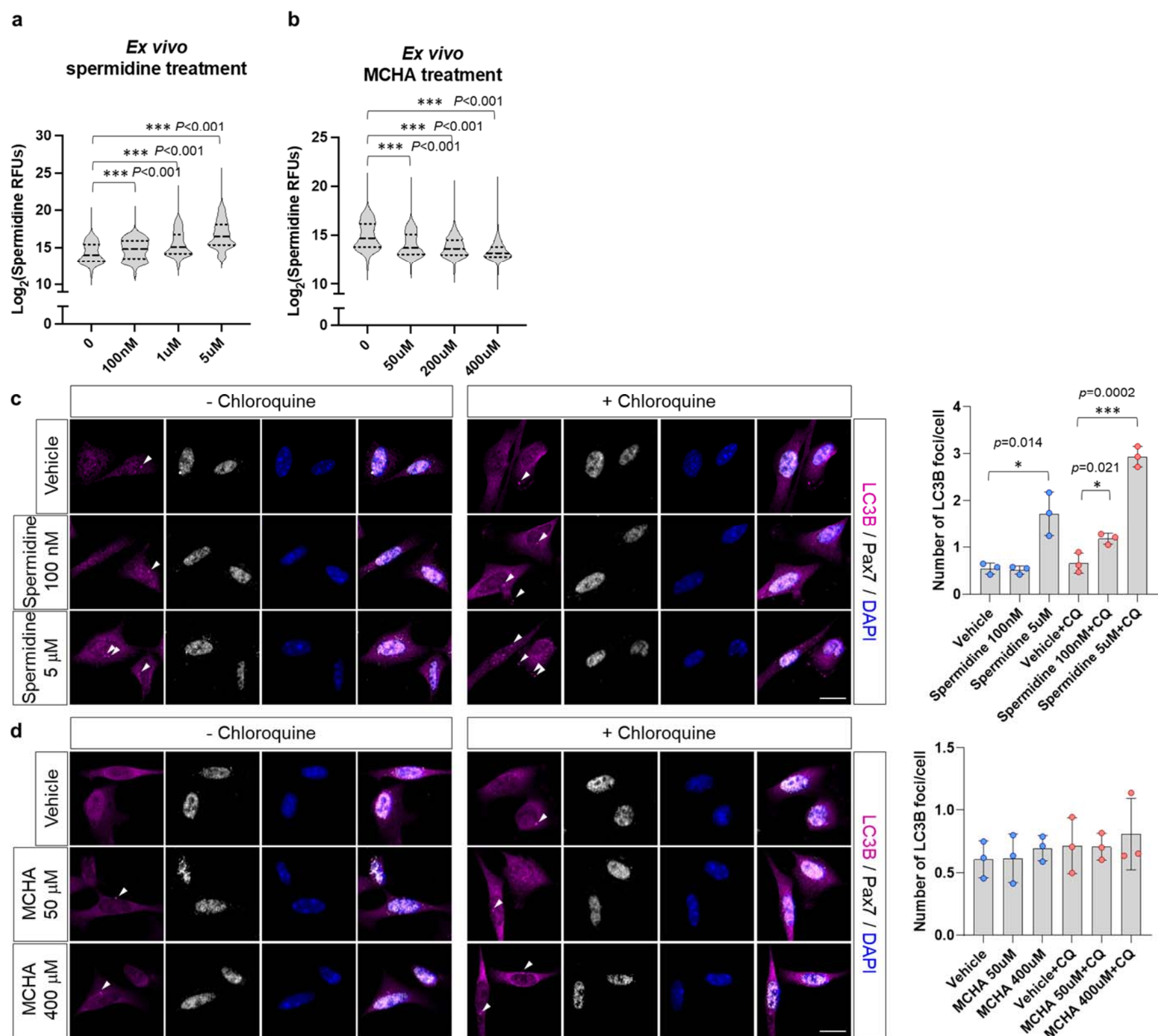


## Supplementary Figure



### Inhibiting spermidine synthesis does not impair autophagy of aged MuSCs.

**a-b**, Quantification of intracellular spermidine levels. Violin plots showing RFUs of spermidine in old MuSCs treated with each dose of spermidine (**a**) or MCHA (**b**) as indicated ( $n=3$ ). **c-d**, (Left) Representative confocal immunofluorescence images of old MuSCs treated with vehicle or each dose of spermidine (**c**) or MCHA (**d**) for 48 hr. In each case, cells were treated with or without 50  $\mu\text{M}$  of chloroquine (CQ) for the last 3 hr of incubation. (Right) Quantification of number of LC3B foci per cell. (Scale bar, 10  $\mu\text{M}$ ) Data are shown as median and quartiles (**a, b**) and mean  $\pm$  SD (**c, d**).  $P$  values were calculated by two-sided unpaired Student's  $t$ -tests (**a-d**).  $*P < 0.05$ ;  $**P < 0.01$ ;  $***P < 0.001$ .

