

Unlocking the Therapeutic Potential of 1,25(OH)₂D₃: Targeting Ferroptosis to Alleviate Lumbar Intervertebral Disc Degeneration

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Supplementary Materials

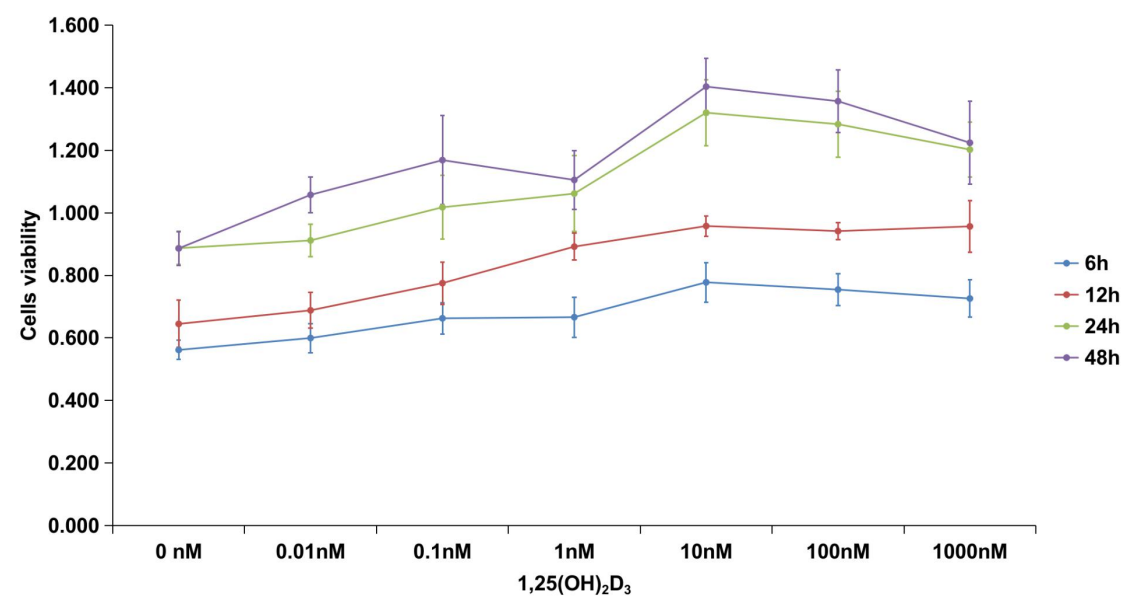


Figure S1. Determination of Optimal Concentration and Timing for 1,25(OH)₂D₃ Treatment in Rat NP Cells via the CCK8 Assay.

