

Food & Function

rsc.li/food-function

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 2042-650X CODEN FFOUAI 14(23) 10255–10640 (2023)



Cover
See Shujie Cheng *et al.*,
pp. 10314–10328.

Image reproduced by
permission of Shujie Cheng
from *Food Funct.*,
2023, **14**, 10314.



Inside cover
See Mengmeng Zhang,
Hui Wu *et al.*,
pp. 10329–10346.

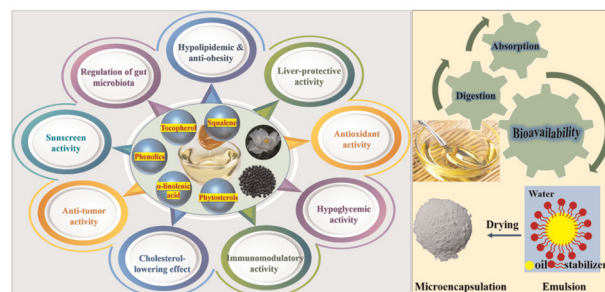
Image reproduced by
permission of
Mengmeng Zhang, Hui Wu
from *Food Funct.*,
2023, **14**, 10329.

REVIEWS

10265

Nutritional composition, health-promoting effects, bioavailability, and encapsulation of tree peony seed oil: a review

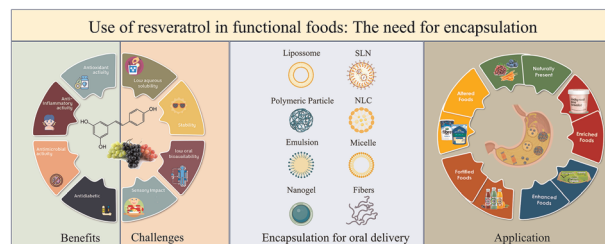
Wen-Sen He,* Qingzhi Wang, Liying Zhao, Jie Li, Junjie Li, Na Wei and Gang Chen



10286

Recent advances in oral delivery systems of resveratrol: foreseeing their use in functional foods

Pedro M. Silva,* Catarina Gonçalves, Lorenzo M. Pastrana, Manuel A. Coimbra, Antonio A. Vicente and Miguel A. Cerqueira*



Editorial Staff

Executive Editor

Rebecca Garton

Deputy Editor

Alice Smallwood

Editorial Production Manager

Sarah Whitehouse

Development Editor

David Lake

Publishing Editors

Gabriel Clarke, Derya Kara-Fisher,
Emma Stephen, Ziva Whitelock

Publishing Assistant

Andrea Whiteside

Editorial Assistant

Leo Curtis

Publisher

Jeanne Andres

For queries about submitted articles please contact Sarah Whitehouse, Editorial production manager, in the first instance. E-mail food@rsc.org

For pre-submission queries please contact Rebecca Garton, Executive Editor. E-mail food-rsc@rsc.org

Food & Function (electronic: ISSN 2042-650X) is published 12 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, CB4 0WF, UK.

All orders, with cheques made payable to the Royal Society of Chemistry, should be sent to the Royal Society of Chemistry Order Department, Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, CB4 0WF, UK

Tel +44 (0)1223 432398; E-mail orders@rsc.org

2023 Annual (electronic) subscription price: £2665; US\$4591. Customers in Canada will be subject to a surcharge to cover GST. Customers in the EU subscribing to the electronic version only will be charged VAT.

If you take an institutional subscription to any Royal Society of Chemistry journal you are entitled to free, site-wide web access to that journal. You can arrange access via Internet Protocol (IP) address at www.rsc.org/ip

Customers should make payments by cheque in sterling payable on a UK clearing bank or in US dollars payable on a US clearing bank.

