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Supplemental Information

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Osteoporosis through Wnt5a/ β -Catenin-

Dependent Induction of Osteogenic Differentiation

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Inhibition of circulating miR-194-5p reverses osteoporosis through Wnt5a/ β -catenin signaling-dependent induction of osteogenic differentiation

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Table S1. Information of osteopenia volunteers and osteoporosis volunteers. (Osteopenia, $-2.5 \leq$ Spine T-score ≤ -1.0 ; Osteoporosis, Spine T-score < -2.5).

Volunteer	Age (Year)	Spine T-score	Volunteer	Age (Year)	Spine T-score
Osteopenia 1	63	-1.6	Osteoporosis 1	60	-2.8
Osteopenia 2	67	-1.9	Osteoporosis 2	66	-3.1
Osteopenia 3	58	-1.5	Osteoporosis 3	69	-3.2
Osteopenia 4	54	-1.1	Osteoporosis 4	63	-2.6
Osteopenia 5	56	-1.2	Osteoporosis 5	58	-2.8
Osteopenia 6	66	-1.7	Osteoporosis 6	69	-3.4
Osteopenia 7	52	-1.0	Osteoporosis 7	67	-2.8
Osteopenia 8	71	-1.8	Osteoporosis 8	65	-2.7
Osteopenia 9	63	-1.4	Osteoporosis 9	64	-3.1
Osteopenia 10	68	-1.6	Osteoporosis 10	73	-3.8
Osteopenia 11	65	-1.9	Osteoporosis 11	69	-3.6

Osteopenia 12	66	-2.1	Osteoporosis 12	68	-3.1
Osteopenia 13	59	-1.5	Osteoporosis 13	64	-2.9
Osteopenia 14	62	-1.3	Osteoporosis 14	59	-2.8
Osteopenia 15	57	-1.4	Osteoporosis 15	57	-3.2
Osteopenia 16	68	-1.8	Osteoporosis 16	53	-3.5
Osteopenia 17	65	-1.5	Osteoporosis 17	60	-3.5
Osteopenia 18	62	-1.2	Osteoporosis 18	59	-3.1
Osteopenia 19	60	-1.1	Osteoporosis 19	55	-3.3
Osteopenia 20	64	-1.5	Osteoporosis 20	53	-2.8
Osteopenia 21	58	-1.1	Osteoporosis 21	68	-3.9
Osteopenia 22	62	-1.3	Osteoporosis 22	74	-4.2
Osteopenia 23	66	-1.2	Osteoporosis 23	66	-4.0
Osteopenia 24	69	-1.8	Osteoporosis 24	65	-3.2
Osteopenia 25	57	-1.5	Osteoporosis 25	60	-3.9
Osteopenia 26	56	-1.1	Osteoporosis 26	68	-2.5
Osteopenia 27	63	-1.9	Osteoporosis 27	61	-3.6
Osteopenia 28	52	-1.4	Osteoporosis 28	72	-3.9
Osteopenia 29	54	-1.3	Osteoporosis 29	70	-3.5
Osteopenia 30	50	-1.1	Osteoporosis 30	57	-2.9
Osteopenia 31	59	-1.7	Osteoporosis 31	61	-2.7
Osteopenia 32	62	-1.5	Osteoporosis 32	64	-2.6
Osteopenia 33	61	-1.4	Osteoporosis 33	65	-3.1
Osteopenia 34	60	-1.8	Osteoporosis 34	60	-2.6
Osteopenia 35	68	-1.5	Osteoporosis 35	62	-3.2
Osteopenia 36	64	-1.9	Osteoporosis 36	67	-3.6
Osteopenia 37	62	-1.8	Osteoporosis 37	69	-3.4
Osteopenia 38	66	-1.6	Osteoporosis 38	65	-2.8
Osteopenia 39	59	-1.2	Osteoporosis 39	58	-3.2
Osteopenia 40	57	-1.1	Osteoporosis 40	63	-3.6
Osteopenia 41	53	-1.1	Osteoporosis 41	54	-2.7
Osteopenia 42	58	-1.5	Osteoporosis 42	58	-2.6
Osteopenia 43	59	-2.1	Osteoporosis 43	55	-2.6
Osteopenia 44	62	-1.8	Osteoporosis 44	60	-2.8
Osteopenia 45	64	-2.2	Osteoporosis 45	63	-3.2
Osteopenia 46	68	-2.4	Osteoporosis 46	59	-2.9
Osteopenia 47	53	-1.5	Osteoporosis 47	57	-3.5
Osteopenia 48	56	-1.6	Osteoporosis 48	68	-3.1
Osteopenia 49	58	-1.5	Osteoporosis 49	63	-2.8
Osteopenia 50	64	-1.3	Osteoporosis 50	66	-2.9

Table S2. miRNA and mRNA Primer Sequences.

miRNA or Gene name	Primer Sequence (5' to 3')
mmu-miR-194-5p-Forward	GCGGCGGTGTAACAGAACTCC
mmu-miR-194-5p-Reverse	ATCCAGTGCAGGGTCCGAGG
hsa-miR-194-5p-Forward	CTAGTACCTAGAGGAACCTTTGAAGACTGTT ACAGCTCAGCA
has-miR-194-5p-Reverse	AGCTTGCTGAGCTGTAACAGTCTTCAAAGGT TCCTCTAGGTA
mmu-Runx2-Forward	CGCCACCACTCACTACCACAC
mmu-Runx2-Reverse	TGGATTTAATAGCGTGCTGCC
mmu-OCN-Forward	TTCTGCTCACTCTGCTGACCC
mmu-OCN-Reverse	CTGATAGCTCGTCACAAGCAGG
U6-Forward	GTGGACCGCACAAAGCTCGCT
U6-Reverse	TTGTTGAACGGCACTGTGTATAGCA
GAPDH-Forward	TGAAGGGTGGAGCCAAAAG
GAPDH-Reverse	AGTCTTCTGGGTGGCAGTGAT