Professor Ruikang Tang

2025-today Executive Vice President of Hangzhou, Normal University Hangzhou Normal University

2005-today Professor in Chemistry Department of Chemistry, Zhejiang University

BACKGROUND

2001-2005 Research Assistant Professor Department of Chemistry, State University of New York at Buffalo

1998-2001 Postdoctoral Researcher, Department of Chemistry, State University of New York at Buffalo

EDUCATION & TRAINING

1997-1998 PhD in College of Chemistry and Chemical Engineering of Nanjing University

1995-1997 Master in College of Chemistry and Chemical Engineering of Nanjing University

SCIENTIFIC DIRECTOR AND GRANT RECIPIENT

2016 Biomineralization

2016 National Science Fund for Distinguished Young Scholars Project Code: 21625105. Project period: 2016-2020

2018 Basic research on nano-cluster materials and their assembly

2018National Key Research and Development Program of China Project Code: 2018YFC1105101. Project period 2018-2021

2021Chemical biology research on material regulation of virus to construct a novel vaccine

2021National Natural Science Foundation of China (Key Program) Project Code: 22037005. 2021-2025

REFERENCE (5 YEARS)

- Tang S, Cui Y, Xiao Y, Li W, Zhou Y, Li C, Ma B, Li C, Li B, Fu G, Tang R, Wang X. Targeted Lipid Transfer Nanoshuttle via Lipid-Specific Transcytosis Induces Atherosclerotic Plaque Regression. Adv Mater. 2026 Jan;38(4):e11606.
- Zhang T, Lei T, Han J, Chen Y, Nie Y, Zhang R, Cai H, Guo Z, Yan R, Li Z, Xu Y, Zhang X, Xu H, Chen J, Liao Y, He Q, Zhang H, Chen J, Zhu S, Guo J, Liu Y, Pan H, Chen J, Yin W, Ouyang H, Shen W, Yin Z, Tang R, Chen X. A bioinspired mineralized collagen scaffold promotes enthesis healing and activates Gli1 expression in preclinical models. Sci Transl Med. 2025 Dec 10;17(828):eado6948.
- Sang Y, Fang W, Kong K, Pan H, Guo Y, He X, et al. Ultratough and ultrastiff elastomers formed by inorganic ionic molecular linkers. Matter. 2025;8(10):102193.
- Liang K, Zhao L, Zhang S, Zheng L, Zhang Z, Wang S, Chen J, Xu W, Wang W, Yang H, Song C, Qiu P, Zhao C, Fang W, Zhu J, Fan S, Liu Z, Tang R, Zhao Y, Fang X. Spatiotemporal-adaptive nanotherapeutics promote post-injury regeneration in ageing through metabolic modulation. Nat Nanotechnol. 2025 Nov;20(11):1700–1712.
- Kong K, Cai G, Ma Z, Shen Y, Jin B, Chen P, Yin Y, Sun J, Liu Z, Tang R. Synthesis of Crystalline Calcium Bicarbonate. J Am Chem Soc. 2025 Oct 22;147(42):38492–38499.

