

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 15(6) 2777–3216 (2024)



Cover

See Chuang Yu *et al.*,
pp. 2879–2894.

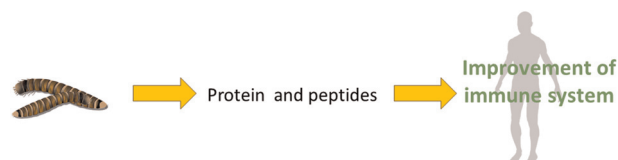
Image reproduced by
permission of Chuang Yu
from *Food Funct.*,
2024, **15**, 2879.

REVIEWS

2789

Edible insects as a source of biopeptides and their role in immunonutrition

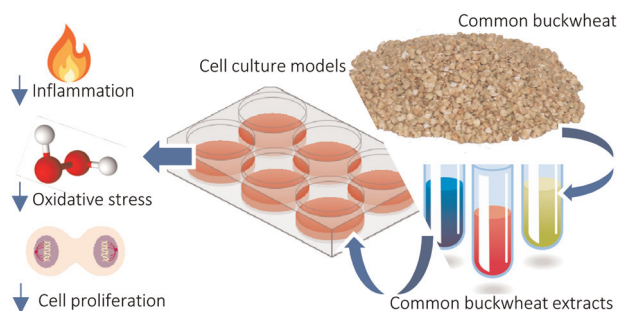
Fernando Rivero-Pino,* Teresa Gonzalez-de la Rosa
and Sergio Montserrat-de la Paz



2799

Cell culture models for assessing the effects of bioactive compounds in common buckwheat (*Fagopyrum esculentum*): a systematic review

Sara Margherita Borgonovi, Stefania Iametti,
Anna Ramona Speranza and Mattia Di Nunzio*



Environmental Science: Atmospheres

GOLD
OPEN
ACCESS

Connecting communities
and inspiring new ideas

rsc.li/submittoEA

Fundamental questions
Elemental answers

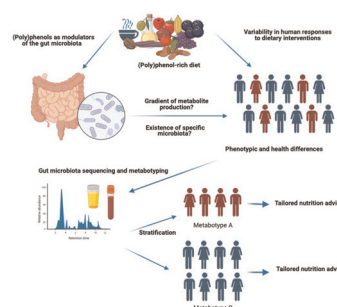


REVIEWS

2814

(Poly)phenol-related gut metabotypes and human health: an update

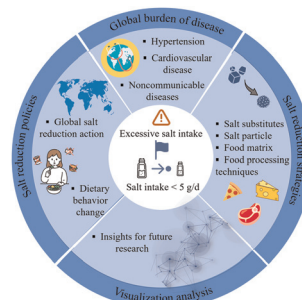
Jiaying Hu, Robin Mesnage, Kieran Tuohy, Christian Heiss and Ana Rodriguez-Mateos*



2836

A review of the world's salt reduction policies and strategies – preparing for the upcoming year 2025

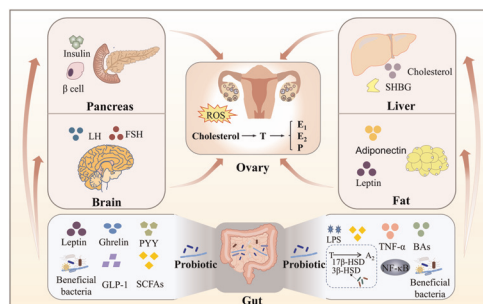
Ting Nie, Siqi Huang, Yuxin Yang, Anna Hu, Jianing Wang, Zeneng Cheng and Wenjie Liu*



2860

Mechanisms of probiotic modulation of ovarian sex hormone production and metabolism: a review

Xiao Liu, Xiaoyong Chen, Chen Wang, Jiajia Song, Jiahui Xu, Zhen Gao, Yechuan Huang* and Huayi Suo*

