

## IN THIS ISSUE

ISSN 2042-650X CODEN FFOUAI 14(17) 7729–8034 (2023)



### Cover

See Junzhi Lin, Li Han, Haozhou Huang *et al.*, pp. 7738–7759.

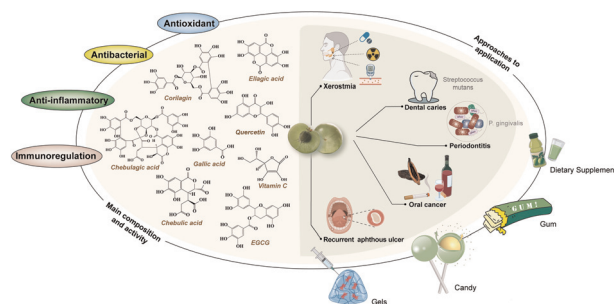
Image reproduced by permission of Haozhou Huang from *Food Funct.*, 2023, **14**, 7738.

## REVIEWS

7738

### *Phyllanthus emblica* fruits: a polyphenol-rich fruit with potential benefits for oral management

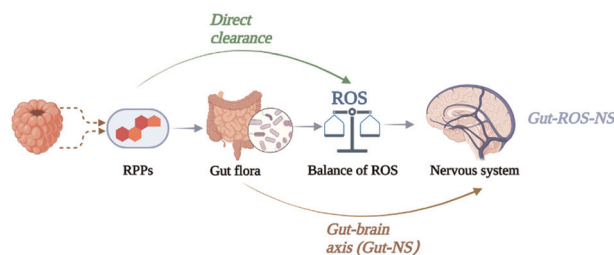
Gefei Li, Qiang Yu, Mengqi Li, Dingkun Zhang, Ji Yu, Xiaohan Yu, Chenxi Xia, Junzhi Lin,\* Li Han\* and Haozhou Huang\*



7760

### Raspberry polyphenols alleviate neurodegenerative diseases: through gut microbiota and ROS signals

Boyong Hu, Yi Shi, Chunyue Lu, Haixin Chen, Yuqing Zeng, Jing Deng, Lin Zhang,\* Qinlu Lin,\* Wen Li,\* Yuan Chen, Feifei Zhong and Xu Xia



## Editorial Staff

### Executive Editor

Philippa Ross

### Deputy Editor

Alice Smallwood

### Editorial Production Manager

Jason Woolford

### 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 Jason Woolford, Editorial production manager, in the first instance. E-mail [food@rsc.org](mailto:food@rsc.org)

For pre-submission queries please contact Philippa Ross, Executive Editor. E-mail [food-rsc@rsc.org](mailto: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](mailto: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](http://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](mailto:advertising@rsc.org)

For marketing opportunities relating to this journal, contact [marketing@rsc.org](mailto:marketing@rsc.org)

# Food & Function

Linking the chemistry and physics of food with health and nutrition

[rsc.li/food-function](http://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 Liège, 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](http://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

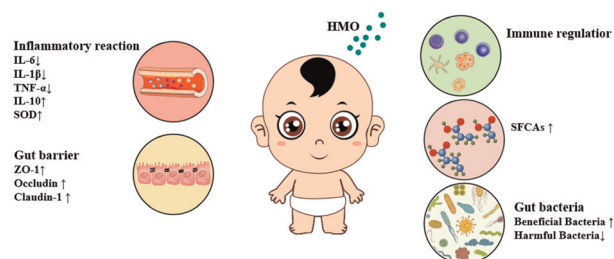


## REVIEWS

7780

## The function of human milk oligosaccharides and their substitute oligosaccharides as probiotics in gut inflammation

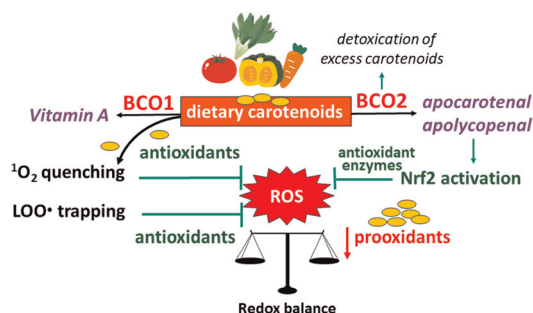
Kunyi Zhao, Hao Pang, Kaidi Shao, Zizhen Yang, Shangyong Li\* and Ningning He\*



