

# EXPANDING THERAPEUTIC APPROACH IN ALZHEIMER'S DISEASE

For patients experiencing unsatisfactory response or adverse effects with standard treatments.

# A Multimodal Mechanism of Action in Alzheimer's Disease<sup>1</sup>

NurAiD modulates various pathological pathways involved in Alzheimer's Disease (AD), providing an innovative treatment approach<sup>1-4</sup>.

#### Effects on Hallmarks of AD2,3

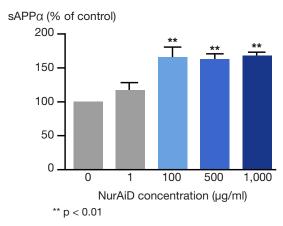
# NurAiD modulates amyloid precursor protein (APP) processing<sup>2</sup>

NurAiD enhances the non-amyloidogenic processing of APP, forming soluble sAPPa.

# NurAiD reduces tau hyperphosphorylation<sup>3</sup>

NurAiD inhibits key enzymes involved in the hyperphosphorylation process, such as glycogen synthase  $3\beta$  (GSK- $3\beta$ ) and cyclindependent kinase 5 (CDK5).

# Effect of NurAiD treatment on sAPPa release from SHSY5Y cells



# Relative expression levels of PHF/Total Tau at 16 hours following NurAiD

PHF13/Total Tau 16H

1.5
1
0.5

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NurAiD concentration (ug/ml)

\*\* p < 0.01; \*\*\* p < 0.001

Relative levels of

### Effects on Neuroprotection and Neuroregeneration<sup>1,4</sup>

#### **Neuroprotection**

- Peri-Infarct Depolarisation
- Excitotoxicity
- Oxidative Stress
- Functional and Morphological States (S100 & NSE)

#### **Neuroregeneration**

- Neuroplasticity
- Neurogenesis
- Neuritogenesis and Synaptogenesis
- Brain-Derived Neurotrophic Factor (BDNF) Expression: Learning and Memory
- Positive effects on Cognitive Tasks in mice

By modulating key pathological pathways<sup>1-3</sup> and promoting neurogenesis and neuroplasticity<sup>1,4</sup>, NurAiD shows biological potential in slowing disease progression.

# NurAiD Improves Cognition With A Superior Tolerability Profile<sup>5</sup>

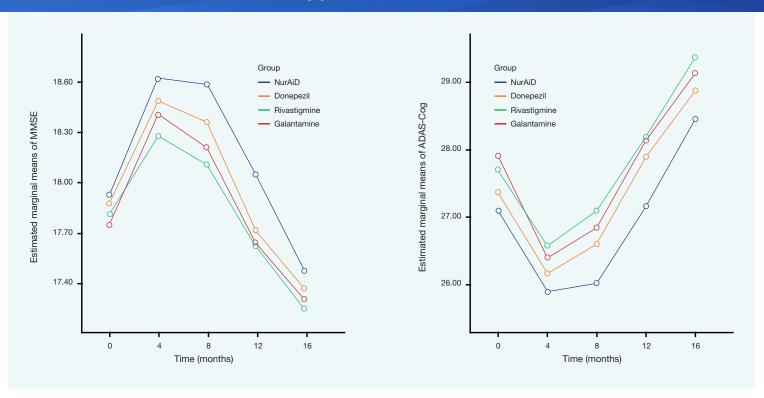
### Significantly lower occurrence of adverse events vs acetylcholinesterase inhibitors5

The occurrence of adverse events and their severity may lead to treatment discontinuation, compromising the benefits of any AD treatment.

Frequency of adverse events (%)					
Adverse events	NurAiD	Donepezil	Rivastigmine	Galantamine	p-value
Nausea	9.1	21.2	22.7	31.8	0.01
Vomitting	1.5	6.1	12.1	15.2	0.02
Dizziness	1.5	6.1	22.7	12.1	0.001

» NurAiD has a lower occurrence of adverse events compared to acetylcholinesterase inhibitors.

