

# Biomaterials Science

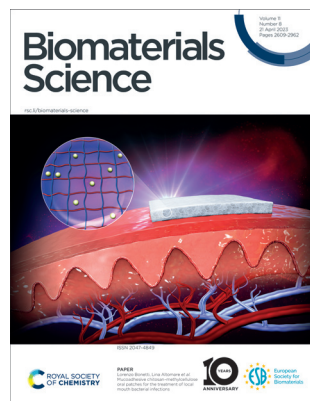
An international high impact journal exploring the underlying science behind the function, interactions and design of biomaterials

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ISSN 2047-4849 CODEN BSICCH 11(8) 2609–2962 (2023)

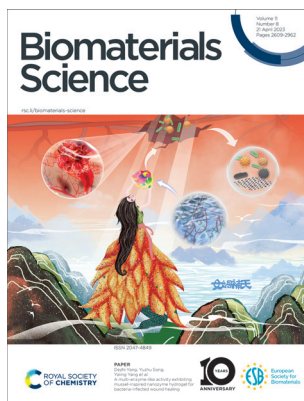


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See Lorenzo Bonetti, Lina Altomare *et al.*, pp. 2699–2710.

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### Inside cover

See Dezhi Yang, Yuzhu Song, Yaling Yang *et al.*, pp. 2711–2725.

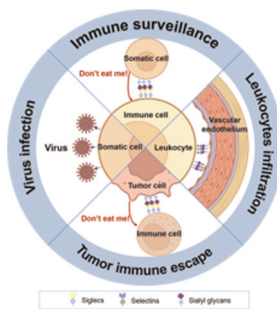
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## REVIEWS

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### Multivalent sialic acid materials for biomedical applications

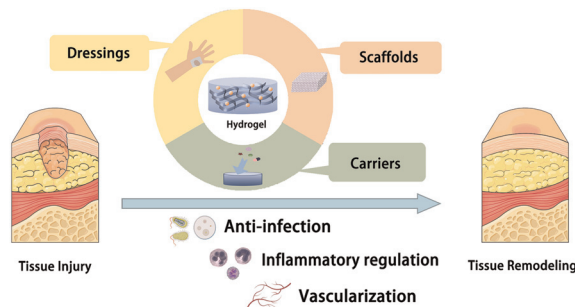
Yusong Cao, Wantong Song\* and Xuesi Chen\*



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### The diversified hydrogels for biomedical applications and their imperative roles in tissue regeneration

Xinhui Wang, Yuan Ma, Feng Lu\* and Qiang Chang\*



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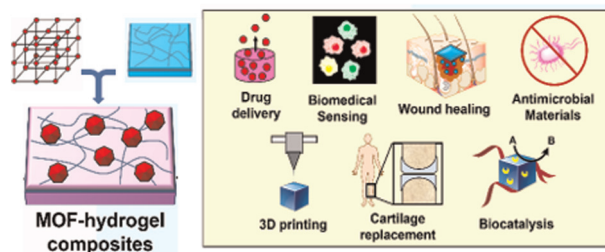


## REVIEWS

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**Biomedically-relevant metal organic framework-hydrogel composites**

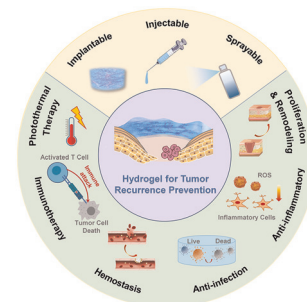
Jason Y. C. Lim,\* Leonard Goh, Ken-ichi Otake, Shermin S. Goh, Xian Jun Loh and Susumu Kitagawa\*



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**Recent advances in hydrogels for preventing tumor recurrence**

Qiuhui Qian,\* Jie Song, Chen Chen, Qian Pu, Xingcheng Liu and Huili Wang\*

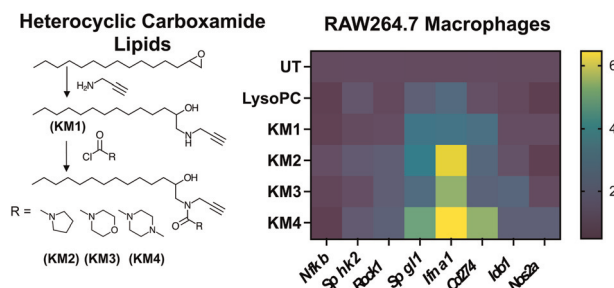


## COMMUNICATION

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**Single-tailed heterocyclic carboxamide lipids for macrophage immune-modulation**