7799

## Revisiting carotenoids as dietary antioxidants for human health and disease prevention

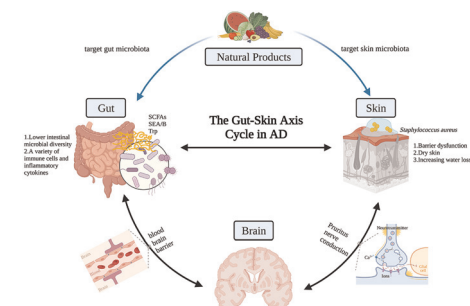
Junji Terao



7825

## From gut to skin: exploring the potential of natural products targeting microorganisms for atopic dermatitis treatment

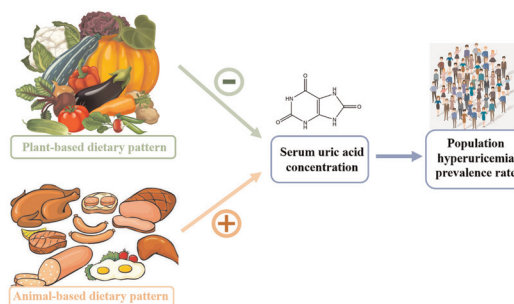
Hang Zhao, Xin Ma, Jiankun Song, Jingsi Jiang, Xiaoya Fei, Yue Luo, Yi Ru, Ying Luo, Chunjie Gao, Le Kuai\* and Bin Li\*



7853

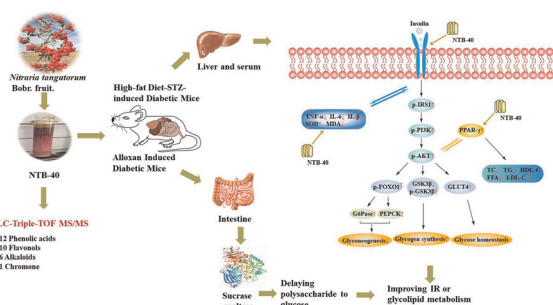
## Dietary patterns, uric acid levels, and hyperuricemia: a systematic review and meta-analysis

Sijie Cheng, Lishen Shan, Zhuying You, Yang Xia, Yuhong Zhao, Hehua Zhang\* and Zhiying Zhao\*



## PAPERS

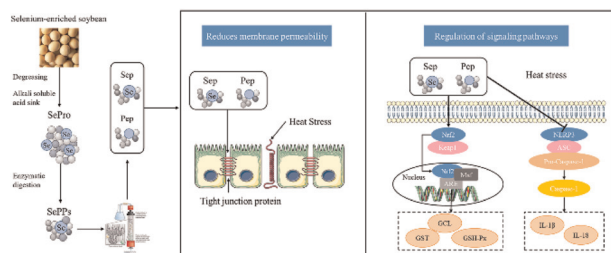
7869



### Hypoglycemic effect of *Nitraria tangutorum* fruit by inhibiting glycosidase and regulating IRS1/PI3K/AKT signalling pathway and its active ingredient identification by UPLC-MS

Sirong Jiang, Luya Wang, Wenjing Jia, Di Wu, Li Wu, Xiaohui Zhao, Lijuan Mei, Yanduo Tao and Huilan Yue\*

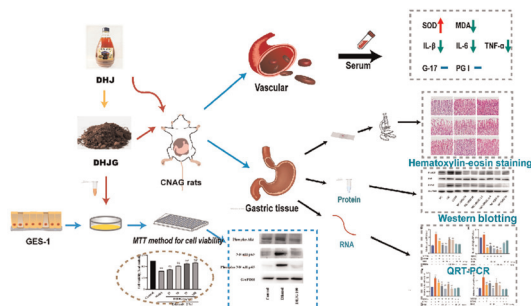
7882



### Selenium-enriched peptides identified from selenium-enriched soybean protein hydrolysate: protective effects against heat damage in Caco-2 cells

Xinwei Chen, Wanlu Liu, Jian Zhang, He Li\* and Xinqi Liu\*

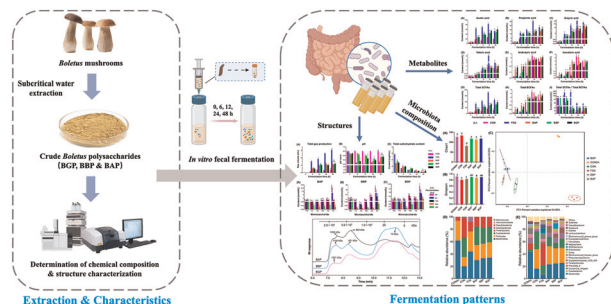
7897



### Dangshen Huangjiu prevents gastric mucosal injury and inhibits Akt/NF-κB pathway

Qiaohong Xu, Fang Cui, Xiaodong Li, Nan Wang, Yingrui Gao, Shiping Yin and Fangdi Hu\*

