

Aspect	Limitations of the existing Research	Innovation Points
Material Design	The traditional material, demineralized bone matrix, which is most widely used in clinical applications, is insufficient in piezoelectricity.	Piezoelectric materials possess excellent piezoelectric properties.
Material Structure	Traditional decalcified bone matrix provides a framework for bone growth, but the pore size is too large, unsuitable for cell seeding and adhesion.	Gelatinization of decalcified bone matrix to provide a suitable porous structure for cell growth, with high porosity and controllable shape.
Material Function	The osteogenic activity of single piezoelectric materials is insufficient.	The synergistic effect of collagen, decalcified bone matrix, and piezoelectricity significantly improves osteogenic activity.

Analysis of innovative aspects