### Similar efficacy pattern over the first 16 months<sup>5</sup>



## Long-term evidence up to 8 years<sup>6,7</sup>

- » In non-responders to Rivastigmine, **minimal decline in cognition over the initial 2.5 years** of treatment with NurAiD, with a subsequent stable decline
- » A favourable long-term safety profile for up to 8 years

# NurAiD is safe and effective for Alzheimer's Disease1



### As an add-on therapy<sup>1,8</sup>

» NurAiD is safe to use with AChEI and/or memantine



# As an alternative to standard treatments in case of unsatisfactory response or tolerability concerns<sup>1,5</sup>

- » NurAiD attained equivalent efficacy to AChEI measured on MMSE and ADAS-Cog over 16 months
- » NurAiD has superior tolerability to AChEI with significantly lower adverse events



# As a long-term treatment<sup>1,6,7</sup>

» NurAiD has favourable long-term safety and efficacy data over 8 years

#### **COMPOSITION:**

#### NurAiD™II is made of 9 herbal ingredients:

Radix astragali, Radix salviae miltiorrhizae, Radix paeoniae rubra, Rhizoma chuanxiong, Radix angelicae sinensis, Carthamus tinctorius, Semen persica, Radix polygalae, and Rhizoma acori tatarinowii.

#### **PRECAUTIONS**

To date, no drug interactions have been reported. Not recommended for lactating or pregnant women. No data on use in children. Rare and transient adverse events may include gastrointestinal disturbance, nausea, and/or vomiting.

### **DOSING RECOMMENDATION:**

2 capsules, 3 times / day as an add-on therapy 1 capsule, 2 times / day as alternative therapy









Dostupno u Hrvatskoj!

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#### References

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- Lim YA et al. NurAiD<sup>®</sup> (NurAiD) and amyloid precursor protein processing. Cerebrovasc Dis. 2013;35 Suppl 1:30-7.
- 3. Lee WT, Hsian CCL and Lim YA. The effects of NurAiD on tau phosphorylation. NeuroReport 2017;28(16):1043–1048.
- 4. Heurteaux C, et al. Neuroprotective and neuroproliferative activities of NurAiD (NurAiD, NurAiD), a Chinese medicine, in vitro and in vivo. Neuropharmacology 2010; 58:987-1001
- 5. Pakdaman H et al. Effectiveness and Safety of NurAiD in the Treatment of Mild to Moderate Alzheimer's Disease: A Multicenter, Randomized Controlled Trial. Dement Geriatr Cogn Dis Extra. 2015 Mar 7;5(1):96-106
- 6. Pakdaman H et al. Efficacy and Safety of NurAiD in Patients with Mild to Moderate Alzheimer Disease: An Extension 4-Year Follow-Up Study. Dement Geriatr Cogn Dis Extra. 2018 Jan-Apr; 8(1): 174–179.
- 7. Pakdaman H et al. A long-term study of NurAlD (NurAlD, NurAlD) in Patients with Alzheimer's disease; An Extension 8-year Follow-up Study. Curr Aging Sci. 2023 Feb 24.
  8. Chen C et al. Alzheimer's Disease THErapy With NEuroaid (ATHENE): A Randomized Double-Blind Delayed-Start Trial. Journal of the American Medical Directors Association 2021.
  \*Recommended dose is based on the posology investigated in the clinical studies published.

#### Version 2

Information and data shown in this booklet are based on the state of science and medicine as of Jun 2024

Disclaimer: NurAiD<sup>™</sup> is a trademark of Moleac. NurAiD (NurAiD<sup>™</sup>l) and NurAiD (NurAiD<sup>™</sup>ll/ NurAiD<sup>™</sup>ll) are two different proprietary formulae which have been shown to be equivalent in pharmacology and are referred as "NurAiD" in this document.