Whilst this material has been produced with all due care, the Royal Society of Chemistry cannot be held responsible or liable for its accuracy and completeness, nor for any consequences arising from any errors or the use of the information contained in this publication. The publication of advertisements does not constitute any endorsement by the Royal Society of Chemistry or Authors of any products advertised. The views and opinions advanced by contributors do not necessarily reflect those of the Royal Society of Chemistry which shall not be liable for any resulting loss or damage arising as a result of reliance upon this material. The Royal Society of Chemistry is a charity, registered in England and Wales, Number 207890, and a company incorporated in England by Royal Charter (Registered No. RC000524), registered office: Burlington House, Piccadilly, London W1J 0BA, UK, Telephone: +44 (0) 207 4378 6556.

Advertisement sales:

Tel +44 (0) 1223 432246; Fax +44 (0) 1223 426017;

E-mail advertising@rsc.org

For marketing opportunities relating to this journal, contact marketing@rsc.org

Food & Function

Linking the chemistry and physics of food with health and nutrition

rsc.li/food-function

Editorial Board

Editor-in-Chief

Christine Morand, INRA, France

Associate Editors

Lillian Barros, Polytechnic Institute of Bragança, Portugal
Charlotte Beaudart, University of Namur, Belgium
Catherine Bondonno, Edith Cowan University, Australia
Laura Bravo-Clemente, Institute of Food Science, Technology and Nutrition, Spain

Mario Ferruzzi, Arkansas Children's Nutrition Center and University of Arkansas for Medical Sciences, USA
Monica Galleano, University of Buenos Aires, Argentina
Liwei Gu, University of Florida, USA
Kee-Hong Kim, Purdue University, USA
Xuebo Liu, Northwest A&F University, China
Andrew Nielson, North Carolina State University, USA

Ana Rodriguez-Mateos, King's College London, UK
Hiroyuki Sakakibara, University of Miyazaki, Japan
Elke Scholten, Wageningen University, The Netherlands

Advisory Board

Mario Allegra, University of Palermo, Italy
Hitoshi Ashida, Kobe University, Japan
Letizia Bresciani, University of Parma, Italy
Aedin Cassidy, University of East Anglia, UK
Steven Feng Chen, Peking University, China
Zhen-yu Chen, Chinese University of Hong Kong, Hong Kong
Peter Clifton, Baker IDI Heart & Diabetes Institute
Kevin Croft, University of Western Australia, Australia
Eric Decker, University of Massachusetts, USA
Inês Figueira, NOVA Medical School, Portugal
Tim Foster, University of Nottingham, UK
Cesar Fraga, University of Buenos Aires, Argentina & University of California, Davis, USA
Rocio Garcia-Villalba, CEBAS-CSIC, Spain
Mike Gidley, University of Queensland, Australia

H. Douglas Goff, University of Guelph, Canada
Antonio Gonzales-Sarrias, CEBAS-CSIC, Spain
Chi-Tang Ho, Rutgers University, USA
Richard Hurrell, ETH Zurich, Switzerland
Luana Izzo, University of Naples Federico II, Italy
Rui Hai Liu, Cornell University, USA
Alejandro Marangoni, University of Guelph, Canada
Julian McClements, University of Massachusetts, USA
Dragan Milenkovic, University of California, Davis, USA
Paul Moughan, Riddet Institute, Massey University, New Zealand
Kevin Murray, The University of Western Australia, Australia
Patricia Oteiza, University of California, Davis, USA
Junji Terao, Konan Women's University, Japan

George van Aken, NIZO Food Research, The Netherlands
Rob van Dam, National University of Singapore, Singapore
Erik van der Linden, TI Food & Nutrition, The Netherlands
Natalie Ward, University of Western Australia, Australia
Gary Williamson, University of Leeds, UK
Jianping Wu, University of Alberta, Canada
Xingbin Yang, Shaanxi Normal University, China
Gow-Chin Yen, National Chung Hsing University, Chinese Taipei
Beiwei Zhu, Dalian Polytechnic University, China

Information for Authors

Full details on how to submit material for publication in Food & Function are given in the Instructions for Authors (available from <http://www.rsc.org/authors>). Submissions should be made via the journal's homepage: rsc.li/food-function

Authors may reproduce/republish portions of their published contribution without seeking permission from the Royal Society of Chemistry, provided that any such republication is accompanied by an acknowledgement in the form: (Original Citation)–Reproduced by permission of the Royal Society of Chemistry

This journal is © The Royal Society of Chemistry 2023.

