Rodent Microdialysis and Neurochemistry Capabilities

Discovery Research
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In Vivo Microdialysis

Overview

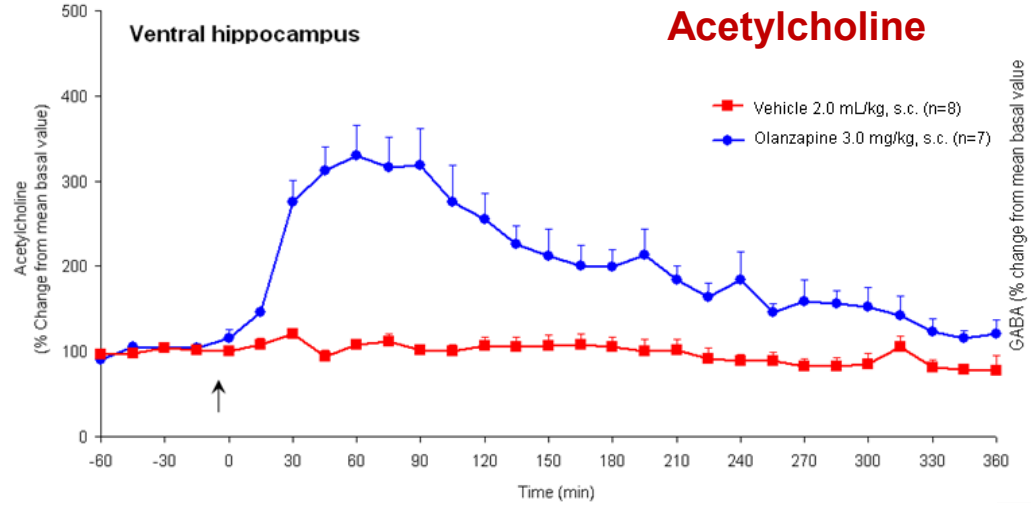
Suven provides a full spectrum of *in vitro*, *ex vivo* and *in vivo* neurochemistry techniques that can be used to determine the mechanism of action, efficacy and side-effect profile of centrally-acting drugs.

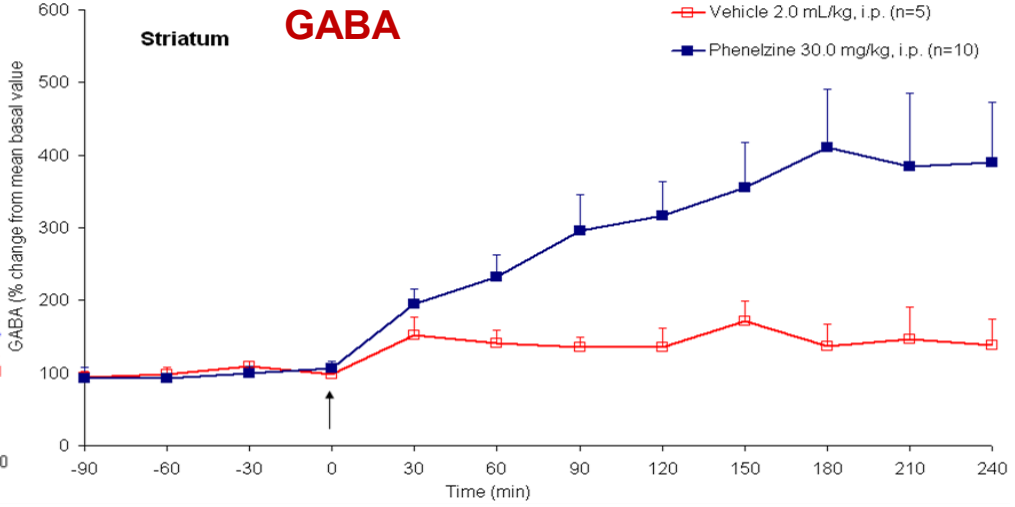
Suven has validated an intracerebral microdialysis in freely-moving animals. Microdialysis is widely used to derive important information that helps us to understand brain neurochemistry and pharmacological mechanisms of test compounds that demonstrate efficacy in treatment of CNS disorders.