Kuo-Ching Mei,\* Rebeca T. Stiepel, Emily Bonacquisti, Natalie E. Jasiewicz, Ameya Pravin Chaudhari, Palas B. Tiwade, Eric M. Bachelder, Kristy M. Ainslie, Owen S. Fenton and Juliane Nguyen\*

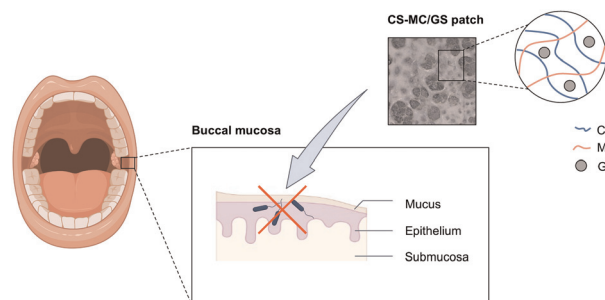


## PAPERS

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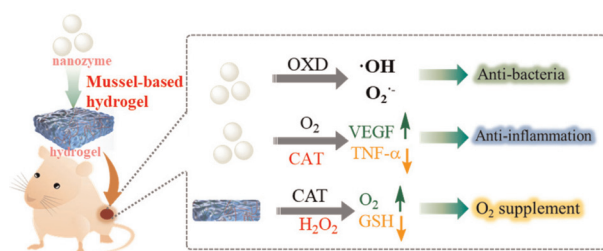
**Mucoadhesive chitosan–methylcellulose oral patches for the treatment of local mouth bacterial infections**

Lorenzo Bonetti,\* Alice Caprioglio, Nina Bono, Gabriele Candiani and Lina Altomare\*



## PAPERS

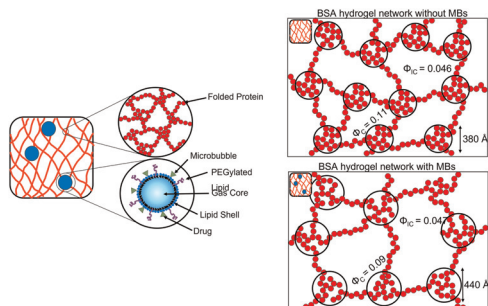
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### A multi-enzyme-like activity exhibiting mussel-inspired nanozyme hydrogel for bacteria-infected wound healing

Junrun Zhu, Qinqin Han, Qiulan Li, Fang Wang, Miaodan Dong, Nuoya Liu, Xiao Li, Dan Chen, Dezhi Yang,\* Yuzhu Song\* and Yaling Yang\*

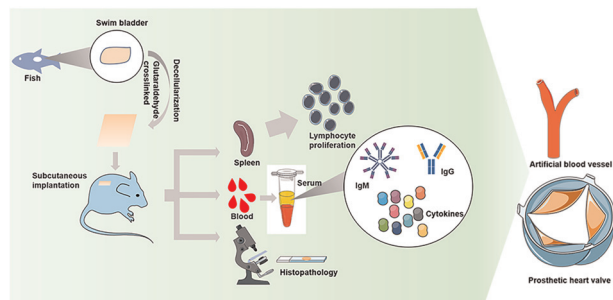
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### Structural and mechanical properties of folded protein hydrogels with embedded microbubbles

Christa P. Brown, Matt D. G. Hughes, Najet Mahmoudi, David J. Brockwell, P. Louise Coletta, Sally Peyman, Stephen D. Evans and Lorna Dougan\*

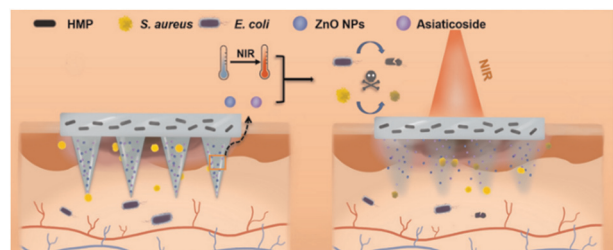
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### Immunogenicity assessment of swim bladder-derived biomaterials

Yuanyuan Kong, Jing Liu, Honghui Jiang, Lili Song, Deling Kong and Zhihong Wang\*

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### Multifunctional zwitterionic microneedle dressings for accelerated healing of chronic infected wounds in diabetic rat models

