Jianfeng Cai

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Department of Chemistry
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EDUCATION

- **Postdoctoral Associate,** Bioorganic Chemistry, **Yale University**, **2007-2009**
  Advisor: **Professor Andrew D. Hamilton**
- **PhD**, Bioorganic Chemistry, **Washington University in St. Louis**, **2002-2006**
  Advisor: **Professor John-Stephen Taylor**
  Thesis Title: *Design and Synthesis of Nucleic Acid Templated and Targeted Drugs and Probes*
- **MS**, **Nanjing University**, **China**, **2000**
- **BS**, **Nanjing University**, **China**, **1997**

POSITIONS AND EMPLOYMENT

- 2007-2009 Postdoctoral Associate, Yale University, New Haven, CT
- 2009-2015 Assistant Professor, University of South Florida, Tampa, FL
- 2015-2018 Associate Professor, University of South Florida, Tampa, FL
- 2018-Present Professor, University of South Florida, Tampa, FL
- 2020-Present USF Preeminent Professor, University of South Florida, Tampa, FL
- 2009-Present Member, Drug Discovery Program, Moffitt Cancer Center, Tampa, FL
- 2019-Present Director, Center for Molecular Diversity in Drug Design, Discovery and Development (CMD5)

AWARDS AND RECOGNITIONS

2021 Outstanding Faculty Award, USF
2020 Outstanding Graduate Faculty Mentor Award, USF
2020 USF Faculty Outstanding Research Achievement Award
2020 USF Preeminent Professor
2020 Member, National Academy of Inventors, USF Chapter
2020 Fellow of Royal Society of Chemistry (FRSC)
2018 USF Faculty Outstanding Research Achievement Award
2015-2017 Outstanding reviewer, *Journal of Medicinal Chemistry*
2015 USF Faculty Outstanding Research Achievement Award
2015 Biomatik Distinguished Junior Faculty Award, the Chinese-American Chemistry & Chemical Biology Professors Association (CAPA)
2014 Excellence in reviewing, European Journal of Medicinal Chemistry
2014 NSF Career Award
2014 ChemComm Emerging Investigator
2012 New Investigator award, Florida Bankhead Coley Cancer Research Program
2011 Ralph E. Powe Junior Faculty Enhancement Award, Oak Ridge Associated Universities

PROFESSIONAL MEMBERSHIPS

Member, American Chemical Society (Organic Chemistry and Medicinal Chemistry Division)
Member, American Peptide Society

PROFESSIONAL SERVICES

Editorial Services:

2015-	Editorial Board member, *ChemistrySelect*
2017-	Editorial Advisory Board member, *ChemistryOpen*
2018-	Associate Editor, Chemical Biology Section, *Molecules*
2020-	Associate Editor-in-Chief, *Acta Pharmaceutica Sinica B*

Grant Review Services:

2015.4	Panelist, CHEM-CLP, National Science Foundation
2015.6	Ad hoc member, BMBI, National Institute of Health
2017.2	Ad hoc member, SBCB, National Institute of Health
2017.7	Ad hoc member, Special Emphasis Panel, ZRG1 IDM-S (02) M, National Institute of Health
2017.11	Ad hoc member, Special Emphasis Panel, ZAI1 LG-M (J1), 1 National Institute of Health
2017.11	Ad hoc member, BMBI, ZRG1 BST-M (90) S, National Institute of Health
2018.3	Ad hoc member, Special Emphasis Panel, ZRG1 IDM-Y 82, National Institute of Health
2018. 9	Panelist, CHEM-CLP, National Science Foundation
2018. 10	Ad hoc member, Special Emphasis Panel, ZAG1 ZIJ-7 (J1), National Institute of Health
2018.11	Ad hoc member, Special Emphasis Panel, ZRG1 IDM-Y 82, National Institute of Health
2019.2	Ad hoc member, EBIT, National Institute of Health
2020.1	Ad hoc member, BMBI, National Institute of Health
2020.2	Ad hoc member, EBIT, National Institute of Health
2020.3	Panelist, BMAT, National Science Foundation
2020.6-	Standing member, BMBI, National Institute of Health
2021.4	Panelist, BMAT, National Science Foundation

RESEARCH INTEREST

Research Area: Bioorganic, Chemical Biology, Medicinal Chemistry, Biomaterials, and Biophysics
Research Focus: Design, synthesis and investigation of bioactive peptidomimetics; development of novel biomaterials

PUBLICATIONS

Work from Independent Career at University of South Florida:

162. Bo Huang,+ Li Zhou,+ Ruochuan Liu,+ Lei Wang, Songyi Xue, Yan Shi, Geon Ho Jeong, In Ho Jeong, Sihao Li, Jun Yin,* **Jianfeng Cai**.* Activation of E6AP/UBE3A-Mediated Protein Ubiquitination and Degradation Pathways by a Cyclic γ-AApeptide. ***J. Med. Chem.*** 2022. ASAP

161. Sami Abdulkadir,+ Chunpu Li,+ Wei Jiang,+ Xue Zhao, Peng Sang, Lulu Wei, Yong Hu,* Qi Li,* and **Jianfeng Cai**.* Modulating Angiogenesis by Proteomimetics of Vascular Endothelial Growth Factor. ***J. Am. Chem. Soc.,*** 2022, ASAP.