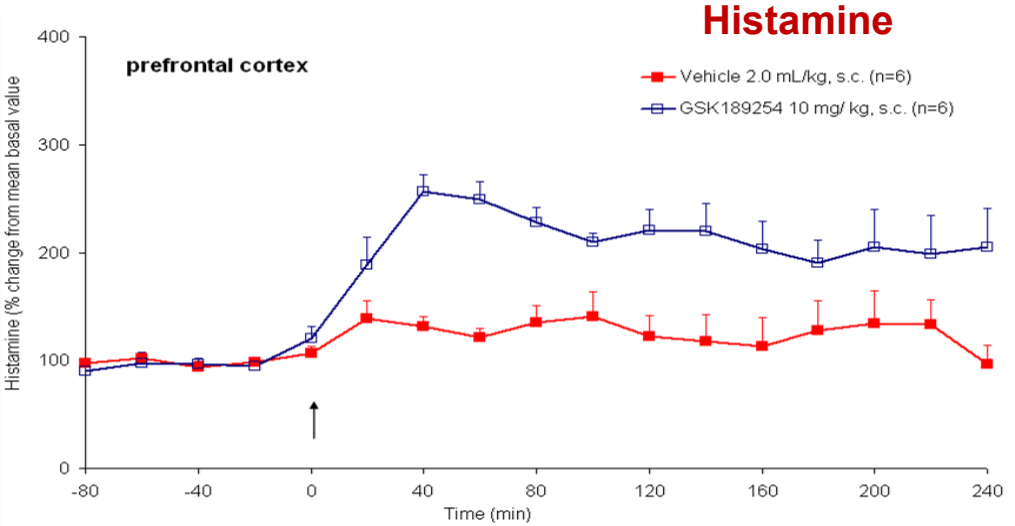
Neurotransmitters	Species	Analytical Instruments
✓ **Acetylcholine** ✓ **Histamine** ✓ **Amino acids** -- Glutamate, GABA, and glycine ✓ **Monoamines** -- Dopamine, norepinephrine and serotonin ✓ **Monoamine metabolites** --5-HIAA, HVA and DOPAC ✓ **Peptides** --Substance-P and PGE2	✓ **Rat** ✓ **Guinea pig** ✓ **Mouse**	✓ **LC-MS/MS** -- API-4000, API-6500 ✓ **HPLC- Fluorescence** ✓ **HPLC- Electrochemical detector** ✓ **ELISA** -- Absorbance, Fluorescence

