

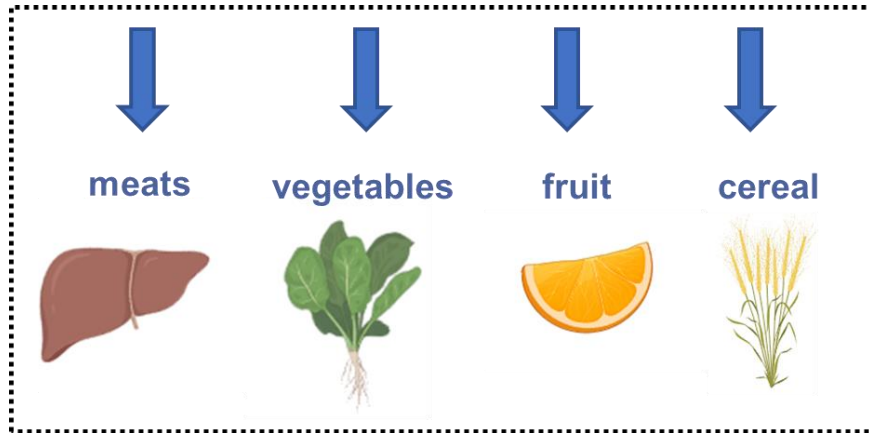
Lipoic acid-mediated oral drug delivery system for the treatment of diabetes and inflammatory disease

Prof. Yuan Huang
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Post number: 953

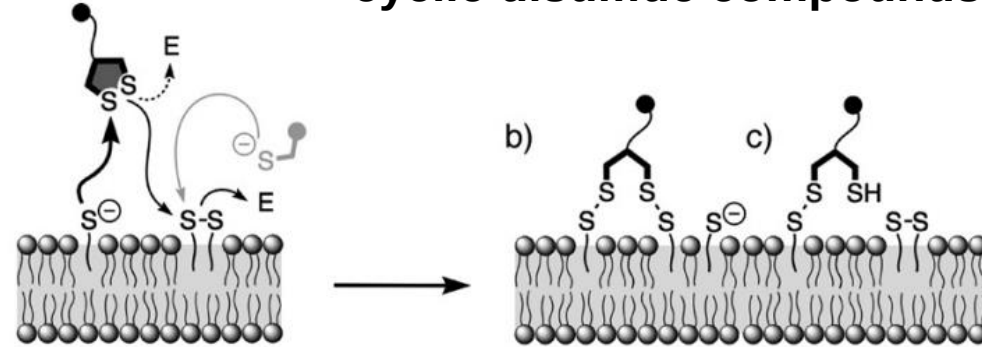
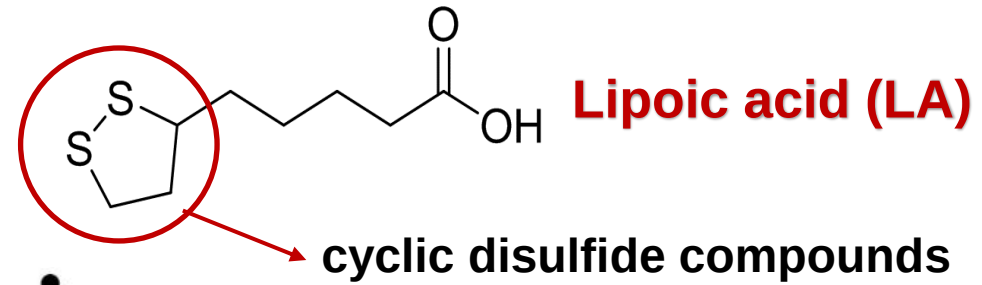


Background

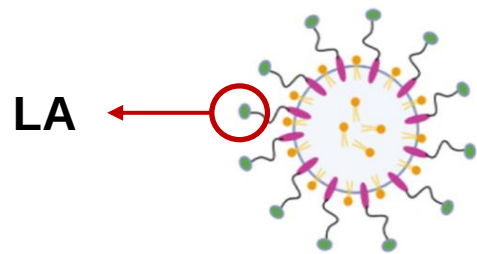
Lipoic acid (LA)