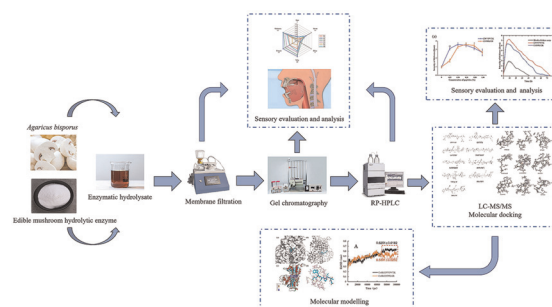


PAPERS

2879

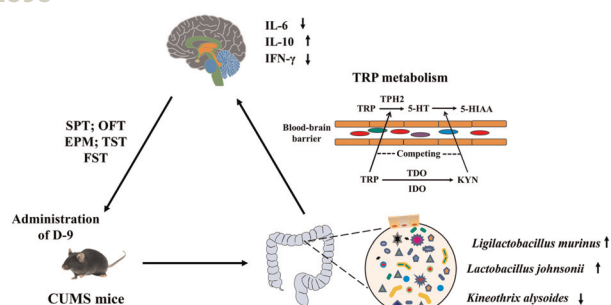
Exploring novel Kokumi peptides in *Agaricus bisporus*: selection, identification, and tasting mechanism investigation through sensory evaluation and computer simulation analysis

Tao Feng, Chenwei Ma, Sha Chen, Haining Zhuang, Shiqing Song, Min Sun, Lingyun Yao, Huatian Wang, Qian Liu and Chuang Yu*



PAPERS

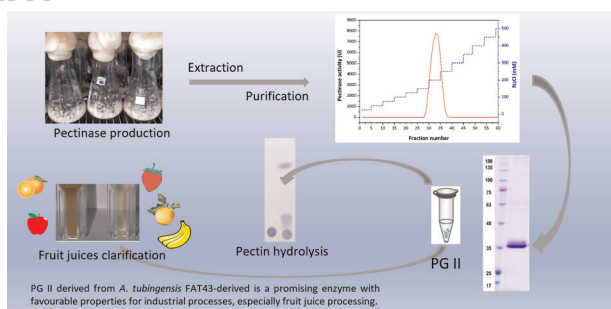
2895



Neuroprotective effects of probiotics on anxiety- and depression-like disorders in stressed mice by modulating tryptophan metabolism and the gut microbiota

Longgang Jia, Ling Xiao, Yao Fu, Zhen Shao, Zhaoxuan Jing, Jiahui Yuan, Yufeng Xie, Jun Guo, Yanping Wang* and Weitao Geng*

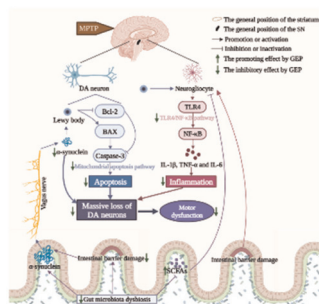
2906



Improvement of fruit juice quality: novel endo-polygalacturonase II from *Aspergillus tubingensis* FAT 43 for enhanced liquefaction, clarification, and antioxidant potential

Marija Pavlović*, Aleksandra Margetić, Adrijana Leonardi, Igor Križaj, Milan Kojić, Zoran Vujčić and Marinela Šokarda Slavić

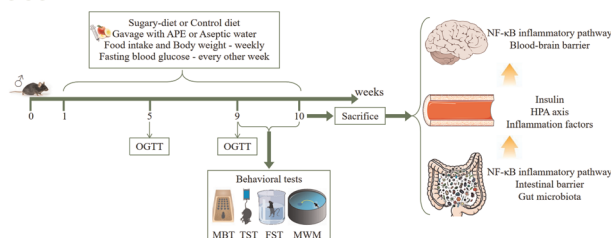
2920



Gastrodia elata polysaccharide alleviates Parkinson's disease via inhibiting apoptotic and inflammatory signaling pathways and modulating the gut microbiota

Qing-xia Gan, Mao-yao Peng, Hao-bo Wei, Lin-lin Chen, Xiao-yan Chen, Zi-han Li, Guang-qin An and Yun-tong Ma*

2939



Apple polyphenol extract ameliorates sugary-diet-induced depression-like behaviors in male C57BL/6 mice by inhibiting the inflammation of the gut–brain axis

Yisha Xie, Zhengli Wu, Qingfan Qian, Hao Yang, Jieyu Ma, Wenxue Luan, Siyuan Shang and Xinli Li*