In Vivo Microdialysis

Neurotransmitters in Rat Brain





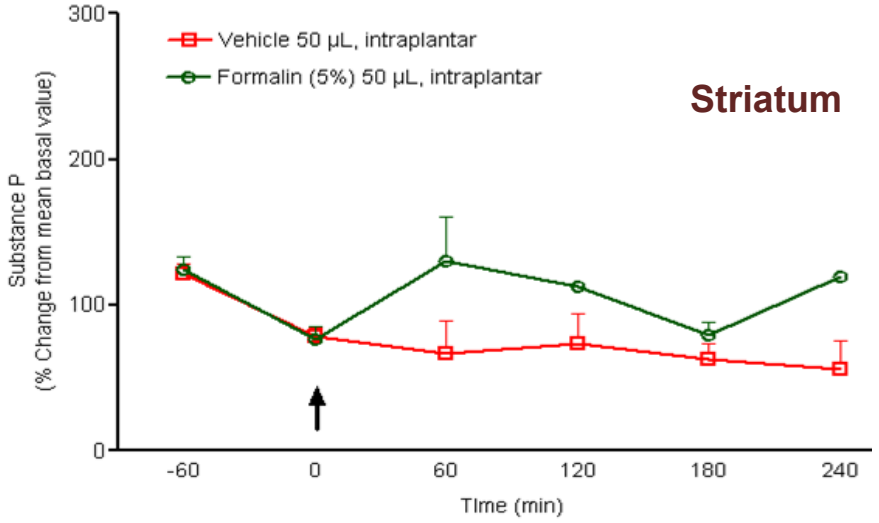


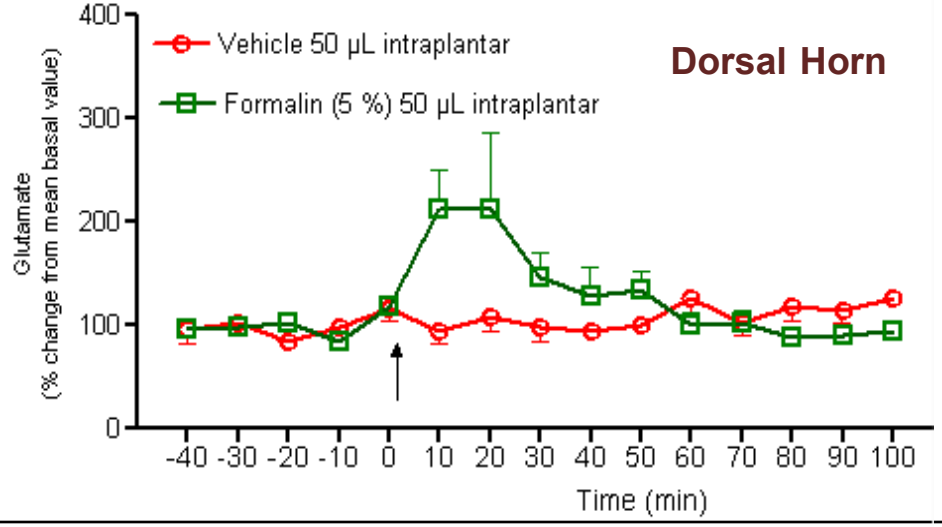
Arrow indicates the point of treatment. Data is represented as Mean ± SEM.