160. Lulu Wei and **Jianfeng Cai**.* Novel Peptides and Peptidomimetics in Drug Discovery. ***Acta Pharmaceutica Sinica B***, 2021, 2606-2608.

159. Maochao Zheng, Huanchang Lina, Wancong Zhang, Shijie Tang,* Daojun Liu,* and **Jianfeng Cai**.* Poly(L-ornithine)-grafted zinc phthalocyanines as dual-functional antimicrobial agents with intrinsic membrane damage and photothermal ablation capacity. ***ACS Infect. Dis***. 2021, 7, 2917–2929.

158. Peng Sang,+ Hongxiang Zeng,+ Candy Lee,+ Yan Shi, Minghui Wang, Cong Pan, Lulu Wei, Chenglong Huang, Mingjun Wu, Weijun Shen,* Xi Li,* and **Jianfeng Cai**.* α/sulfono-γ-AApeptide Hybrid Analogues of Glucagon with Enhanced Stability and Prolonged in vivo Activity. ***J. Med. Chem.*** 2021, 64, 13893–13901.

157. Mengmeng Zheng,+ Chunpu Li,+ Mi Zhou,+ Ru Jia, Gang Cai, Fengyu She, Lulu Wei, Shaohui Wang, Jie Yu, Dingyan Wang, Laurent Calcul, Xingmin Sun, Xiaomin Luo, Feng Cheng, Qi Li,* Yan Wang,* and **Jianfeng Cai**.* Discovery of Cyclic Peptidomimetic Ligands Targeting the Extracellular Domain of EGFR. ***J. Med. Chem.*** 2021, 64, 11219-11228.

156. Wei Jiang, Xingyu Luo, Lulu Wei, Shanmei Yuan, **Jianfeng Cai,*** Xiqun Jiang,* and Yong Hu.* The Sustainability of Energy Conversion Inhibition for Tumor Ferroptosis Therapy and Chemotherapy. ***Small***, 2021, 17, 2102695.

155. Mengmeng Zheng,+ Chunpu Li,+ Mi Zhou,+ Ru Jia, Fengyu She, Lulu Wei, Feng Cheng, Qi Li, * **Jianfeng Cai*** and Yan Wang.* Peptidomimetic-based antibody surrogate for HER2. ***Acta Pharmaceutica Sinica B***, 2021, 2645-2654.

154. Yingru Zhang,+ Chunpu Li,+ Ru Jia,+ Ruixuan Gao, Yiyang Zhao, Qing Ji, **Jianfeng Cai**,* Qi Li,* and Yan Wang.* PEG-poly(amino acid)s/EpCAM aptamer multifunctional nanoparticles arrest the growth and metastasis of colorectal cancer. ***Biomater. Sci.*** 2021, 9, 3705-3717.

153. Song Qing, Han Zhifen, Xinnan Wu, Yan Wang, Lihong Zhou, Liu Yang, Ningning Liu, Hua Sui, **Jianfeng Cai**, Qing Ji,* Li Qi.* β-arrestin1 promotes colorectal cancer metastasis through GSK-3β/β-catenin signaling-mediated epithelial-to-mesenchymal transition. ***Frontiers Cell Develop. Biol.*** 2021, 9, 650067.

152. Yan Shi, Peng Sang and **Jianfeng Cai**.*. Discovery of α-Helix-Mimicking Sulfono-γ-AApeptides as p53−MDM2 inhibitors. ***Future. Med. Chem.*** 2021, 13, 12, 1021-1023.

151. Minghui Wang,+ Xiaoqian Feng,+ Ruixuan Gao, Peng Sang, Xin Pan, Lulu Wei, Chao Lu,* Chuanbin Wu,* **Jianfeng Cai.*** Modular Design of Membrane Active Antibiotics: From Macromolecular Antimicrobials to Small Scorpion-like Peptidomimetics. ***J. Med. Chem.*** 2021, 9894-9905.

150. Peng Teng,*,+ Mengmeng Zheng,+ Darrell Cole Cerrato, Yan Shi, Mi Zhou, Songyi Xue, Wei Jiang, Lukasz Wojtas, Li-June Ming, Yong Hu,* **Jianfeng Cai.*** The Folding Propensity of α/Sulfono-γ-AA Peptidic Foldamers with Both Left- and Right-Handedness. ***Commun. Chem.*** 2021, 4, 58.

149. Lulu Wei,+ Ruixuan Gao,+ Minghui Wang,+ Yafeng Wang, Yan Shi, Meng Gu and **Jianfeng Cai**.* Dimeric Lipo-α/sulfono-γ-AA Hybrid Peptides as Broad-Spectrum Antibiotic Agents. ***Biomater. Sci.*** 2021, 6, 3207-3217.

148. Yin Shi, Xiaoqian Feng, Jing Wang, Limin Lin, Biyuan Wu, Guilin Zhou, Feiyuan Yu, Qian Xu, Daojun Liu, Guilan Quan, Chao Lu,* Xin Pan,* **Jianfeng Cai**,* Chuanbin Wu.* Virus-Inspired Surface-Nanoengineered Antimicrobial Liposome: A potential System to Simultaneously Achieve High Activity and Selectivity. ***Bioactive Mat***. 2021, 6, 3207–3217.

