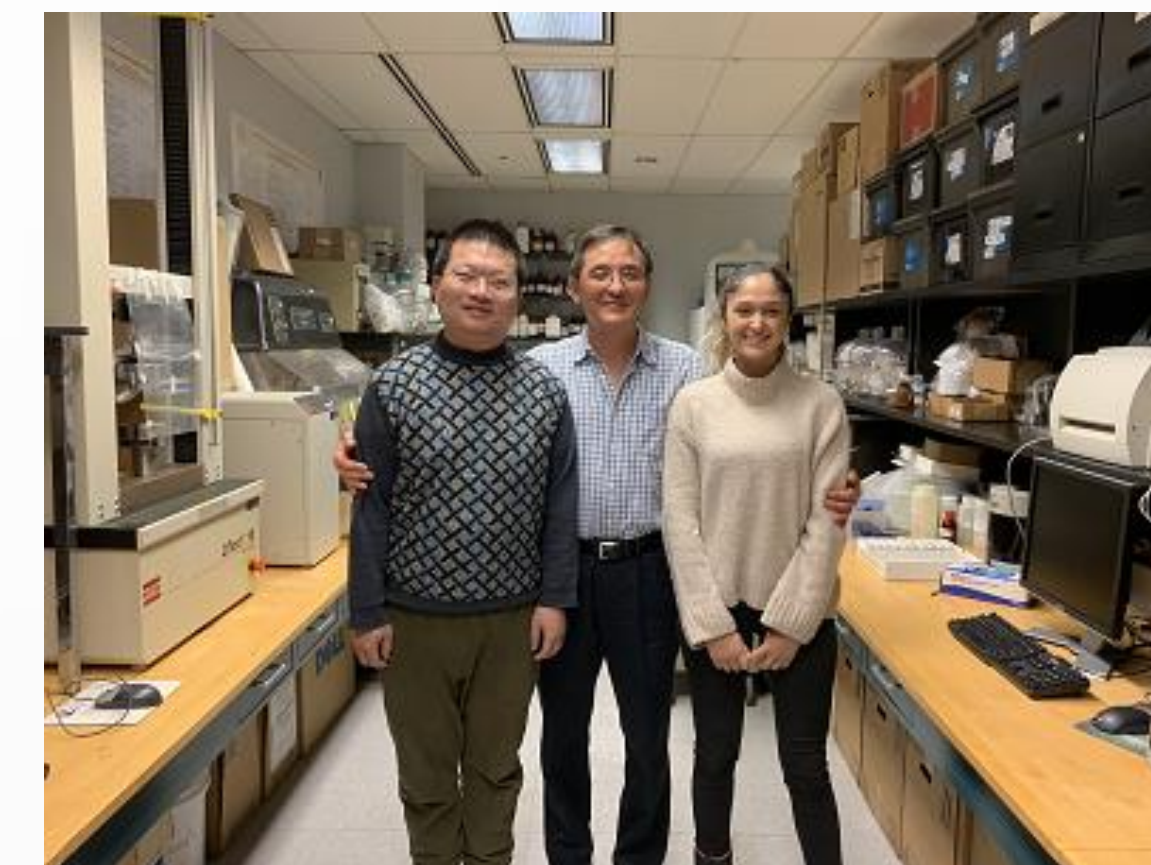
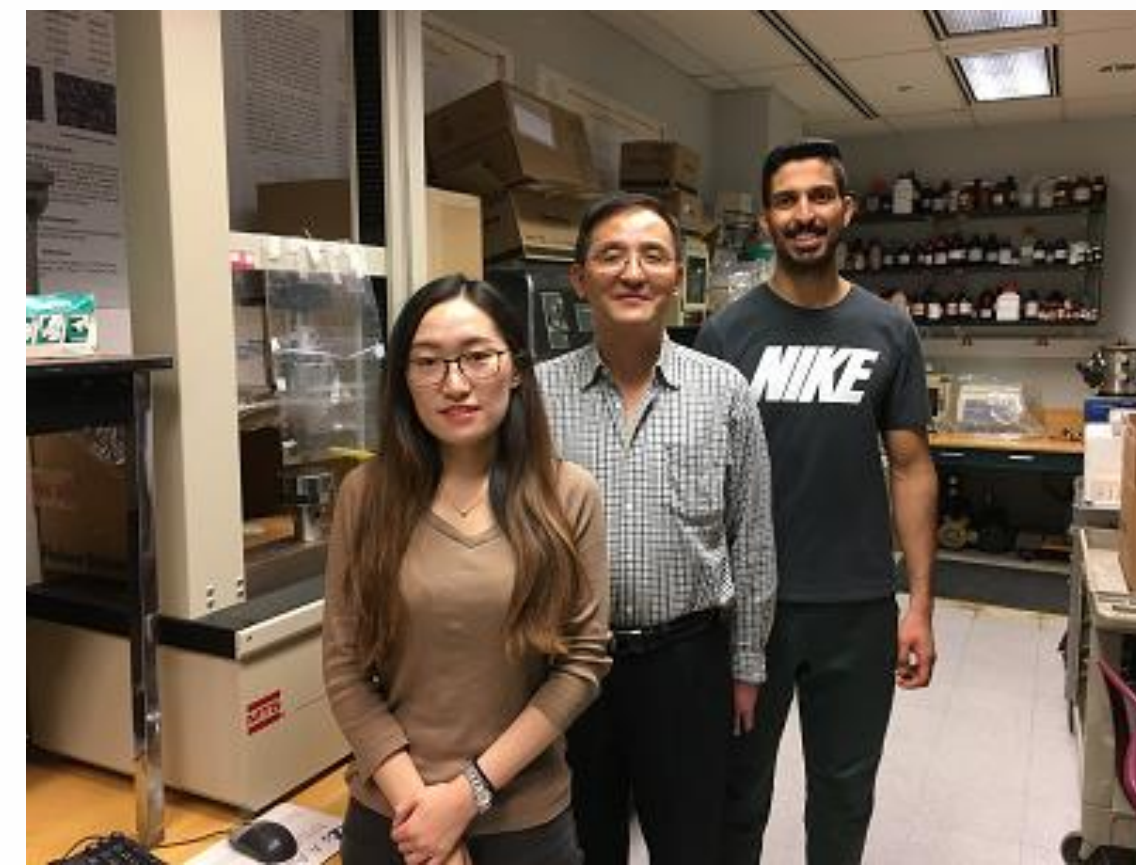