In Vivo Microdialysis

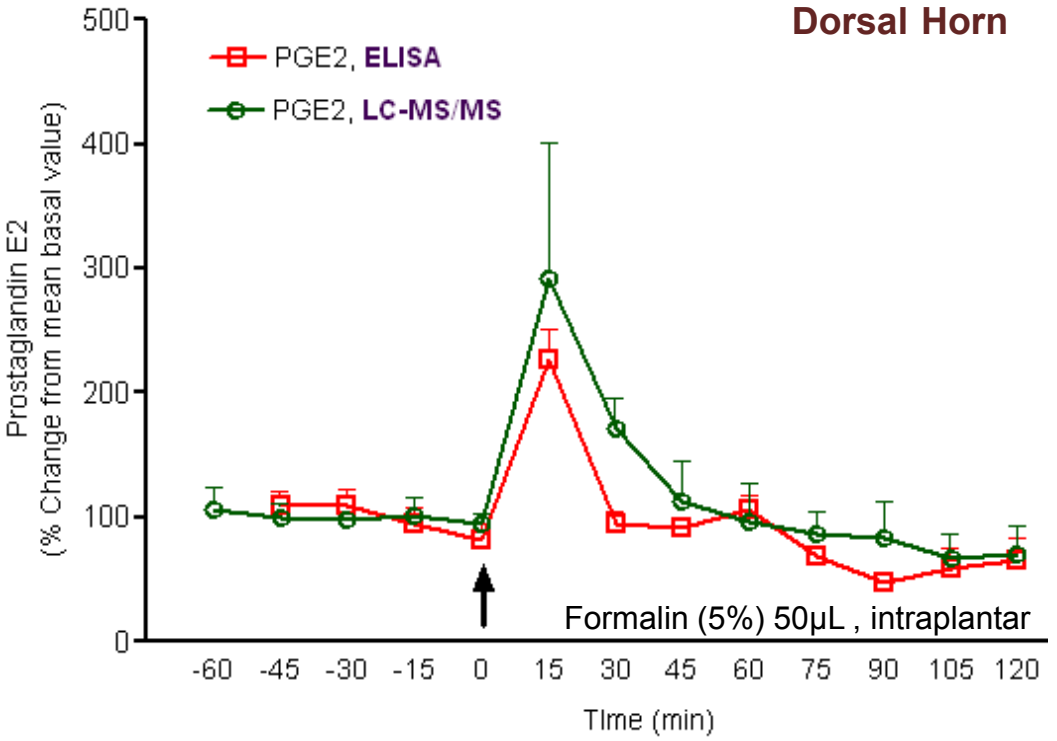
Peptides in Rat Brain and Spinal Cord

Substance P in Rats





Prostaglandin E2 in Rats



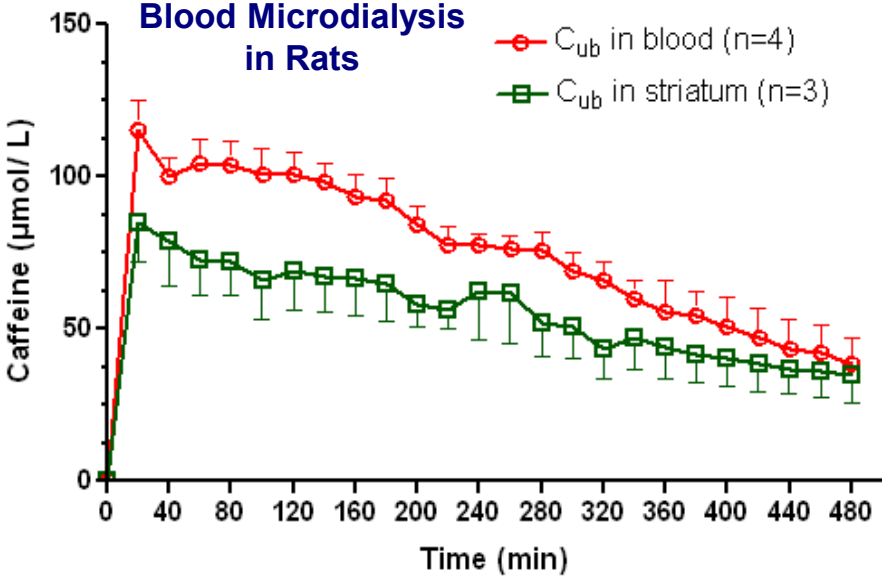
Data expressed as mean ± SEM.

Arrow indicates the point of treatment.