- Qin K, Zheng Z, Zhou Y, Shen X, Tang R, Wang X. Tumor Microenvironment-Responsive Hydrogen-Generating Zn-Doped ReZIF-8 Nanoplatform for Enhanced Tumor Suppression. Advanced Healthcare Materials. 2026;15(3):e02489.
- Pan X, Lv Y, Zheng Z, Li C, Hu L, Lin J, et al. Nanoadjuvant-Mediated EV-Derived Artificial APC to Trigger Protective Immunity Against Virus Infection. Small. 2025;21(40):e01291.
- Lin J, Hu L, Wang X, Tang R. Life Engineering of Materials: Artificial Materials as Plugins for Biological Regulations. Advanced Materials. 2025;37(51):e05767.
- Zhang J, Xu H, Fang W, Liu X, Zhang H, Tang R, et al. Calcium Carbonate as an Ionic Molecular Lock for Ultrastrong Fluorescence of Single Organic Molecules. Angewandte Chemie International Edition. 2025;64(3):e202415664.
- Ma X, Yin H, Tang R, Jin C. Elucidating the Growth and Shape Evolution Mechanisms of Gold Decahedral Nanocrystals by In Situ Liquid Cell Transmission Electron Microscopy. ACS Nano. 2025;19(43):38173-83.
- Han J, Wang S, Fang W, Yang Y, Zhou R, Zhang Y, Yu J, Tang R, Liu Z, Gu Z. Long-acting IL-2 release from pressure-fused biomineral tablets promotes antitumor immune response. Nat Cancer. 2025 Aug;6(8):1384–1399.
- He Y, Fang W, Tang R, Liu Z. Controllable Polymerization of Inorganic Ionic Oligomers for Precise Nanostructural Construction in Materials. ACS Nano. 2025 Feb 25;19(7):6648–6662.
- Wang S, Yao S, Liang K, Tian Y, Guo Z, Cao S, et al. Bacteria-Triggered Mineralization of Silica Shells with Nanochannels for Biocatalysis in Harsh Conditions. ACS Nano. 2024;18(41):28198-211.
- Song C, Wang S, Zhang Z, Kong K, Liang K, He Y, et al. Highly Deformable and Robust Ionic Structure for Multi-Tissue Adaptive Hemostatic Sponges. Advanced Functional Materials. 2024;34(48):2408658.
- Gu C, Chen P, Tian H, Yang Y, Huang Z, Yan H, Tang C, Xiang J, Shangguan L, Pan K, Chen P, Huang Y, Liu Z, Tang R, Fan S, Lin X. Targeting initial tumour-osteoclast spatiotemporal interaction to prevent bone metastasis. Nat Nanotechnol. 2024 Jul;19(7):1044–1054.
- Tian F, Zhou Y, Ma Z, Tang R, Wang X. Organismal Function Enhancement through Biomaterial Intervention. Nanomaterials. 2024 Feb;14(4):377.
- Liu X, Kong K, Wang J, Liu Z, Tang R. Molecular Weight-Dependent Physiochemical Behaviors of Calcium Carbonate Chains. J Phys Chem Lett. 2024 Jun 6;15(22):5905–5913.
- Zheng H, Bian M, Zhou Z, Shi Y, Shen M, Wang M, Jiang W, Shao C, Tang R, Pan H, He J, Fu B, Wu Z. Small Charged Molecule-Mediated Fibrillar Mineralization: Implications for Ectopic Calcification. ACS Nano. 2024 Aug 27;18(34):23537–23552.
- Shan S, Tang Z, Sun K, Jin W, Pan H, Tang R, Yin W, Xie Z, Chen Z, Shao C. ACP-Mediated Phase Transformation for Collagen Mineralization. Adv Healthc Mater. 2024 Jan;13(2):e2302418.
- Yu X, Kong K, Ma X, Yu Y, Shen Y, Sang Y, et al. Organic–Inorganic Copolymerization Induced Oriented Crystallization for Robust Lightweight Porous Composite. Small. 2024;20(48):2403443.
- Fang W, Mu Z, He Y, Kong K, Jiang K, Tang R, Liu Z. Organic–inorganic covalent-ionic molecules for elastic ceramic plastic. Nature. 2023 Jul;619:293–299.
- Hao H, Wu S, Lin J, Zheng Z, Zhou Y, Zhang Y, Guo Q, Tian F, Zhao M, Chen Y, Xu X, Hou L, Wang X, Tang R. Immunization against Zika by entrapping live virus in a subcutaneous self-adjuvanting hydrogel. Nat Biomed Eng. 2023 Jul;7(7):928–942.
- Lin J, Zhou Y, Li C, Li B, Hao H, Tian F, et al. Hydrogel activation of Mincle receptors for tumor cell processing: A novel approach in cancer immunotherapy. Biomaterials. 2024;311:122703.
- Li H, Xu Y, Wang Y, Cui Y, Lin J, Zhou Y, Tang S, Zhang Y, Hao H, Nie Z, Wang X, Tang R. Material-engineered bioartificial microorganisms enabling efficient scavenging of waterborne viruses. Nat Commun. 2023 Aug 3;14:4658.
- Liu Z, Lin J, Li B, Zhou Y, Li C, Cui Y, Tian F, Tang R, Wang X. Manganese-mineralized cancer cells as immunogenic cancer vaccines. J Mater Chem B. 2023 Nov;11(45):10923–10928.
- Tang R, Suzuki M. Special Issue on Biomineralization: From Principles to Practices. ACS Biomater Sci Eng. 2023 Apr;9(4):1730–1732.
- Wang J, Liu Q, Guo Z, Pan H, Liu Z, Tang R. Progress on Biomimetic Mineralization and Materials for Hard Tissue Regeneration. ACS Biomater Sci Eng. 2023 Apr;9(4):1757–1773.
- Wu H, Shao C, Shi J, Hu Z, Zhou Y, Chen Z, Tang R, Xie Z, Jin W. Hyaluronic acid-mediated collagen intrafibrillar mineralization. Carbohydr Polym. 2023 Nov;319:121174.
- Yu C, Ying X, Shahbazi MA, Yang L, Ma Z, Ye L, Yang W, Sun R, Gu T, Tang R, Fan S, Yao S. A nano-conductive osteogenic hydrogel. Biomaterials. 2023 Oct;301:122266.
- Zhou Y, Hu Z, Jin W, Wu H, Zuo M, Shao C, Lan Y, Shi Y, Tang R, Chen Z, Xie Z, Shi J. Intrafibrillar Mineralization and Immunomodulatory Scaffold. Adv Healthc Mater. 2023 May;12(12):e2201548.
- Xiong W, Peng Y, Ma W, Xu X, Zhao Y, Wu J, Tang R. Microalgae-material hybrid for enhanced photosynthetic energy conversion. Natl Sci Rev. 2023 Jul;10(10):nwad200.
- Chen P, Liu X, Gu C, Zhong P, Song N, Li M, Dai Z, Fang X, Liu Z, Zhang J, Tang R, Fan S, Lin X. A plant-derived natural photosynthetic system for improving cell anabolism. Nature. 2022 Dec;612:546–554.
- Wang Q, Wang H, Yan H, Tian H, Wang Y, Yu W, Dai Z, Chen P, Liu Z, Tang R, Jiang C, Fan S, Liu X, Lin X. Suppression of osteoclast multinucleation. Sci Adv. 2022 Jul;8:eabn3333.
- Nie Z, Zhang Y, Tang R, Wang X. Biomimetic mineralization. J Inorg Biochem. 2022 Jul;232:111815.
- Jin W, Jin Y, Duan P, Wu H, Zhang L, Du Q, Pan H, Tang R, Shao C. Promotion of collagen mineralization by succinates. J Mater Chem B. 2022 Aug;10:5826–5834.
- Yao S, Zhao Y, Xu Y, Jin B, Wang M, Yu C, Guo Z, Jiang S, Tang R, Fang X, Fan S. Injectable dual-dynamic-bond hydrogel. Adv Healthc Mater. 2022 Jul;11:e2200516.
- Yu Y, Guo Z, Zhao Y, Kong K, Pan H, Xu X, Tang R, Liu Z. A flexible and degradable hybrid mineral. Adv Mater. 2022 Mar;34:e2107523.