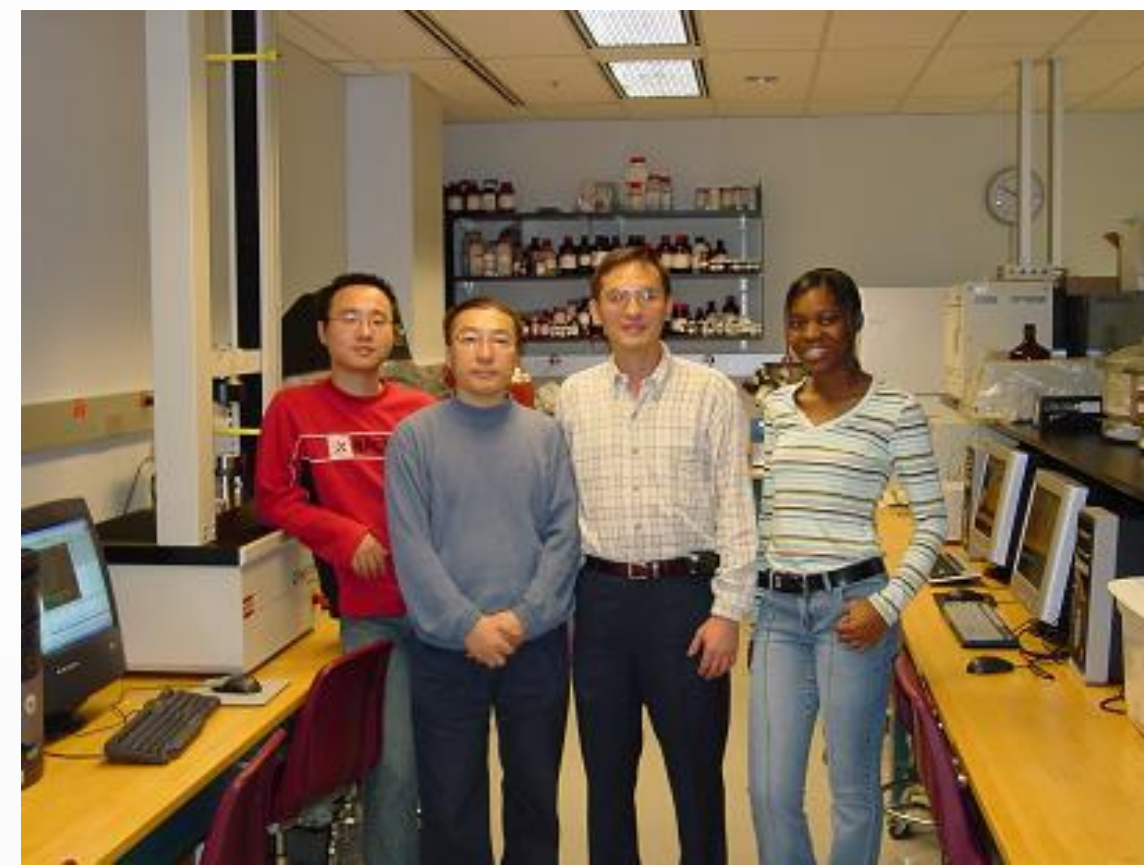