**Supplementary Table 1. Donor information of human muscle specimen**

DONOR	#1	#2	#3
AGE	45	60	56
SEX	Female	Male	Female
ETHNICITY	Filipino	Filipino	Hispanic/Latino
RACE	Asian	Asian	Not specified
BMI (KG/M <sup>2</sup> )	35.372	29.202	24.901

**Supplementary Table 2. Sequences of oligonucleotide for siRNA and shRNA**

	Target Sequence	Company/Catalog number
si <i>Srm</i>	GCA GUA AAA CCU ACG GCA A	Dharmacon/ON-TARGETplus SMART pool Srm siRNA/J-062372-09
	CCG UGG UGG ACU ACG CCU A	Dharmacon/ON-TARGETplus SMART pool Srm siRNA/J-062372-10
	GGG CGA UGG CUU UGA GUU C	Dharmacon/ON-TARGETplus SMART pool Srm siRNA/J-062372-11
	GCG AGA UUG AUG AGG AUG U	Dharmacon/ON-TARGETplus SMART pool Srm siRNA/J-062372-12
siControl	UGG UUU ACA UGU CGA CUA A	Dharmacon/ON-TARGETplus Non-targeting SMART pool/D-001810-10-05
	UGG UUU ACA UGU UGU GUG A	
	UGG UUU ACA UGU UUU CUG A	
	UGG UUU ACA UGU UUU CCU A	
sh <i>Srm</i>	TTC TCC TAC CAG GAG ATG ATC GCC AAC CT	Origene/TL502143A
	TGC CAG TGG CTG CAC CTG GAC CTC ATC AA	Origene/TL502143B
	TCT TCA AGG AGT CCT ATT ACC AGC TCA TG	Origene/TL502143C
	TCG GAC ATG CAC CGT GCC GCC TTC GTA CT	Origene/TL502143D
sh <i>Suv39h1</i>	Suv39h1 shRNA(m) Lentiviral Particles	Santa Cruz Biotechnology/sc-38464-V
shControl	Control shRNA Lentiviral Particles-A	Santa Cruz Biotechnology/sc-108080

**Supplementary Table 3. RT-qPCR primer sequences for polyamine metabolism enzymes**

Gene	Forward primer (5' to 3')	Reverse primer (5' to 3')
<i>Srm</i>	ACA TCC TCG TCT TCC GCA GTA	GGC AGG TTG GCG ATC ATC T
<i>Paox</i>	CTT CGG TGG TGT AGT GGA GC	TCC GAT AAT TCT TTC TCC CCC AG
<i>Odc1</i>	GAC GAG TTT GAC TGC CAC ATC	CGC AAC ATA GAA CGC ATC CTT
<i>Amdl1</i>	AGG GAT CTG GGG ATC TTC GTA	TGC TTG TCA GTC TTT GTC ACA C
<i>Sms</i>	CAC AGC ACG CTC GAC TTC AA	TGC CAT TCT TGT TCG TGT AAG TT
<i>Sat1</i>	GAG AAC ACC CCT TCTACC ACT	GCC TCT GTA ATC ACT CAT CAC GA
LINE1	AGT GCA GAG TTC TAT CAG ACC TTC	AAC CTA CTT GGT CAG GAT GGA TG
SINE B1	CAT GGT GGC GCA CGC CTT TAA TCC	CCA GGC TGG CCT CGA ACT CAG AAA
SINE B2	GGG CTG GAG AGA TGG CTC AGT GGT	GCC ACC ATG TGG TTG CTG GGA ATT G
<i>Gapdh</i>	AGG TCG GTG TGA ACG GAT TTG	TGT AGA CCA TGT AGT TGA GGT CA