Yuqing Cai, Xiaodong Xu, Minmin Wu, Jiaqi Liu, Jie Feng\* and Jing Zhang\*

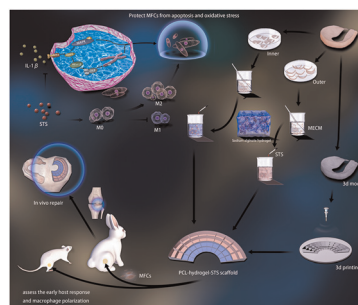


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### STS loaded PCL-MECM based hydrogel hybrid scaffolds promote meniscal regeneration via modulating macrophage phenotype polarization

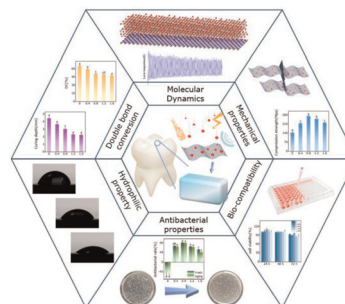
Muzhe Li, Han Yin, Mingxue Chen, Haotian Deng, Guangzhao Tian, Weimin Guo, Guoliang Yi, Quanyi Guo,\* Zhiwei Chen\* and Shuyun Liu\*



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### BNN/TiO<sub>2</sub> nanocomposite system—modified dental flow resins and the mechanism of the enhancement of mechanical and antibacterial properties

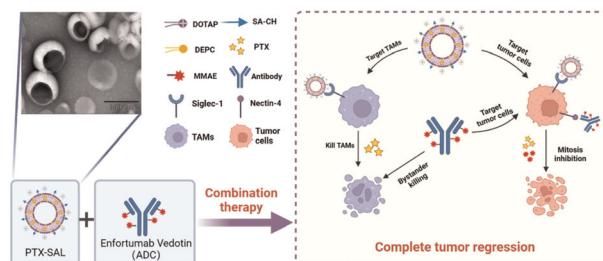
Xinzi Kong, Qize Han, Axue Jiang, Yurui Wang, Ruizhi Li, Yuting Wang, Shengjie Xiao, Rong Wei and Yu Ma\*



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### A potential platform of combining sialic acid derivative-modified paclitaxel cationic liposomes with antibody–drug conjugates inspires robust tumor-specific immunological memory in solid tumors

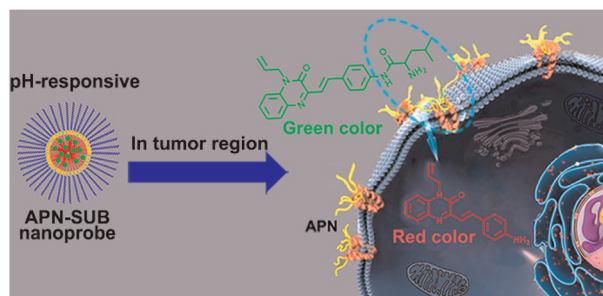
Wenliang Sun, Yantong Li, Dezhi Sui, Zhaowei Qi, Xinran Zhao, Wei Zhou, Huiguo Hu, Xinrong Liu, Yanzhi Song\* and Yihui Deng\*



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### An aminopeptidase N-based color-convertible fluorescent nano-probe for cancer diagnosis

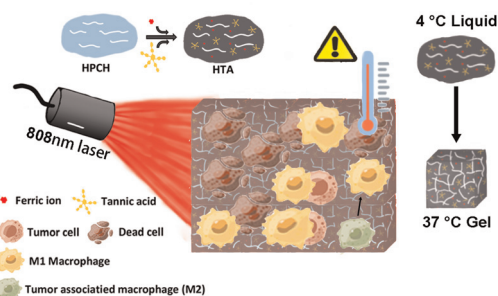
Jiapei Yang, Chengshuo Shen, Ting Zhu, Qiuhui Qian, Xuebo Diao, Wei Huang, Wumaier Yasen,\* Yue Su,\* Xinyuan Zhu and Leilei Shi\*





## PAPERS

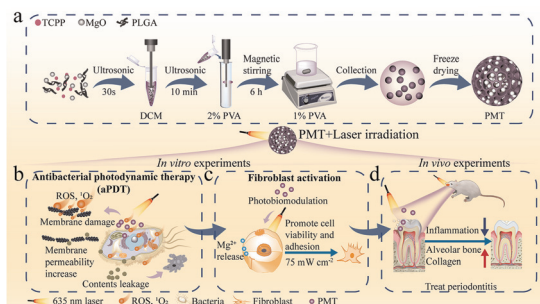
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### Biodegradable photothermal thermosensitive hydrogels treat osteosarcoma by reprogramming macrophages