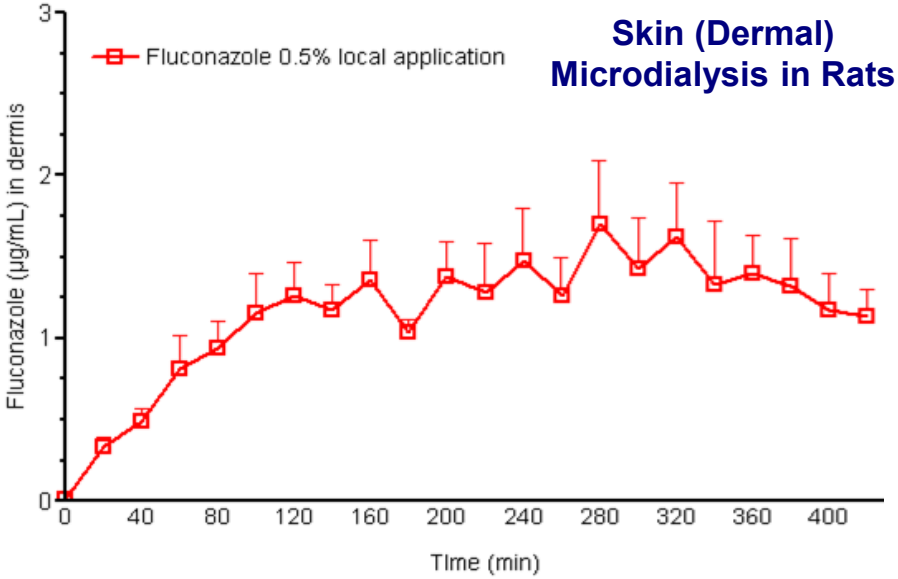
In Vivo Microdialysis

Blood, Brain and Dermal Microdialysis in Rats

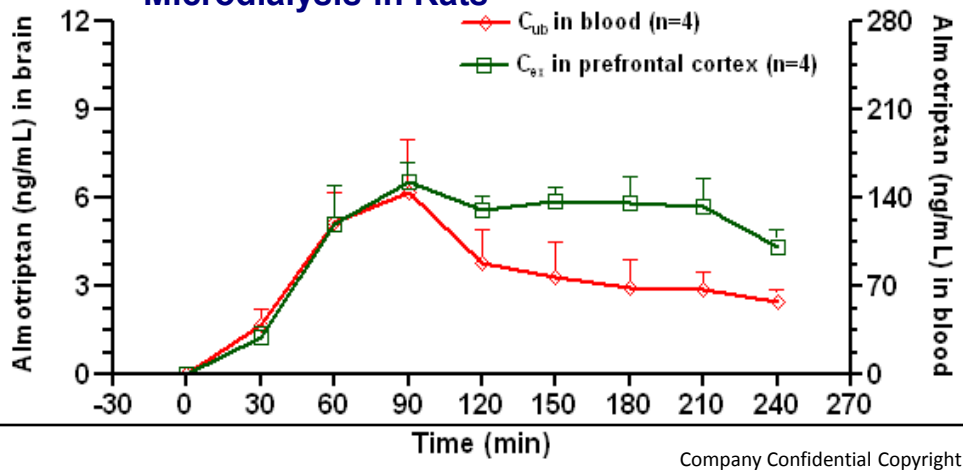
Blood Microdialysis in Rats



Skin (Dermal) Microdialysis in Rats



Brain and Blood Microdialysis in Rats



Data expressed as mean ± SEM

In Vivo recovery is used for calculation of unbound concentrations.

Biomarker, Proof of Concept Assays

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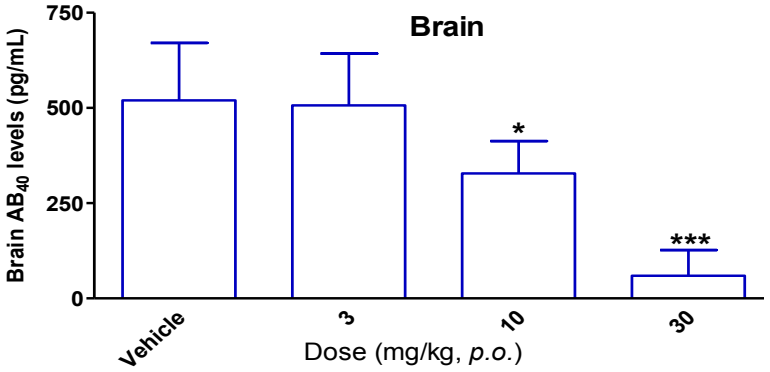
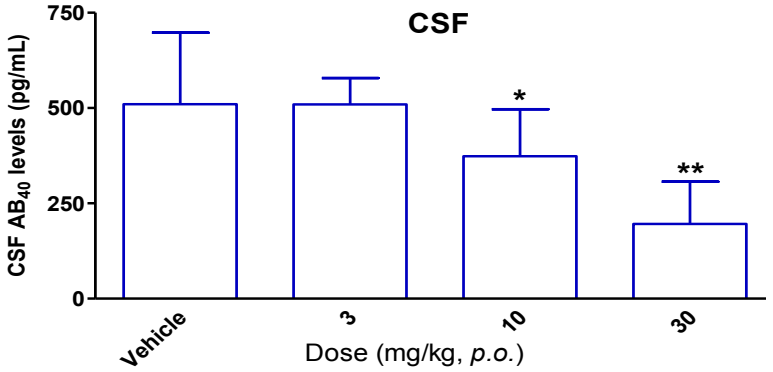
Biomarkers
Overview

Analyte	Matrix	Bioanalysis
Beta Amyloid (1-40)	CSF, Brain	ELISA
Beta Amyloid (1-42)	CSF, Brain	ELISA
Corticosterone	Plasma/Serum	ELISA
Inositol 1-phosphate	CSF, Brain	ELISA
Interleukins	CSF, Brain, Plasma	ELISA
Monoamines	CSF, Brain, Plasma	HPLC-ECD/ LC-MS/MS
Monoamine Metabolites	CSF, Brain, Plasma	HPLC-ECD/ LC-MS/MS
Prolactin	Plasma/Serum	ELISA
Prostaglandin PGE2	CSF, Brain	LC-MS/MS
Soluble APPα	CSF, Brain	ELISA
Substance-P	CSF, Brain	LC-MS/MS
Tele- methylhistamine	CSF, Brain	LC-MS/MS