Apart from fair dealing for the purposes of research or private study for non-commercial purposes, or criticism or review, as permitted under the Copyright, Designs and Patents Act 1988 and the Copyright and Related Rights Regulation 2003, this publication may only be reproduced, stored or transmitted, in any form or by any means, with the prior permission in writing of the Publishers or in the case of reprographic reproduction in accordance with the terms of licences issued by the Copyright Licensing Agency in the UK. US copyright law is applicable to users in the USA.

Registered charity number: 207890

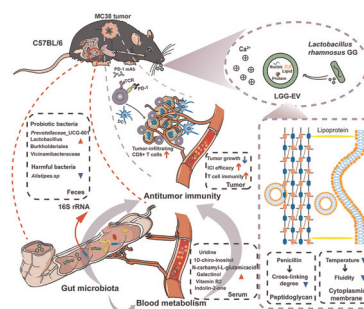


PAPERS

10314

Dietary *Lactobacillus rhamnosus* GG extracellular vesicles enhance antiprogrammed cell death 1 (anti-PD-1) immunotherapy efficacy against colorectal cancer

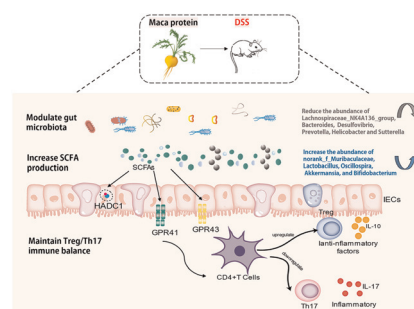
Shun Lu, Jing Xu, Zihao Zhao, Yuheng Guo, Hanwen Zhang, Peter W. Jurutka, Dechun Huang, Chongjiang Cao and Shujie Cheng*



10329

The maca protein ameliorates DSS-induced colitis in mice by modulating the gut microbiota and production of SCFAs

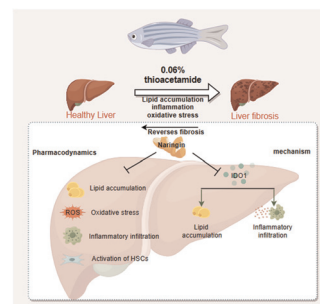
Ping He, Yizhe Zhang, Ruyang Chen, Zhaoli Tong, Mengmeng Zhang* and Hui Wu*



10347

Naringin ameliorates liver fibrosis in zebrafish by modulating IDO1-mediated lipid metabolism and inflammatory infiltration

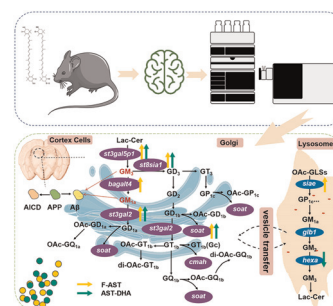
Meng-chen Qin, Jun-jie Li, Yan-tao Zheng, Yun-jia Li, Yu-xue Zhang, Rou-xuan Ou, Wei-yi He, Jia-min Zhao, Su-tong Liu, Ming-hao Liu,* Hai-yan Lin* and Lei Gao*



10362

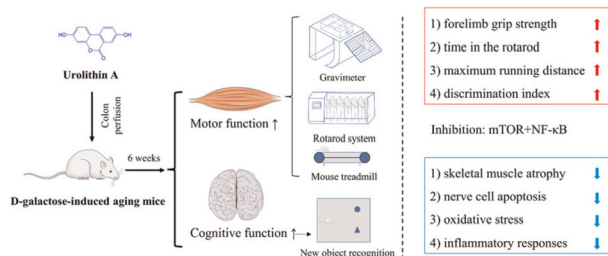
Astaxanthin alleviates ganglioside metabolism disorder in the cortex of Alzheimer's disease mice