Lipoic acid is a multi-food source **nutrient**



Cellular uptake mediated by **thiol groups**



LA modified nanoparticles

Oral delivery

Healthy state



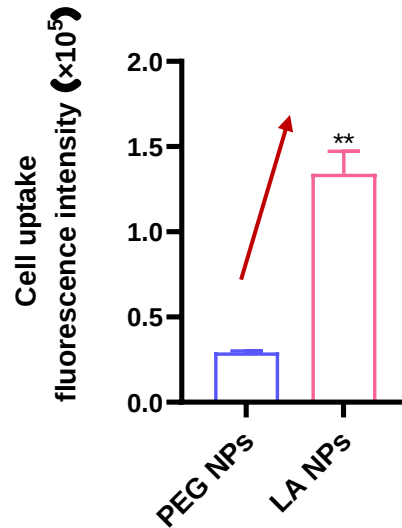
Improve oral absorption

Inflammatory state

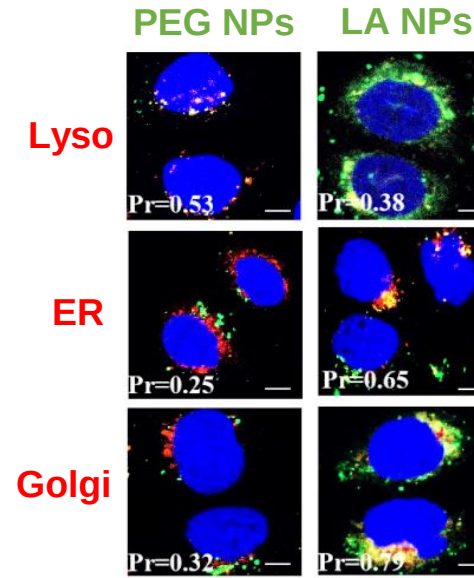


Anti-inflammatory

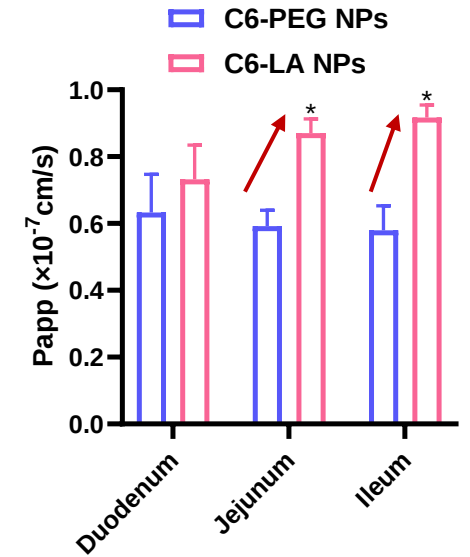
Healthy epitheliums——improve oral absorption



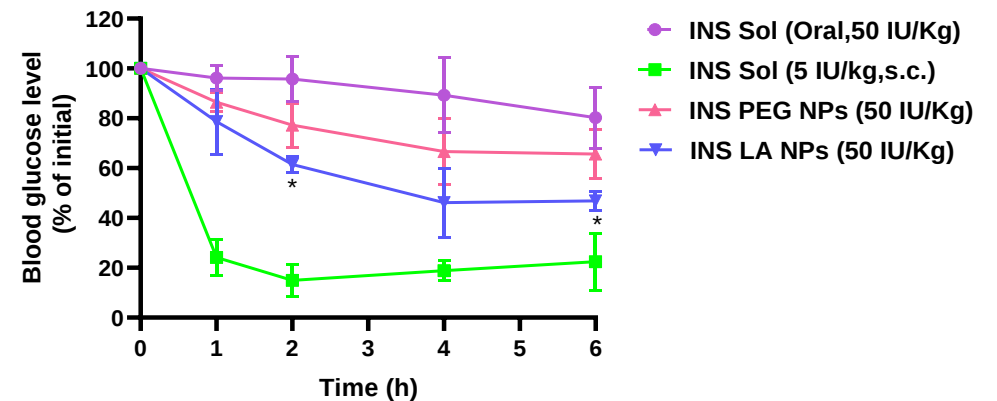
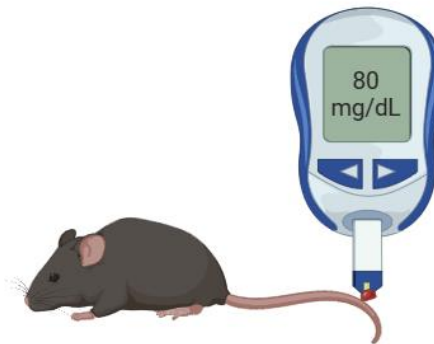
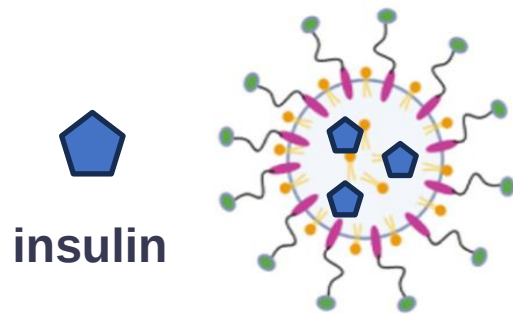
Increase cellular uptake