147. Maochao Zheng, Miao Pan, Wancong Zhang, Huanchang Lin,Shenlang Wu, Chao Lu,* Shijie Tang,* Daojun Liua,* **Jianfeng Cai**.* Poly(α-L-lysine)-based nanomaterials for versatile biomedical applications: Current advances and perspectives. ***Bioactive Mat***. 2021, 6, 1878-1909.

146. **Jianfeng Cai*** and Ruihui Liu.* Introduction to Antibacterial Biomaterials. ***Biomater. Sci.*** 2020, 8, 6812-6813.

145. Qing Song, Liu Yang, Zhifen Han, Xinnan Wu, Ruixiao Li, Lihong Zhou, Ningning Liu, Hua Sui, **Jianfeng Cai**, Yan Wang, Qing Ji,* and Qi Li.* Tanshinone IIA Inhibits Epithelial-to-Mesenchymal Transition Through Hindering β-Arrestin1 Mediated β-Catenin Signaling Pathway in Colorectal Cancer. ***Front. Pharmacol***. 2020, 11, 586616.

144. Yan Shi,+ Peng Sang,+ Junhao Lu,+ Pirada Higbee,+ Lihong Chen, Leixiang Yang, Timothy Odom, Gary Daughdrill,* Jiandong Chen,* and **Jianfeng Cai**.* Rational Design of Right-Handed Heterogeneous Peptidomimetics as Inhibitors of Protein−Protein Interactions. ***J. Med. Chem.*** 2020, 63, 21, 13187–13196.

143. Minghui Wang, Ruixuan Gao, Mengmeng Zheng, Peng Sang, Chunpu Li, En Zhang, Qi Li, and **Jianfeng Cai**.* Development of Bis-Cyclic Imidazolidine-4-one Derivatives as Potent Antibacterial Agents. ***J. Med. Chem.*** 2020, 63, 24, 15591–15602.

142. Peng Sang,+ Yan Shi,+ Bo Huang, Songyi Xue, Timothy Odom, and **Jianfeng Cai**.* Sulfono-γ-AApeptides as helical mimetics: Crystal structures and applications. ***Acc. Chem. Res***. 2020, 53, 10, 2425–2442.

141. Runzhe Song, Yue Wang, Minghui Wang, Ruixuan Gao, Teng Yang, Song Yang, Cai-Guang Yang, Yongsheng Jin, Siyuan Zou, **Jianfeng Cai,*** Renhua Fan,* Qiuqin He.* Design and synthesis of novel desfluoroquinolone-aminopyrimidine hybrids as potent anti-MRSA agents with low hERG activity. ***Bioorg. Chem.*** 2020, 104176.

140. Miao Pan,+ Chao Lu,+ Maochao Zheng, Wen Zhou, Fuling Song, Weidong Chen, Fen Yao, Daojun Liu,* and **Jianfeng Cai**.* Unnatural Amino Acid-Based Star-Shaped Poly(L-ornithine)s as Emerging Long-Term and Biofilm-Disrupting Antimicrobial Peptides to Treat Pseudomonas aeruginosa Infected Burn Wounds. ***Adv. Healthcare. Mat.***, 2020, 9, 19, 2000647.

139. Ge Song, Haiqiang Yang, Ning Shen, Phillip Pham, Breanna Brown, Xiaoyang Lin,Yuzhu Hong, Paul Sinu, **Jianfeng Cai**, Xiaopeng Li, Michael Leon, Marcia Gordon, David Morgan, Sai Zhang, and Chuanhai Cao. An Immunomodulatory Therapeutic Vaccine Targeting Oligomeric Amyloid Beta. ***J. Alz. Dis.***, 2020, 77, 4, 1639-1653.

138. Peng Sang,+ Yan Shi,+ Pirada Higbee, Minghui Wang, Sami Abdulkadir, Junhao Lu, Gary W. Daughdrill,* Jiandong Chen,* and **Jianfeng Cai**.* Rational Design and Synthesis of Right-Handed D-Sulfono-γ-AApeptide Helical Foldamers as Potent Inhibitors of Protein-Protein Interactions. ***J. Org. Chem.*** 2020, 85, 10552–10560.

137. Chengming Fu, Tian Chen, Tile Xiao, Yuecai Song, Timothy Odom, Wenjie Liang,* **Jianfeng Cai**,* Hai Xu.* Formaldehyde Gas Adsorption in High-Capacity Silver-Nanoparticle-Loaded ZIF-8 and UiO-66 Frameworks. ***ChemistrySelect***, 2020, 5987-5992.

136. Hao Liu, Shijie Yi, Yunfeng Wu, Han Wu, Jinrong Zhou, Wenjie Liang,* **Jianfeng Cai**,* and Hai Xu.* An efficient Co-N/C electrocatalyst for oxygen reduction facilely prepared by tuning cobalt species content. ***Int. J. Hydro. Energy*** 2020, 16105-16113.

135. Minghui Wang, Ruixuan Gao, Peng Sang, Tomothy Odom, Mengmeng Zheng, Yan Shi, Hai Xu, Chuanhai Cao and **Jianfeng Cai**.* Dimeric γ-AApeptides with Potent and Selective Antibacterial Activity. ***Front. Chem.*** 2020, 8, 441.

