Supplementary materials

Cerium oxide nanoparticles protect against chondrocytes and cartilage explants from oxidative stress via Nrf2/HO-1 pathway in temporomandibular joint osteoarthritis

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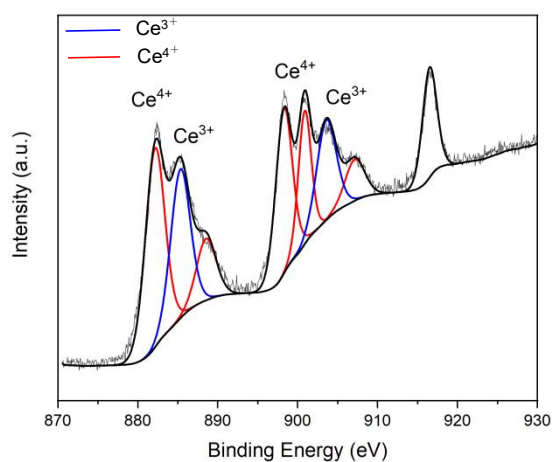
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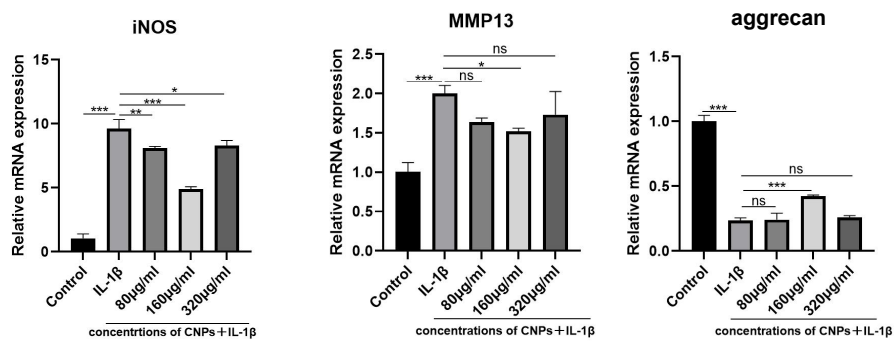Email: dxliuchao@163.com

FigureS1.XPS spectrum of CNPs.

FigureS2. Effects of different concentrations of CNPs on iNOS、MMP13 and aggrecan expression levels in inflammatory states.*P<0.05. **P <0.01. ***P <0.001 relative to the control group.
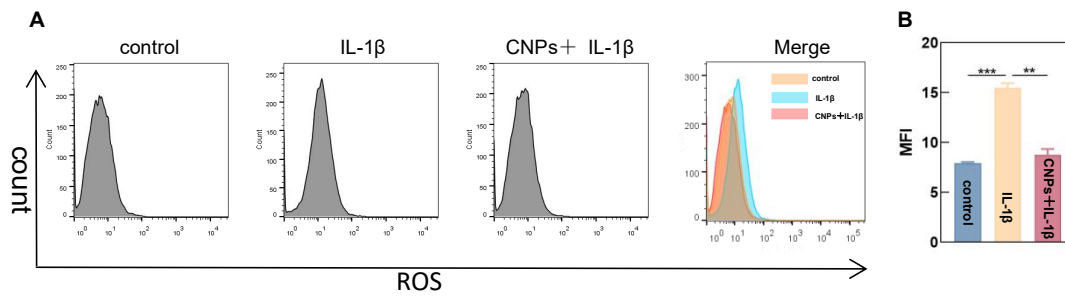

FigureS3.CNPs reduced the IL-1β-induced oxidative stress in TMJ-OA chondrocytes. (A) Flow cytometry analysis of intracellular ROS levels; (B) Semi-quantitation of intracellular ROS levels detected by flow cytometry. **P <0.01, ***P <0.001.
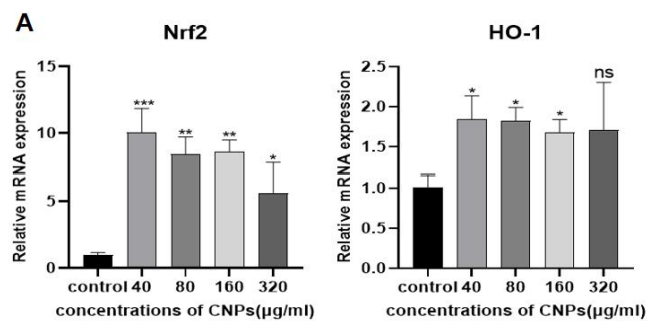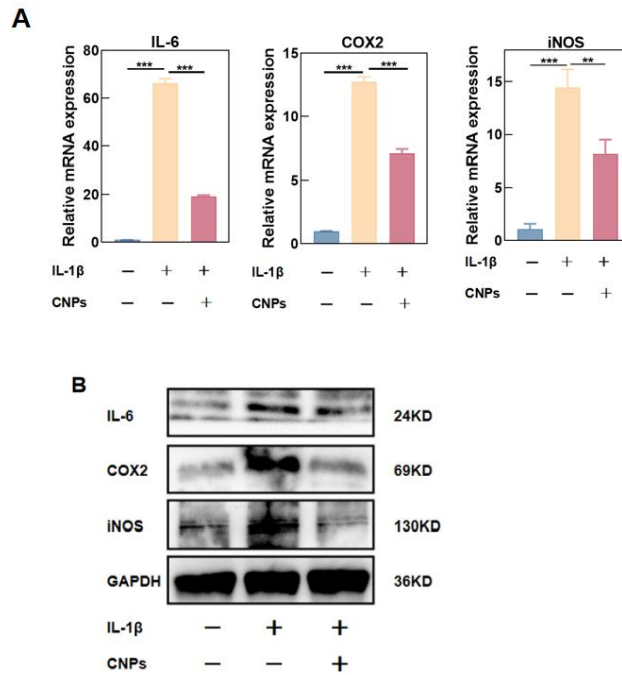