Promote Golgi pathway

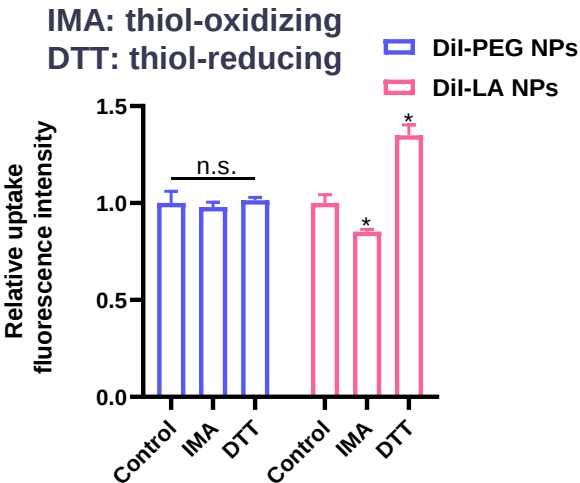
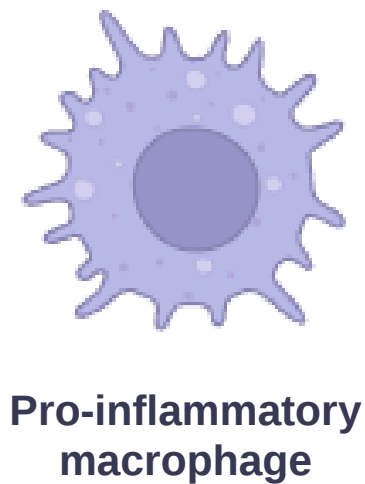


Increase transepithelial transport

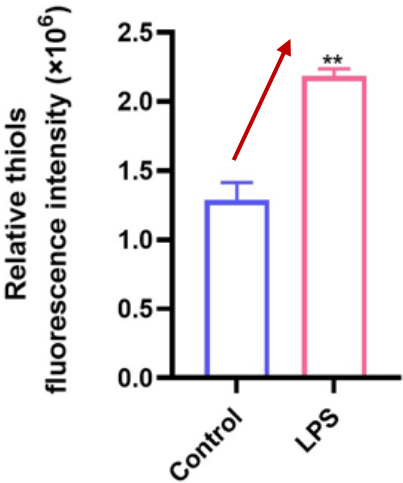


Application: oral delivery of insulin for diabetes treatment

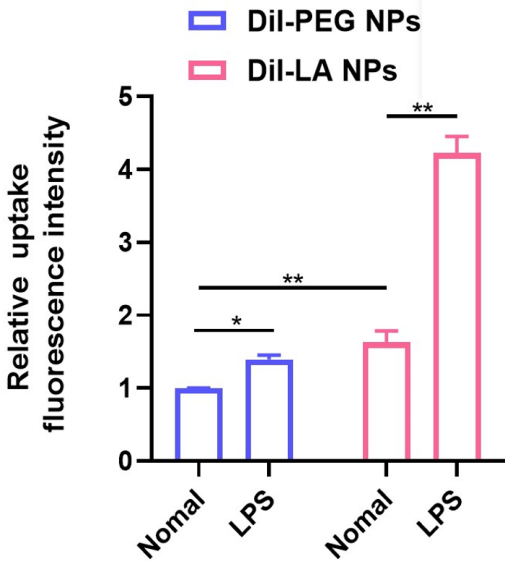
Inflammatory macrophages——increase thiol-mediated uptake



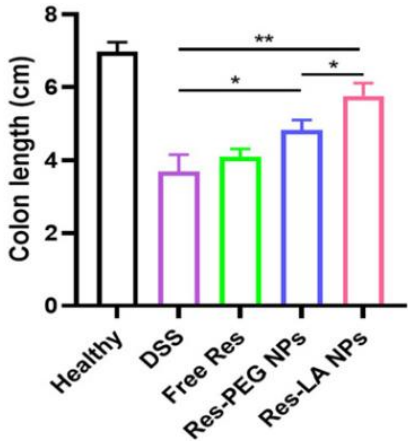
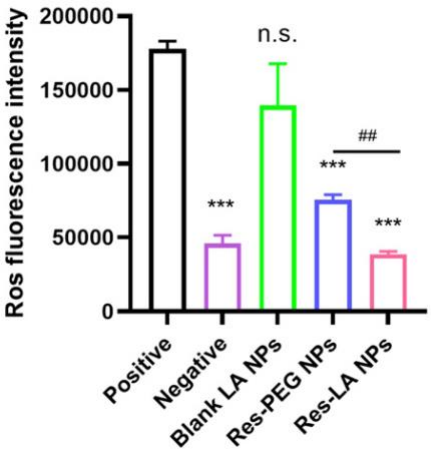
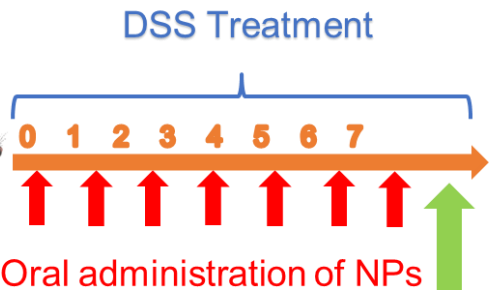
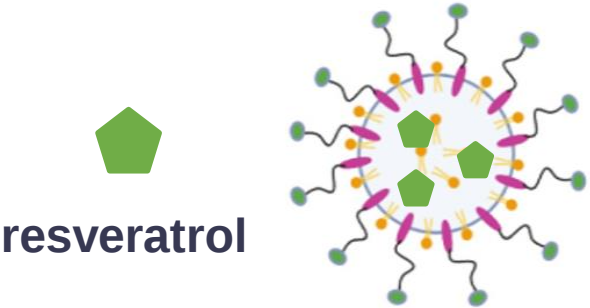
Thiol-mediated uptake



