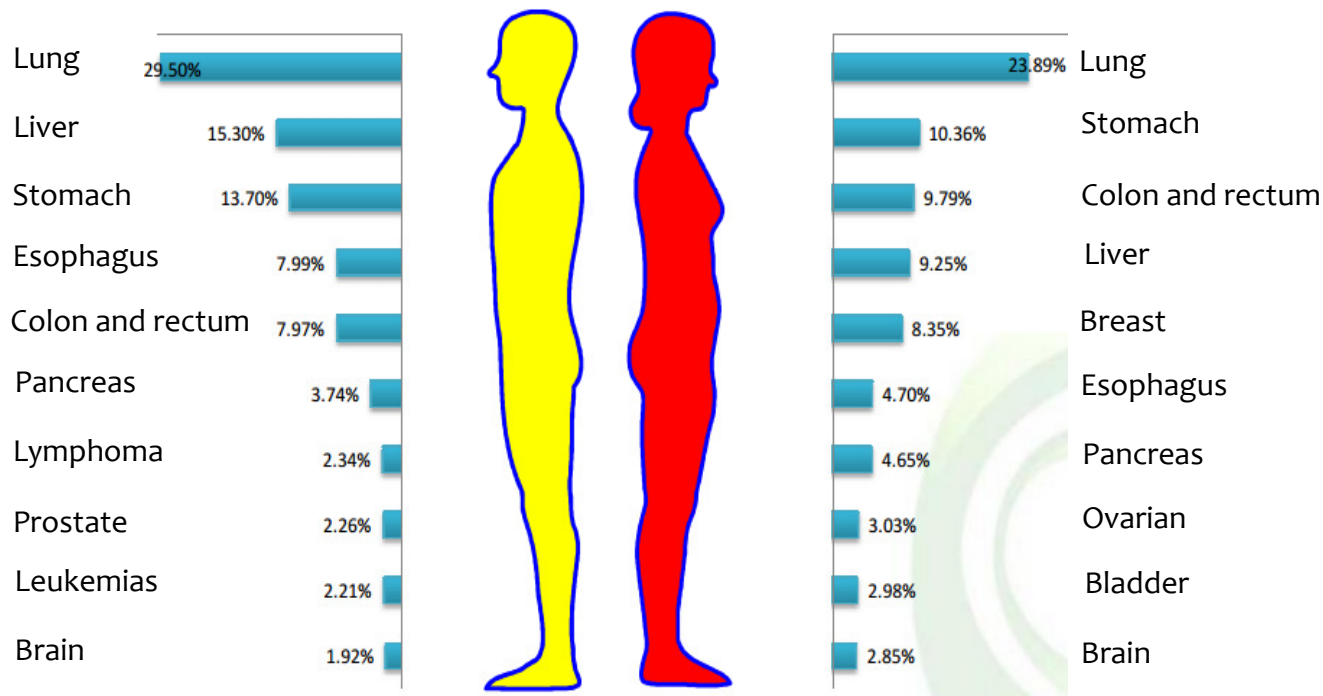
	Urban	
	Per 10 ⁵	Rate(%)
Lung	55.92	19.7
Breast	47.79	8.43
Colon and rectum	31.17	10.98
Stomach	30.05	10.59
Liver	25.11	8.85
Esophagus	15.37	5.41
Cervix uterus	13.83	2.41
Prostate	11.31	2.01
Corpus uteri	9.61	1.68
Ovarian	8.72	1.52

	Rural	
	Per 10 ⁵	Rate(%)
Lung	45.81	19.11
Stomach	36.56	15.26
Esophagus	32.42	13.53
Liver	30.95	12.91
Breast	27.72	5.75
Colon and rectum	16.98	7.09
Cervix uterus	11.55	2.36
Corpus uteri	7.75	1.58
Ovarian	6.21	2.59
Brain	5.28	1.08

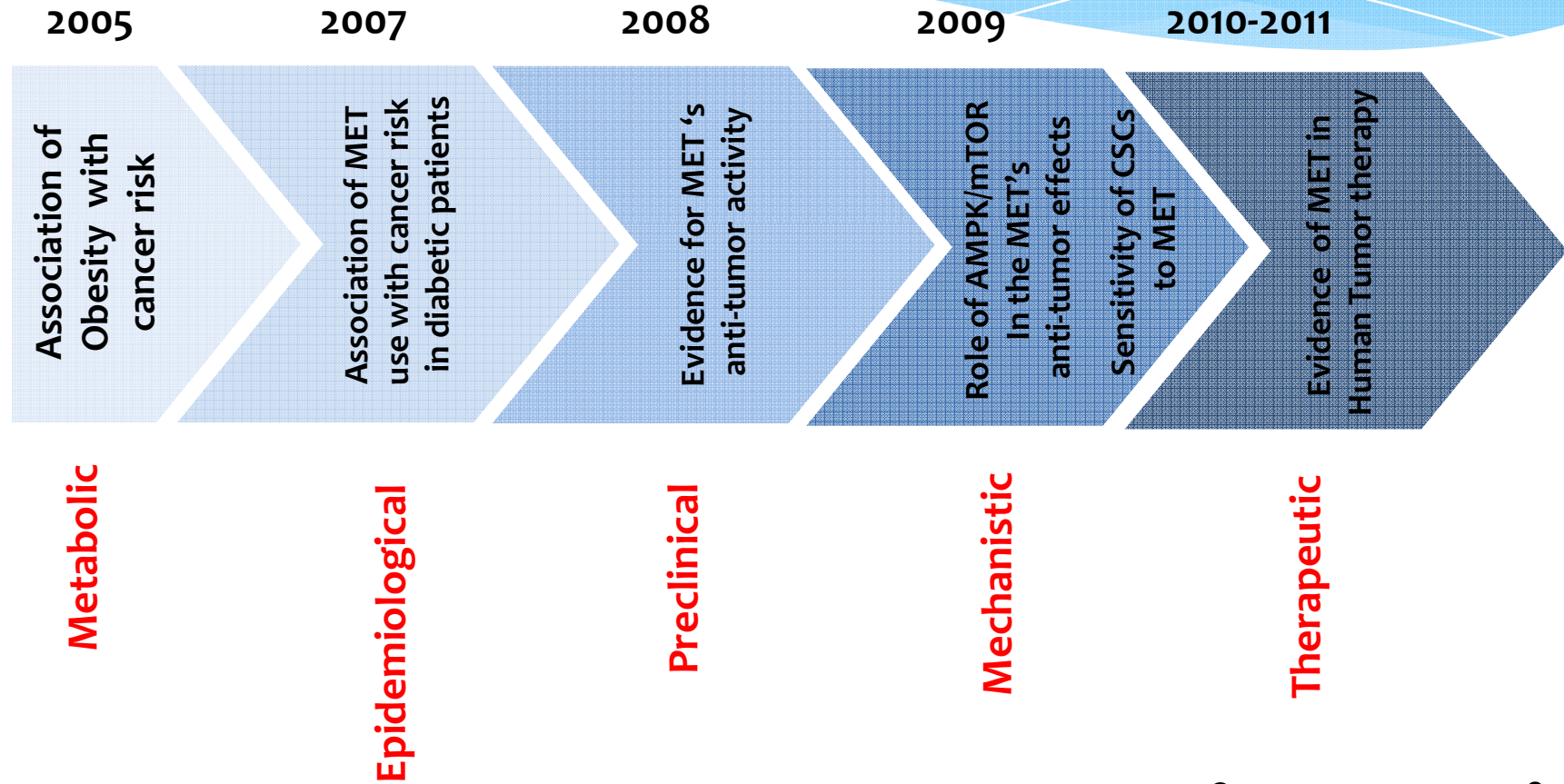
The mobility of Top 10 cancers in China (2013)



