

Supplementary information

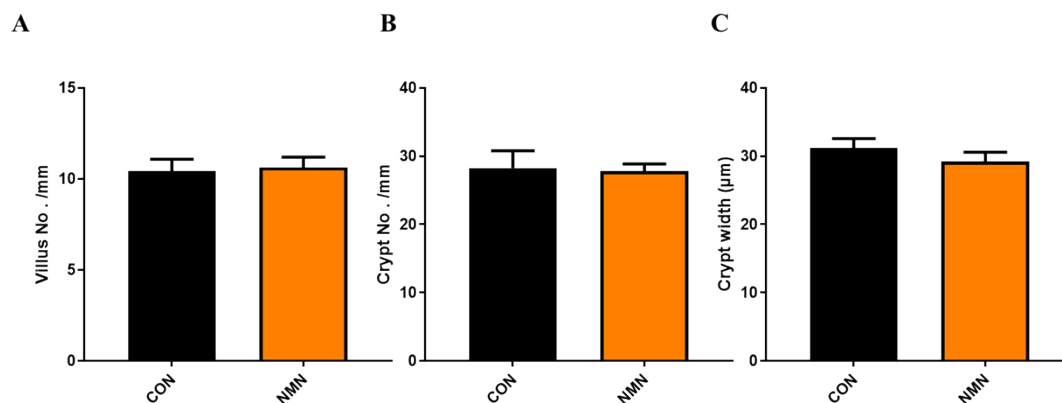


Fig. S1 Villus density (villi/mm), crypt density (crypts/mm) and crypt width of jejunum.

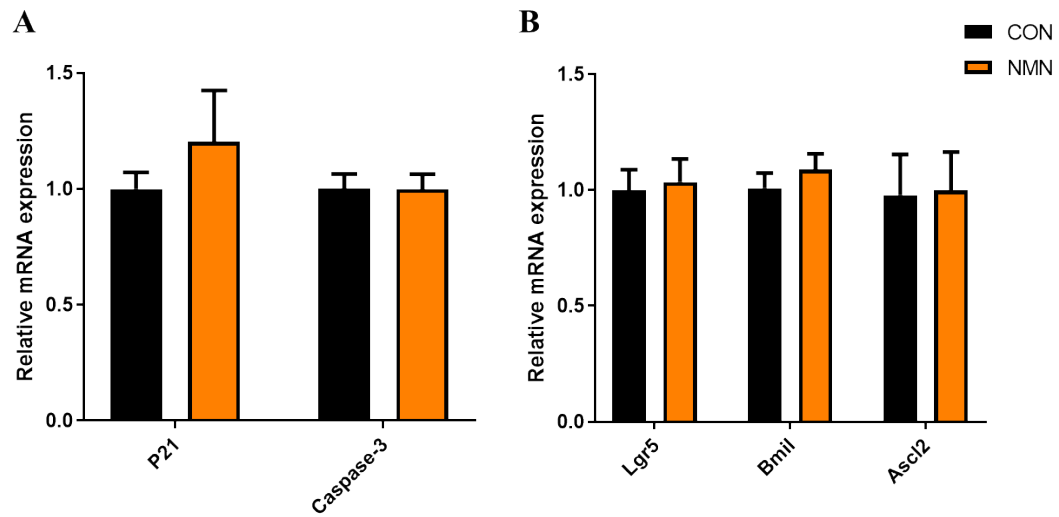


Fig. S2 The effect of NMN supplementation on gene expression of jejunum in aged mice. (A) Cell cycle progression/apoptosis makers (B) Intestinal stemness makers.

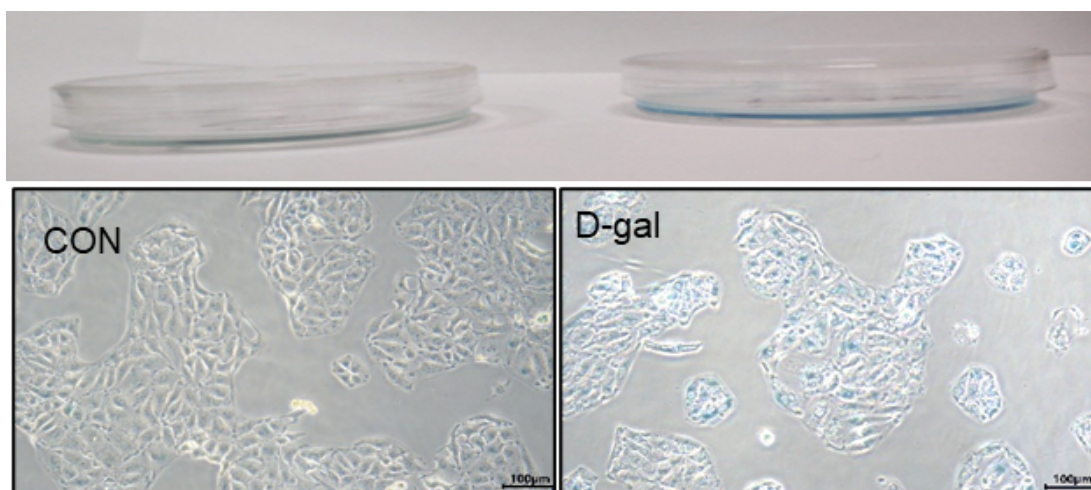


Fig. S3 Images of SA- β -Gal stained IPEC-J2 cells.

Table S1. The nutritional composition of the diet in the mice study.

