

**Supplementary S1. Table 1: Primer sequences used for murine RT-PCR and qPCR analyses of the cholinergic system and nicotinic receptors.** Abbreviations: *ChAt*: choline acetyl-transferase; *CarAt*: carnityl acetyltransferase; *VAcHT*: vesicular acetylcholine transferase; *AChE*: acetylcholine esterase; *BChE*: butyrylcholine esterase; *Chrna*: cholinergic receptor nicotinic alpha; *Chnr*: cholinergic receptor nicotinic beta

| Gene   | Melting temperature | Length | Primers |                        |
|--------|---------------------|--------|---------|------------------------|
| ChAT   | 60                  | 241    | Forward | AGGGCAGCCTCTCTGTATGA   |
|        |                     |        | Reverse | ATCCTCGTTGGACGCCATTT   |
| CarAt  | 60                  | 188    | Forward | CTAACCTCCAACCACCGAAA   |
|        |                     |        | Reverse | CCACCACCATGTAGCATCTG   |
| VaChT  | 60                  | 188    | Forward | TTGATCGCATGAGCTACGAC   |
|        |                     |        | Reverse | AGGTCCTCGGGATACTTGT    |
| AChE   | 56°6                | 181    | Forward | ATGACCCTCGAGACTCCAAA   |
|        |                     |        | Reverse | TCCGCCTCGTCCAGAGTAT    |
| BChE   | 59                  | 166    | Forward | ACACAGACCCACTTCCTCCT   |
|        |                     |        | Reverse | GTGCATAGGGGATACCGAGA   |
| ChT1   | 60                  | 134    | Forward | CATCCTCAGCCACCTATGCT   |
|        |                     |        | Reverse | TGGATACCCGTAGGCAGTCT   |
| Chrna1 | 60                  | 189    | Forward | TATAACAACGCAGACGGCGA   |
|        |                     |        | Reverse | CACAGAGCCGTCATAGGTCC   |
| Chrna2 | 60                  | 419    | Forward | AAAGTCACGCTTGCAGACTC   |
|        |                     |        | Reverse | GATGTTGCCAAACTCAGCCG   |
| Chrna3 | 60                  | 241    | Forward | GTCCTGTCTGCTCTGTAC     |
|        |                     |        | Reverse | TGGCGAACAGGTACAGTTT    |
| Chrna4 | 60                  | 311    | Forward | CTAGAGCCC GTTCTGTGAGCC |
|        |                     |        | Reverse | TCATGCCACTCCTGCTTCAC   |
| Chrna5 | 60                  | 423    | Forward | ACCCTGCATCGGGCTCTCGT   |
|        |                     |        | Reverse | CGAATGCAATCGAGCGCGGC   |
| Chrna6 | 60                  | 150    | Forward | CATACCAAGAGGCCTGCCAA   |
|        |                     |        | Reverse | TGAATTCTCTGCCACCCACC   |
| Chrna7 | 59                  | 204    | Forward | ATGGTGGCAAATGCCTAAG    |
|        |                     |        | Reverse | CTCGGAAGCCAATGTAGAGC   |
| Chrna9 | 60                  | 208    | Forward | CAATGCTCTGCGTCCAGTAG   |
|        |                     |        | Reverse | ACACCAGATCGCTGGGAATC   |
| Chrb1  | 60                  | 508    | Forward | AAGCCGAAGGCCAACTGATTA  |
|        |                     |        | Reverse | TCCTGCCTCTCCTCTCCTTC   |
| Chrb2  | 60                  | 377    | Forward | CAATGCTGACGGCATGTACG   |
|        |                     |        | Reverse | GTACGCAGGGGATGATGAGG   |
| Chrb3  | 59                  | 217    | Forward | CGATGGAACGGAGAGTAAGG   |
|        |                     |        | Reverse | AGAGGAAGATGCGGTCAAGA   |
| Chrb4  | 60                  | 232    | Forward | AACAAGGGTCCGAGTGTGTG   |
|        |                     |        | Reverse | AAGAGACAGGCCTGAACCAAC  |