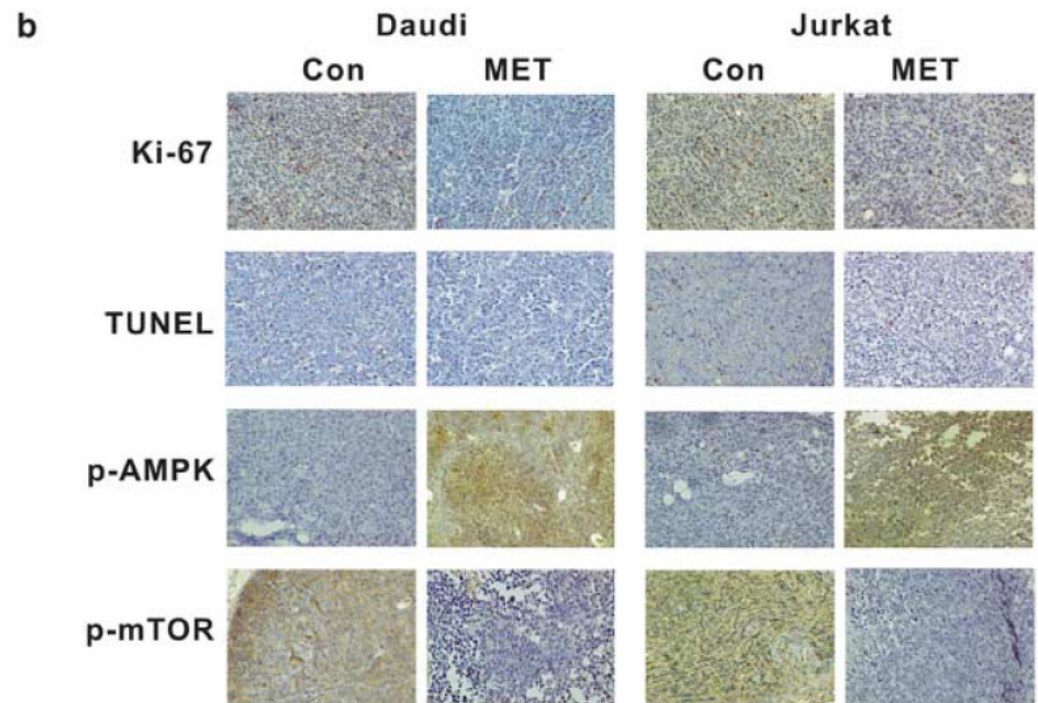
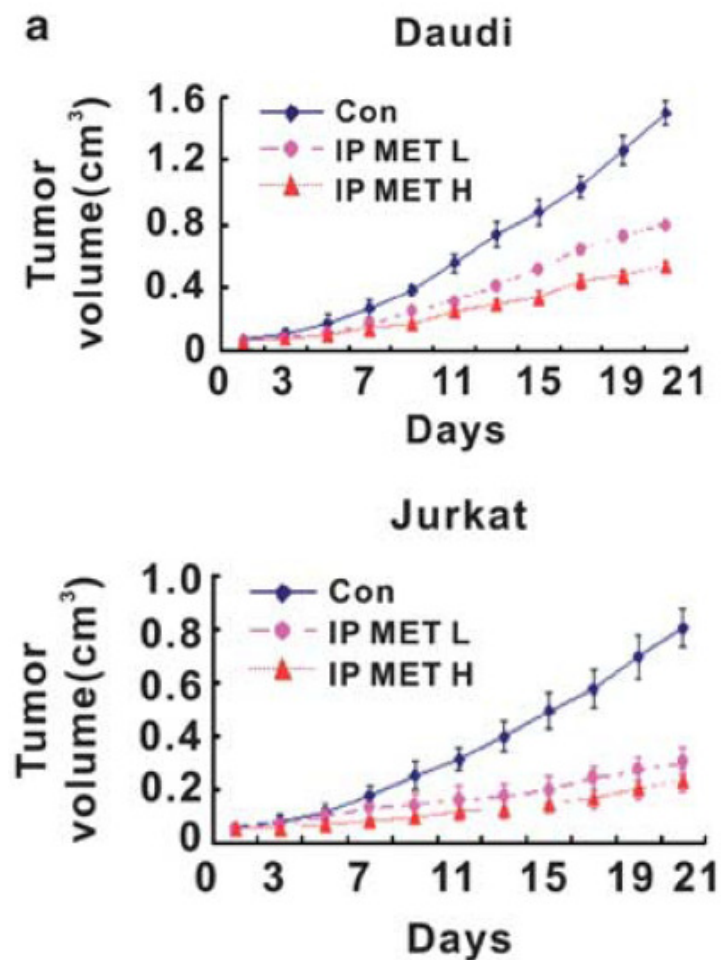
The death ratio of Top 10 cancers in China (2013)



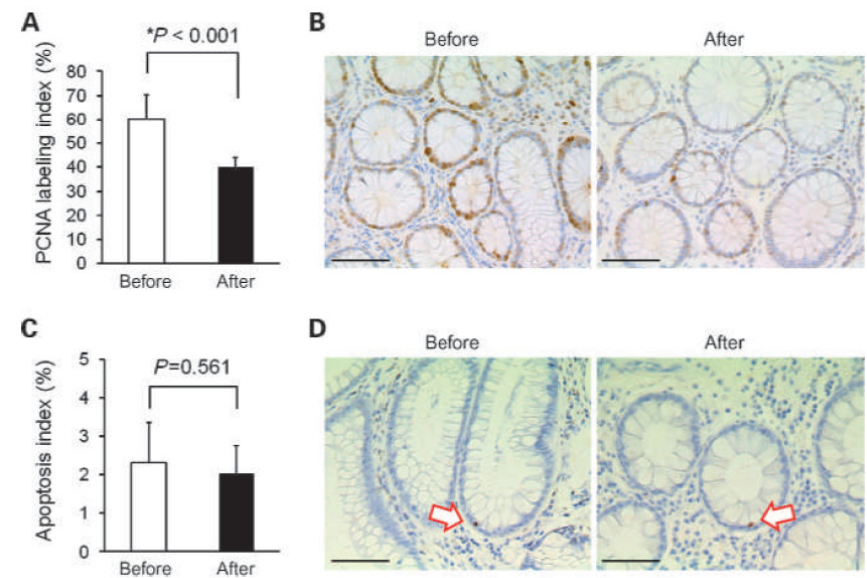
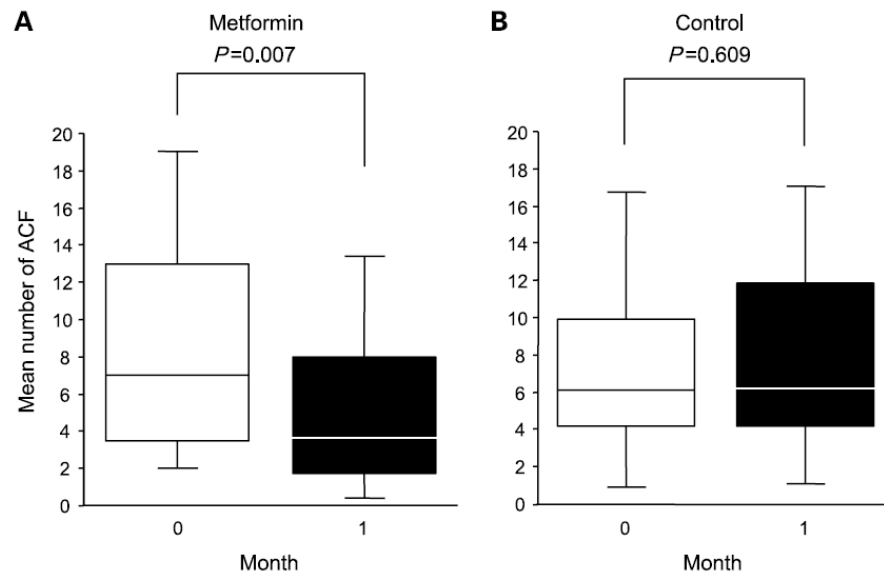
The new perspective for the old antidiabetic drug, Metformin



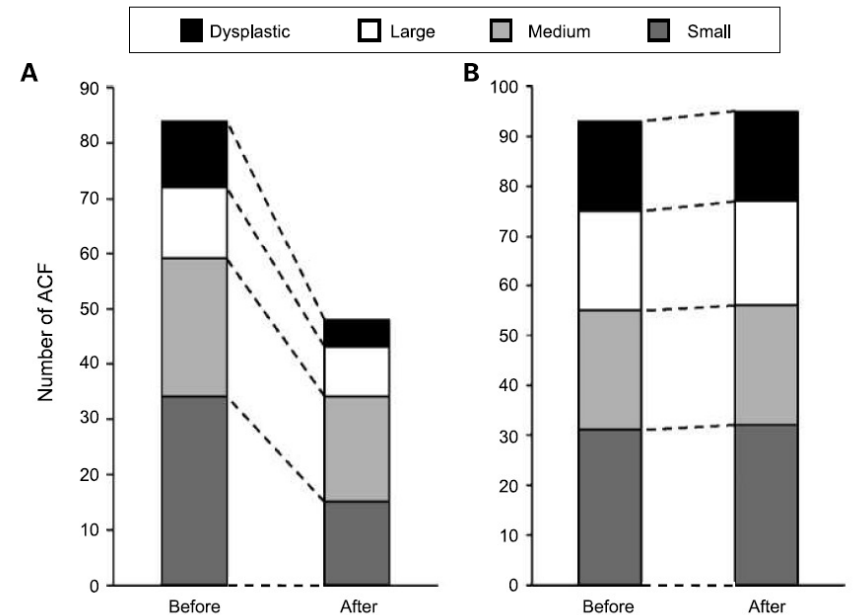
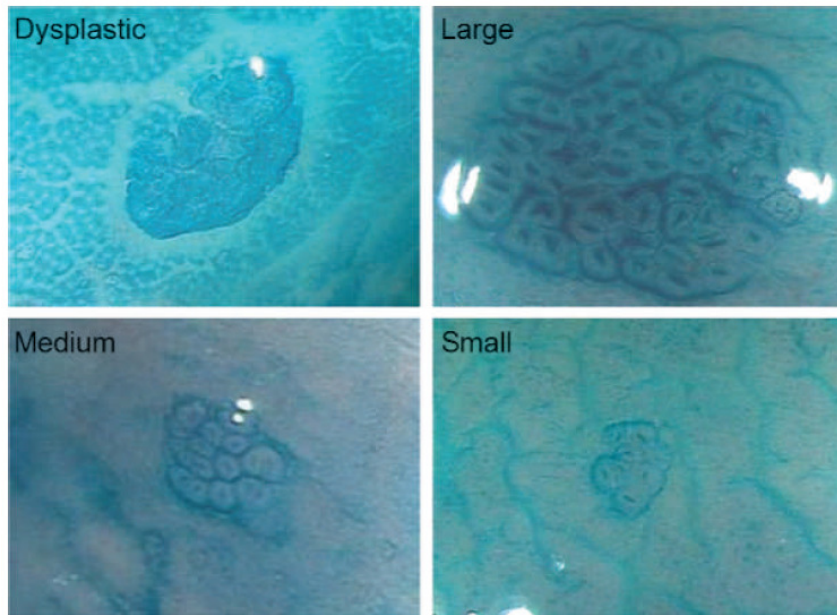
Metformin blocked lymphoma cells growth via inhibition mTOR pathway