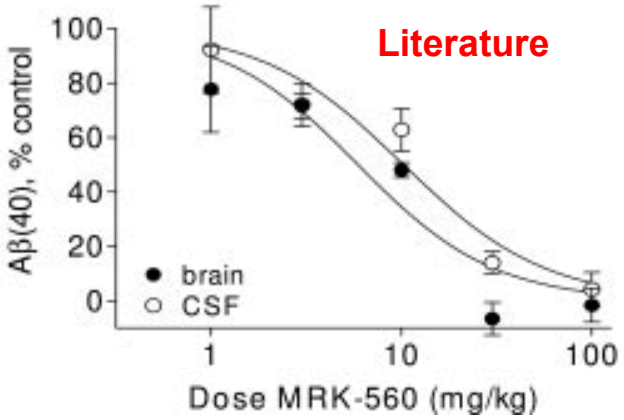
Biomarkers

Aβ (1-40) Modulation in Rat



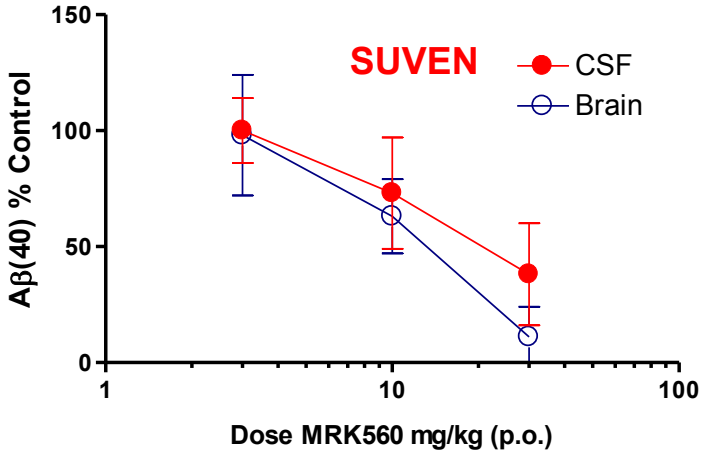


Data represents Mean ± SD; n=5-7.*p<0.05, **p<0.01, ***p<0.001 Vs Vehicle



JPET 317:786–790, 2006

ED_{50} Value (mg/kg p.o.)		
Matrices	**SUVEN**	**Merck**
Brain	12	6
CSF	18	10

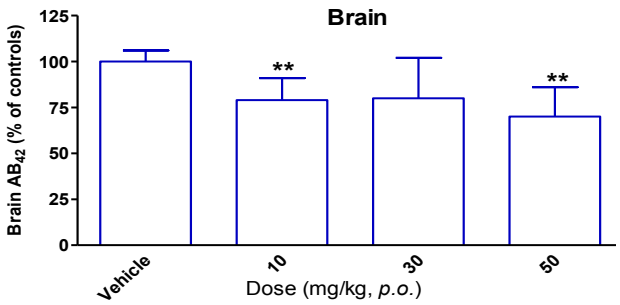


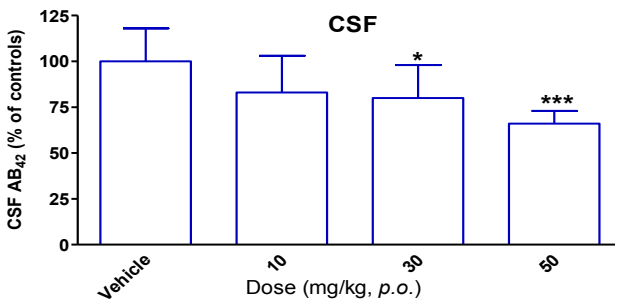
% reduction in $Aβ_{(1-40)}$ levels after treatment with MRK-560 was observed to be inline with the literature