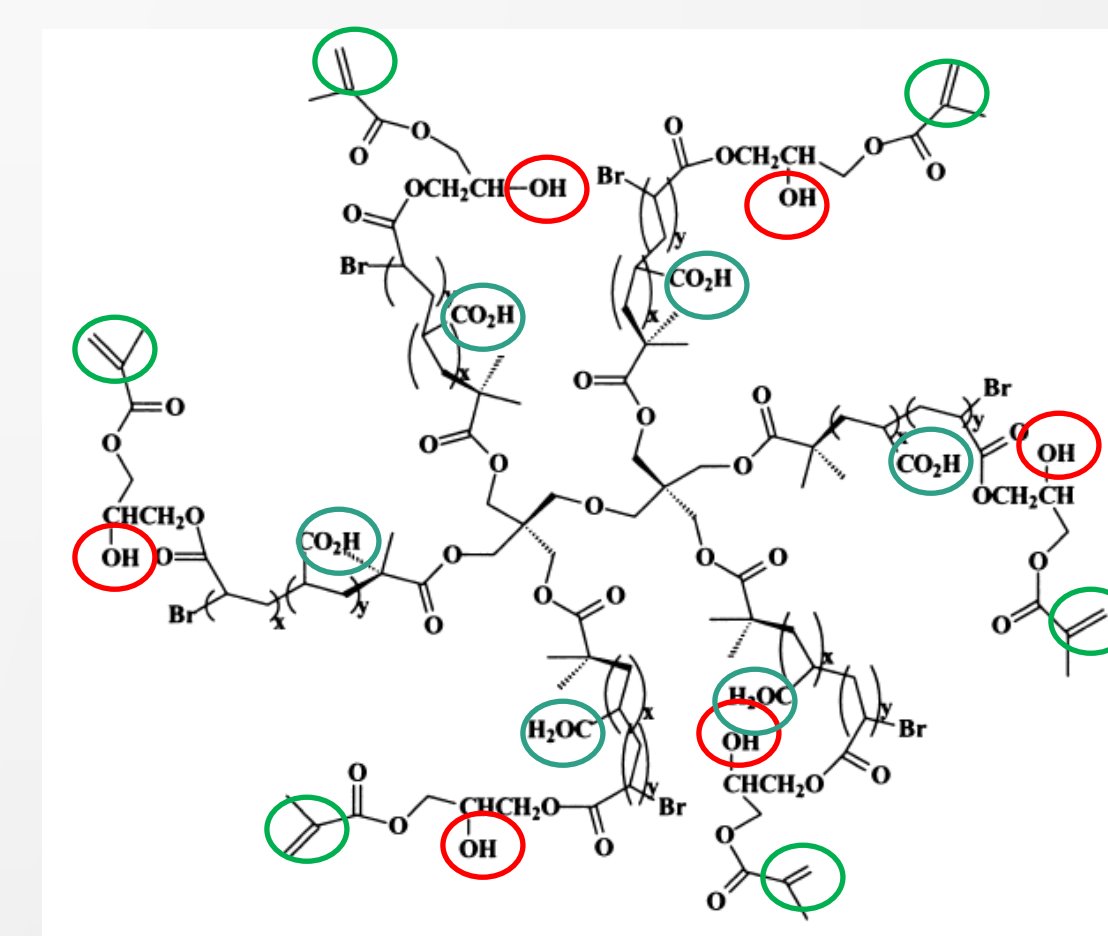


Dr. Xie works primarily in the area of advanced polymeric biomaterials. Main focuses are on developing functional advanced dental restoratives, orthopedic restoratives and modifying surfaces of biomedical materials