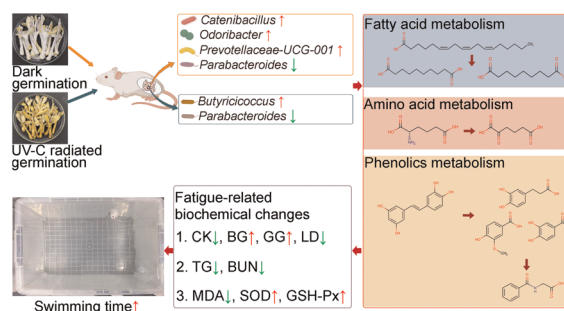


PAPERS

2960

Stilbenes-enriched peanut sprouts alleviated physical fatigue *via* regulating interactions of nutrients–microbiota–metabolites revealed by multi-omics analysis

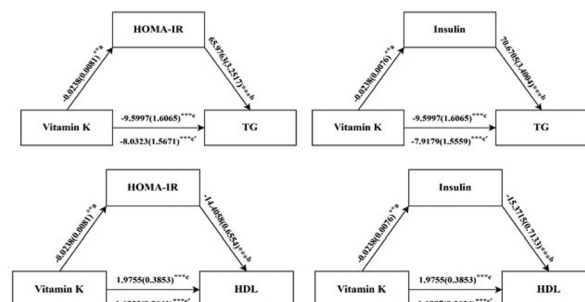
Tong Zhu, Qi Pan, Kunpeng Xiao, Changzhou Zuo, Qiang Liu, Dandan Zhou and Kang Tu*



2974

The association between vitamin K intake and dyslipidemia in US adults: the mediating effect of insulin resistance

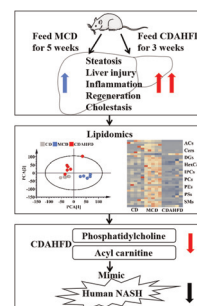
Fengdan Wang, Mengzi Sun, Ruirui Guo, Zibo Wu, Xuhan Wang, Yixue Yang, Yan Liu, Yibo Dong, Sizhe Wang, Shoumeng Yan* and Bo Li*



2982

A CDAHFD-induced mouse model mimicking human NASH in the metabolism of hepatic phosphatidylcholines and acyl carnitines

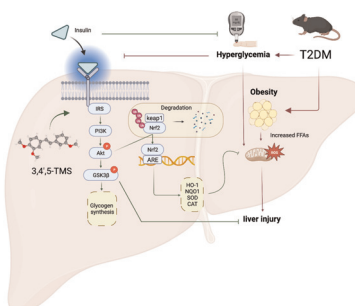
Jie Yang, Manyun Dai, Ying Wang, Zheng Yan, Shuqi Mao, Aiming Liu* and Caide Lu*



2996

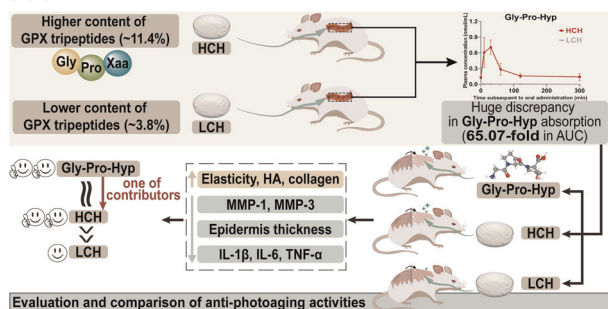
3,4',5-Trimethoxy-*trans*-stilbene ameliorates hepatic insulin resistance and oxidative stress in diabetic obese mice through insulin and Nrf2 signaling pathways

Yi Tan, Chunxiu Zhou, Lingchao Miao, Xutao Zhang, Haroon Khan, Baojun Xu* and Wai San Cheang*



PAPERS

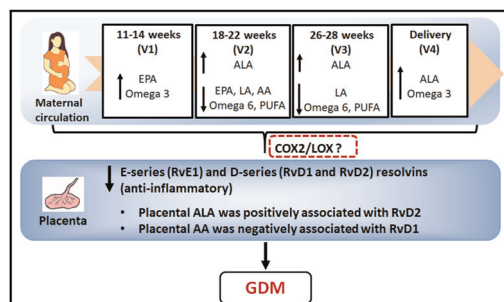
3008



Effects of collagen hydrolysates on UV-induced photoaging mice: Gly-Pro-Hyp as a potent anti-photoaging peptide

Danyin Yang, Qi Liu, Qiongyao Xu, Lin Zheng, Silu Zhang, Shan Lu, Guoxun Xiao* and Mouming Zhao*