Nutrients	Content (per kg)	Nutrients	Content (per kg)
Water	≤100 g	Ca	10-18 g
Crude protein	≥180 g	Total P	6-12 g
Crude fat	≥40 g	Ca:Total P	1.2:1-1.7:1
Crude fiber	≥50 g	Lysine	≥8.2 g
Ash	≤80 g	Methionine +Cysteine	≥5.3 g
Vitamin A	≥7000 IU	Vitamin B1	≥8 mg
Vitamin E	≥60 IU	Vitamin D	≥800 IU
Fe	≥100 mg	Mn	≥75 mg
Zn	≥30 mg	Se	0.1-0.2 mg

Table S2. The primer information used in the study.

Species	GENE	Forward Primer (5'-3')	Reverse Primer (5'-3')	Accession Number
Mouse	Sirt1	CGGCTACCGAGGTCCATATAC	ACAATCTGCCACAGCGTCAT	NM_019812
Mouse	Sirt2	CTCTGACCTCTGGAGACCC	ATCTCTGCCTCTCCACCACT	NM_022432
Mouse	Sirt3	TGCCTGCAAGGTTCTCTACTC	AGTCGGGGCACTGATTTCTG	NM_022433.2
Mouse	Sirt4	ATTCCCGCTGTGGAGAGTTG	TTCAGAGTTGGAGCGGCATT	NM_001167691.1
Mouse	Sirt5	CTTTTTCGAGCCTGCCTGG	GCAGGAGGCTTTCGTCTACA	NM_178848
Mouse	Sirt6	AAGTCTCACTGTGTCCCTTGTC	TCACGAGCGGGTGTGATTG	NM_181586
Mouse	Sirt7	GGGTCTTAATGGAGTATGGACA	CTCATGCAAACGGGTGATGC	NM_153056.3
Mouse	CD38	GGTCCTGATCGCCTTGAGTAG	ATCTCCTGGCAGTTCTGATCTCTC	NM_007646.5
Mouse	P21	GCAGAATAAAAGGTGCCACAGG	AAAGTTCCACCGTTCTCGGG	NM_001111099.2
Mouse	Caspase-3	CACCCGGTTACTATTCTCTG	GCATTGACACAATACACGG	XM_017312543.3
Mouse	Lgr5	AGAGCCTGATACCATCTGCAAAC	TGAAGGTCGTCCACACTGTTGC	NM_010195.2
Mouse	Bmil	ACTACACGCTAATGGACATTGCC	CTCTCCAGCATTTCGTCACTCCA	XM_006497312
Mouse	Ascl2	TTTCCTGTGCCGACCCAGAACT	CAGCGACTCCAGACGAGGTGG	NM_008554.3 7
Mouse	NF- κ B	GACACGACAGAATCCTCAGCATCC	CCACCAGCAGCAGCAGACATG	XM_006501107.3
Mouse	TNF- α	GGTGCTATGTCTAGCCTCTT	GCCATAGAACTGATGAGAGGGAG	NM_001278601.1
Mouse	IL-1 β	GAAATGCCACCTTTTGACAGTG	TGGATGCTCTCATCAGGACAG	NM_008361.4
Mouse	Nrf2	TGAAGCTCAGCTCGCATTGA	TGCTCCAGCTCGACAATGTT	NM_010902.4
Mouse	SOD1	ACCTGGGCAATGTGACT	TCCAGCATTTCCCGTCT	NM_011434.2
Mouse	SOD2	CAGACCTGCCTTACGACTATGG	CTCGGTGGCGTTGAGATTGTT	NM_013671.3
Mouse	NQO1	TTTGAGAGAGTGCTCGTAGC	GGTCTTCTTATTCTGGAAAGG	XM_036153810.1
Mouse	HO-1	CCCAGTCTATGCCCCACTCT	AGACGCTTTACATAGTGCTG	NM_010442.2
Mouse	GCLC	AACAAGAAACATCCGGCATC	CGTAGCCTCGGTAAAATGGA	XM_006510812.2
Mouse	CAT	CCACAGTCGCTGGAGAGTCA	GTTTCCCAACAAGGTCCCAGTT	NM_009804.2
Mouse	GSH-Px	TACACCGAGATGAACGATCTG	ATTCTTGCCATTCTCCTGGT	NM_001329528.1
Mouse	Ocludin	CCCCTCTTTCCTTAGGCGAC	CCCCTCTTTCCTTAGGCGAC	NM_001360536.1
Mouse	Claudin-1	GGACAACATCGTGACTGCTCAGG	TGCCAATTACCATCAAGGCTCTGG	NM_016674.4
Mouse	GAPDH	AGCCAAAAGGGTCATCATCT	GGGGCCATCCACAGTCTTCT	XM_036165840.1
Porcine	P21	ACCCCTTCCCATACCC	TTCCAAACACCCATGAACTG	XM_013977858.2
Porcine	NF- κ B	ACCAGCCTCTGTTTGTC	GCTTCTGCCGTTTCCTTTGT	NM_001048232.1
Porcine	Ocludin	GTGGGACAAGGAACGTATTTATG	TCTCTCCGCATAGTCCGAAA	XM_005672525.3
Porcine	Claudin-1	CTGAACACCACTTTGCAAGC	ATCCGCATCTTCTGCACCTC	NM_001244539.1
Porcine	β -actin	CGTTGGCTGGTTGAGAATC	CGCAAGACAGAAATGACAA	XM_003357928.4