## Advanced Dental Restoratives

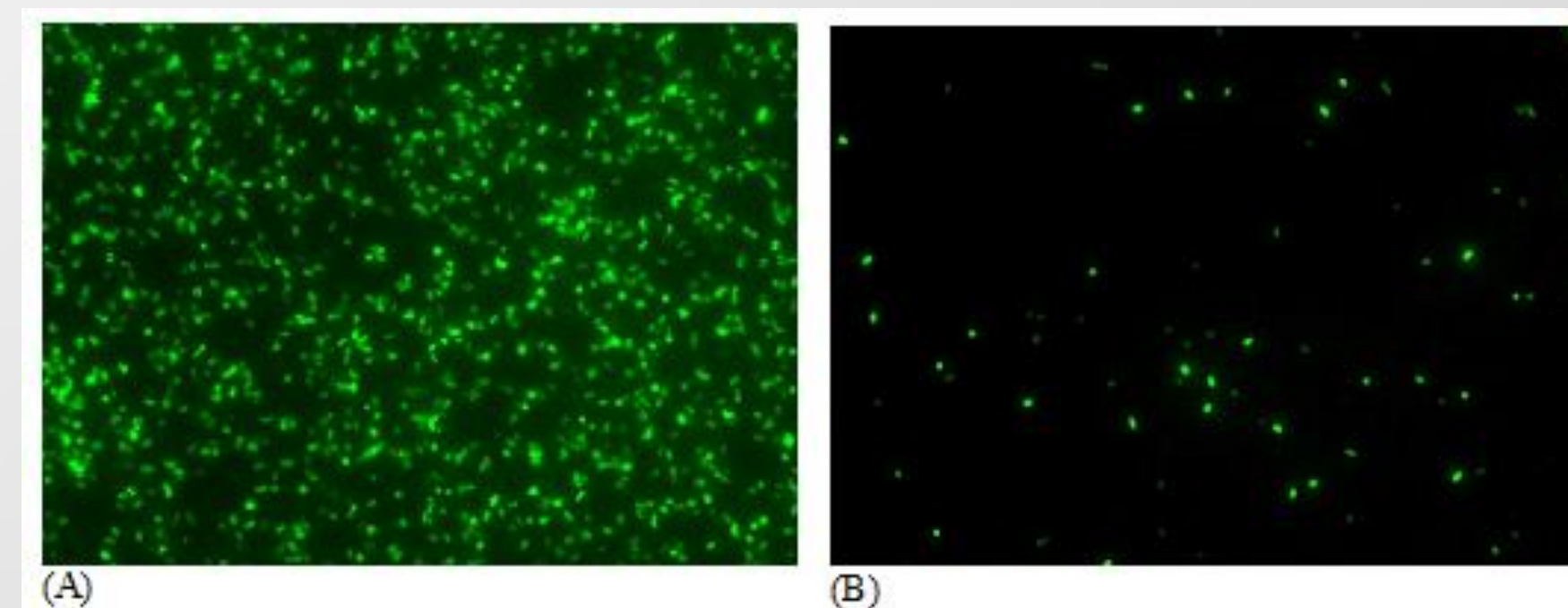
To design, synthesize and characterize biocompatible functional monomers and their constructed polymers, use them to formulate dental resin composites and glass-ionomer cements with bioactive glass-fillers, and evaluate mechanical and physical properties and biocompatibility of the formed composites, for the need of dental patients who require dental restorations.



