

## Research Profile

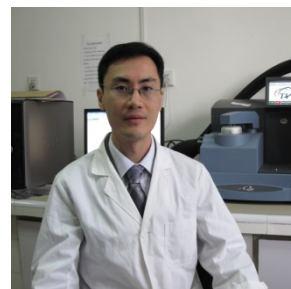
**Name:** Jianshu Li

**Position:** Professor

**Institute/division:** College of Polymer Science and Engineering

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### SUMMARY OF MY RELEVANT RESEARCH AREAS:

**Brief summary of your research areas, in English just a short paragraph please**

*Synthesis and characterization of biomedical polymers, including protein drug delivery systems, and biomaterials for dental applications. Develop medical devices based on above biomaterials.*

**Brief summary of your research areas, in Chinese we will translate this for non-Chinese speaking UK participants**

生物医用高分子材料的合成与表征，包括蛋白质药物控释体系，以及牙科用高分子材料。并基于上述研究开发适用于临床的医疗器械。

### Primary Research interests:

- 1) I'm very interested in the therapy of Diabetes and bone-related diseases such as osteoporosis. These diseases are treated by protein drugs such as insulin and calcitonin. However, the clinic applications of protein/peptide drugs have been restricted by various limitations such as physical and chemical instability, low oral bioavailability, susceptibility to enzymatic degradation, and short in vivo half-lives. In my group, we designed various delivery systems for protein therapy.
- 2) Dental caries, acidic erosion and dental hypersensitivity are common oral health problems. However, all the current therapy methods are not due to the unsatisfied interface binding force between dental restorative materials and natural tooth. We prepared a series of dental restorative materials based on dendritic polymers bioinspired from noncollagenous proteins or salivary acquired pellicle.

### Topics in which you would like to develop collaborative research:

- 1) Stimuli-sensitive drug delivery system, especially for protein drug.
- 2) Restorative biomaterials for tooth and bone.
- 3) Technology about new medical devices.

**Relevant existing collaborations (academic/clinical/commercial) inside or outside China.**

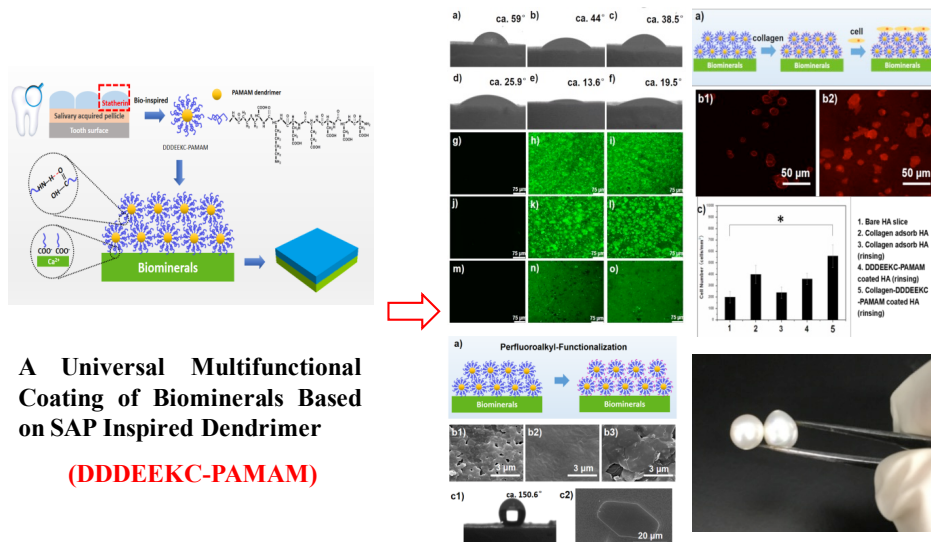
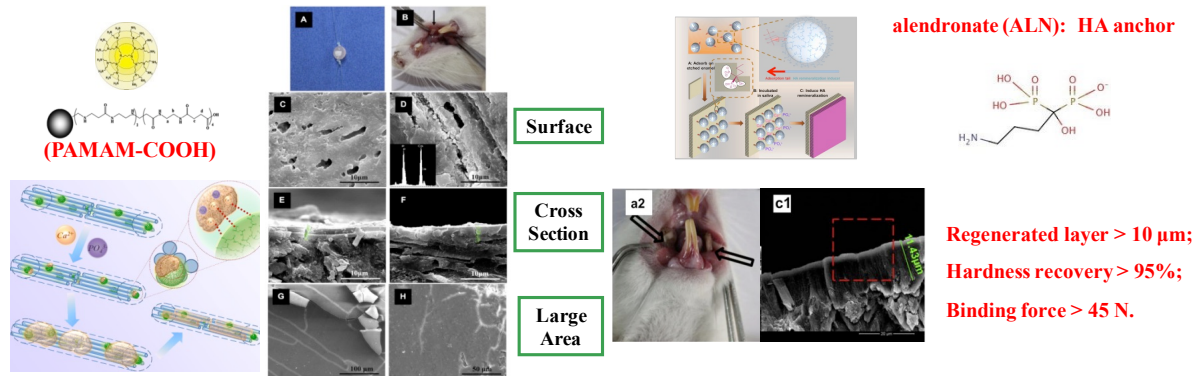
Inside China:

With Zhejiang University, Beijing University of Chemical Technology, and West China Hospital.

Outside China:

With University of New Brunswick in Canada, and Kumamoto University in Japan.

**Relevant graphics, figures, pictures:**



**Publications and other outputs relevant to your interest in this programme (up to 5)**

- 1) Wu, W., Wang, W., **Li, J.,\*** Star polymers: Advances in biomedical applications. *Progress in Polymer Science*, 2015, 46, 55-85.
- 2) Wu, D., Yang, J., Li, J., Chen, Li., Tang, B., Chen, X., Wu, W., **Li, J.,\*** Hydroxyapatite-anchored dendrimer for in situ remineralization of human tooth enamel. *Biomaterials*, 2013, 34, 5036-5047.
- 3) Li, J., Yang, J., Li, J., Chen, L., Liang, K., Wu, W., Chen, X., **Li, J.,\*** Bioinspired intrafibrillar mineralization of human dentine by PAMAM dendrimer. *Biomaterials*, 2013, 34, 6738-6747.
- 4) Luo, J., Cao, S., Chen, X., Liu, S., Tan, H., Wu, W., **Li, J.,\*** Super long-term glycemic control in diabetic rats by glucose-sensitive LbL films constructed of supramolecular insulin assembly. *Biomaterials*, 2012, 33, 8733-8742.
- 5) Chen, X., Wu, W., Guo, Z., Xin, J., **Li, J.,\*** Controlled insulin release from glucose-sensitive self-assembled multilayer films based on 21-arm star polymer. *Biomaterials*, 2011, 32, 1759-1766.