

Table S1 Patient demographics and sample collection details

Sample	Gender	Age (years)	Diagnosis	Sample site
DDH1	Female	3	Developmental unilateral hip dysplasia	Left hip joint
DDH2	Female	3	Bilateral hip dysplasia	Right hip joint
DDH3	Female	10	Developmental bilateral hip dysplasia	Right hip joint
C1	Male	13	Amputation due to car accident	Right hip joint
C2	Female	6	Osteosarcoma	Right hip joint

DDH, developmental dysplasia of the hip.

Table S2 qPCR analysis of DDH and control group samples

Sample	Gender	Age (years)	Diagnosis	Sample site
DDH1	Male	4	DDH	Left
DDH2	Male	13	DDH	Left
DDH3	Female	7	DDH	Left
DDH4	Female	4	DDH	Right
DDH5	Male	2	DDH	Left
C1	Male	8	Osteosarcoma	Right
C2	Male	12	Osteosarcoma	Right
C3	Male	9	Osteosarcoma	Left

DDH, developmental dysplasia of the hip; qPCR, quantitative polymerase chain reaction.

Table S3 Marker genes and corresponding literature used for chondrocyte subset annotation

Chondrocyte subsets	Cell marker	Corresponding literature
HTC	<i>COL10A1, IBSP</i>	ScRNA-seq analysis reveals the progression of human OA
FC1	<i>ASPN, POSTN</i>	ScRNA-seq analysis reveals the progression of human OA
FC2	<i>COL1A1, COL1A2</i>	Combining scRNA-seq and population-based studies reveals hand OA-associated chondrocyte subpopulations and pathways
RegC	<i>CHI3L1, CFH</i>	Comparison of the major cell populations among OA, KBD, and healthy chondrocytes by single-cell RNA-seq analysis
DivC	<i>TOP2A, CENPF</i>	Single-cell RNA-seq reveals transcriptomic heterogeneity and post-traumatic OA-associated early molecular changes in mouse articular chondrocytes

DivC, dividing chondrocyte; FC1, fibrocartilage chondrocyte 1; FC2, fibrocartilage chondrocyte 2; HTC, hypertrophic chondrocyte; KBD, Kashin-Beck disease; OA, osteoarthritis; RegC, regulatory chondrocyte; scRNA-seq, single-cell RNA sequencing.



Figure S1 Radiographic materials of DDH1. DDH, developmental dysplasia of the hip.



Figure S2 Radiographic materials of DDH2. DDH, developmental dysplasia of the hip.



Figure S3 Radiographic materials of DDH3. DDH, developmental dysplasia of the hip.