surface thiol group increased

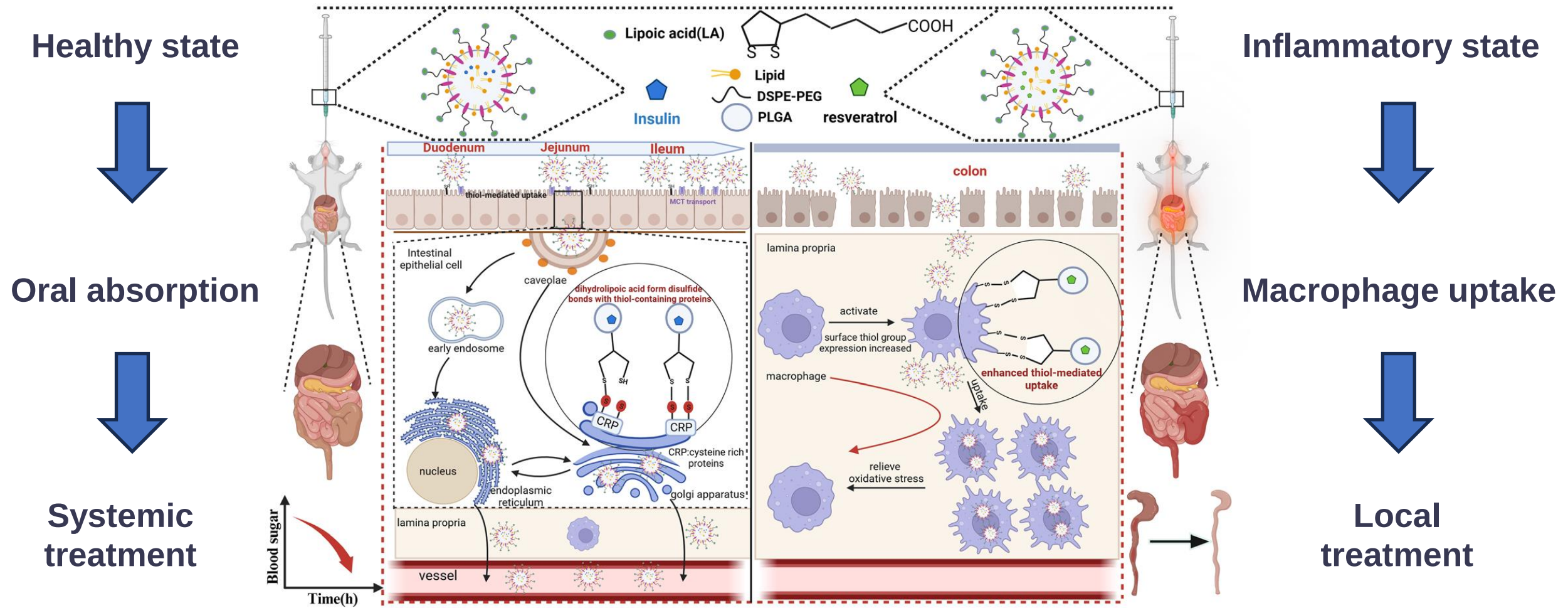


Increase cellular uptake



Application: oral delivery of resveratrol for local treatment of colitis

Oral delivery of LA modified nanodrug delivery system





Prof. Yuan Huang

Mucosal delivery systems

- Oral drug delivery
- Inhaled drug delivery
- Mucosal delivery of protein and peptide drugs

Subcellular-targeted delivery systems

- Mitochondrial targeted delivery
- Endoplasmic reticulum targeted delivery
- Nuclear targeted delivery



A.P. Zhou Zhou



A.P. Lian Li



Thanks for listening



INTEGRATING
Delivery Science
ACROSS DISCIPLINES