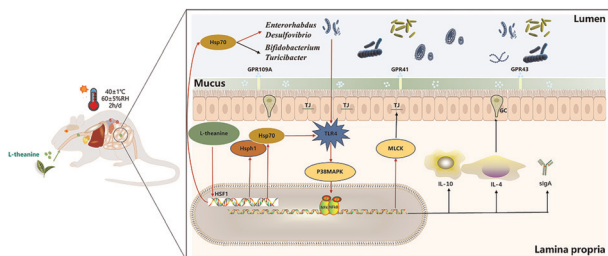
3023



Fatty acids and their metabolites (resolvins) are altered in women with gestational diabetes mellitus (GDM)

Nikita Joshi, Anjali Jadhav, Aditi Godhamgaonkar, Deepali Sundrani, Karuna Randhir, Hemalata Pisal, Girija Wagh, Ghattu Krishnaveni, Sanjay Gupte and Sadhana Joshi*

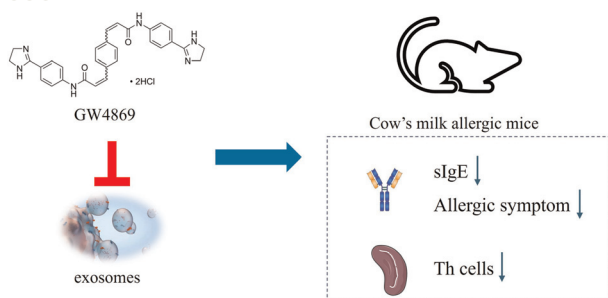
3036



The protective effect of L-theanine on the intestinal barrier in heat-stressed organisms

Bin Wang, Sha Liu, Ling Lin, Wei Xu, Zhihua Gong* and Wenjun Xiao*

3050



Blockade of exosome release alleviates the hypersensitive reaction by influencing the T helper cell population in cow's milk allergic mice

Xin Ma, Jiaheng Xia, Jin Yuan, Xuanyi Meng, Hongbing Chen and Xin Li*



Lead exposure exacerbates liver injury in high-fat diet-fed mice by disrupting the gut microbiota and related metabolites

The diagram illustrates the mechanism of liver inflammation and fibrosis. It shows the progression from Gut microbiota (Firmicutes/Bacteroidetes, Faecalibaculum, Coriobacteriaceae_UCG-002) and Mucosa (Murbaculaceae, Akkermansia, Atoprovotella, Fibriaceae_RC9_gut_group, Alistipes) to Gut - Liver Axis (TLR4/NF-κB/MCUX, Tight junction protein, GPR143, GPR43, GPR109A) and Liver (IL-1β, TNF-α, Inflammation, Lipid synthesis, AMPK, Lipid β-oxidation). The final outcome is Promotion and Inhibition.

Water solubility differentiates the impact of tea polyphenols and rutin on the postprandial glycemic response to cooked maize starch

EGCG

Rutin

Blood glucose (mmol/L) vs Time (min)

Legend:
 ■ Cooked corn starch (CCS)
 ● CCS + TP
 ▲ CCS + Rutin

The graph shows that the addition of rutin (CCS + Rutin) significantly reduces the peak blood glucose level and the overall area under the curve compared to the CCS and CCS + TP groups. The CCS + TP group shows a similar peak to the CCS group but with a slightly lower area under the curve. The CCS + Rutin group shows the lowest peak and the lowest overall blood glucose levels throughout the 120-minute period.

Filamentous fungal pellets as a novel and sustainable encapsulation matrix for exogenous bioactive compounds

The diagram illustrates the experimental workflow for curcumin immobilization on yeast cells. It begins with two starting materials: Fungal pellet (FP) and Single yeast cells (YE). Both are combined with Curcumin. The FP-Curcumin mixture undergoes 'Before digestion' and 'After digestion' steps, resulting in FP/FP-Curcumin. The YE-Curcumin mixture undergoes 'Vacuum-facilitated immobilization of G1 yeast in FP' and 'After digestion' steps, resulting in YE/FP-Curcumin. Fluorescence microscopy images show the distribution of curcumin (green) on the surface and in the core of the pellets.

Gastric coagulation and postprandial amino acid absorption of milk is affected by mineral composition: a randomized crossover trial

Mineral composition of milk can influence postprandial serum amino acid kinetics, likely due to differences in coagulation dynamics

Primary outcomes: postprandial plasma amino acid concentrations and gastric emptying.