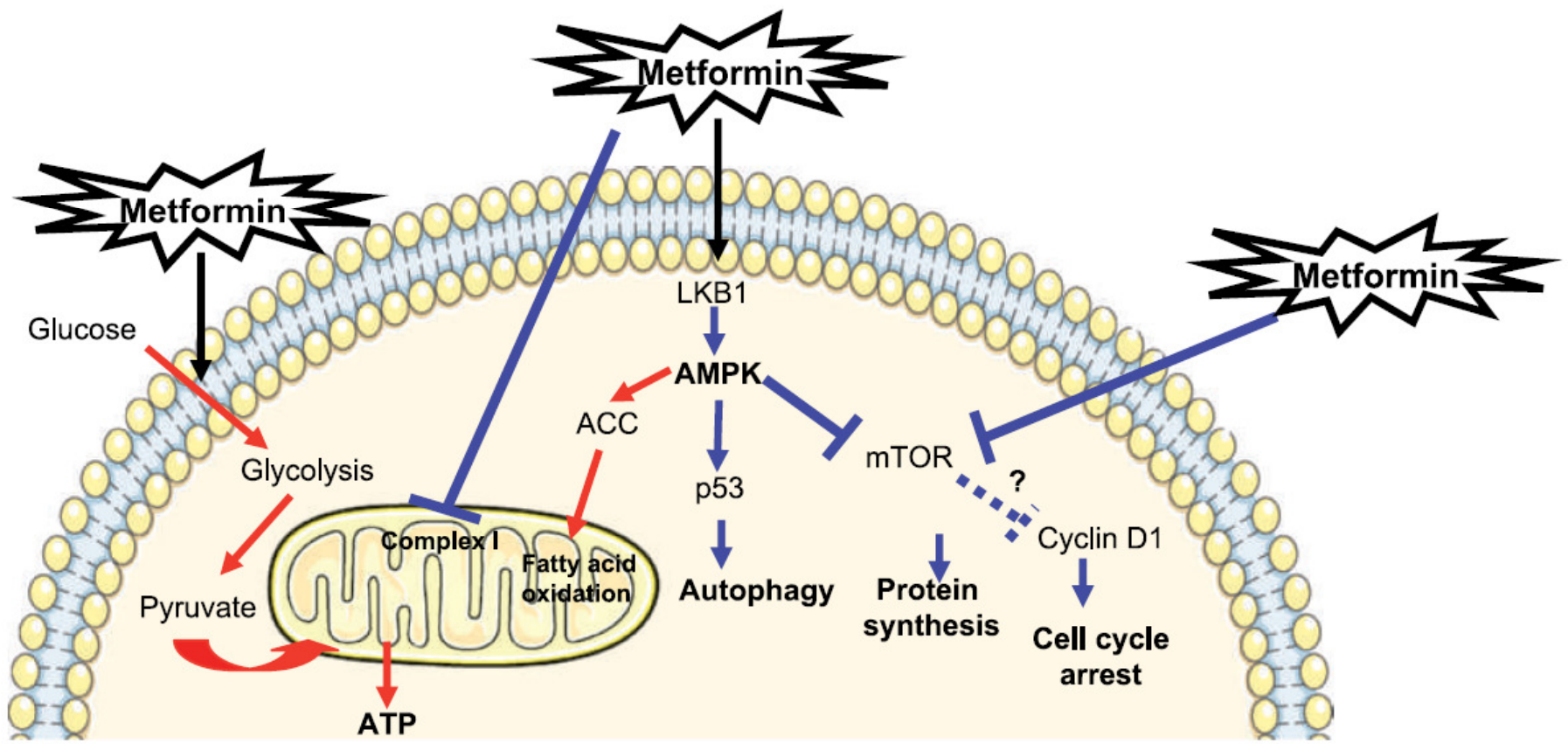
Metformin Suppresses Colorectal Aberrant Crypt Foci in a Short-term Clinical Trial



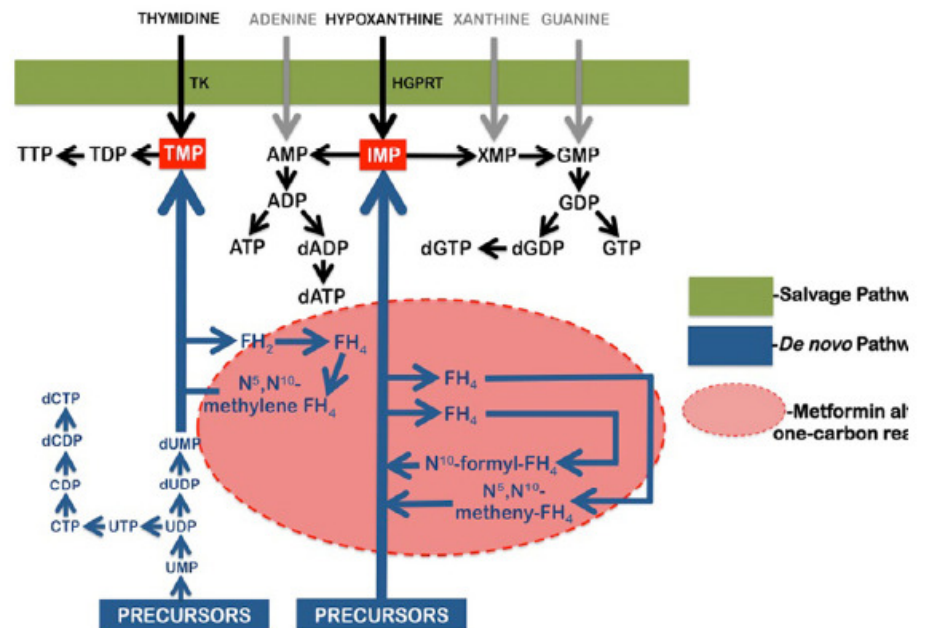
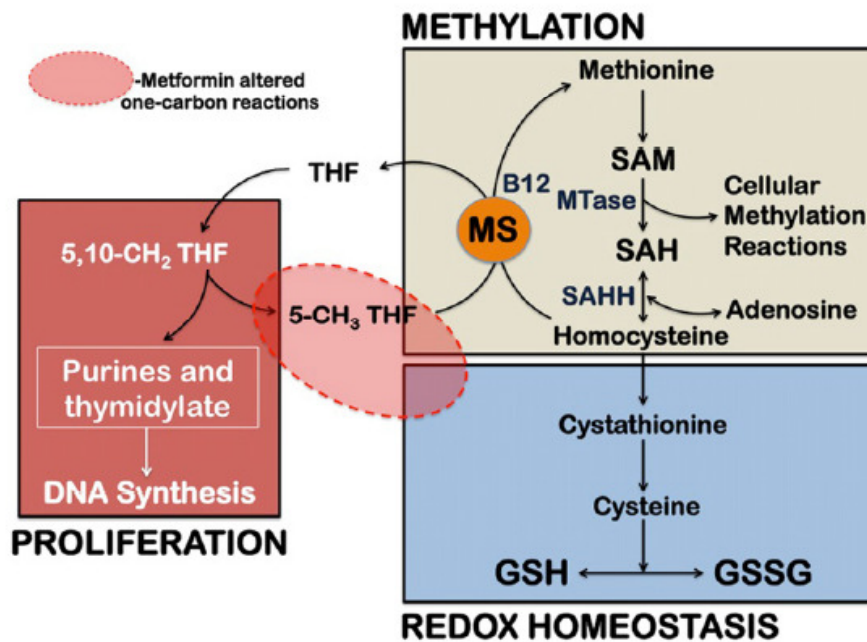
Metformin decreased the number of ACF with different sizes



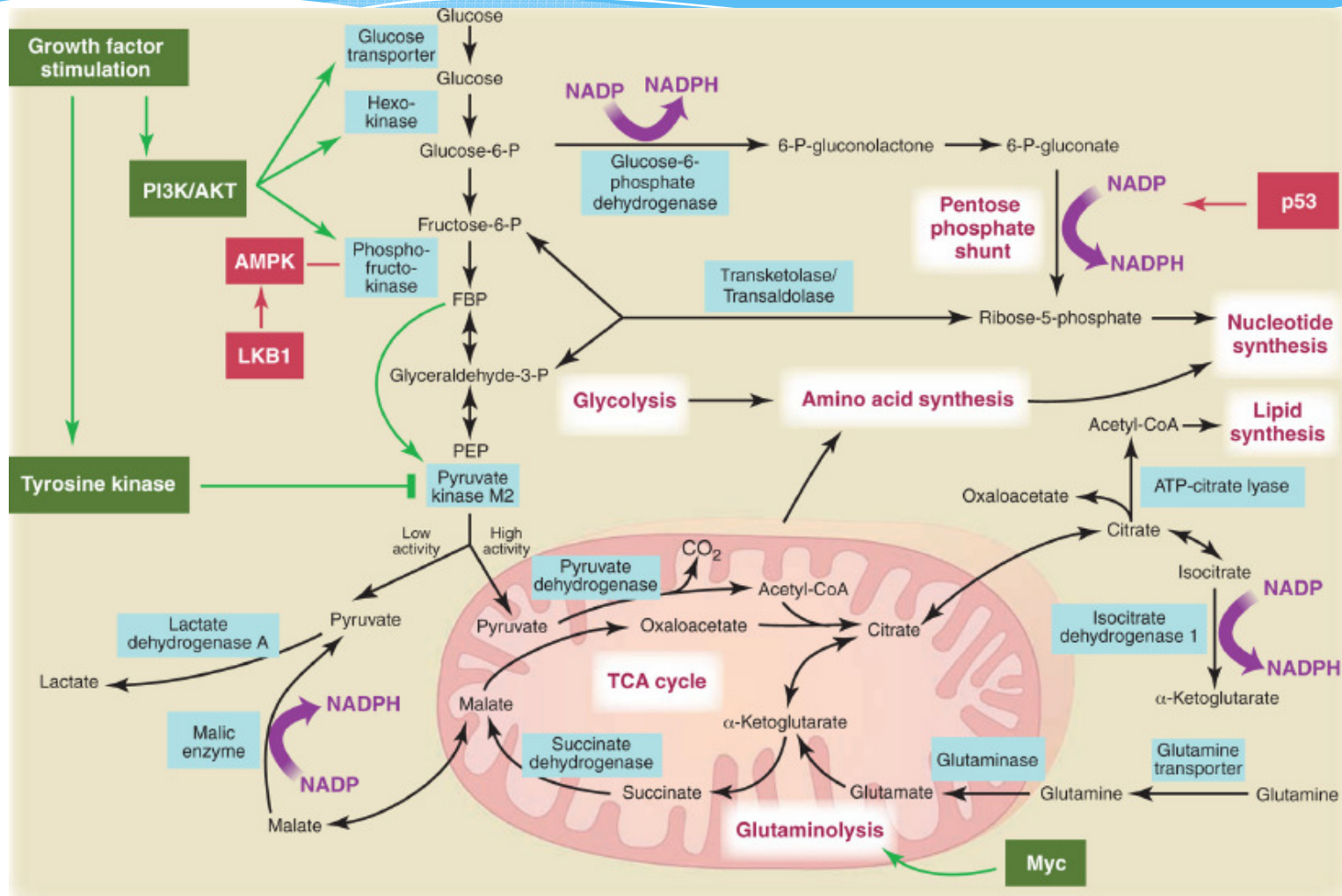
Potential mechanism of metformin on cancer cells