134. Jing Wang,+ Chao Lu,+ Yin Shi, Xiaoqian Feng, Biyuan Wu, Guilin Zhou, Guilan Quan, Xin Pan,* **Jianfeng Cai**,* and Chuanbin Wu.* Structural Superiority of Guanidinium-Rich Four-Armed Copolypeptides: Role of Multiple Peptide-Membrane Interactions in Enhancing Bacterial Membrane Perturbation and Permeability. ***ACS. Appl. Mater. Inter.*** 2020, 12, 18363-18374.

133. Yan Shi,+ Peng Sang,+ Guangqiang Yin, Ruixuan Gao Xiao Liang, Robert Brzozowski, Prahathees Eswara, Timothy Odom, Youxuan Zheng,* Xiaopeng Li,* and **Jianfeng Cai**.* Aggregation-Induced

Emissive and Circularly Polarized Homogeneous Sulfono-γ-AApeptide Foldamers. ***Adv. Opt. Mater.*** 2020, 8, 1902122.

132. Peng Sang,+ Zhihong Zhou,+ Yan Shi, Candy Lee, Zaid Amso, David Huang, Timothy Odom, Vân T.B. Nguyen-Tran, Weijun Shen,* and **Jianfeng Cai**.* The Activity of Sulfono-γ-AApeptide Helical Foldamers That Mimic GLP-1. ***Sci. Adv.*** 2020, 6, 20, eaaz4988.

131. Minghui Wang, Timothy Odom, and **Jianfeng Cai**.* Challenges in the development of next-generation antibiotics: Opportunities of small molecules mimicking mode of action of host-defense peptides. ***Exp. Opin. Ther. Pat.*** 2020, 303-305.

130. De-Yun Cui, Hong-Tao Kong, Yi Yang, **Jianfeng Cai**, Bo-Yuan Shen, Da-chao Yan, Xiu-Juan Zhang, Ying-Long Qu, Meng-Meng Bai, En Zhang.* Asymmetric synthesis of linezolid thiazolidine-2-thione derivatives via CS2 mediated decarboxylation cyclization. ***Tetrahedron Lett.*** 2020, 151847.

129. Qing Ji, Lihong Zhou, Hua Sui, Liu Yang, Xinnan Wu, Qing Song, Ru Jia, Ruixiao Li, Jian Sun, Ziyuan Wang, Ningning Liu, Yuanyuan Feng, Xiaoting Sun, Gang Cai, Yu Feng, **Jianfeng Cai**, Yihai Cao, Guoxiang Cai, yan wang, and Qi Li.* Primary tumors release ITGBL1-rich extracellular vesicles to promote distal metastatic tumor growth through fibroblast-niche formation. ***Nat. Commun***. 2020, 11, 1211.

128. Peng Sang,+ Yan Shi,+ Junhao Lu,+ Lihong Chen, Leixiang Yang, Wade Borcherds, Sami Abdulkadir, Qi Li,* Gary Daughdrill,* Jiandong Chen,* and **Jianfeng Cai**.* α-Helix-Mimicking Sulfono-γ-AApeptide Inhibitors for p53-MDM2/MDMX Protein–Protein Interactions. ***J. Med. Chem***. 2020, 63, 3, 975-986.

127. Mi Zhou,+ Mengmeng Zheng,+ and **Jianfeng Cai**.* Small molecules with membrane-active antibacterial activity. ***ACS. Appl. Mater. Inter.*** 2020, 12, 19, 21292-21299.

126. Olapeju Bolarinwa, Chunpu Li, Nawal Khadka, Qi Li, Yan Wang, Jianjun Pan,* and **Jianfeng Cai**.* γ-AApeptides–based Small Molecule Ligands That Disaggregate Human Islet Amyloid Polypeptide. ***Sci. Rep.***, 2020, 2020, 10, 95.

125. Sylvia Singh, Minghui Wang, Ruixuan Gao, Peng Teng, Timothy Odom, En Zhang, Hai Xu, and **Jianfeng Cai**.* Lipidated α/Sulfono-α-AA heterogeneous peptides as antimicrobial agents for MRSA. ***Bioorg. Med. Chem***., 2020, 28, 115241.

124. Lulu Wei, Minghui Wang, Ruixuan Gao, Rojin Fatirkhorani and **Jianfeng Cai**.* Antibacterial activity of lipo-α/sulfono-γ-AA hybrid peptides. ***Eur. J. Med. Chem.***, 2020, 186, 11901.

123. Ma Su, Yan Shi, Minghui Wang, Ruixuan Gao, Jianfeng Wu, Hai Xu, Chuanwu Xi,* and **Jianfeng Cai**.* The Activity of Small Urea-γ-AApeptides Toward Gram-Positive Bacteria. ***ChemMedChem***, 2019, 14, 1963-1967.

122. Ma Su, Minghui Wang, Yuzhu Hong, Alekhya Nimmagadda, Ning Shen, Yan Shi, Ruixuan Gao, En Zhang, Chuanhai Cao,* and **Jianfeng Cai**.* Polymyxin Derivatives as Broad-Spectrum Antibiotic Agents. ***Chem. Commun.***, 2019, 55, 13104-13107.