Guowen Luo, Ziyang Xu, Hua Zhong, Hongwei Shao, Hongyi Liao, Nan Liu, Xulin Jiang,\* Yu Zhang\* and Xiongfa Ji\*

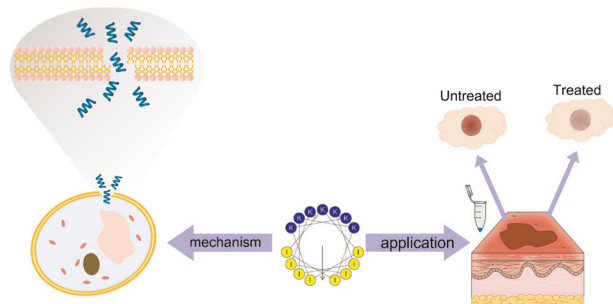
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### TCPP/MgO-loaded PLGA microspheres combining photodynamic antibacterial therapy with PBM-assisted fibroblast activation to treat periodontitis

Wanmeng Wang, Yunjia Song, Yuan Tian, Bo Chen, Yunkai Liang, Yu Liang, Changyi Li\* and Ying Li\*

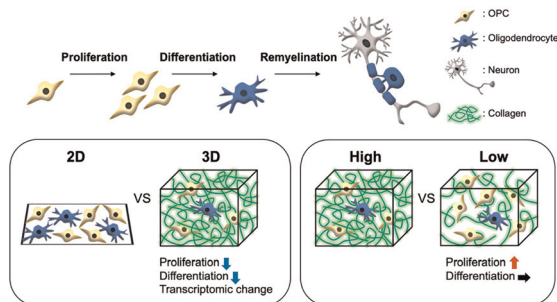
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### Antifungal activity of designed $\alpha$ -helical antimicrobial peptides

Ruicheng Xu, Jing Tang, Roja Hadianamrei, Suyu Liu, Songwei Lv, Rongrong You, Fang Pan, Peng Zhang, Nan Wang, Zhiqiang Cai and Xiubo Zhao\*

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### Phenotypic and transcriptional characterization of oligodendrocyte precursor cells in a 3D culture

Shizuka Nakano, Akiko Uyeda, Yukiko T. Matsunaga\* and Rieko Muramatsu\*

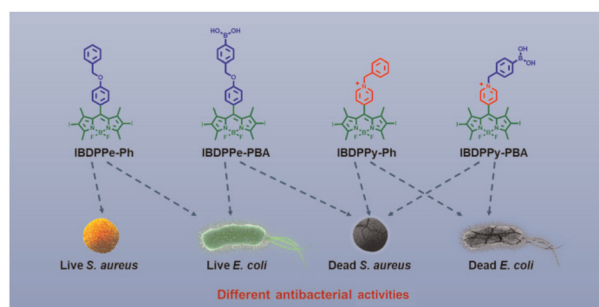


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## Structural optimization of BODIPY photosensitizers for enhanced photodynamic antibacterial activities

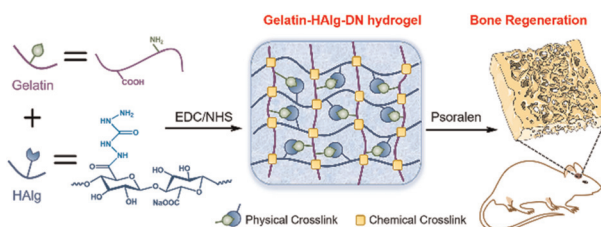
Hui Wen, Qihang Wu, Liqian Liu, Yite Li, Tingting Sun\* and Zhigang Xie\*



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## Extracellular matrix (ECM)-inspired high-strength gelatin-alginate based hydrogels for bone repair

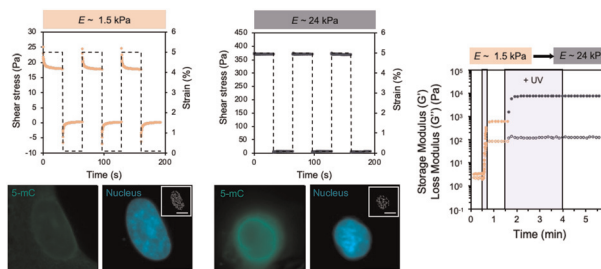
Tengling Wu, Luxing Liu, Ziwei Gao, Chunyan Cui, Chuanchuan Fan, Yang Liu, Mingyuan Di, Qiang Yang,\* Ziyang Xu\* and Wenguang Liu



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## Hydrogel mechanics regulate fibroblast DNA methylation and chromatin condensation