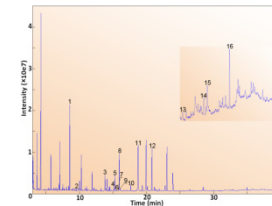
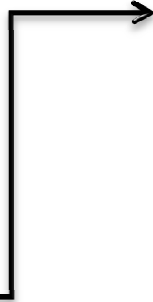
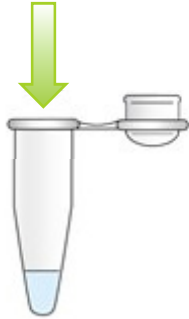
Metabolomic study reveals impairment on one-carbon metabolism by metformin on cancer cells



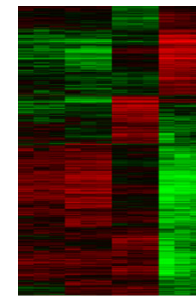
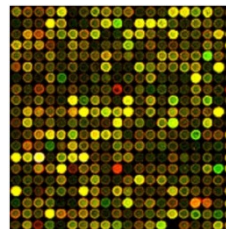
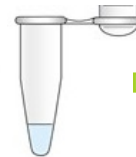
Crosstalk between metabolic and signaling pathways in cancer cells



Process of sample preparation

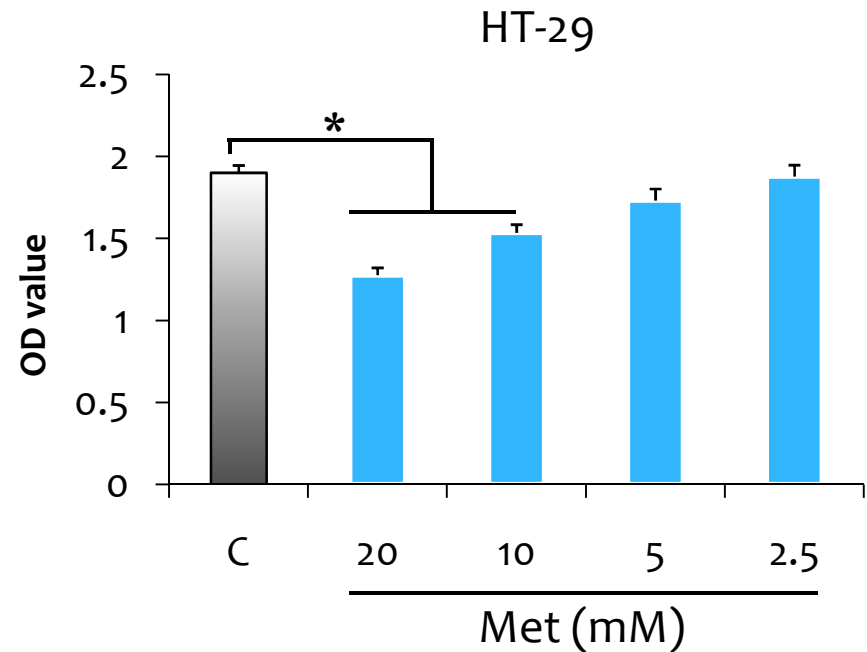
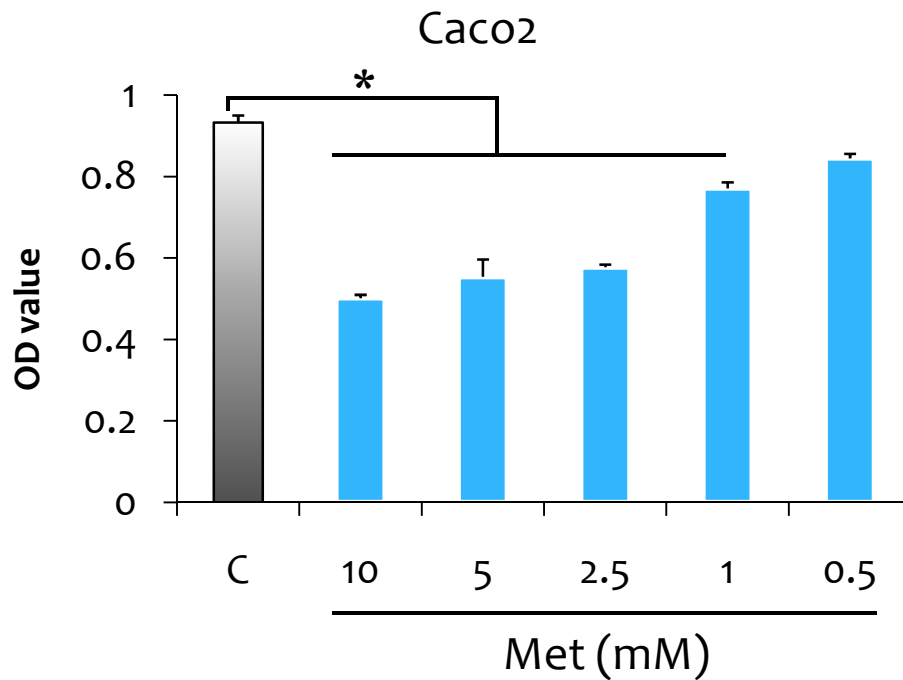


Metabolic profiling

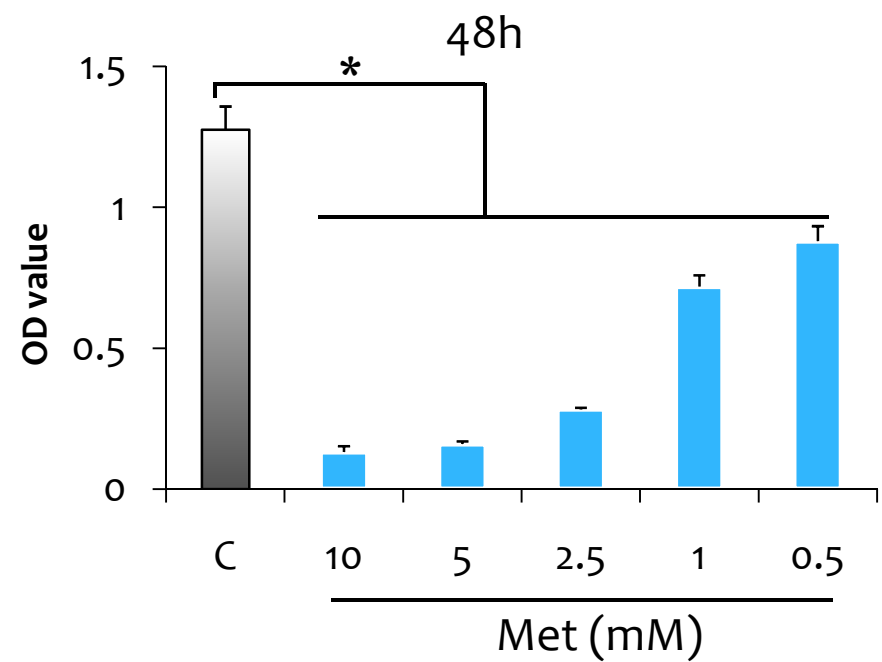
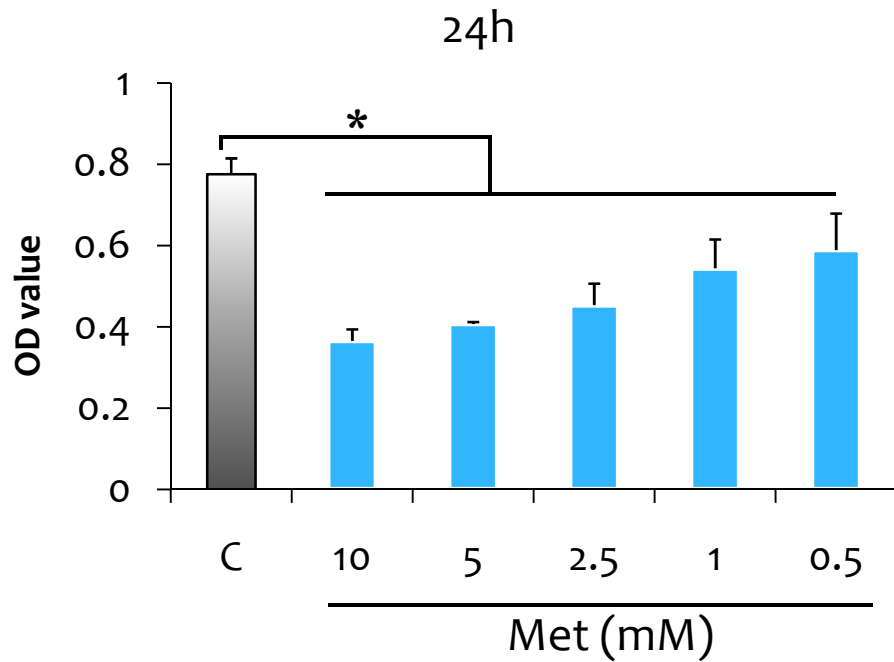


