AADOCR
American Association for Dental, Oral, and Craniofacial Research

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Nanostructured Copper-Magnesium Polycaprolactone Scaffolds for Bone Regeneration

Alexandria, VA – A study investigating the impact of introducing copper-magnesium nanoparticles (NPs) into 3D-printed polycaprolactone (PCL) scaffolds on their properties and cellular responses was presented at the 54th Annual Meeting of the AADOCR, which was held in conjunction with the 49th Annual Meeting of the Canadian Association for Dental Research, on March 12-15, 2025 in New York, NY.

The abstract, "Nanostructured Copper-Magnesium Polycaprolactone Scaffolds For Bone Regeneration" was presented by Daniela Masson-Meyers of Marquette University during the "Biomaterial Strategies for Restorative and Regenerative Applications" Poster Session that took place on Thursday, March 13, 2025 at 11 a.m. EDT (UTC-4).

Copper and magnesium nanoparticles have shown potential to enhance tissue repair by promoting cell proliferation, bone formation, and angiogenesis. In this study, PCL scaffolds were fabricated by 3D-printing, then aminolyzed, chemically activated, and coated with gelatin or gelatin combined with NPs in order to explore the impact of such scaffolds on their properties and cellular responses.

The study found that incorporating copper-magnesium nanoparticles into PCL/Gelatin scaffolds enhanced their structural and biological properties, making them promising candidates for dental bone regeneration, particularly in critical-sized defects where osteogenesis and angiogenesis are essential.

About AADOCR

The American Association for Dental, Oral, and Craniofacial Research is a nonprofit organization with a mission to drive dental, oral, and craniofacial research to advance health and well-being. AADOCR represents the individual scientists, clinician-scientists, dental professionals, and students based in academic, government, non-profit and private-sector institutions who share our mission. AADOCR is the largest division of the International Association for Dental, Oral, and Craniofacial Research. Learn more at www.aadocr.org.