Zhigao Wang, Xiaoxu Wang, Yingxu Ma, Peixu Cong, Xincen Wang, Yu Song,* Jie Xu* and Changhu Xue



PAPERS

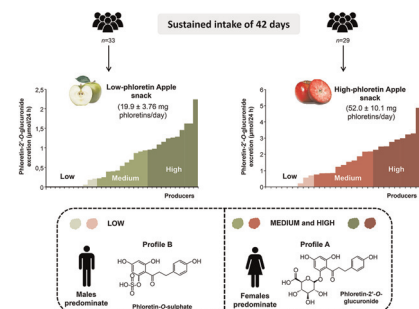
10375



Inhibition of the NF-κB and mTOR targets by urolithin A attenuates D-galactose-induced aging in mice

Mengwei Zhang, Xin Tang,* Bingyong Mao, Qiuxiang Zhang, Jianxin Zhao, Wei Chen and Shumao Cui

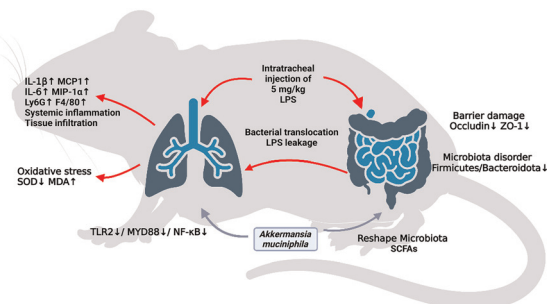
10387



Assessment of human inter-individual variability of phloretin metabolites in urine after apple consumption. AppleCOR study

Alba Macià, María-Paz Romero, Anna Pedret, Rosa Solà, Michael N. Clifford and Laura Rubió-Piqué*

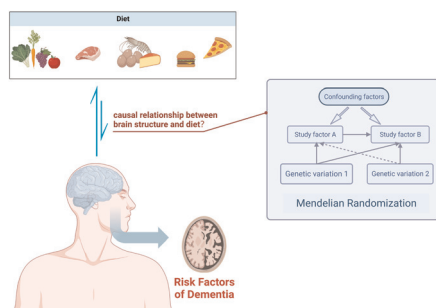
10401



Akkermansia muciniphila attenuated lipopolysaccharide-induced acute lung injury by modulating the gut microbiota and SCFAs in mice

Jian Shen, Shuting Wang, He Xia, Shengyi Han, Qiangqiang Wang, Zhengjie Wu, Aoxiang Zhuge, Shengjie Li, Hui Chen, Longxian Lv, Yanfei Chen and Lanjuan Li*

10418



Unveiling the influence of daily dietary patterns on brain cortical structure: insights from bidirectional Mendelian randomization

Cong Li, Zhe Chen, Shaqi He, Yanjing Chen and Jun Liu*

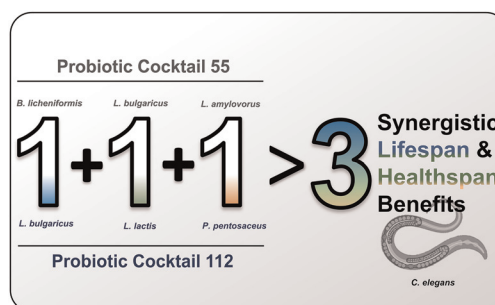


PAPERS

10430

Fermented cereal-origin gerobiotic cocktails promote healthy longevity in *Caenorhabditis elegans*

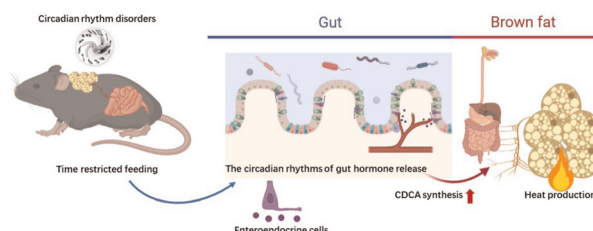
Thiruppathi Govindhan, Mohankumar Amirthalingam,*
Kalaiselvi Duraisamy, Jeong Hoon Cho,
Shinkichi Tawata* and Sundararaj Palanisamy*