Transcriptomic profiling

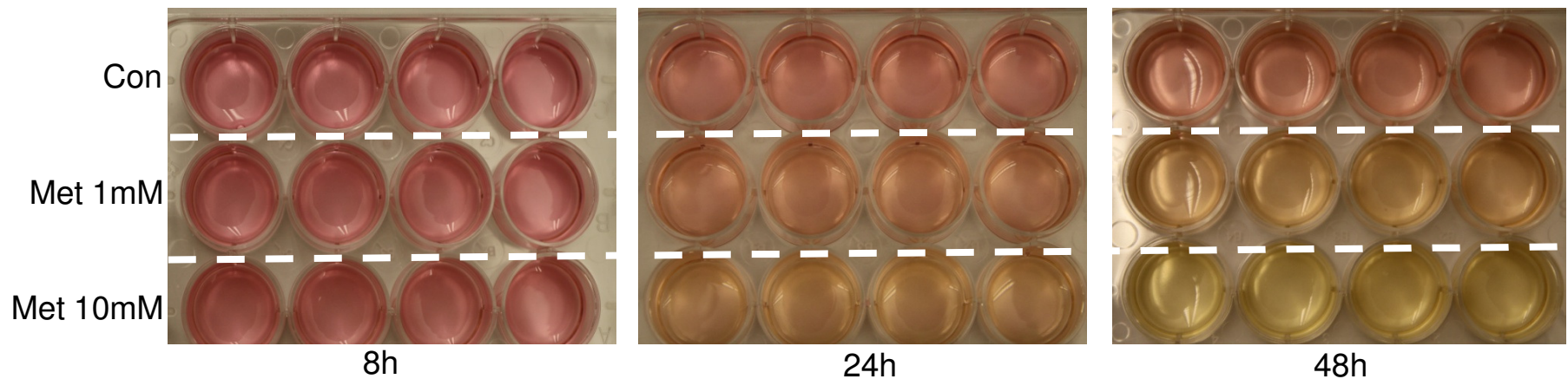
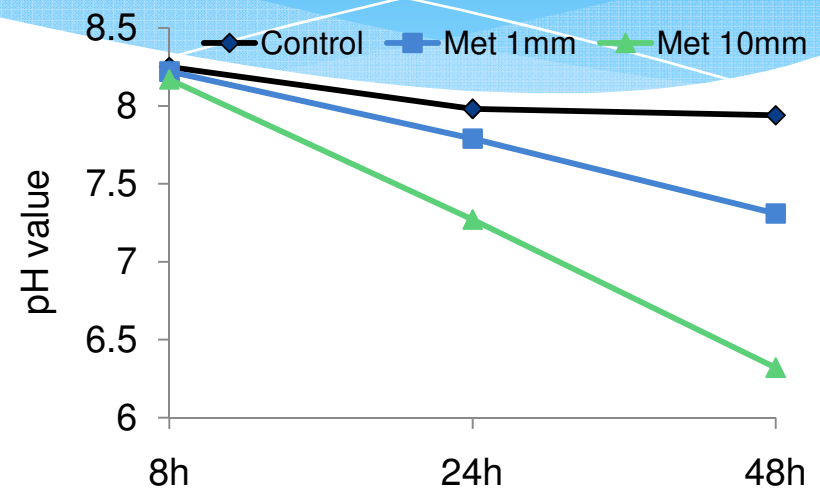
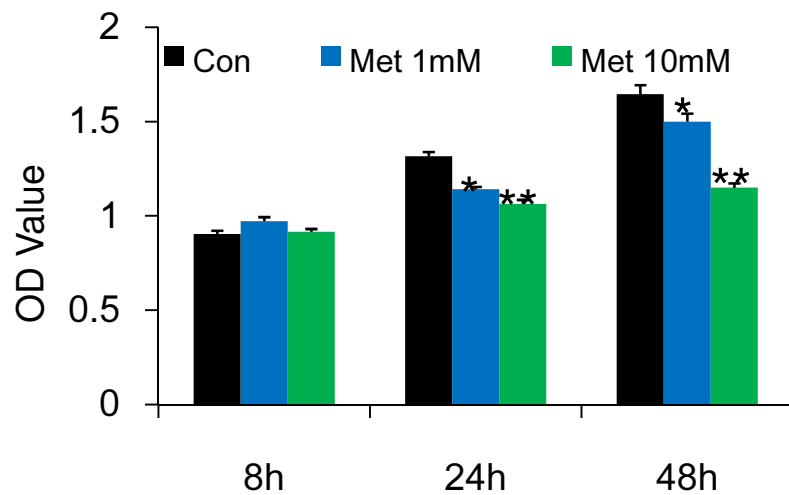
Metformin suppressed the proliferation of colon cancer cells



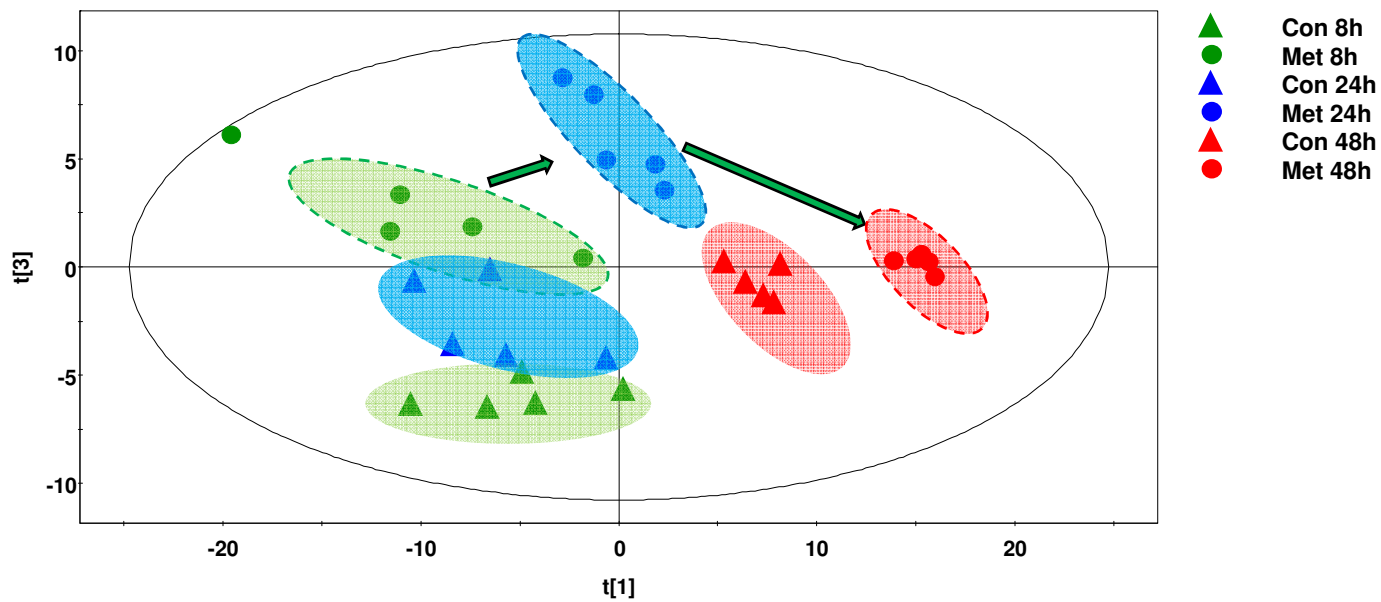
Metformin inhibited the proliferation of LoVo cells dose- and time-dependently



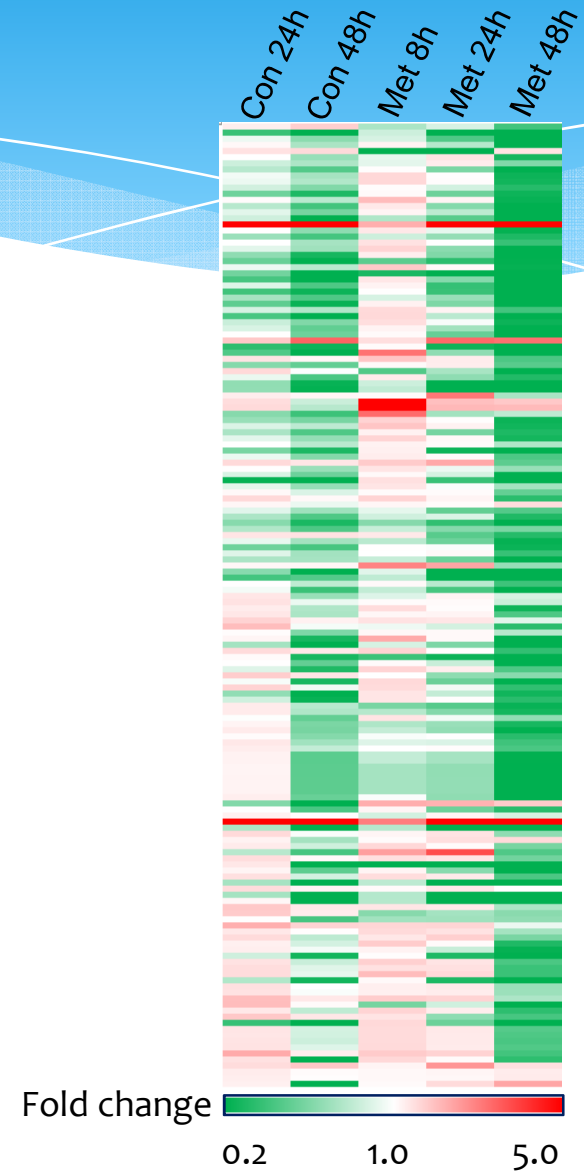
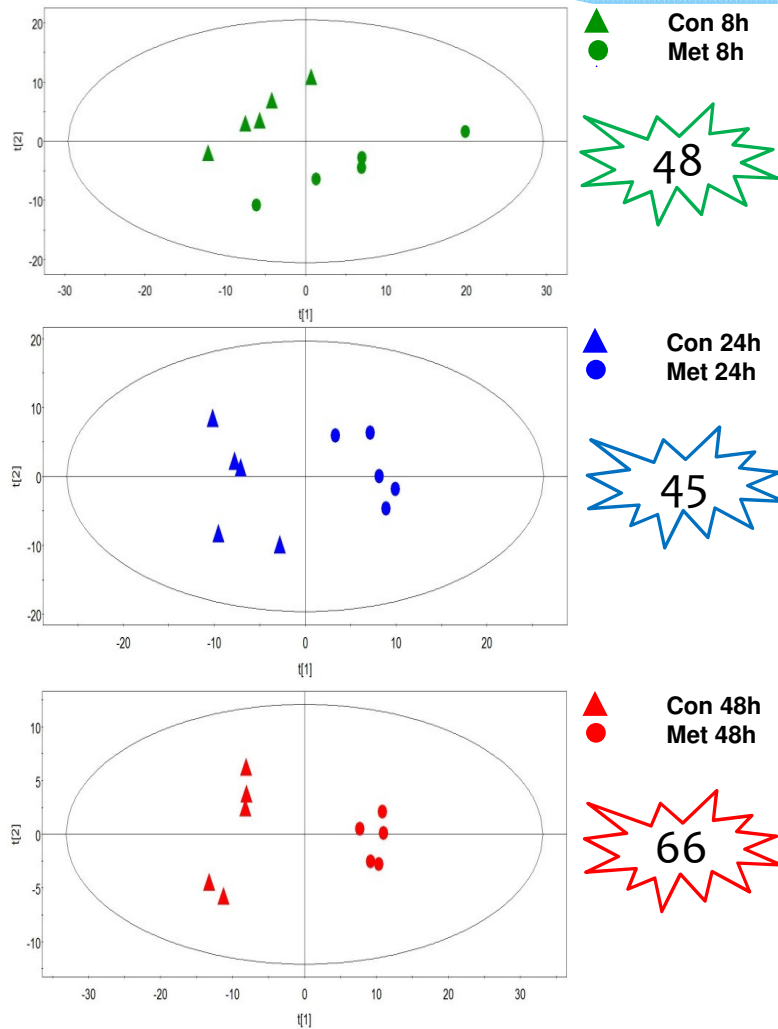
Metformin accelerated the acidization of culture media