121. Wei Jiang, Chao Zhang, Arsalan Ahmed, Yunlei Zhao, Yu Deng, Yin Ding,* **Jianfeng Cai,*** and Yong Hu.* H2O2-Sensitive Upconversion Nanocluster Bomb for Tri-Mode Imaging-Guided Photodynamic Therapy in Deep Tumor Tissue. ***Adv. Healthcare Mat.***, 2019, 8, 1900972.

120. Chao Lu, Guilan Quan, Ma Su, Alekhya Nimmagadda, Weidong Chen, Miao Pan, Peng Teng, Feiyuan Yu, Xi Liu, Ling Jiang, Wenyi Du, Wei Hu, Fen Yao, Xin Pan, Chuanbin Wu,* Daojun Liu,* and **Jianfeng Cai**.* Molecular Architecture and Charging Effects Enhance the in Vitro and in Vivo Performance of Multi-Arm Antimicrobial Agents Based on Star-Shaped Poly(L-lysine). ***Advanced Therapeutics***, 2019, 1900147.

119. Heng Wang,+ Chung-Hao Liu,+ Kun Wang, Minghui Wang, Hao Yu, Sneha Kandapal, Robert Brzozowski, Bingqian Xu, Ming Wang, Shuai Lu, Xin-Qi Hao, Prahathees Eswara, Mu-Ping Nieh,* **Jianfeng Cai**,* and Xiaopeng Li.* Assembling Pentatopic Terpyridine Ligand with Three Types of

Coordination Moieties into Giant Supramolecular Hexagonal Prism: Synthesis, Self-Assembly, Characterization, and Antimicrobial Study. ***J. Am. Chem. Soc.***, 2019, 141, 16108-16116.

118. Yong Liang, Xiang Wang, Siqi Zhao, Piao He, Ting Luo, Jinzhi Jiang, Wenjie Liang,* **Jianfeng Cai**,* and Hai Xu.* A New Photoresponsive Bis (Crown Ether) for Extraction of Metal Ions. ***ChemistrySelect***, 2019, 4, 10316-10319.

117.Yan Shi,+ Guangqiang Yin,+ Zhiping Yan, Peng Sang, Minghui Wang, Robert Brzozowski, Prahathees Eswara, Lukasz Wojtas, Youxuan Zheng,* Xiaopeng Li,* and **Jianfeng Cai**.* Helical Sulfono-γ-AApeptides with Aggregation-Induced Emission and Circularly Polarized Luminescence. ***J. Am. Chem. Soc.***, 2019, 141, 12697-12706.

116. Wenchao Chu, Yi Yang, **Jianfeng Cai**, Hongtao Kong, Mengmeng Bai, Xiangjing Fu, Shangshang Qin, En Zhang.* Synthesis and Bioactivities of New Membrane-active Agents with Aromatic Linker: High Selectivity and Broad-Spectrum Antibacterial Activity. ***ACS. Infect. Dis***., 2019, 13, 1535-1545.

115. Chunpu Li,+ Gang Cai,+ Daqian Song,+ Ruixuan Gao, Peng Teng, Lihong Zhou, Qing Ji, Hua Sui, **Jianfeng Cai**,* Qi Li,* and Yan Wang.* Development of EGFR-targeted Evodiamine-loaded poly(amino acid)s nanoparticles for the treatment of colorectal cancer. ***Biomater. Sci.***, 2019, **7**, 3627-3639.

114. Yan Shi and **Jianfeng Cai.*** Discovery of a Macrocyclic γ-AApeptide binding to lncRNA GAS5 and its therapeutic implication in Type 2 Diabetes. ***Future. Med. Chem.***, 2019, 11, 2233-2235.

113. Simon S. Terzyan, Tao Shen, Xuan Liu, Qingling Huang, Peng Teng, Mi Zhou, Frank Hilberg, **Jianfeng Cai**, Blaine H.M. Mooers, and Jie Wu.* Structural basis of resistance of mutant RET protein tyrosine kinase to its inhibitors nintedanib and vandetanib. ***J. Biol. Chem.***, 2019, 294, 10428-10437.

112. Ning Shen, Ge Song, Haiqiang Yang, Xiaoyang Lin, Breanna Brown, Yuzhu Hong, **Jianfeng Cai**, Chuanhai Cao.* Identifying the pathological domain of alpha- synuclein as a therapeutic for Parkinson's disease. ***Int. J. Mol. Sci.*****,** 2019, 20, 2338.

111. Peng Sang, Min Zhang, Yan Shi, Chunpu Li, Sami Abdulkadir, Qi Li,* Haitao Ji,* and **Jianfeng Cai**.* Inhibition of β−Catenin/ B-Cell Lymphoma 9 Protein−Protein Interaction Using α-Helix-Mimicking Sulfono-γ-AApeptide Inhibitors. ***Proc. Natl. Acad. Sci. U. S. A.***, 2019, 116, 10757-10762.

