**Year:   2023**                          **Type of Awards (Young)**
**Name of Principal Investigator: Bo Li**     **Affiliated Institution: Sichuan University (SCU)**

**About of the PI** (within 300 words, 12-point single-spaced font.)

- Introduction & Education:

Dr. Li obtained his Bachelor's and Doctoral degrees in Dental Medicine at West China School of Stomatology, Sichuan University, in 2016 and 2021, respectively, with a particular focus on orthodontics.

- Career Trajectory:

During undergraduate and postgraduate studies, he enriched his professional knowledge through international exchange programs by visiting the University Medical Center Hamburg-Eppendorf (UKE) in Germany and Osaka Dental University (ODU) in Japan. Further, he honed his research skills through systematic scientific training at Harvard School of Dental Medicine (HSDM) as a joint D.M.D. candidate in the United States. Currently, Dr. Li works as a Research Associate and Attending Physician at the Department of Orthodontics, West China Hospital of Stomatology, Sichuan University.

- Research Contributions, Impact & Recognition:

His research predominantly delves into skeletal biology and mesenchymal stem/progenitor cells. Additionally, his work extends to head and neck tumors, oral cancers, cellular senescence, and aging. He has been awarded Keystone Symposia Scholarship and several other awards because of his contributions to craniofacial bone biology.

- Personal Insights:

Dr. Li is determined to become a prominent clinician-scientist in the field of orthodontics, with a particular focus on craniofacial bone biology, mesenchymal stem/progenitor cells, as well as cancer and anti-aging research.

- Future Directions:

Dr. Li aspires to achieve significant academic milestones, take on leadership roles in research and education, foster collaborations, and contribute to this field. His ultimate vision is to bridge the gap between basic research and clinical practice, ushering in innovation and transformation in orthodontics.
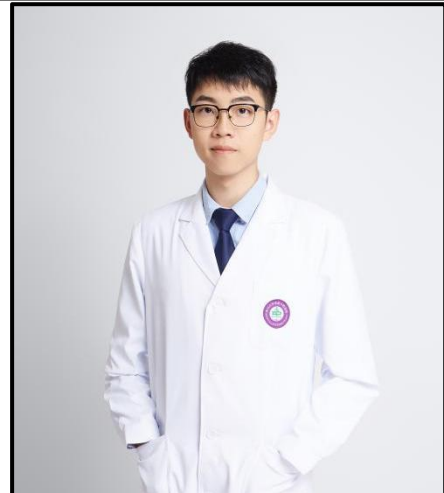
**Brief Summary of the Project:**

Orthodontic tooth movement requires the integrity of periodontal tissues and the long-term stability of tissue remodeling. This research project aims to explore the essential role of periodontium and periodontal ligament stem cells (PDLSCs) in orthodontic tooth movement and alveolar bone remodeling, emphasizing the need to understand periodontal biology to ensure successful orthodontic treatments. It highlights the significance of Gli1+ PDLSCs, focusing on their potential in regenerative medicine, which has been recognized as a primary population of PDLSCs, critically involved in tissue development, homeostasis, and repair. Overall, this project seeks to investigate the role of PDLSCs in periodontal immune interactions and tissue remodeling during orthodontic tooth movement, utilizing advanced techniques like single-cell RNA sequencing and spatial transcriptomics. We aim to provide novel biological insights into the periodontal immune milieu and tissue remodeling to potentially improve therapeutic outcomes of orthodontic treatment.