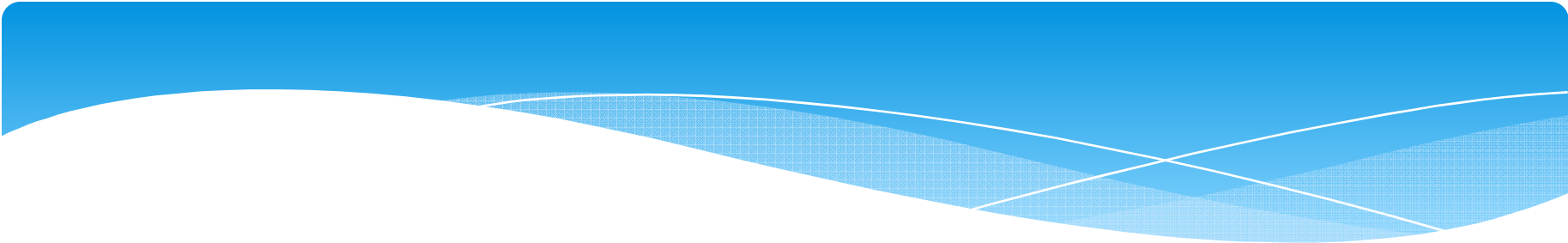


The metabolic alteration by metformin

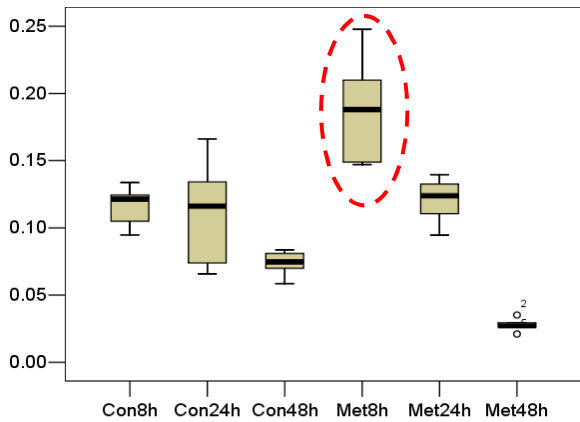


Time-dependent metabolic shift

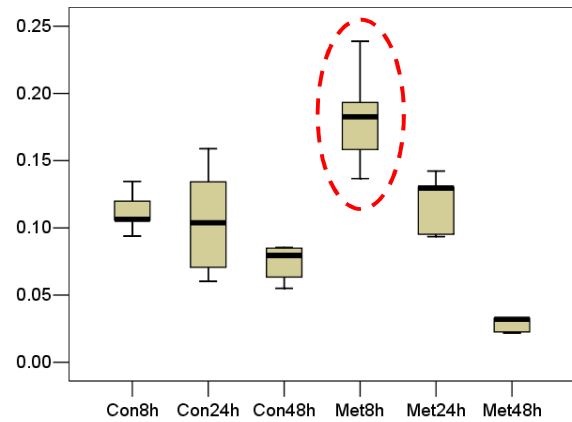




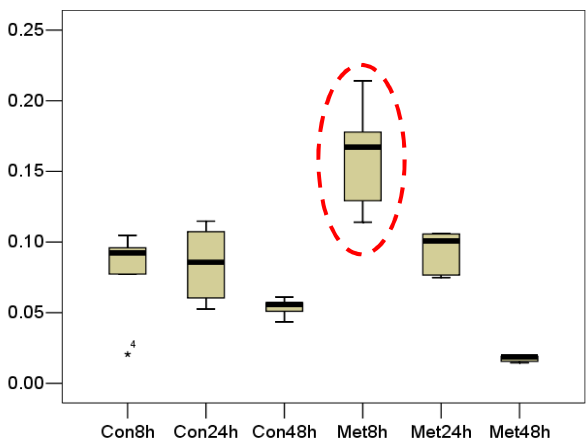
Valine



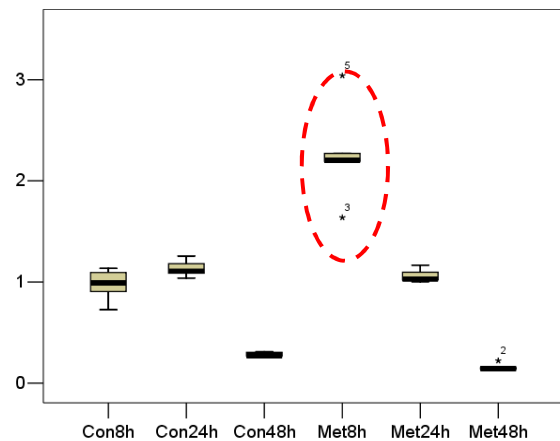
Leucine



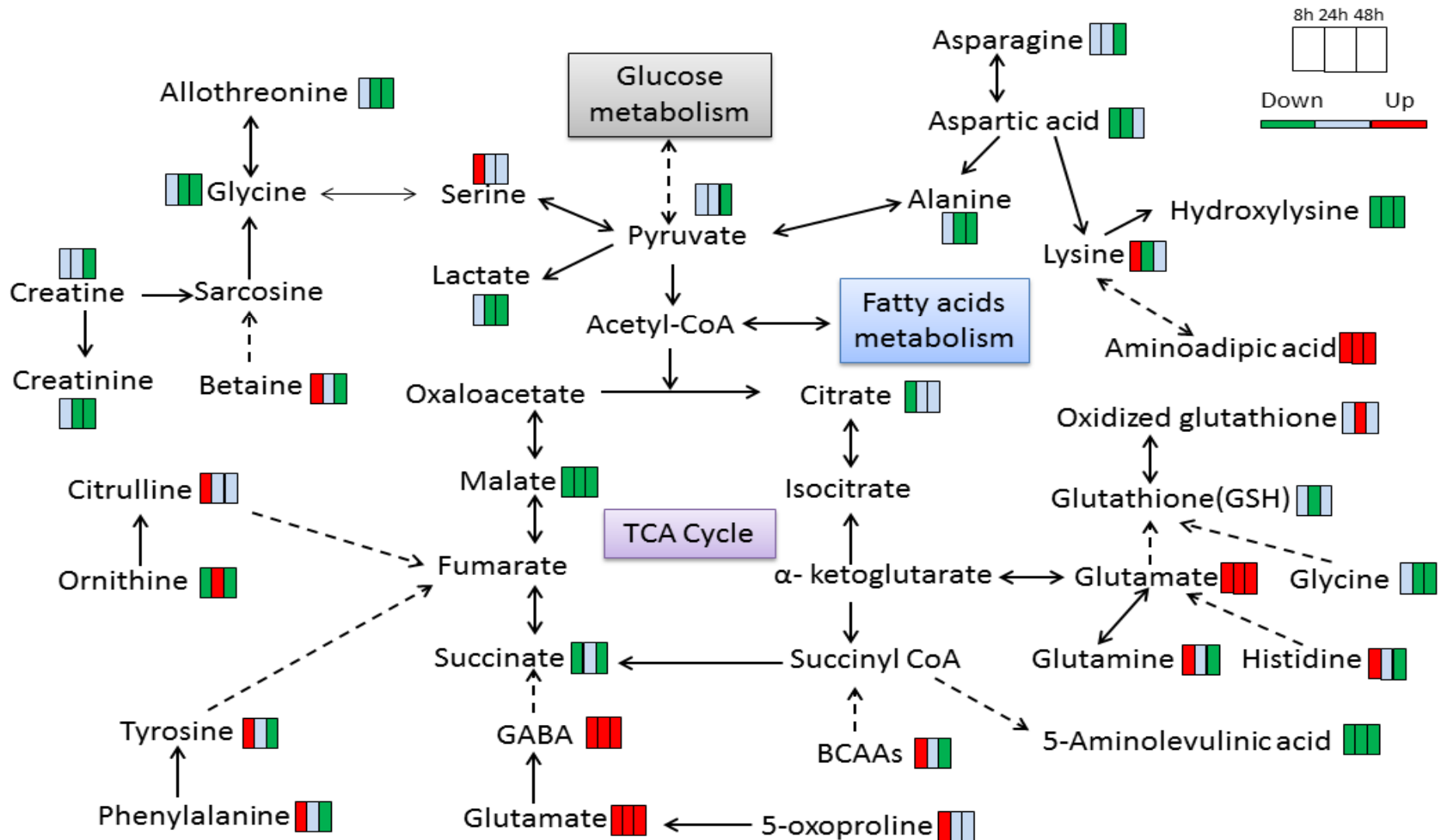
Isoleucine



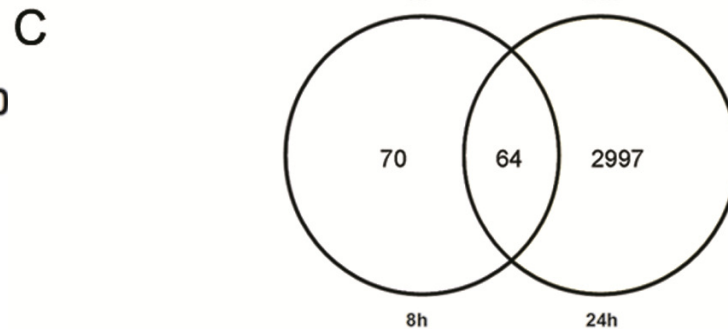
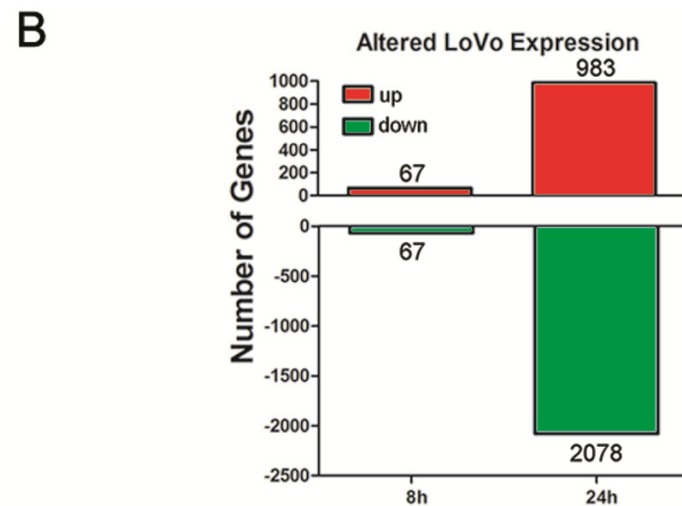
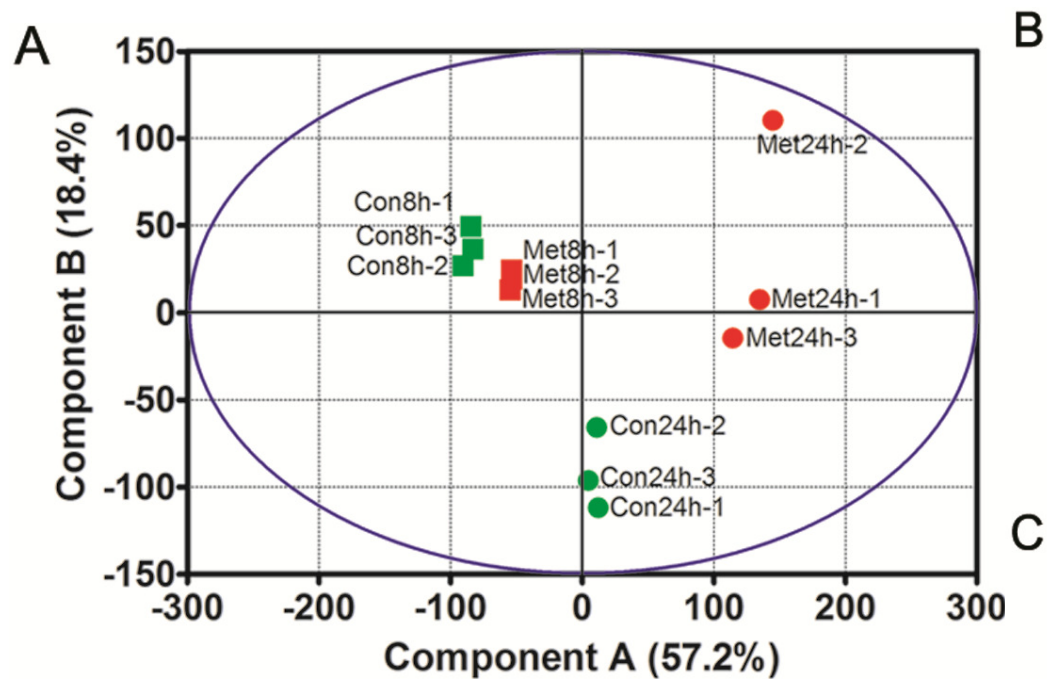
Glutamine