110. Peng Teng, Geoffrey M. Gray, Mengmeng Zheng, Sylvia Singh, Xiaopeng Li, Lukasz Wojtas, Arjan van der Vaart, and **Jianfeng Cai**.* Orthogonal Halogen Bonding Driven 3D Supramolecular Assembly of Right-Handed Synthetic Helical Peptides. ***Angew. Chem. Int. Ed.***, 2019, 58, 7778-7782.

109. Qing Yin, Tao Han, Bin Fang, Guolin Zhang, Chao Zhang, Evan R. Roberts, Victoria Izumi, Mengmeng Zheng, Shulong Jiang, Xiu Yin, Minjung Kim, **Jianfeng Cai**, Eric B. Haura, John M. Koomen, Keiran S. M. Smalley and Lixin Wan.* K27-linked Ubiquitination of BRAF by ITCH Engages Cytokine Response to Maintain MEK-ERK Signaling. ***Nat. Commun***., 2019, 10, 1870.

108. Chu Wenchao, Yi Yang, Shangshang Qin, **Jianfeng Cai**, Mengmeng Bai, Kong Hongtao and En Zhang.* Low-toxicity Amphiphilic Molecules linked by an Aromatic Nucleus Show Broad-spectrum Antibacterial Activity and Low Drug Resistance. ***Chem. Commun***., 2019, 55, 4307-4310.

107. Hao Yan, Mi Zhou, Umesh Bhattarai, Yabin Song, Mengmeng Zheng, **Jianfeng Cai**,* Fu-Sen Liang.* Cyclic peptidomimetics as inhibitors for miR-155 biogenesis. ***Mol. Pharm***., 2019, 914-920.

106. Zhong Peng, Shaohui Wang, Mussie Gide, Duolong Zhu, Chunhui Li, **Jianfeng Cai**, Xingmin Sun.* A novel bacteriophage lysin-human defensin fusion protein is effective in treatment of Clostridioides difficile infection in mice. ***Frontiers in Microbiology***, 2019, 9, 3234.

105. Ting Luo, Hao Liu, Yong Liang, Jun Tang, Jinrong Zhou, Wenjie Liang,* **Jianfeng Cai**,* and Hai Xu.* A Comparison of Drug Delivery Systems of Zr-Based MOFs and Halloysite Nanotubes: Evaluation of β-Estradiol Encapsulation. ***ChemistrySelect***, 2019, 4, 8925-8929.

104. Yan Shi, Sajan Parag, Rekha Patel, Ashley Lui, Michel Murr, **Jianfeng Cai***, and Niketa A. Patel*. Stabilization of lncRNA GAS5 by a small molecule and its implications in diabetic adipocytes. ***Cell. Chem. Biol.***, 2019, 26, 319-330.

103. Alekhya Nimmagadda, Yan Shi and **Jianfeng Cai**.* γ-AApeptides as a new strategy for therapeutic development. ***Curr. Med. Chem.***, 2019, 26, 1-16.

102. Mussie Gide, Alekhya Nimmagadda, Ma Su, Minghui Wang, Peng Teng, Chunpu Li, Ruixuan Gao, Hai Xu, Qi Li,* **Jianfeng Cai***. Nano-Sized Lipidated Dendrimers as Potent and Broad Spectrum Antibacterial Agents, ***Macromol. Rapid Commun***., 2018, 1800622.

101. Olapeju Bolarinwa, Meng Zhang, Erin Mulry, Min Lu* and **Jianfeng Cai**.* Sulfono-γ-AA modified peptides that inhibit HIV-1 fusion, ***Org. Biomol. Chem***., 2018, 7878-7882.

100. Jisong Hua, Peng Teng, Yingying Zou, Chao Zhang, Xujie Shen, **Jianfeng Cai**,* and Yong Hu.* Small Antimicrobial Agents encapsulated in poly(epsilon-caprolactone)-poly(ethylene glycol) nanoparticles for treatment of S. aureus -infected wounds, ***J. Nanopar. Res***., 2018, 20:270.

99. Fengyu She, Peng Teng, Alfredo Peguero-Tejada, Minghui Wang, Ning Ma, Timothy Odom, Mi Zhou, Erald Gjonaj, Lukasz Wojtas, Arjan van der Vaart, and **Jianfeng Cai**.* De novo Left-Handed Synthetic Peptidomimetic Foldamers, ***Angew. Chem. Int. Ed***., 2018, 9916-9920.

98. Olapeju Bolarinwa and **Jianfeng Cai**.* Developments with investigating descriptors for antimicrobial AApeptides and their derivatives., ***Exp. Opin. Drug. Discov***., 2018 , 727-739.

97. Yong Liang, Jun Tang, Xiang Wang, Siqi Zhao, Ting Luo, Cijun Shuai,* Jinzhi Jiang, **Jianfeng Cai**,* and Hai Xu.* Using bispyrene fluorescence probe for determining the multiple states of organogel. ***Chemistryselect***, 2018, 5361-5363.

96. Sylvia Singh, Alekhya Nimmagadda, Ma Su, Minghui Wang, Peng Teng, and **Jianfeng Cai**.* Lipidated α/α-AA heterogeneous peptides as antimicrobial agents, ***Eur. J. Med. Chem***., 2018 , 398-405.