10443

Time-restricted feeding alleviates metabolic implications of circadian disruption by regulating gut hormone release and brown fat activation

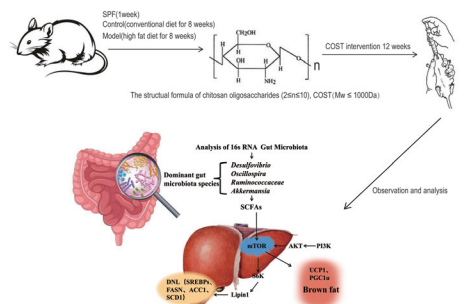
Sensen Chi, Taoyuan Zhang, Yu Pan, Shenghui Niu,
Lin Zhao, Zili Gu, Qi Liu, Aishun Jin,* Wang Wang* and
Shuai Tan*



10459

Ameliorating the effect and mechanism of chitosan oligosaccharide on nonalcoholic fatty liver disease in mice

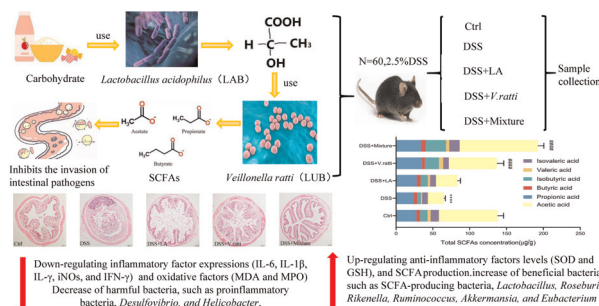
Jiahua Zhang, Jiayao Feng, Yan Bai, Qishi Che,
Hua Cao, Jiao Guo* and Zhengquan Su*



10475

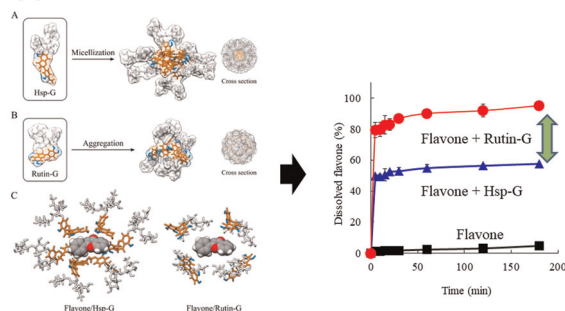
Cooperative interactions between *Veillonella ratti* and *Lactobacillus acidophilus* ameliorate DSS-induced ulcerative colitis in mice

Na Li, Hejing Wang, Huizhu Zhao, Mengyang Wang,
Jin Cai, Yi Hao, Jia Yu, Yun Jiang, Xin Lü and
Bianfang Liu*



PAPERS

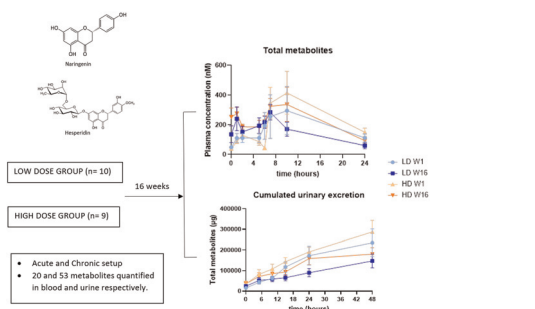
10493



Unveiling the flavone-solubilizing effects of α -glucosyl rutin and hesperidin: probing structural differences through NMR and SAXS analyses

Kazunori Kadota,* Tero Kämäräinen, Fumie Sakuma, Keisuke Ueda, Kenjiro Higashi, Kunikazu Moribe, Hiromasa Uchiyama, Katsuhiko Minoura and Yuichi Tozuka

