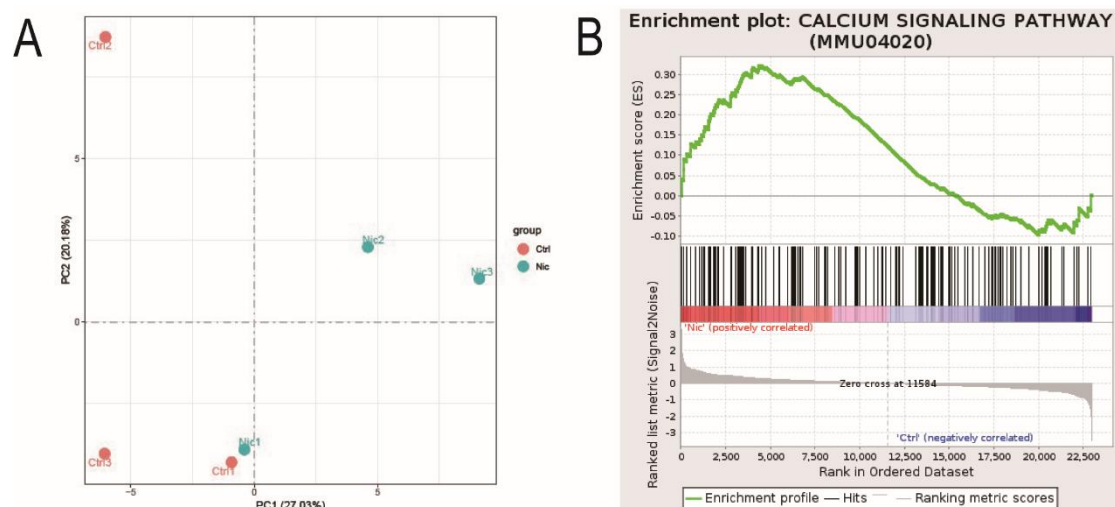
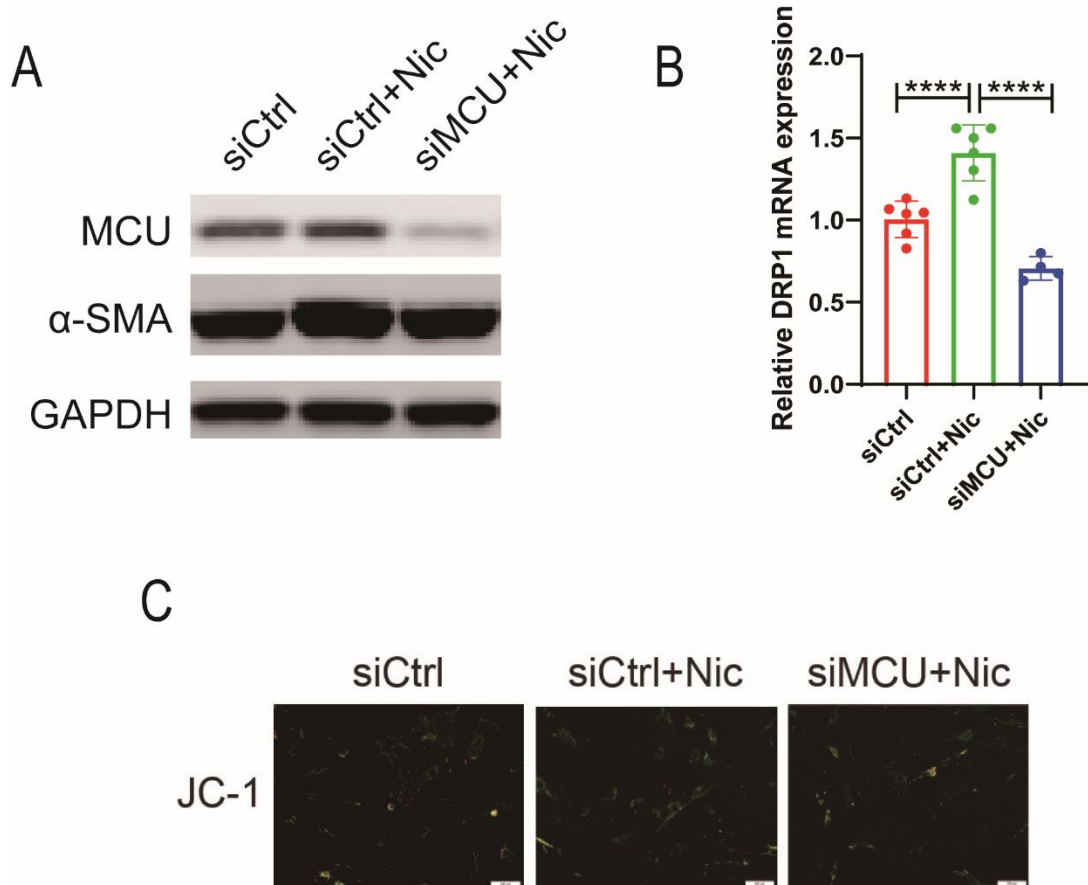