95. Peng Teng, Chunhui Li, Zhong Peng, Anne Marie Vanderschouw, Alekhya Nimmagadda, Ma Su, Yaqiong Li, Xingmin Sun,* and **Jianfeng Cai**.* Facilely Accessible Quinoline Derivatives as Potent Antibacterial Agents, ***Bioorg. Med. Chem***., 2018 , 3573-3579.

94. Chunhui Li, Peng Teng, Zhong Peng, Peng Sang, Xingmin Sun,* and **Jianfeng Cai**.* Bis-Cyclic-Guanidine as a Novel Class of Compounds Potent Against Clostridium Difficile, ***ChemMedChem***, 2018 , 1414-1420.

93. Heng Wang, Xiaomin Qian, Kun Wang, Ma Su, Wei-Wei Haoyang, Xin Jiang, Robert Brzozowski, Ming Wang, Xiang Gao, Yiming Li, Bingqian Xu, Prahathees Eswara, Xin-Qi Hao, Weitao Gong,* Jun-Li Hou,* **Jianfeng Cai**,* Xiaopeng Li.* Supramolecular Kandinsky Circles with High Antibacterial Activity, ***Nat. Commun***., 2018, 9, 1815.

92. Peng Teng, Zheng Niu, Fengyu She, Mi Zhou, Peng Sang, Geoffrey M. Gray, Gaurav Verma, Lukasz Wojtas, Arjan van der Vaart, Shengqian Ma,* and **Jianfeng Cai.*** Hydrogen-Bonding-Driven 3D Supramolecular Assembly of Peptidomimetic Zipper, ***J. Am. Chem. Soc.***, 2018, 140, 5661-5665.

91. Youhong Niu,* Minghui Wang, Yafei Cao, Alekhya Nimmagadda, Jianxing Hu, Yanfen Wu, **Jianfeng Cai**,* and Xin-Shan Ye.* Rational Design of Dimeric Lysine N-Alkylamides as Potent and Broad-Spectrum Antibacterial Agents, ***J. Med. Chem***., 2018, 61, 2865-2874.

90. Xiaojun Sun, Yuan Ren, Steven Gunawan, Peng Teng, Zhengming Chen, Harshani Lawrence, **Jianfeng Cai**, Nicholas Lawrence, and Jie Wu.* Selective inhibition of leukemia-associated SHP2E69K mutant by the allosteric SHP2 inhibitor SHP099, ***Leukemia***, 2018, 32, 1246-1249.

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3. **Jianfeng Cai**, Chuanhai Cao, Haifan Wu, Yaqiong Li, and Ge Bai. Methods of Synthesizing γ-AApeptides, γ-AApeptide Building Blocks, γ-AApeptide Libraries, and γ-AApeptide Inhibitors of Abeta40 Aggregates, **2016**, 0209422 A1.
2. Said M. Sebti, and **Jianfeng Cai**. Identification of Novel Inhibitors that Disrupt STAT3/DNA Interaction from γ-peptide OBOC Combinatorial Library, **2014**, Application No. 61/984179.
1. Nathan J. Rice, Lennox Hoyte, and **Jianfeng Cai**. Materials and methods for reliable measurement of blood volume. **2011**, PCT Int. Appl. WO 2011130304.

BOOK CHAPTERS

5. Olapeju Oyesiku and **Jianfeng Cai.*** Peptidomimetic agents targeting bacteria. Comprehensive Supramolecular Chemistry II. Elsevier, 2016.
4. Peng Teng, Haifan Wu and **Jianfeng Cai***. Peptidomimetics as antimicrobial agents. Novel Antimicrobial Agents and Strategies. Wiley, 2014.
3. Haifan Wu and **Jianfeng Cai***. Engineering AApeptides for Translational Medicine. *Engineering in Translational Medicine*, 2013, ISBN: 978-1-62703-651-1.
2. Youhong Niu, Yaogang Hu, Haifan Wu, and **Jianfeng Cai***. Synthesis of AApeptides. *Peptide Modifications to Increase Metabolic Stability and Activity*, 2013, ISBN: 978-1-62703-651-1.
1. Youhong Niu, Yaogang Hu, Rongsheng E. Wang, Xiaolong Li, Haifan Wu, Jiandong Chen* and **Jianfeng Cai***. AApeptides as a New Class of Peptidomimetics to Regulate Protein-Protein Interactions. *Protein Interactions*, 2012, ISBN: 978-953-51-0244-1.

ORAL TALKS AND SEMINARS

1. Florida Organic Day, Florida Southern College, 03/12/2012
2. Florida ACS meeting, Tampa, FL, 05/09/2012
3. Kimberly-Clark, Appleton, WI, 06/02/2012
4. Department of Chemistry, University of Oxford, Oxford, England, 06/07/2012
5. Interventional Cancer Institute of Integrative Medicine, Putuo Hospital, Shanghai, China, 12/12/2012
6. Department of Chemistry, University of Florida, Gainesville, FL, 11/15/2013
7. Department of Chemistry and Biochemistry, University of California-Santa Barbara, Santa Barbara, CA, 2/27/2014
8. Department of Chemistry, University of California-Irvine, Irvine, CA, 2/28/2014
9. Department of Chemistry and Biochemistry, Georgia Institute of Technology, GA, 3/10/2014
10. Department of Chemistry, Georgia State University, Atlanta, GA, 3/11/2014
11. Department of Chemistry, University of South Florida, GA, 3/13/2014
12. 247th ACS national meeting, Organic section, Dallas, TX, 3/17/2014
13. Department of Chemistry, Florida State University, Tallahassee, FL, 3/27/2014
14. Department of Chemistry, University of Wisconsin-Madison, Madison, WI, 4/3/2014