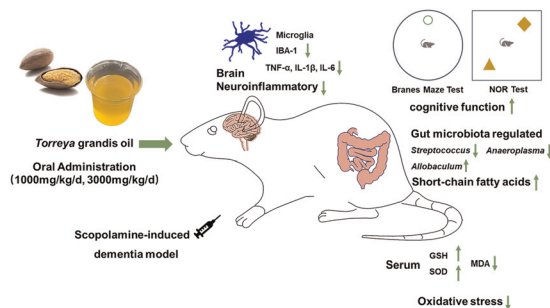
10506



Nutrikinetics and urinary excretion of phenolic compounds after a 16-week supplementation with a flavanone-rich ingredient

Jananee Muralidharan, Cindy Romain, Letizia Bresciani, Pedro Mena, Donato Angelino, Daniele Del Rio, Linda H. Chung, Pedro E. Alcaraz and Julien Cases*

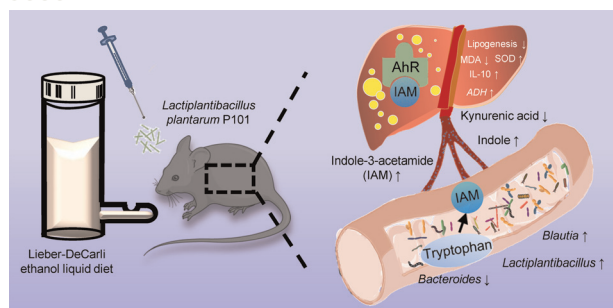
10520



Torrey grandis oil attenuates cognitive impairment in scopolamine-induced mice

Jiachen Ma, Tian Yuan, Yuqi Gao, Xiaoming Zeng, Zhigang Liu* and Jinming Gao*

10535



Indole-3-acetamide from gut microbiota activated hepatic AhR and mediated the remission effect of *Lactiplantibacillus plantarum* P101 on alcoholic liver injury in mice

Mengqi Wang, Xiaoyan Feng, Yu Zhao, Yuzhi Lan and Hengyi Xu*

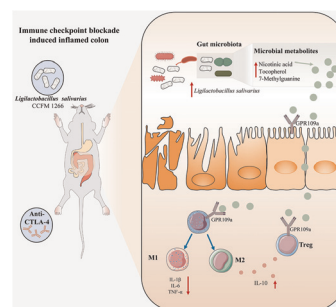


PAPERS

10549

Ligilactobacillus salivarius CCFM 1266 modulates gut microbiota and GPR109a-mediated immune suppression to attenuate immune checkpoint blockade-induced colitis

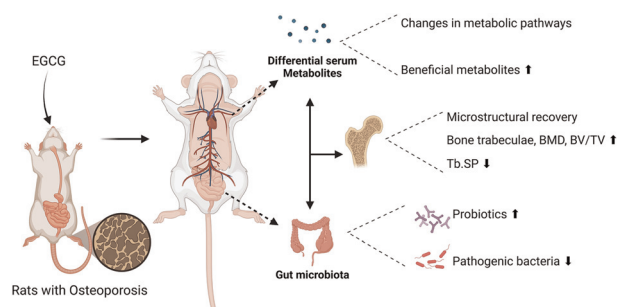
Shikai Yan, Leilei Yu, Fengwei Tian, Jianxin Zhao, Wei Chen, Haiqin Chen* and Qixiao Zhai*



10564

Epigallocatechin gallate alleviates osteoporosis by regulating the gut microbiota and serum metabolites in rats

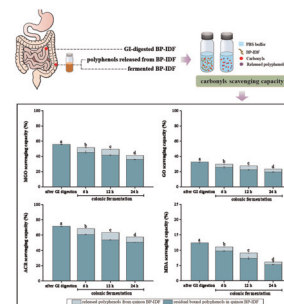
Xuebing Han, Yifeng Fu, Keyu Wang, Siying Li, Chang Jiang, Shuangshuang Wang, Zheng Wang, Gang Liu* and Siwang Hu*



