**Suplementary Material**

**Table S1**: Mean normalized concentration of each biomarker in the CM of OM-MSCs (mean ± SD). *nd* = non-defined.

**Table S2**: Mean normalized concentration of each biomarker in the CM of OECs (mean ± SD). *nd* = non defined.

**Table S3**: Statistical differences in the concentration of biomarkers identified in the CM of OM-MSCs. **a)** Frutalkine; **b)** GRO/KC; **c)** IFN-γ; **d)** IL-1β; **e)** IL-10; **f)** IP-10; **g)** LIX; **h)** MCP-1; **i)** Rantes; **j)** VEGF.

**a)**

**b)**

**c)**

**d)**

**e)**

**f)**

**g)**

**h)**

**i)**

**h)**

**Table S4**: Statistical differences in the concentration of biomarkers identified in the CM of OECs. **a)** EGF; **b)** Frutalkine; **c)** G-CSF; **d)** GRO/KC; **e)** IFN-γ; **f)** IL-1α; **g)** IL-1β; **h)** IL-5; **i)** IL-10; **j)** IL-17A; **k)** IL-18; **l)** IP-10; **m)** Leptin; **n)** LIX; **o)** MCP-1; **p)** MCP-1α: **q)** MIP-2; **r)** Rantes; **s)** VEGF.

**a)**

**b)**

**c)**

**d)**

**e)**

**f)**

**g)**

**h)**

**i)**

**j)**

**k)**

**l)**

**m)**

**n)**

**o)**

**p)**

**q)**

**r)**

**s)**

**Table S5**: Values of functional deficit (%) obtained performing the EPT test. These tests were performed preoperatively (T0), 1 and 2 weeks after neurotmesis (T1 and T2) and from there every two weeks until week 20 (T20). Results are presented as mean and SD. (*n* = number of animals per group).

**Table S6**: Statical differences observed in EPT test at 20 weeks. (*ns* = no statistically significant differences).

**Table S7:** WRL values in seconds (s) obtained performing WRL test. These tests were performed preoperatively (T0), 1 and 2 weeks after neurotmesis (T1 and T2) and from there every two weeks until week 20 (T20). Results are presented as mean and SD. (*n* = number of animals per group).

**Table S8**: Statical differences observed in EPT test at 20 weeks. (*ns* = no statistically significant differences).

**Table S9:** Results of functional recovery through the SFI. These tests were performed preoperatively (T0), 1 and 2 weeks after neurotmesis (T1 and T2) and from there every two weeks until week 20 (T20). Results are presented as mean and SD. (*n* = number of animals per group).

**Table S10**: Statical differences observed in SFI test at 20 weeks. (*ns* = no statistically significant differences).



**Table S11:** Results of functional recovery through the SSI. These tests were performed preoperatively (T0), 1 and 2 weeks after neurotmesis (T1 and T2) and from there every two weeks until week 20 (T20). Results are presented as mean and SD. (*n* = number of animals per group).

**Table S12:** Statical differences observed in SSI test at 20 weeks. (*ns* = no statistically significant differences).



**Table S13**: Stereological quantitative assessment. The different parameters considered were evaluated in the regenerated sciatic nerve at week 20 (T20) after neurotmesis. Results are presented as mean and SD (*n* = number of animals per group).



**Table S14:** Statistical differences in the nerve stereological analysis: **a)** Density of fibers; **b)** Total number of fibers; **c)** Axon diameter; **d)** Fiber diameter; **e)** Myelin thickness; **f)** g-ratio; **g)** Cross sectional area. (*ns* = no statistically significant differences).

**a)**

**b)**

**c)**

**d)**

**e)**

**f)**

**g)**

**Table S15:** Muscle Mass Lost in the cranial tibial muscles of the different therapeutic groups compared to healthy contralateral muscles. Healthy Control and Lesion values are expressed in grams (g).



**Table S16:** Statically significant differences in the evaluation of the Tibial Cranial Muscles: **a**) individual fiber area; **b**) minimum Feret’s diameter of the muscle fibers (*ns* = no statistically significant differences).

**a)**

**b)**