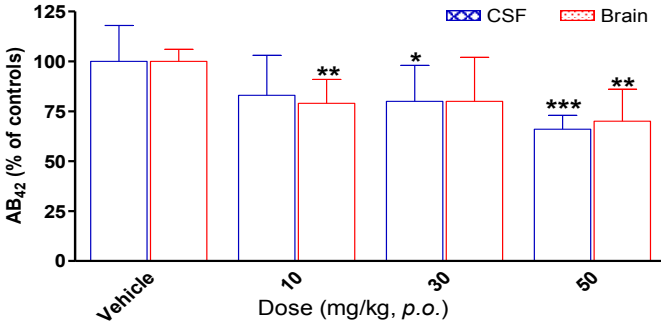
Biomarkers

Aβ (1-42) Modulation in Rat

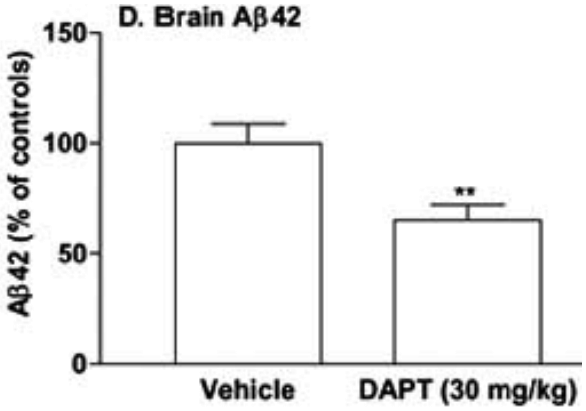
SUVEN



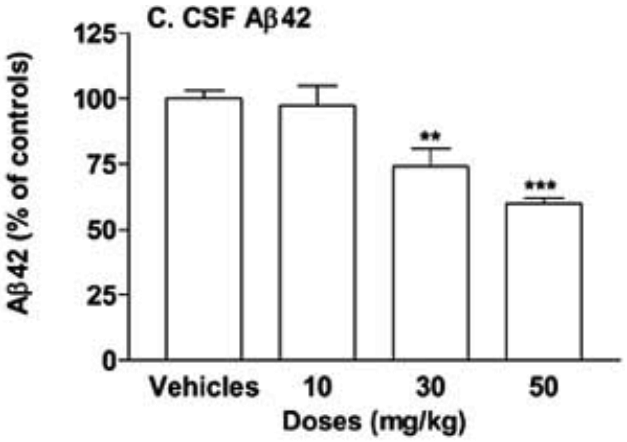


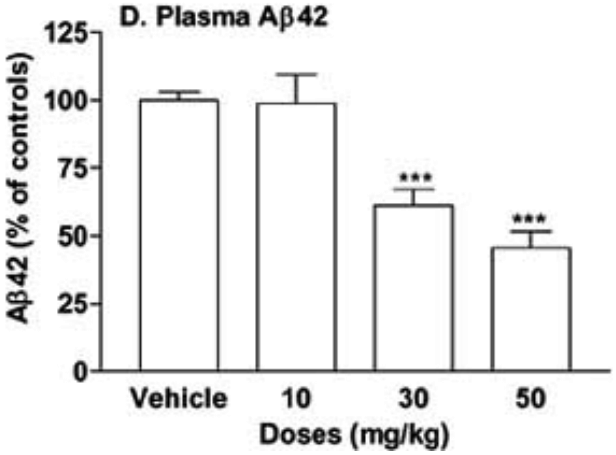


Literature



Curr Pharm Design 12:671–676, 2006

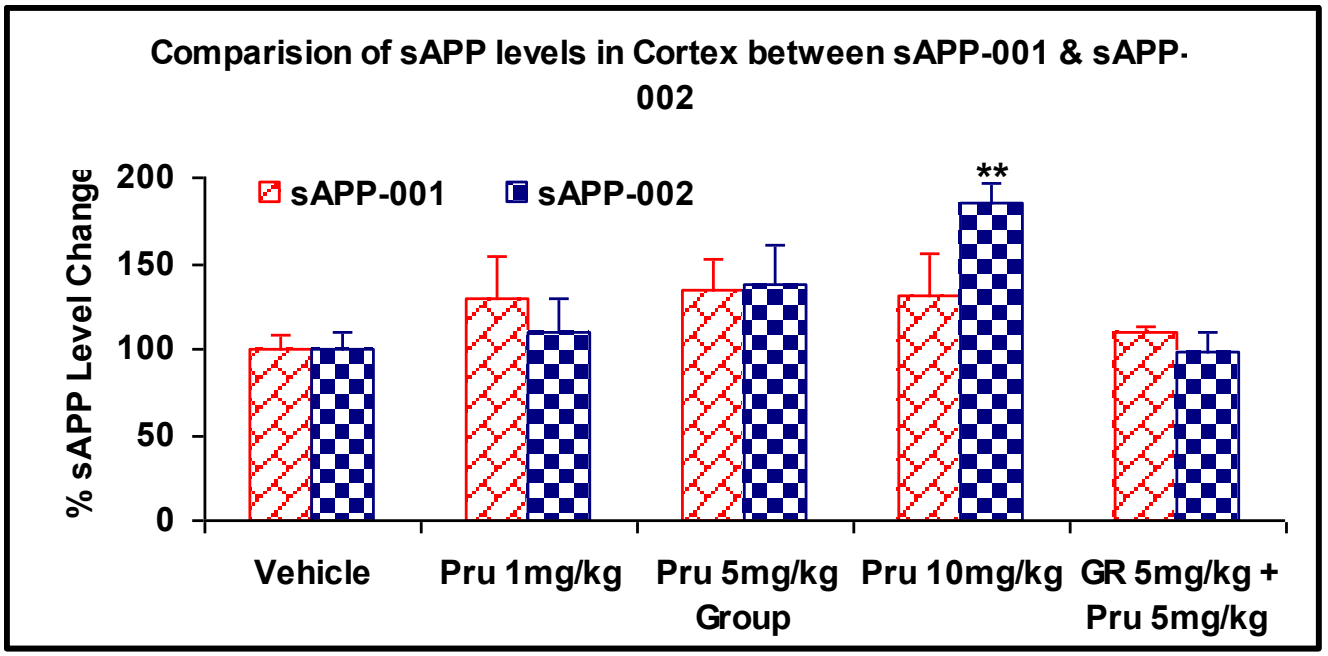




% reduction in $A\beta_{(1-42)}$ levels after treatment with DAPT was observed to be inline with the literature