FigureS4.(A) Different concentrations of CNPs promote the mRNA expression of Nrf2 and HO-1.*P <0.05,**P <0.01, ***P <0.001 relative to the control group.

FigureS5.(A)Relative mRNA expression of IL-6,COX2,iNOS; (B) protein expression of IL-6,COX2,iNOS.**P <0.01. ***P <0.001.

Supplementary Table 1. Primer sequences used in this study.

Gene	Identification	Sequence (5'-3')
GAPDH	Sense	TGCCACTCAGAAGACTGTGG
	Antisense	TTCAGCTCTGGGATGACCTT
Nrf2	Sense	GGTTGCCCACATTCCCAAATC
	Antisense	CAAGTGACTGAAACGTAGCCG
HO-1	Sense	GAAGAGGAGATAGAGCGAAACA
	Antisense	CAATCTTCTTCAGGACCTGACC
SOD	Sense	CCTGTTCTACTGCAGTTAGGAA
	Antisense	CATCCTTAGCCTAGTTACACGT

Gene	Direction	Sequence
CAT	Sense	AAAAGCTAACCTGTAAAGCACG
	Antisense	CTGTTAAGTGATTGCTAAGCCC
GPx	Sense	AGTGCGAGGTGAATGGTGAG
	Antisense	TCGATGTCGATGGTGCGAAA
aggrecan	Sense	CCAGAAGGGTCAGGAGAGAAC
	Antisense	AAAGTGTCCAAGGCATCCAC
Col1a1	Sense	CAAGATGGTGGCCGTTACTAC
	Antisense	TTAGTCCTTACCGCTCTTCCAG
Col2a1	Sense	GGCTCCAGAACATCACCTA
	Antisense	GCCCTCATCTCCACATCATT
MMP13	Sense	ATGTCATAACCATTCAGAGCC
	Antisense	ATCCCTTGATGCCATTACCAG
ADAMTS4	Sense	CCCGGAATGGTGGAAAGTATT
	Antisense	TATGACAAGTGCGGAGTATG
iNOS	Sense	AGCATCCACGCCAAGAACG
	Antisense	GTCTGGTTGCCTGGGAAAAT
COX2	Sense	GAGCTGTAAGAGTCTACTGACC
	Antisense	ACACAGGAATCTTCACAAATGG
IL-6	Sense	TGCACTGTCAGAAAACAATCTG
	Antisense	CCAGAGCAGATTTTCAATAGGC

Supplementary Table2. Antibodies used in this study.

MARKER (SPECIES) (Primary antibodies)	DILUTION	DISTRIBUTOR/SOURCE (CATALOGUE NUMBER)
GAPDH Rabbit mAb	1:5000	Abcam;ab181602
Nrf2 Rabbit mAb	1:5000	Proteintech;16396-1-AP
HO-1 Rabbit mAb	1:5000	Abcam;ab68477
aggrecan Rabbit mAb	1:1000	Affinity Biosciences；DF7561
COLI Rabbit mAb	1:1000	Proteintech;14695-1-AP
COLII Rabbit mAb	1:1000	Proteintech;28459-1-AP
MMP13 Rabbit mAb	1:1000	Proteintech;18165-1-AP
ADAMTS4 Rabbit mAb	1:1000	Affinity Biosciences;DF6986
iNOS Rabbit mAb	1:5000	Abcam;ab178945
COX2 Rabbit mAb	1:5000	Abcam;ab15191
IL-6 Rabbit mAb	1:1000	Affinity Biosciences;DF6087