Secondary outcomes: postprandial glucose and insulin concentrations, gastric coagulation as estimate by image texture metrics and appetite ratings.

The figure illustrates the relationship between mineral composition, postprandial plasma amino acid concentrations, and gastric emptying. It includes a schematic of milk mineralization, a timeline of gastric emptying, a graph of estimated serum amino acid levels, a graph of percentage emptying over time, and two abdominal ultrasound images.

Milk Mineralization: A schematic shows a person with two glasses of milk. The first glass is labeled "Milk with low casein mineralization" and the second is labeled "Milk with high casein mineralization".

Gastric Emptying Timeline: A horizontal timeline shows the progression of gastric emptying from 0 to 240 minutes. Key events include:

- 0 min: Ingestion
- 15 min: Gastric emptying begins
- 30 min: Gastric emptying begins
- 45 min: Gastric emptying begins
- 60 min: Gastric emptying begins
- 75 min: Gastric emptying begins
- 90 min: Gastric emptying begins
- 105 min: Gastric emptying begins
- 120 min: Gastric emptying begins
- 135 min: Gastric emptying begins
- 150 min: Gastric emptying begins
- 165 min: Gastric emptying begins
- 180 min: Gastric emptying begins
- 195 min: Gastric emptying begins
- 210 min: Gastric emptying begins
- 225 min: Gastric emptying begins
- 240 min: Gastric emptying begins

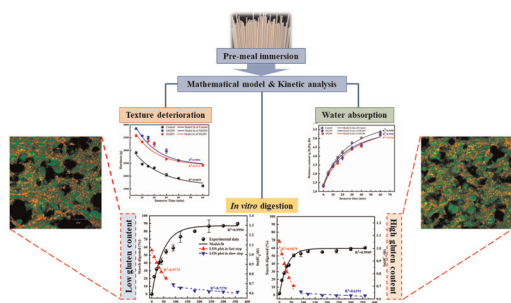
Estimated Serum Amino Acid Levels: A line graph shows estimated serum amino acid levels (mg/dL) over time (min). The graph compares two groups: High OM (black line with circles) and Low OM (grey line with circles). The High OM group shows higher levels of amino acids, particularly in the first 120 minutes, compared to the Low OM group.

Percentage Emptying: A line graph shows percentage emptying over time (min). The graph compares two groups: High OM (black line with circles) and Low OM (grey line with circles). The High OM group shows higher percentage emptying, particularly in the first 120 minutes, compared to the Low OM group.

Abdominal Ultrasound Images: Two abdominal ultrasound images are shown. The left image is labeled "A. High OM" and the right image is labeled "B. Low OM". The images show the stomach and the coagulation of milk in the stomach.

PAPERS

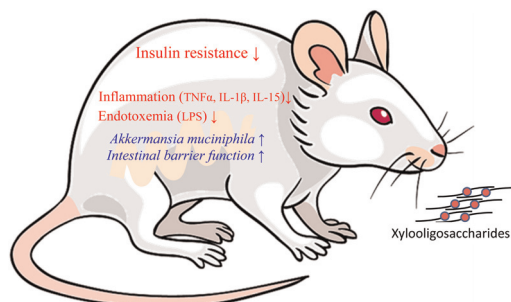
3108



Impact of pre-meal immersion on multi-scale structural changes and starch digestibility of cooked dried noodles

Jiasheng Wang, Chong Liu,* Hanrui Yang, Xuedong Li, Jing Hong, Mei Liu, Binghua Sun, Erqi Guan and Xueling Zheng

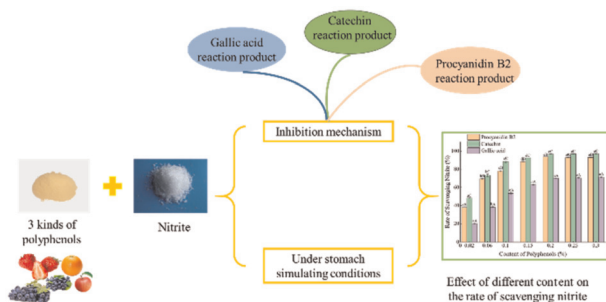
3122



Xylooligosaccharides ameliorate insulin resistance by increasing *Akkermansia muciniphila* and improving intestinal barrier dysfunction in gestational diabetes mellitus mice