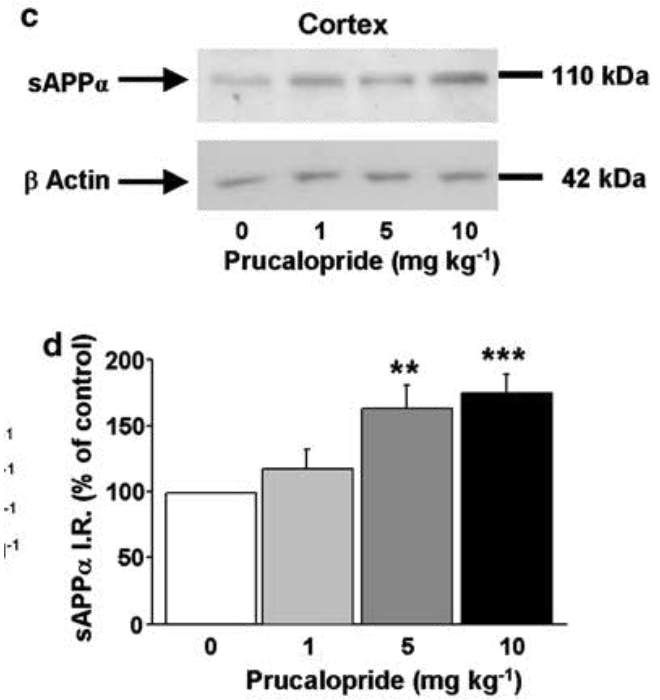
Biomarkers

sAPPα Modulation in mouse



*p<0.05, **p<0.01 Vs vehicle

Literature



Br J Pharmacol 15, 883-892, 2007

5-HT_4 receptor agonist, prucalopride significantly increased the level of sAPPα in adult mice cortex (results in line with literature)

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