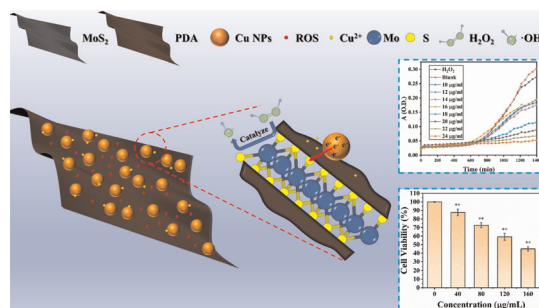
Jenna L. Sumey, Peyton C. Johnston, Abigail M. Harrell and Steven R. Caliari\*



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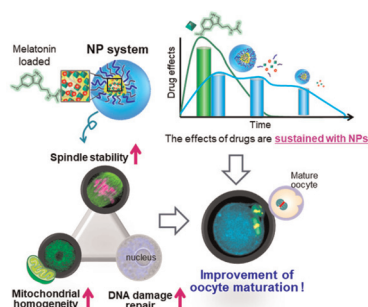
MoS<sub>2</sub>/PDA@Cu composite as a peroxidase-mimicking enzyme with high-effect antibacterial and anticancer activity

Junli Liu,\* Jiahao Shen, Yile Wang, Chenfeng Dong, Jin Liu, Yunxiao Yi, Hui Liu, Yan Bao, AiPing Hui and Aiqin Wang



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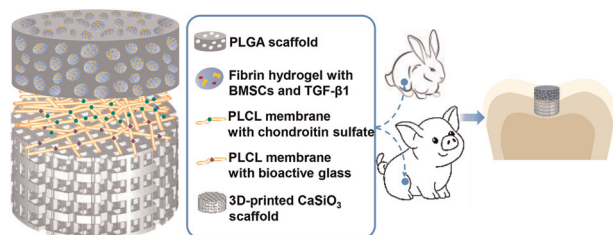
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### Melatonin loaded PLGA nanoparticles effectively ameliorate the *in vitro* maturation of deteriorated oocytes and the cryoprotective abilities during vitrification process

Sujin Lee, Hye Jin Kim, Hui Bang Cho, Hye-Ryoung Kim, Sujeong Lee, Ji-In Park and Keun-Hong Park\*

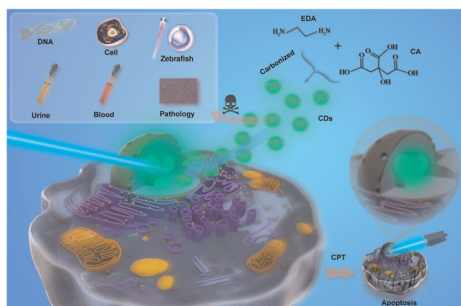
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### A triphasic biomimetic BMSC-loaded scaffold for osteochondral integrated regeneration in rabbits and pigs

Zhaoyi Wang, Wangbei Cao, Fanghui Wu, Xiurong Ke, Xinyu Wu, Tong Zhou, Jun Yang, Guojing Yang, Cheng Zhong, Zhongru Gou\* and Changyou Gao\*

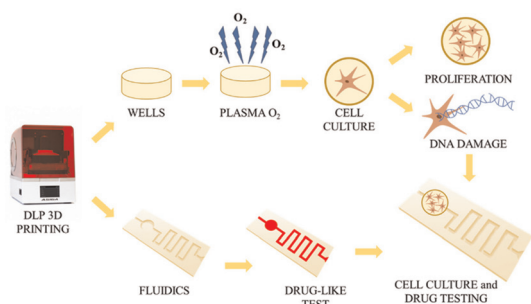
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### Superior biocompatible carbon dots for dynamic fluorescence imaging of nucleoli in living cells

Liyun Lin, Zhouzhou Bao, Pengfei Jiang, Zhourui Xu, Bo Shi, Gaixia Xu,\* Dan Wang,\* Xunbin Wei\* and Bobo Gu\*

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### 3D printable acrylate polydimethylsiloxane resins for cell culture and drug testing

Simona Villata, Marta Canta, Désirée Baruffaldi, Alice Pavan, Annalisa Chiappone, Candido Fabrizio Pirri, Francesca Frascella\* and Ignazio Roppolo





## RETRACTION

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**Retraction: The role of Sox9 in collagen hydrogel-mediated chondrogenic differentiation of adult mesenchymal stem cells (MSCs)**

Xianfang Jiang, Xianyuan Huang, Tongmeng Jiang, Li Zheng,\* Jinmin Zhao and Xingdong Zhang

