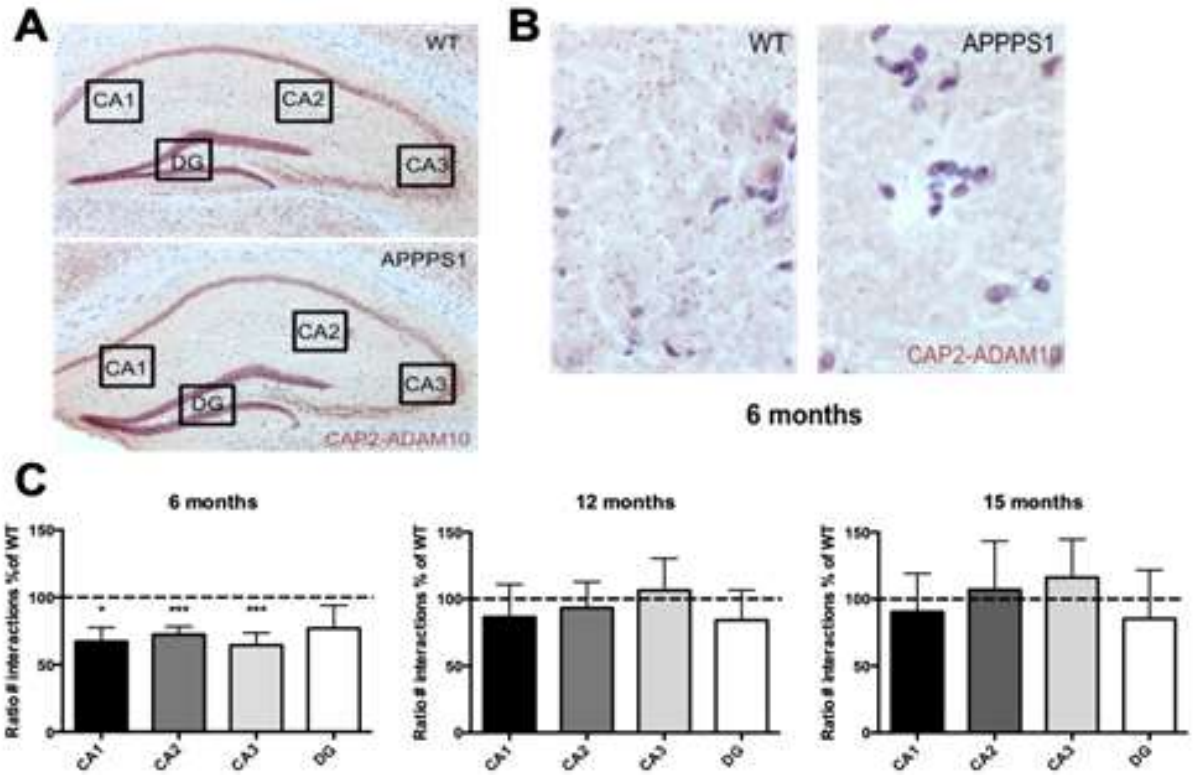
ADAM10 INHIBITOR PEPTIDE FOR ALZHEIMER TREATMENT



We planned a therapeutic approach to interfere with the CAP2 pathway in AD pathogenesis to stabilize ADAM10 localization at the synapses and to restore its physiological synaptic activity. We developed a cell permeable peptide (CPP) able to interfere with CAP2/actin association and, thereby, to restore ADAM10 endocytosis (which is impaired in AD) and increase ADAM10 membrane levels/synaptic activity, eventually limiting Aβ production.

PRIORITY NUMBER:

10**2020**000005074

KEYWORDS:

Alzheimer
Peptide
CAP2
Actin
ADAM10

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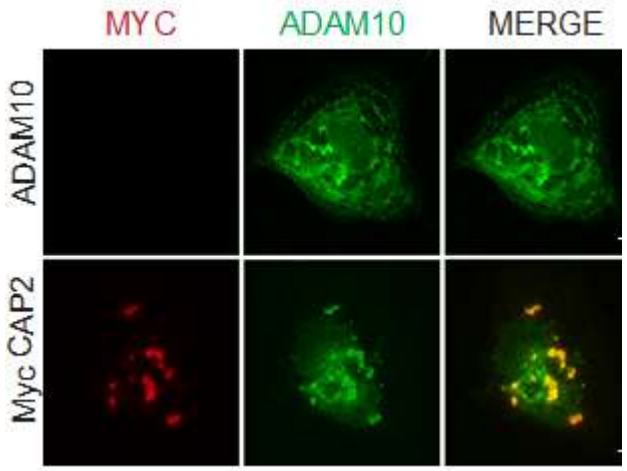
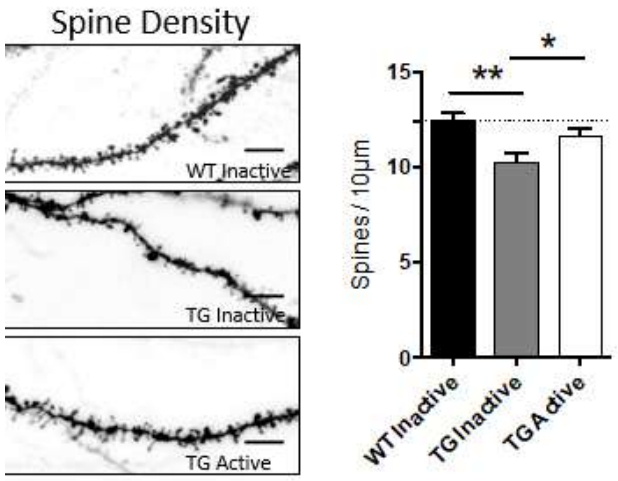


DESCRIPTION:

CAP2 is a member of the CAP family, which are evolutionary highly conserved multidomain actin-binding proteins involved in several processes as orchestrating changes in actin cytoskeleton. Additionally, we found that upon interference with association between CAP2 and actin, the synaptic localization of ADAM10 is increased, because of a decrease in ADAM10 endocytosis. Overall, these data confirm that CAP2 is a novel binding partner of ADAM10, capable of regulating its synaptic localization and, thereby, its activity. We found a significant reduction in CAP2/actin interaction and an increase in ADAM10 synaptic localization. Our Peptide significantly reduced the levels of Aβ and increased the release of sAPPα. Moreover, it restores the spine loss and rescues the impaired cognitive function in APP/PS1 mice as shown by behavioural tests, without causing any toxic side effect.



ADVANTAGES:

- No toxic molecule.
- Better kinetics, due to its small measures
- It acts on AD early stages

APPLICATIONS:

- **Alzheimer desease treatment**