10581

Influence of *in vitro* gastrointestinal digestion and colonic fermentation on carbonyl scavenging capacity of fiber-bound polyphenols from quinoa

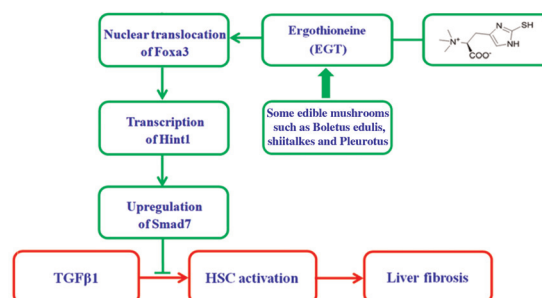
Jinxin Li, Hao Zhang, Ling Zhu, Gangcheng Wu and Hui Zhang*



10591

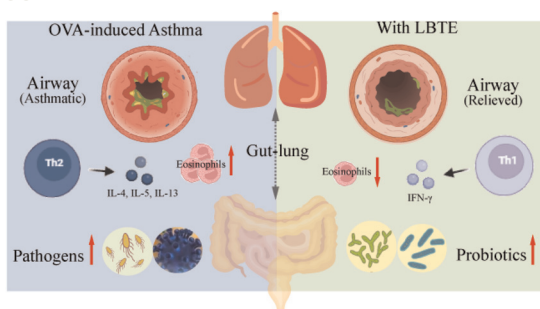
Ergothioneine suppresses hepatic stellate cell activation *via* promoting Foxa3-dependent potentiation of the Hint1/Smad7 cascade and improves CCL₄-induced liver fibrosis in mice

Guangwen Shu, Xiao Lei, Guangqiong Li, Tiantian Zhang, Chuo Wang, Anning Song, Huifan Yu, Xiaoming Wang and Xukun Deng*



PAPERS

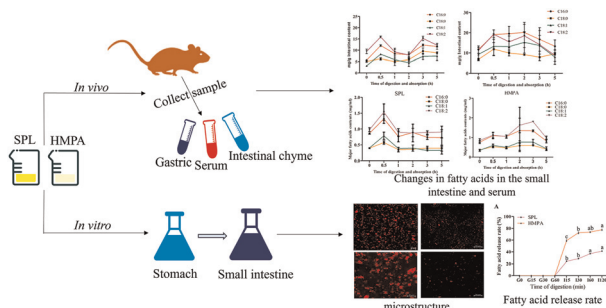
10605



Liubao tea extract ameliorates ovalbumin-induced allergic asthma by regulating gut microbiota in mice

Shasha Guo, Yuxuan Shi, Anan Xu, Yuefei Wang and Ping Xu*

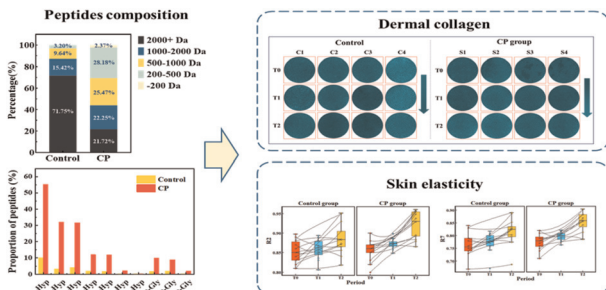
10617



The digestion and absorption characteristics of human milk phospholipid analogs: a combination study between *in vitro* and *in vivo*

Jiaxin Shen, Yanping Wu, Teng Wei, Yangzheng He, Xiaoru Liu, Zeyuan Deng and Jing Li*

10628



The effect of oral supplements containing collagen peptides rich in X-Hyp or X-Hyp-Gly compared with normal collagen hydrolysates on skin elasticity and collagen holes: a randomised double-blind clinical study

Ling Chen, Yuan Lv, Feifei Xu and Fang Zhong*