15. Kimberly-Clark, Appleton, WI, 4/4/2014
16. Department of Chemistry, Scripps Florida, Jupiter, FL, 4/17/2014
17. Innovative Drug Research Center, Chongqing University, Chongqing, China, 5/6/2014
18. Department of Chemistry, Nanjing University, Nanjing, China, 5/7/2014
19. College of Pharmacy, Shanghai Jiaotong University, Shanghai, China, 5/8/2014
20. Department of Medical Oncology, Shuguang Hospital, Shanghai University of Traditional Chinese Medicine, Shanghai, China, 5/9/2014
21. Bioorganic Gordon Conference, Andover, NH, 6/11/2014
22. Department of Chemistry, Washington University in St. Louis, MO, 4/23/2015
23. Department of Chemistry, University of Missouri-St. Louis, 4/24/2015
24. Department of Chemistry, Southeast University, China, 6/25/2015
25. College of Pharmacy, Zhejiang University, China, 6/26/2015
26. Department of Chemistry, Central South University, China, 7/1/2015
27. Lawrence Berkeley National Laboratory, San Francisco, 8/6/2015
28. College of Medicine, University of South Florida, 9/16/2015
29. Department of Chemistry, UC-Riverside, 2/25/2016
30. Department of Chemistry, Dartmouth College, 4/14/2016
31. FAME 2016-Florida Annual meeting and Exposition, FL, 5/6/2016
32. Department of Chemistry, University of South Carolina, 3/30/2017
33. Department of Chemistry, University of South Dakota, 4/11/2017
34. FAME 2016-Florida Annual meeting and Exposition, FL, 5/6/2017
35. Department of Chemistry, Zhengzhou University, China, 5/9/2017
36. Department of Chemistry, Zhengzhou University of Light Industry, China, 5/9/2017
37. Department of Chemistry, Nanjing University, China, 5/10/2017
38. Department of Chemistry, China Pharmaceutical University, China, 5/11/2017
39. Department of Chemistry, Southeastern University, China, 5/12/2017
40. Department of Chemistry, Fudan University, China, 5/15/2017
41. Department of Chemistry, East China University of Science and Technology University, China, 5/16/2017
42. Department of Chemistry, Soochow University, China, 5/17/2017
43. Department of Chemistry, Central South University, China, 5/19/2017
44. Department of Chemistry, Hunan University, China, 5/22/2017
45. Department of Chemistry, Hunan Normal University, China, 5/22/2017
46. Department of Chemistry, Wuhan University, China, 5/23/2017
47. College of Pharmacy, Wuhan University, China, 5/24/2017
48. Department of Chemistry, Central China Normal University, China, 5/26/2017
49. Department of Chemistry, Shanxi Normal University, China, 5/17/2018
50. Department of Chemistry, Xi'an Jiaotong University, China, 5/18/2018
51. Department of Chemistry, Northwest University, China, 5/19/2018
52. Department of Chemistry, University at Buffalo, 9/12/2019
53. Department of Chemistry, Case Western Reserve University, 4/10/2019
54. Department of Chemistry, University at Albany, 9/10/2019
55. College of Pharmacy, University of Arizona, 1/8/2020
56. Department of Chemistry, Tulane University, 3/15/2021
57. Pacifichem 2021, Advancing Frontiers in Peptide and Protein Science with Nano- to-Macro Molecular Solutions, New Technologies in Polyamide Synthesis and Applications (056), 12/18/2021
58. Pacifichem 2021, Design of Functional Proteins, Peptides, and Peptidomimetics (061), 12/20/2021

ACTIVE GRANTS

As the PI:

1. PI, NIH 1R01AG056569-01, $1,799,703, 09/01/2017-5/31/2022. Gamma-AApeptides as novel biomaterials inhibiting Abeta peptide aggregation.
2. PI, NIH 1R01AI149852-01, $1,868,750, 09/23/2019 – 08/31/2024, Novel polymer biomaterials combating C. difficile infection.
3. PI, NIH 9R01AI152416-06, $1,868,750, 05/01/2020 – 04/30/2025, Antimicrobial agents derived from AApeptide biomaterials
4. PI, NIH 1R01GM128037-01, $566,000. 03/01/2020 – 02/28/2022. Self-assembly of 2D metallo-supramolecules as a novel class of antimicrobial biomaterials via forming transmembrane channels.

As the Co-I:

5. Co-I, NIH NCI 1R35CA197731-01 (PI: Said Sebti), $453,600 to J. Cai, 03/01/2016 -02/28/2023. Targeting Mutant KRas for Cancer Therapy.
6. Co-I, NIH NCI CA242845 (PI: Jerry Wu), $122,600 to J. Cai, 09/01/2020 -05/31/2025. Blocking Tumor Progression in Therapy-Responsive RET Aberration-Associated