Junyi Yang, Jiexian Wang, Weiliang Wu, Chuhong Su, Yanhua Wu and Qing Li*

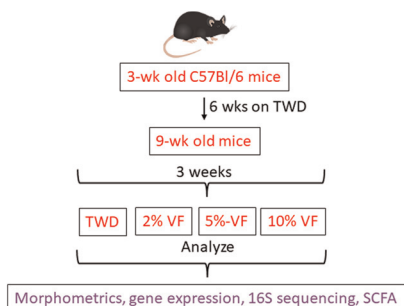
3130



Inhibitory effects and reactions of gallic acid, catechin, and procyanidin B2 with nitrosation under stomach simulating conditions

Shuncheng Ren, Haiyang Hu, Xiaoi Zhu,* Shenli Wang,* Wenhong Zhao, Dongdong Xie, Jun Xi and Kunlun Liu

3141



A type 4 resistant potato starch alters the cecal microbiome and gene expression in mice fed a western diet based on NHANES data

Allen D. Smith,* Celine Chen, Lumei Cheung, Robert E. Ward, B. Sky Jones, Elizabeth A. Pletsch and Harry D. Dawson

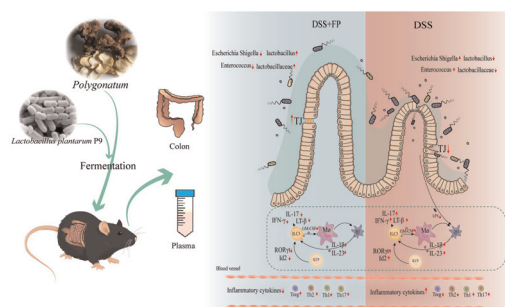


PAPERS

3158

Modulatory effects of fermented *Polygonatum cyrtoneura* Hua on immune homeostasis and gut integrity in a dextran-sulfate-sodium-induced colitis model

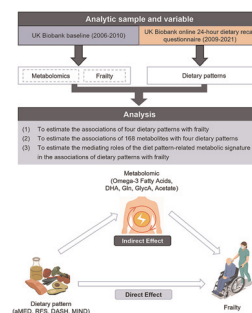
Tao Li, Fengyao Yu, Tao Zhang, Xiaoya Wang, Yong Sun, Gexia Shuai, Yuhuan Chen, Yanhua Xue, Jinlian Zhang* and Hua Zhang*



3174

Dietary patterns, metabolomics and frailty in a large cohort of 120 000 participants

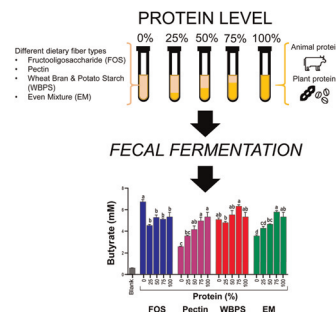
Zhao Yao, Xueqing Jia, Zhuoneng Chen, Tianfang Zhang, Xin Li, Liming Zhang, Fenfen Chen, Jingyun Zhang, Ziwei Zhang, Zuyun Liu* and Zuobing Chen*



3186

Protein combined with certain dietary fibers increases butyrate production in gut microbiota fermentation

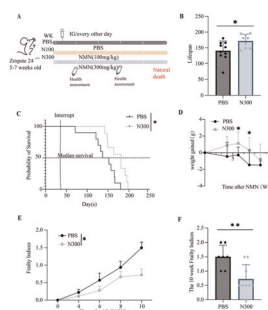
Rachel Jackson, Tianming Yao,* Nuseybe Bulut, Thaisa M. Cantu-Jungles* and Bruce R. Hamaker*



3199

β -Nicotinamide mononucleotide supplementation prolongs the lifespan of prematurely aged mice and protects colon function in ageing mice

Yanrou Gu, Lidan Gao, Jiamin He, Man Luo, Mei Hu, Yuxian Lin, Jianxin Li, Tongyao Hou,* Jianmin Si* and Yingcong Yu*



RETRACTION

3214

Retraction: Dealcoholized muscadine wine was partially effective in preventing and treating dextran sulfate sodium-induced colitis and restoring gut dysbiosis in mice

Hao Li, Lindsey M. Christman, Yavuz Yagiz, Taylor L. Washington, Gary P. Wang and Liwei Gu*