**Supplementary S1. Table 2: Primer sequences used for human RT-PCR and qPCR analyses of the cholinergic system and nicotinic receptors.** Abbreviations: *ChAt*: choline acetyl-transferase; *CarAt*: carnityl acetyltransferase; *VAcHT*: vesicular acetylcholine transferase; *AChE*: acetylcholine esterase; *BChE*: butyrylcholine esterase; *Chrna*: cholinergic receptor nicotinic alpha; *Chnr*: cholinergic receptor nicotinic beta

| Gene   | Melting temperature | Length | Primers |                       |
|--------|---------------------|--------|---------|-----------------------|
| ChAT   | 60                  | 241    | Forward | ATCGCTGGTACGACAAGTCC  |
|        |                     |        | Reverse | ATCAGCTTCTGCTGCTCTG   |
| CarAt  | 60                  | 188    | Forward | CTAACCTCCAACCACCGAAA  |
|        |                     |        | Reverse | CCACCACCATGTAGCATCT   |
| VaChT  | 60                  | 188    | Forward | TACCTACGGAGAGCGAAGA   |
|        |                     |        | Reverse | CTGTAGAGGCCGAACATGACG |
| AChE   | 56°6                | 181    | Forward | CCTCCTTGGACGTGTACGAT  |
|        |                     |        | Reverse | AAACAGCGTCACTGATGTCTG |
| BChE   | 59                  | 166    | Forward | AGAATGGATGGGAGTGATGC  |
|        |                     |        | Reverse | AGGCCAGCTTGTGCTATTGT  |
| ChT1   | 60                  | 134    | Forward | ATCCAGCCATACTCATT     |
|        |                     |        | Reverse | CAGAACTGCACCAAGACCA   |
| Chrna1 | 60                  | 189    | Forward | AGTGAGAAGCACAGGCCAC   |
|        |                     |        | Reverse | GACGGGTCTCATGTTCCGGAG |
| Chrna2 | 60                  | 419    | Forward | GAGGACCGGCTCTTCAAACA  |
|        |                     |        | Reverse | ACTCCCCATCTGCATTGTTGT |
| Chrna3 | 60                  | 241    | Forward | GGGTGTGTTAGCGTCTCTCC  |
|        |                     |        | Reverse | AGGGACACGCATGAACTCTG  |
| Chrna4 | 60                  | 311    | Forward | ATCCCCTCCGAGCTCATCTG  |
|        |                     |        | Reverse | GGTCCAGGAGCCGAATTTCA  |
| Chrna5 | 60                  | 423    | Forward | CTTCACACGCTTCCCAAAC   |
|        |                     |        | Reverse | CTTCAACAACCTCACGGACA  |
| Chrna6 | 60                  | 150    | Forward | TTTGTGGCTGCGTCACATCT  |
|        |                     |        | Reverse | ATAGCTGGTGGAGTCCAGGT  |
| Chrna7 | 59                  | 204    | Forward | GTACGCTGGTTCCCTTTGA   |
|        |                     |        | Reverse | CCACTAGGTCCCATTCTCC   |
| Chrna9 | 60                  | 208    | Forward | GAAAGCAGCCAGGAACAAAG  |
|        |                     |        | Reverse | GCACTTGGCGATGTACTCAA  |
| Chrb1  | 60                  | 508    | Forward | GTGGCTCTGGACATTAGCGT  |
|        |                     |        | Reverse | CGAGCTGTCGTAGCTGTAGG  |
| Chrb2  | 60                  | 377    | Forward | CCGTGGTCTCCTATGATGGC  |
|        |                     |        | Reverse | CACGTACGTAGAGTCGTCGG  |
| Chrb3  | 59                  | 217    | Forward | AATCGCCGAAAATGAAGATG  |
|        |                     |        | Reverse | TTGAGCCACACATTGGTTGT  |
| Chrb4  | 60                  | 232    | Forward | TCCCTGGTCCCTTTCTTCT   |
|        |                     |        | Reverse | TGCAGCTTGATGGAGATGAG  |

**Supplementary S2: Anticatabolic effect of nicotine on WT murine chondrocytes.** *qPCR* expression of MMP9 (left) and MMP13 (right) by WT murine primary culture of chondrocytes pretreated with 1, 10 or 100  $\mu\text{M}$  nicotine for 15 minutes and stimulated with 10 ng/mL IL1 $\beta$  for 24 h ( $n=5$  for WT,  $*p<0.05$  using a non-parametric two-tailed test). The results are normalized to the IL1 $\beta$  condition. HPRT: hypoxanthine guanine phosphoribosyltransferase; MMP13: metalloprotease-13; MMP9: metalloprotease-9.