Functional star or hyperbranched polyacid

## Advanced Antimicrobial Polymers for Biomedical Applications

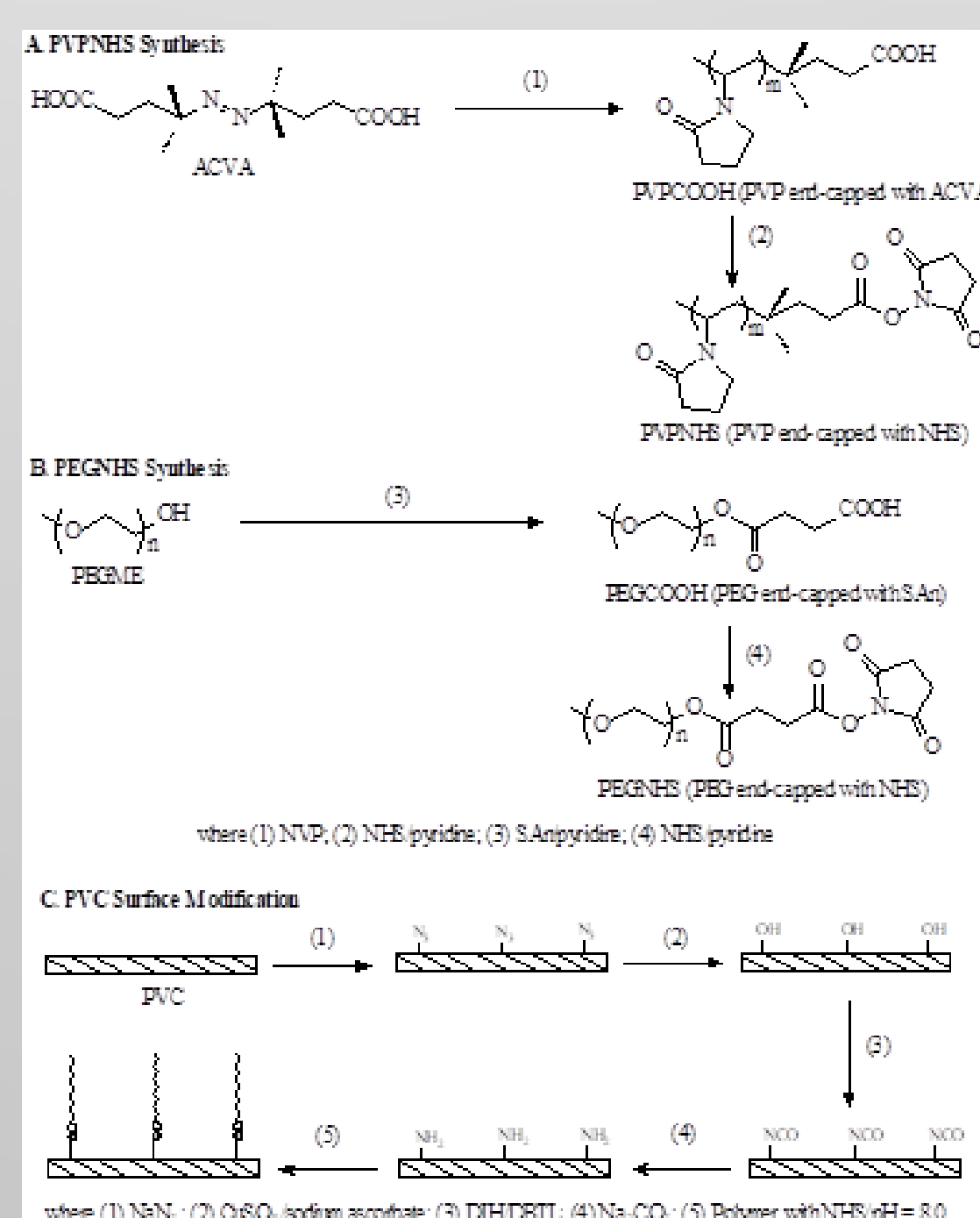
To design, synthesize and characterize novel antimicrobial compounds and their derivatives, tether them onto polymers, surfaces, composites and other biomaterials, and evaluate their antimicrobial as well as biofilm-resistant properties and biocompatibility, for the need of biomedical applications.



Antibacterial activity among commercial (A) and experimental materials (B)

## Surface Modification of Biomaterials

To modify polymer surfaces with functional molecules and/or polymers, characterize the modified surfaces, and evaluate special functions of the modified surfaces. Depending on the need, the modified surfaces can be antifouling, fouling, antimicrobial or bioactive.



Surface modification of PVC

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