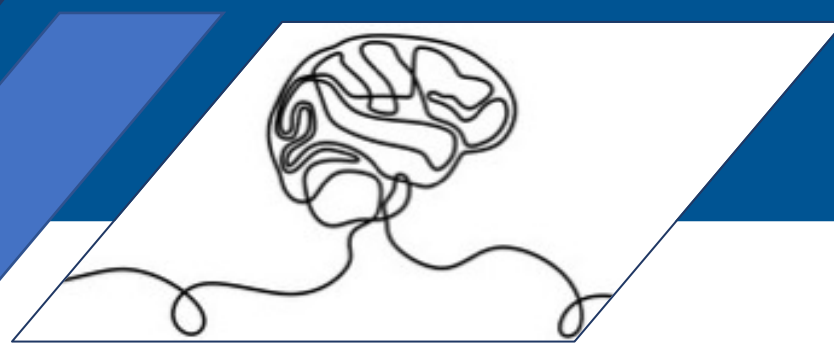


SNCA-AS1, antisense transcript to the SNCA gene, regulates alpha-synuclein and synaptic modulation with possible implications in Parkinson's Disease and aging

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1

Introduction

SNCA-AS1, the antisense transcript to the SNCA gene, has been found up-regulated in PBMCs of patients affected by sporadic Parkinson's Disease (PD) and its transcriptional modification is implicated in synapse-related genes expression. This work aims to report how SNCA-AS1 affects both synaptic processes and alpha-syn's expression.

2

Methods

Stable transfection

CRISPR-dCas9

Real Time-PCR

Western Blot

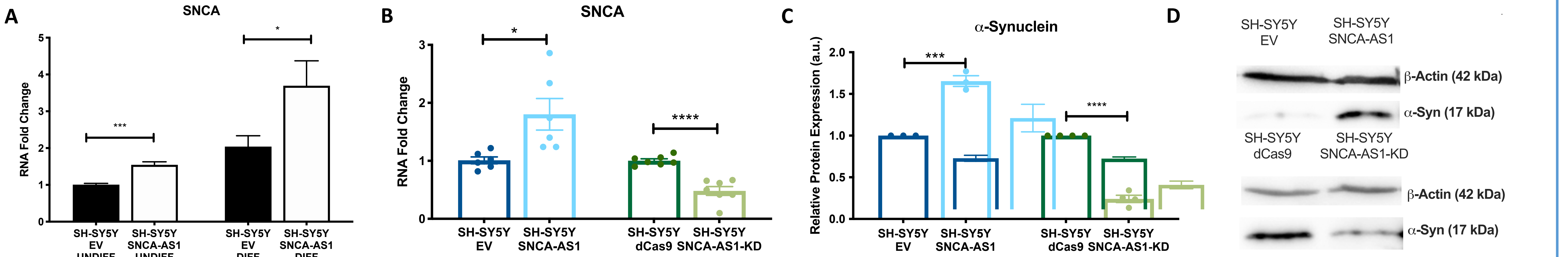
TEM

3

Results

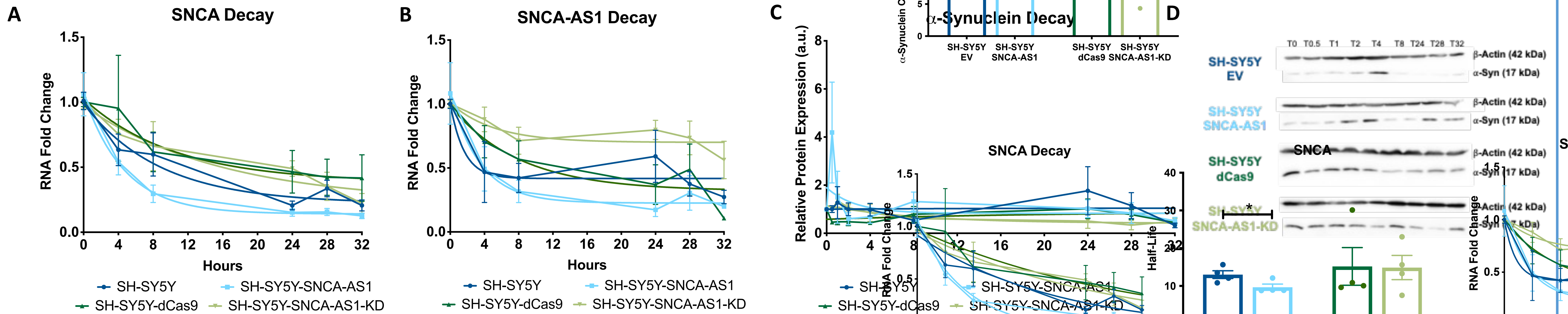
❖Influence of SNCA-AS1 on SNCA expression

(A,B)SNCA and (C)alpha-synuclein's expression was evaluated respectively by Real Time PCR and (D)Western Blot. B-act was used as housekeeping gene for both experiments (**p<0.01, ***p<0.001)



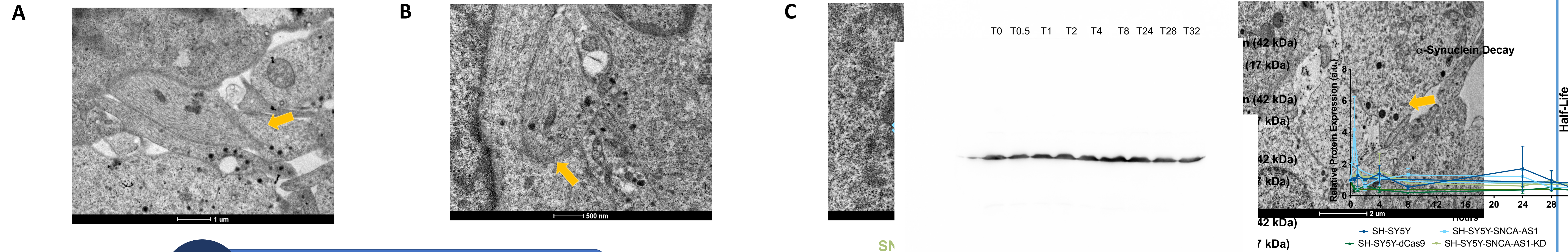
❖Influence of SNCA-AS1 on SNCA, SNCA-AS1 and α -syn's decay

(A,B)SNCA half-life was assessed via Actinomycin D treatment.
(C,D)Alpha-syn's expression was evaluated in presence of Cycloheximide.



❖Morphological analysis of synapses

(A,B,C,D)TEM was performed to analyze morphological aspects of synapses during the neural d



4

Conclusions

Our results show that SNCA-AS1 impacts alpha-syn expression, synaptic modulation, and synaptic morphology.