7912



### Structural characteristics and *in vitro* fermentation patterns of polysaccharides from *Boletus* mushrooms

Li Chen, Yuxin Wang, Jiabin Liu, Zhiyuan Hong, Ka-Hing Wong, Jia-Chi Chiou, Baojun Xu, Carlos L. Cespedes-Acuña, Weibin Bai\* and Lingmin Tian\*

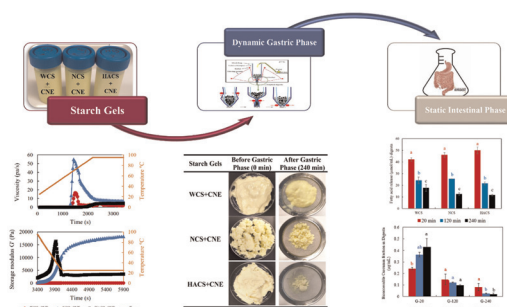


## PAPERS

7924

## The impact of differently structured starch gels on the gastrointestinal fate of a curcumin-containing nanoemulsion

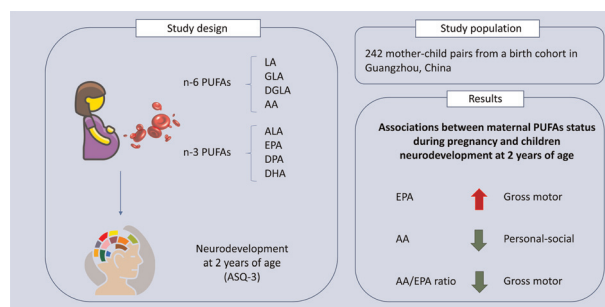
Haroon Jamshaid Qazi, Aiqian Ye,\* Alejandra Acevedo-Fani and Harjinder Singh



7938

## Association between maternal erythrocyte PUFAs during pregnancy and neurodevelopment in children at 2 years of age: a birth cohort study

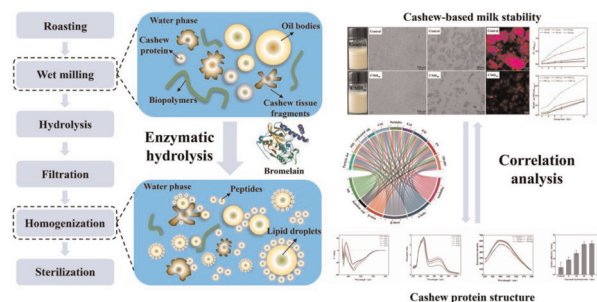
Nan Liu, Yannan He, Feng Zhao, Xiaoxu Li, Yujing Chen, Bibo Jiang, Min Wei, Duo Li and Li Cai\*



7946

## Effects of enzymatic modification on the stability of cashew-based milk

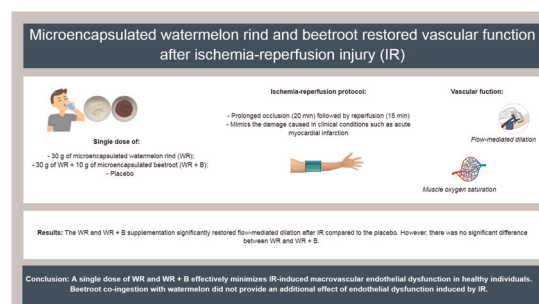
Wenjie Pan, Zhaojun Zheng, Panpan Li, Zixuan Ai and Yuanfa Liu\*



7959

## The effect of microencapsulated watermelon rind (*Citrullus lanatus*) and beetroot (*Beta vulgaris* L.) ingestion on ischemia/reperfusion-induced endothelial dysfunction: a randomised clinical trial

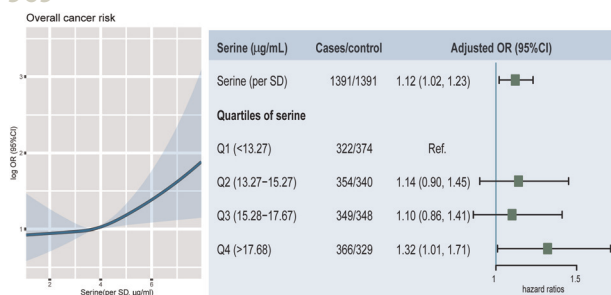
Mônica Volino-Souza, Gustavo Vieira de Oliveira, Anna Carolina Tavares, Karen Souza and Thiago Alvares\*