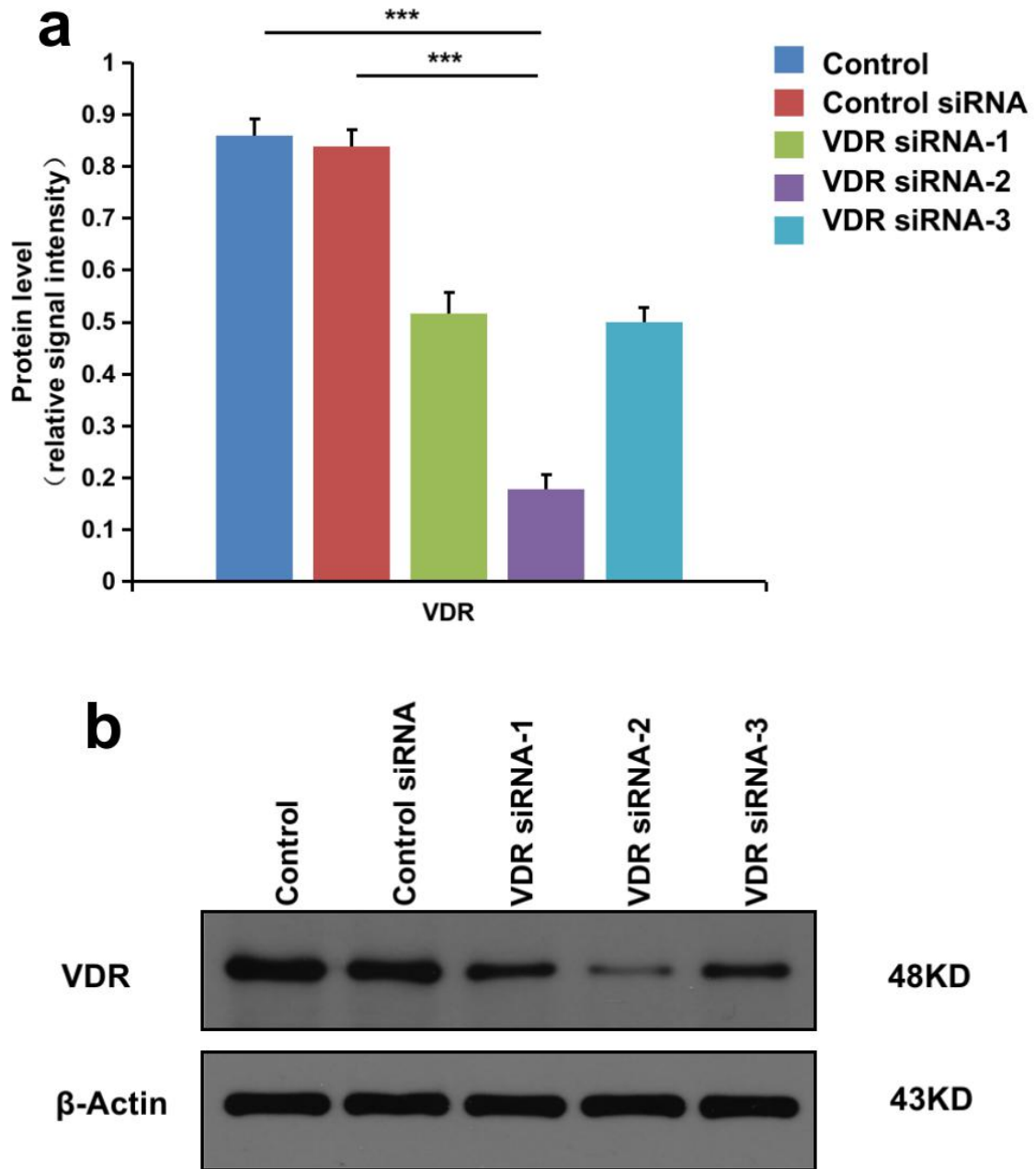


Figure S2. Western Blot Analysis of VDR Silencing Efficiency by Different siRNA Sequences. (a) Quantifies VDR protein via Western blot densitometry post-siRNA treatment. (b) Displays the blots with β -Actin control (Mean $\pm$ SD, n=3. ***P<0.001).

Table S1. siRNA Design and Synthesis

Gene Name	orientation	Sequence
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si-VDR -1	sense(5' - 3')	CCACAGGCUUCCACUCAAUGCUAU
	antisense(5' - 3')	AUAGCAUUGAAGUGGAAGCCUGUGG
si-VDR -2	sense(5' - 3')	CCAAGCUAUCUGAAGAACAACAGCA
	antisense(5' - 3')	UGCUGUUGUUCUUCAGAUAGCUUGG
si-VDR -3	sense(5' - 3')	CAUGUCCUUCUCAUGGCCAUCUGCA
	antisense(5' - 3')	UGCAGAUGGCCAUGAGAAGGACAUG
si-Control	sense(5' - 3')	CCAUCGGACCUCUUCGUAACACUAU
	antisense(5' - 3')	AUAGUGUUACGAAGAGGUCCGAUGG

Table S2. qPCR primer list

Gene Name		Sequence
R- β -actin	sense	CGTTGACATCCGTAAAGACCTC
	antisense	TAGGAGCCAGGGCAGTAATCT
R-SLC7A11	sense	GCTTTTTATTACGGGATGTATGC
	antisense	GACTGCTAATGAGAATTTTCCCAG
R-SLC40A1	sense	ATTCGGTTCCCCAGTCATTG
	antisense	GTTACATTCAAGTTCACGGATG
R-VDR	Sense	GGACGGAAGTACAGGGAGCTAT
	Antisense	GAGGAGACAGGTCCAGAGTCAC
R-GPX4	Sense	GAGGCAGGAGCCAGGAAGTA
	Antisense	ACCACGCAGCCGTTCTTATC

Table S3. Primary Antibodies Used for Western Blot Analysis

Antibody	Host Species	Source	Catalog Number	Dilution
β -Actin	Rabbit	TDY	TDY051	1:10000
VDR	Mouse	Sanying	67192-1-Ig	1:2000

GPX4	Rabbit	Abcam	ab125066	1:1000
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Table S4. Secondary Antibodies Used for Western Blot Analysis

Secondary Antibody	Host Species	Source	Catalog Number	Dilution
HRP-Goat anti Rabbit	Goat	ASPEN	AS1107	1:10000
HRP-Goat anti Mouse	Goat	ASPEN	AS1106	1:10000
HRP-Rabbit anti Goat	Rabbit	ASPEN	AS1108	1:10000
HRP-Goat anti Rat	Goat	ASPEN	AS1093	1:10000
HRP-Rabbit anti Sheep	Rabbit	ASPEN	AS1245	1:10000