RS-2026-25501950

Phase 1 Clinical Trial IND Clearance for the Osteoarthritis Therapeutic PRT101 Through Preclinical Studies, Toxicity Evaluation, and CMC Establishment

PROTEINA

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OTHERS | **Preclinical**

Product Type	Small molecules
Indication	Osteoarthritis
Target	SOX9
MoA(Mechanism of Action)	• Precise direct binding of PRT101 to the tyrosine-enriched intrinsically disordered region (IDR) of the previously undruggable SOX9 master transcription factor • Selective induction of SOX9 condensate formation via a targeted mechanism to assemble dynamic transcription hubs and enhance cartilage-specific gene expression • Initiation of a dual benefit cascade where the rapid upregulation of cartilage regeneration genes actively rebuilds the structural matrix, naturally resolving local joint inflammation • Achievement of comprehensive structural matrix restoration and significant pain alleviation as the ultimate clinical outcome
Competitiveness	• Direct binding of an intra-articularly delivered small molecule to the previously undruggable SOX9 master transcription factor to selectively induce active transcription hubs for cartilage regeneration • Delivery of the regenerative power of cell and gene therapies as a highly stable small molecule to ensure significantly easier and cheaper manufacturing • Minimization of systemic toxicity and provision of an impressive safety profile through direct administration into the joint space • Precise control of SOX9 targeting that selectively amplifies the chondrocyte-specific repair program while avoiding the indiscriminate activation of oncogenes or alternative lineage networks to guarantee safety profile • Realization of the true DMOAD trifecta by actively rebuilding the structural matrix, naturally breaking the local inflammation cycle, and significantly alleviating pain
Development Stage	Preclinical
Route of Administration	Intra-articular injection