The main metabolic changes

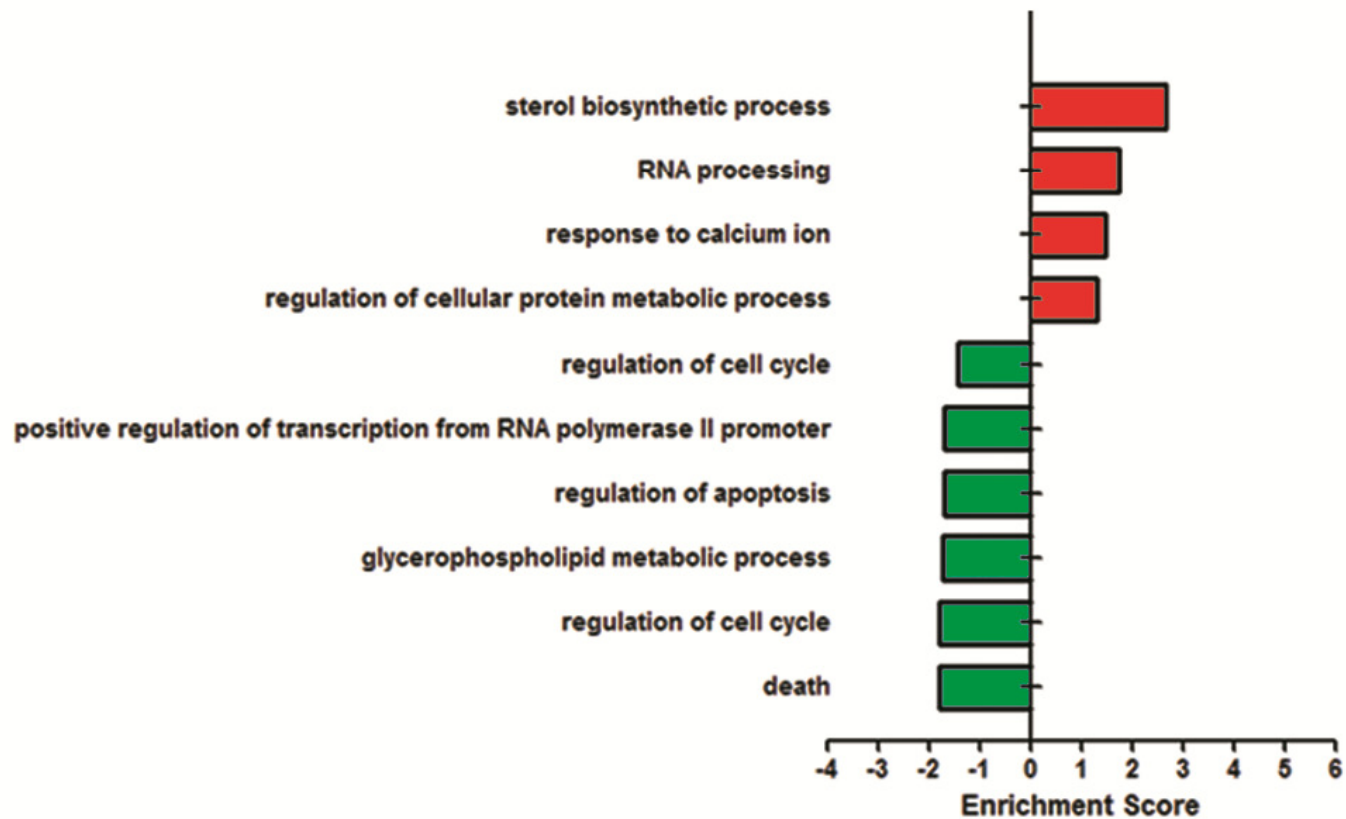


Transcriptomic profiling on metformin-treated cells



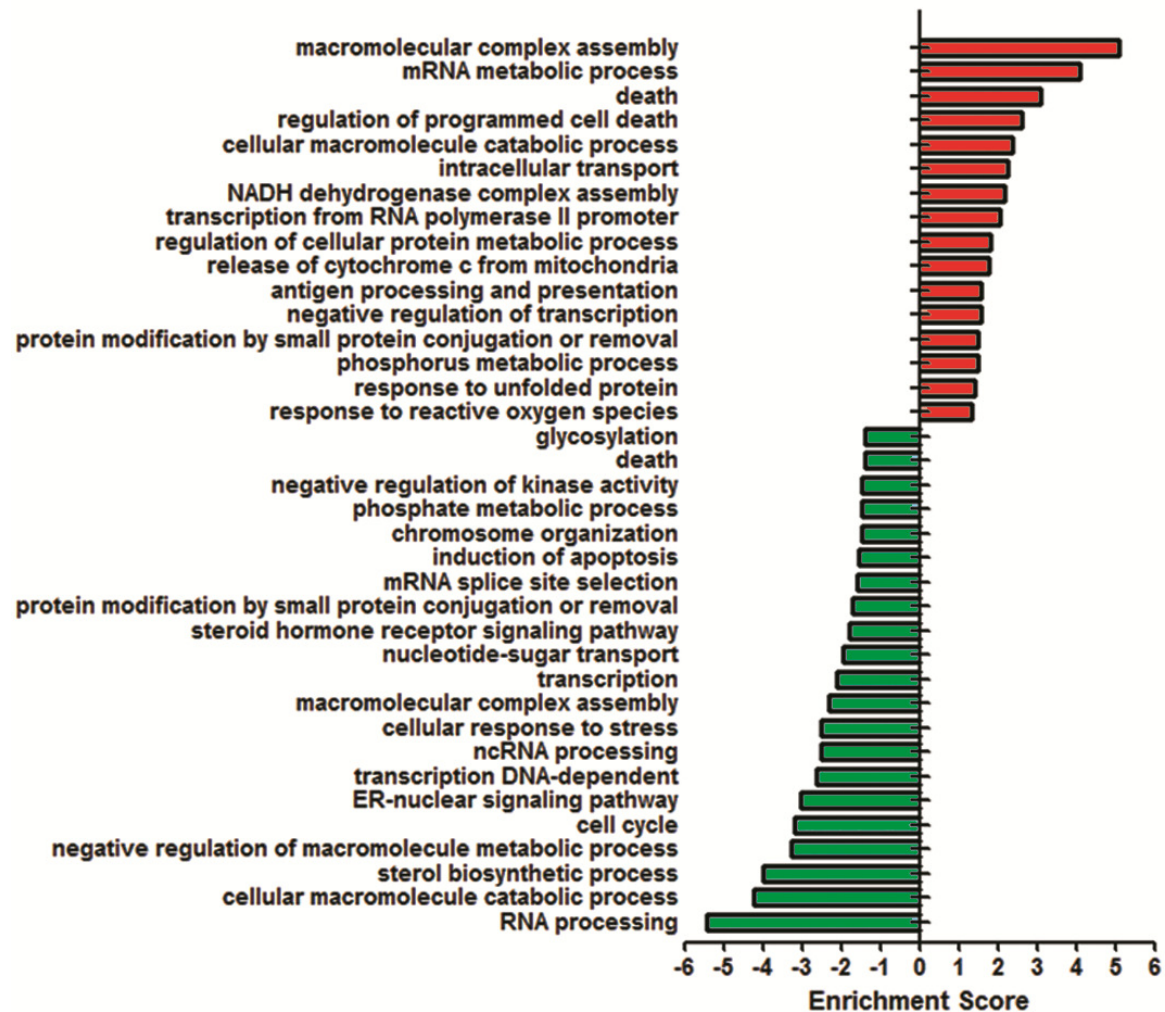
Alteration of transcriptional pathways

A 8 h

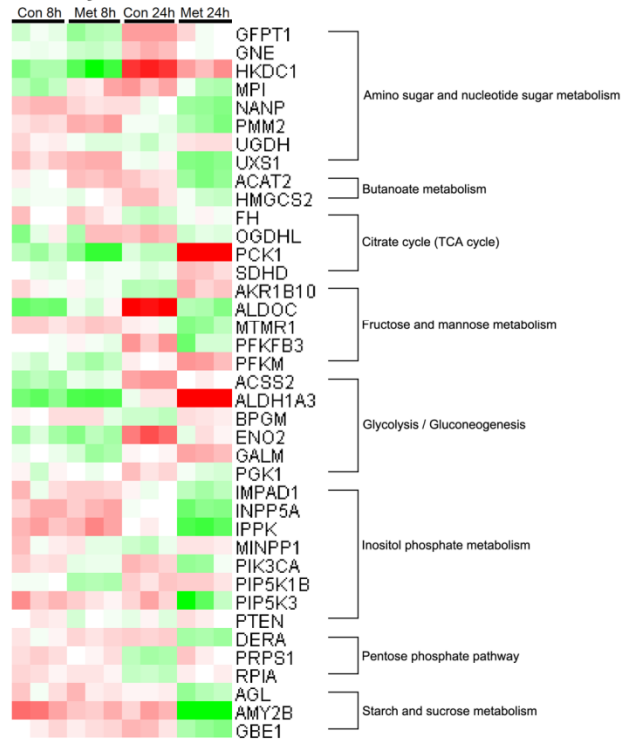


Alteration of transcriptional pathways

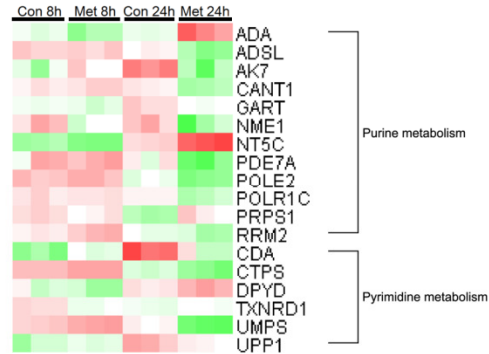
B 24 h



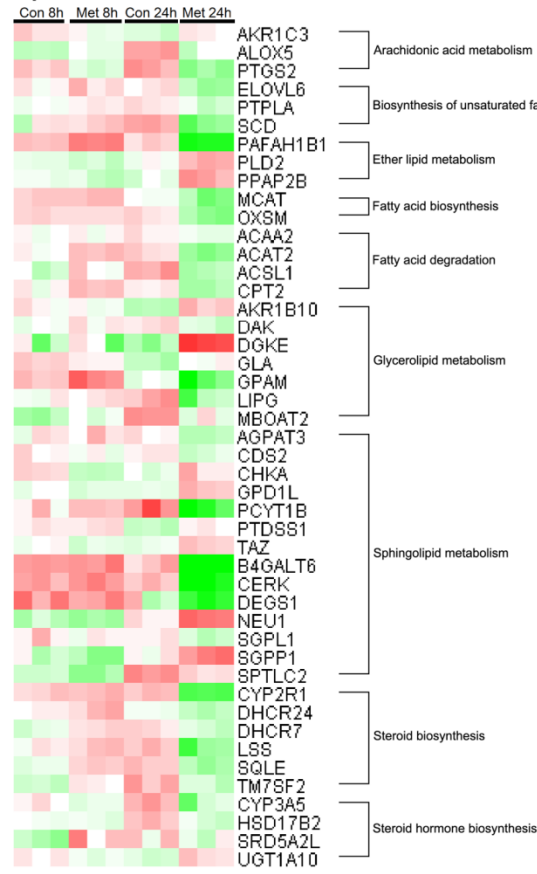
Carbohydrate metabolism



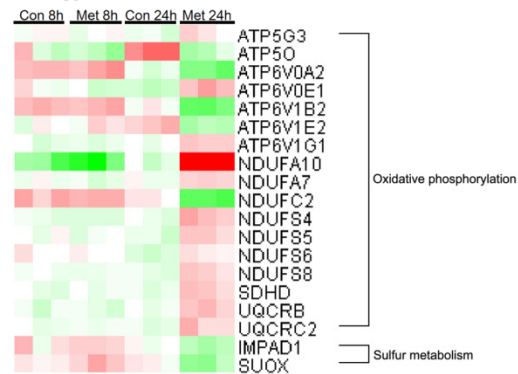
Nucleotide metabolism



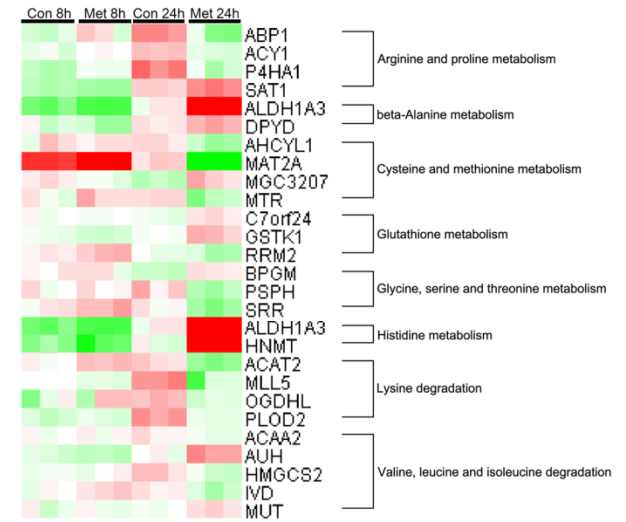
Lipid metabolism



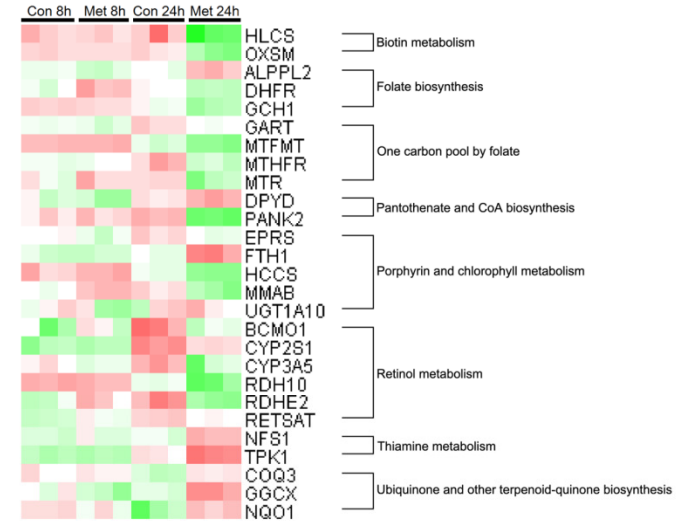
