



Supplementary Table S1. Characteristics of patients with spinal cord injury.

	Subject 1	Subject 2	Subject 3
Age	57	49	59
Gender	Male	Male	Male
Disease duration (months)	58	73	15
NLI	T5	T4	T3
AIS	A	A	A

NLI; Neurologic level of injury, AIS; American Spinal Injury Association impairment scale.

Supplementary Table S2. The gene expression ratios of SCI patients relative to healthy subjects.

Target Genes	SCI-Upper vs. Healthy Control. FC	SCI-Lower vs. Healthy Control. FC
<i>CCNB1</i>	2.81 ± 0.37	2.11 ± 0.58
<i>CCNB2</i>	4.49 ± 0.45	2.99 ± 0.76
<i>PLK1</i>	3.64 ± 0.38	2.44 ± 0.51
<i>BUB1</i>	6.19 ± 0.70	3.12 ± 0.81
<i>CDC20</i>	4.34 ± 0.50	3.08 ± 0.72

Supplementary Table S3. The protein expression ratios of SCI patients relative to healthy subjects.

Target Protein	SCI-Upper vs. Healthy Control. FC	SCI-Lower vs. Healthy Control. FC
CCNB1	2.06 ± 0.19	1.20 ± 0.10
CCNB2	4.31 ± 0.41	1.59 ± 0.06
PLK1	8.80 ± 1.42	1.39 ± 0.17
BUB1	3.38 ± 0.76	3.32 ± 0.54
CDC20	5.12 ± 0.46	1.38 ± 0.08

Supplementary Table S4. The gene expression ratios in SCI patients treated with tiotropium and acetylcholine.

Target Genes	SCI-Upper+Tio vs. SCI-Upper+Veh. FC	SCI-Lower+Ach vs. SCI-Lower+Veh. FC
<i>CCNB1</i>	0.79 ± 0.03	1.93 ± 0.23
<i>CCNB2</i>	0.59 ± 0.09	1.62 ± 0.29
<i>PLK1</i>	0.23 ± 0.03	2.00 ± 0.27
<i>BUB1</i>	0.24 ± 0.02	1.75 ± 0.27
<i>CDC20</i>	0.56 ± 0.04	2.12 ± 0.08

Supplementary Table S5. The protein expression ratios in SCI patients treated with tiotropium and acetylcholine.

Target Protein	SCI-Upper+Tio vs. SCI-Upper+Veh. FC	SCI-Lower+Ach vs. SCI-Lower+Veh. FC
CCNB1	0.78 ± 0.04	1.11 ± 0.07
CCNB2	0.17 ± 0.02	1.14 ± 0.04
PLK1	0.74 ± 0.06	1.24 ± 0.10
BUB1	0.65 ± 0.05	2.20 ± 0.17
CDC20	0.73 ± 0.03	1.51 ± 0.12

Supplementary Table S6. The protein expression ratios of cell proliferation in SCI patients treated with tiotropium and acetylcholine.

Target Protein	SCI-Upper+Tio vs. SCI-Upper+Veh. FC	SCI-Lower+Ach vs. SCI-Lower+Veh. FC
Phosphorylated Erk /Total Erk	0.75 ± 0.04	1.21 ± 0.07
Phosphorylated Akt /Total Akt	0.78 ± 0.05	1.33 ± 0.10

Supplementary Table S7. Primers used for qRT-PCR.

Gene symbol	Forward primer (5'→3')	Reverse primer (5'→3')
<i>CCNB1</i>	CTA CTG GGT CGG GAA GTC AC	AGC ATC TTC TTG GGC ACA CA
<i>CCNB2</i>	AAC AAG GCT ACA GCG TCG AA	CAA ATC ACT GGA CAC CGT CG
<i>PLK1</i>	TGA CTC AAC ACG CCT CAT CC	GCT CGC TCA TGT AAT TGC GG
<i>BUB1</i>	TCC GGC GGC TTC TAT TTG C	CCC ATT CAC CAA GAG GGT CAT
<i>CDC20</i>	AAT GTG TGG CCT AGT GCT CC	AGC ACA CAT TCC AGA TGC GA
<i>GAPDH</i>	AAG GGT CAT CAT CTC TGC CC	GTG AGT GCA TGG ACT GTG GT

CCNB1, Cyclin B1; *CCNB2*, Cyclin B2; *PLK1*, Polo-like kinase 4; *BUB1*, BUB1 mitotic checkpoint serine/threonine kinase; *CDC20*, cell division cycle 20; *GAPDH*, Glyceraldehyde 3-phosphate dehydrogenase.