MP 54-18

Improvement of detrusor overactivity by ivermectin-mediated activation of double mutant glycine receptors delivered by herpes simplex virus (HSV) vectors in mice with spinal cord injury (SCI)

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Adult female C57BL/6 mice: Spinal cord was completely transected at the Th8/9 level

2 weeks after SCI, CMVp-G2M or CMVp-Cont were inoculated into the bladder wall

3 weeks after SCI, ivermectin (IVM) or vehicle (Veh) was administered i.p. for 7 days

4 weeks after SCI, continuous cystometrograms (CMG) were recorded

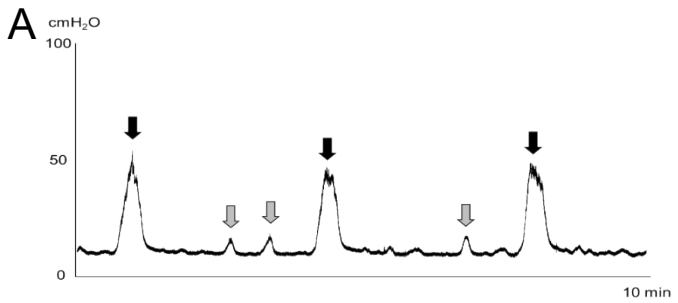
(A) CMVp-G2M inoculation with IVM group (CMVp-G2M-IVM; n = 6)

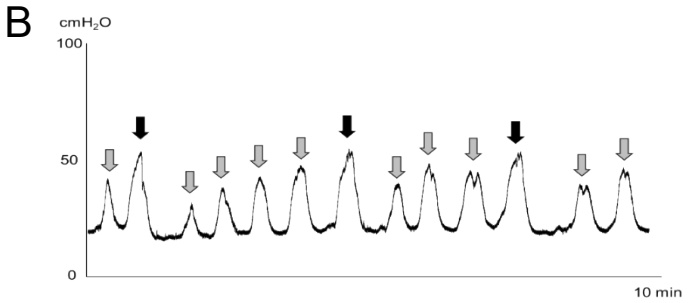
(B) CMVp-G2M inoculation with Veh group (CMVp-G2M-Veh; n = 6)

(C) CMVp-Cont inoculation with IVM group (CMVp-Cont-IVM; n = 4)

(D) CMVp-Cont inoculation with Veh group (CMVp-Cont-Veh; n = 4)

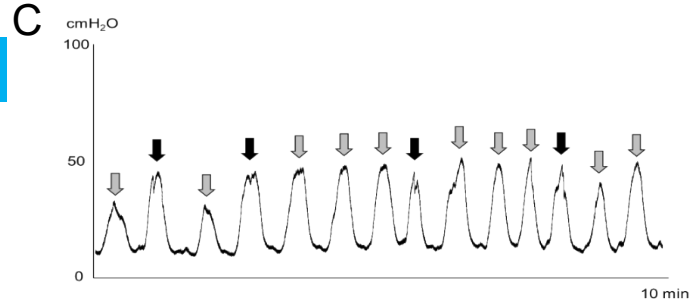
CMVp-G2M-IVM

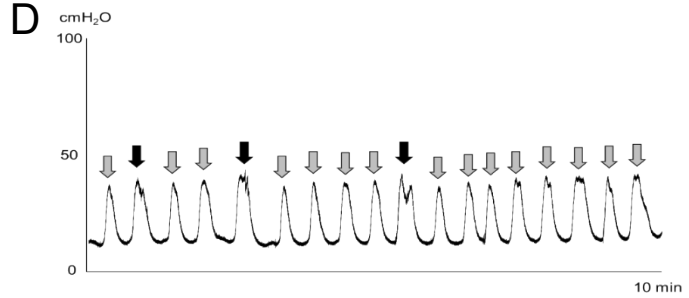




CMVp-G2M-Veh

CMVp-Cont-IVM





CMVp-Cont-Veh

	NVCs/min	P Value
CMVp-G2M-IVM	0.30 ± 0.12	
CMVp-G2M-Veh	0.86 ± 0.12	< 0.01
CMVp-Cont-IVM	1.25 ± 0.14	< 0.01
CMVp-Cont-Veh	1.27 ± 0.26	< 0.01

Figure: The representative CMG traces (Black arrows; voiding contraction, Grey arrows; non-voiding contraction)
Table: The number of non-voiding contractions (NVCs) per min in each group

Gene therapy with replication-deficient HSV vectors encoding IVM-sensitive, mutant glycine receptors with exogenous ligand application could be a novel chemogenetic “druggable” treatment that can avoid systemic adverse events for neurogenic bladder dysfunction in SCI.