Energy metabolism



Amino acid metabolism

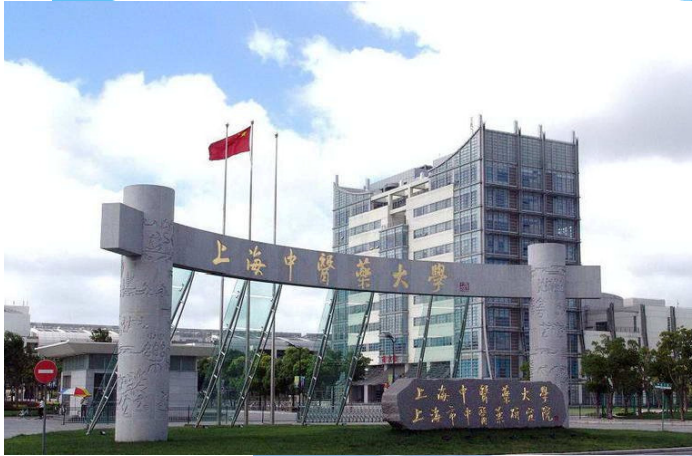


Metabolism of cofactors and vitamins



Summary

- * Metformin inhibits the proliferation of LoVo cells in time- and dose-dependent way;
- * Significant metabolic alteration is prior to the change of cell viability reduction;
- * Metformin may block the energy metabolism of LoVo cells by short time treatment;



Acknowledgement

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Dr. Ke Wang
Ms. Ningning Zheng



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