## PAPERS

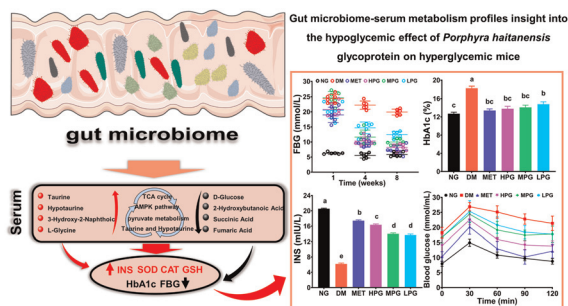
7969



### The association of serum serine levels with the risk of incident cancer: results from a nested case–control study

Tong Liu, Chenan Liu, Mengmeng Song, Yaping Wei, Yun Song, Ping Chen, Lishun Liu, Binyan Wang\* and Hanping Shi\*

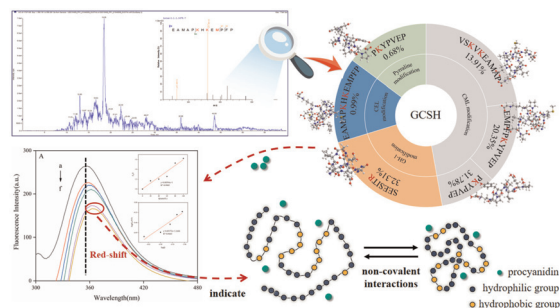
7977



### Gut microbiome–serum metabolic profiles: insight into the hypoglycemic effect of *Porphyra haitanensis* glycoprotein on hyperglycemic mice

Yujia Ou, Yuehong Guo, Mingrong Chen, Xiaodan Lu, Zebin Guo\* and Baodong Zheng\*

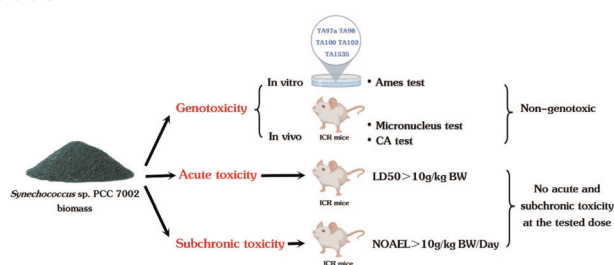
7992



### Structure relationship of non-covalent interactions between lotus seedpod oligomeric procyanidins and glycyated casein hydrolysate during digestion

Yu Ouyang, Yinggang Liang, Mengyao Niu, Jia Yan, Qianmei Chu, Mengzhou Zhou, Wei Li, Nianjie Feng\* and Qian Wu\*

8008



### Safety assessment of *Synechococcus* sp. PCC 7002 biomass: genotoxicity, acute and subchronic toxicity studies

Shiyang Li, Wei Guo, Mingyong Zeng and Haohao Wu\*

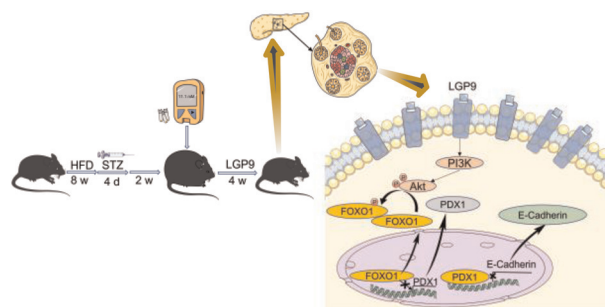


## PAPERS

8018

### A bovine milk-derived peptide ameliorates pancreatic $\beta$ -cell dedifferentiation through PI3K/Akt/FOXO1 signaling in type 2 diabetes

Yunbiao Lu, Rongrong Huang, Zhongkan Sun and Yu Ou\*



## CORRECTIONS

8030

### Correction: Undenatured type II collagen prevents and treats osteoarthritis and motor function degradation in T2DM patients and db/db mice

Fan Rui, Kang Jiawei, Hao Yuntao, Liu Xinran, Hu Jiani, Mao Ruixue, Liu Rui, Zhu Na, Xu Meihong and Li Yong\*

8031

### Correction: Dietary L-tryptophan alleviated LPS-induced intestinal barrier injury by regulating tight junctions in a Caco-2 cell monolayer model

Mengdie Chen, Yuyu Liu, Shanbai Xiong, Moucheng Wu, Bin Li, Zheng Ruan\* and Xiaobo Hu\*