## Supplementary material

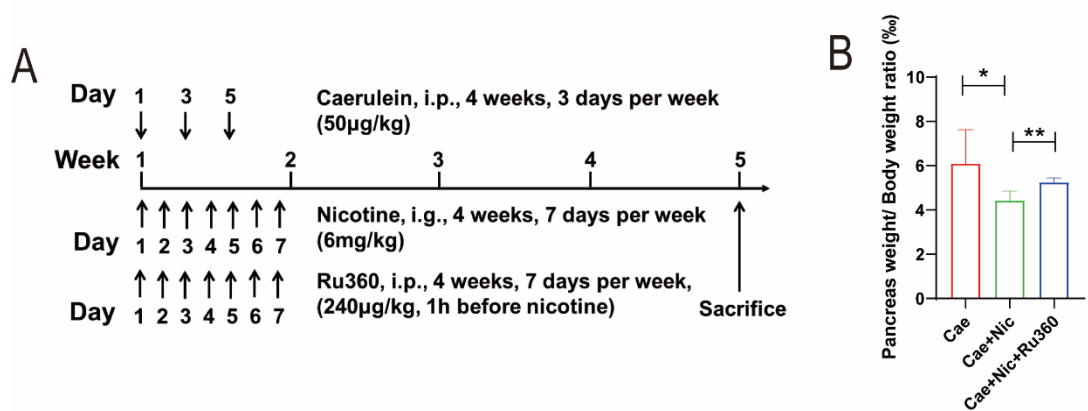
**Figure S1.** The potential involvement of the calcium signaling pathway in the promotion of mPSCs activation by nicotine: A) Principal Component Analysis (PCA) reveals distinct differences between the nicotine group and the negative control group; B) Gene Set Enrichment Analysis (GSEA) demonstrates an increased enrichment of the calcium signaling pathway in the nicotine group compared to the negative control group (NES=1.272,  $P=0.046$ ).



**Figure S2.** Nicotine aggravates mPSCs activation through the dysregulation of mitochondrial calcium homeostasis and oxidative stress mediated by MCU: A) Protein expression levels of MCU and  $\alpha$ -SMA expression in mPSCs; B) mRNA levels of mitochondrial dynamin-related protein 1 (DRP1) in mPSCs; C) Mitochondria membrane potential (MMP) of mPSCs stained with JC-1 (fluorescent microscopy, scale bars=200 $\mu$ m). \*\*\*\* $P<0.0001$ .



**Figure S3.** The MCU inhibitor Ru360 alleviates nicotine-aggravated pancreatic fibrosis in CP mice: A) Flow chart of the animal experiment (i.p., intraperitoneal injection; i.g., intragastric administration); B) Assessment of the pancreas-to-body weight ratio. \* $P < 0.05$ , \*\* $P < 0.01$ .



**Supplementary Table 1. List of primers used for real-time PCR**

Gene	Primer sequences (5' to 3')
HPRT	F: TCAGTCAACGGGGGACATAAA R: GGGGCTGTACTGCTTAACCAG
$\beta$ -actin	F: GTGACGTTGACATCCGTAAAGA R: GCCGGACTCATCGTACTCC
$\alpha$ -SMA	F: TCCTGTTTCGGGAGCAGAAC R: AGCTGGCCGTTCACTCTAAC
Col1	F: CGACCTCAAGATGTGCCACT R: CCATCGGTCATGCTCTCTCC
MCU	F: GAGCCGCATATTGCAGTACG R: CGAGAGGGTAGCCTCACAGAT
DRP1	F: TCAGATCGTCGTAGTGGGAA R: TCTTCTGGTGAAACGTGGAC

F: Forward; R: Reverse.

**Supplementary Table 2. List of antibodies for western blotting analysis.**

Antibody	Catalog number	Species	Company
GAPDH	2118	Rabbit	Cell Signaling Technology
$\alpha$ -SMA	ab5694	Rabbit	Abcam
MCU	14997	Rabbit	Cell Signaling Technology
IRDye <sup>®</sup> : 680RD	926-68071	Goat anti-Rabbit	LI-COR

<sup>®</sup>: Trademark has been registered.

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