### SUMMARY OF CLINICAL STUDIES

<table>
<thead>
<tr>
<th>Product</th>
<th>Alpha – Extended Daily Nootropic</th>
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<tr>
<td>SKU</td>
<td>ALPHA</td>
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<tr>
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<tr>
<td>Date</td>
<td>14 June 2017</td>
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**Label**

*These statements have not been evaluated by the FDA. This product is not intended to diagnose, treat, cure, or prevent any disease.*

**Supplement Facts**

- **Serving Size:** 4 capsules
- **Servings Per Container:** 30

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Amount Per Serving</th>
<th>%DV</th>
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</thead>
<tbody>
<tr>
<td>ALCAR (from Acetyl-L-Carnitine Hydrochloride)</td>
<td>500 mg</td>
<td>†</td>
</tr>
<tr>
<td>Alpha-GPC (L-Ala Glycerylphosphocholine)</td>
<td>300 mg</td>
<td>†</td>
</tr>
<tr>
<td>Alpha-Lipoic Acid</td>
<td>150 mg</td>
<td>†</td>
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<tr>
<td>Ginkgo Biloba extract (leaf) 90 mg</td>
<td>(24% flavone glycoside, 6% terpene lactone)</td>
<td>†</td>
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† Daily Value (DV) not established

Other Ingredients: cellulose capsule, rice flour, silicon dioxide, and vegetable stearic acid

120 VEGGIE CAPSULES - DIETARY SUPPLEMENT
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Acetyl-L-Carnitine Supplementation to Support Brain Detoxification

Supplementation of Acetyl-L-Carnitine may support brain detoxification according to these clinical studies on humans:
• **Acetyl-L-carnitine Improves Cognitive Functions In Severe Hepatic Encephalopathy: A Randomized And Controlled Clinical Trial.** In 2011, this study found that "the improvement of cognitive deficits, the reduction of ammonia, and the modification of EEG in patients treated with [Acetyl-L-Carnitine] suggest that [Acetyl-L-Carnitine] could represent a new tool in the treatment of severe hepatic encephalopathy".

• **Oral Acetyl-L-carnitine Therapy Reduces Fatigue In Overt Hepatic Encephalopathy: A Randomized, Double-blind, Placebo-controlled Study.** In 2011, this study found that "patients with [Hepatic Encephalopathy] treated with [Acetyl-L-Carnitine] showed a decrease in the severity of both mental and physical fatigue and an increase in physical activity".

• **Acetyl-L-carnitine reduces depression and improves quality of life in patients with minimal hepatic encephalopathy.** In 2011, this study found that Acetyl-L-Carnitine "treatment is associated with significant improvement in patient energy levels, general functioning and well-being [and] the improvement of quality of life is associated with reduction of anxiety and depression".

• **Carbohydrate, Protein, And Fat Metabolism During Exercise After Oral Carnitine Supplementation In Humans.** In 2008, this study found that Acetyl-L-Carnitine "supplementation might have the potential to reduce the metabolic stress of exercise or alter ammonia production or removal".

• **Acetyl-L-carnitine Treatment In Minimal Hepatic Encephalopathy.** In 2008, this study found that "the benefits of [Acetyl-L-Carnitine] in comparison with placebo are demonstrated in greater reductions in serum ammonia levels, as well as in improvements of neuropsychological functioning".

**Alpha-GPC Supplementation to Support Healthy Brain Aging**

Supplementation of Alpha-GPC may support healthy brain aging according to these clinical studies on humans:

• **Efficacy and tolerability of choline alphoscerate (cereton) in patients with Parkinson's disease with cognitive disorders.** In 2009, this study found that "marked and moderate improvement of cognitive functions was found in patients of the [Alpha-GPC] group compared to the control one ... Deterioration of
cognitive functions was seen less often in the [Alpha-GPC] group than in the control group”.

- **Cognitive improvement in mild to moderate Alzheimer’s dementia after treatment with the acetylcholine precursor choline alfoscerate: a multicenter, double-blind, randomized, placebo-controlled trial.** In 2003, this study found “clinical usefulness and tolerability of [Alpha-GPC] in the treatment of the cognitive symptoms of dementia disorders of the Alzheimer type”.

- **Alpha-Glycerophosphocholine in the mental recovery of cerebral ischemic attacks. An Italian multicenter clinical trial.** In 1994, this study found that “the trial confirms the therapeutic role of alpha-GPC on the cognitive recovery of patients with acute stroke or TIA, and the low percentage of adverse events confirms its excellent tolerability”.

- **Multicentre study of l-alpha-glyceryl-phosphorylcholine vs ST200 among patients with probable senile dementia of Alzheimer's type.** In 1993, this study found “significant improvements in most neuropsychological parameters in the alpha GPC recipients”.

- **A neurotropic approach to the treatment of multi-infarct dementia using L-α-glycerylphosphorylcholine.** In 1992, this study found that “patients receiving L-α-GPC showed a significant improvement of cognitive functions, behavior, and personality at the end of the treatment”.

- **Nootropic therapy of cerebral aging.** In 1991, this study found that Alpha-GPC was “well tolerated and can be expected to be particularly effective in long-term patient management”.

- **A multicentre trial to evaluate the efficacy and tolerability of alpha-glycerylphosphorylcholine versus cytosine diphosphocholine in patients with vascular dementia.** In 1991, this study found that Alpha-GPC “produced a definite symptomatic improvement and showed a very good tolerability”.

These clinical study reviews confirm that supplementation of Alpha-GPC may support healthy brain aging:

- **Effectiveness of nootropic drugs with cholinergic activity in treatment of cognitive deficit: a review.** In 2012, this review observed that Alpha-GPC “enhances
cognitive functioning and is, among several precursors, active in increasing acetylcholine levels in the brain. Therefore, it may represent a therapeutic option to improve the beneficial effects of cholinergic therapy in patients with Alzheimer’s disease and concomitant cerebrovascular damage.”

- **Choline alphoscerate in cognitive decline and in acute cerebrovascular disease: an analysis of published clinical data.** In 2001, this review found “clear internal consistency of clinical data gathered by different experimental situations on [Alpha-GPC] effect, especially with regard to the cognitive symptoms (memory, attention) characterising the clinical picture of adult-onset dementia disorders”.

**Alpha-GPC and Acetyl-L-Carnitine to Support Detoxification**

Supplementation of the combination of Alpha-GPC (Choline) and Acetyl-L-Carnitine may support detoxification according to these clinical studies on humans:

- **Decreasing oxidative stress with choline and carnitine in women.** In 2005, this study found that “Choline and carnitine supplementation lowers lipid peroxidation, and promotes conservation of retinol and alpha-tocopherol in free-living women”.

- **Carnitine and Choline Supplementation with Exercise Alter Carnitine Profiles, Biochemical Markers of Fat Metabolism and Serum Leptin Concentration in Healthy Women.** In 2003, this study found that "choline-induced decrease in serum and urinary carnitine is buffered by carnitine preloading".

- **Choline supplementation reduces urinary carnitine excretion in humans.** In 1996, this study found that “supplementary choline maintained serum carnitine concentrations by conserving urinary carnitine”.

- **Choline supplementation alters carnitine homeostasis in humans and guinea pigs.** In 1995, this study found that “choline supplementation results in decreased urinary excretion of carnitine in young adult women”.

**Alpha-Lipoic Acid Supplementation to Support Detoxification**

Supplementation of Alpha-Lipoic Acid may support detoxification according to these clinical studies on humans:
• **Alpha-lipoic acid improves endothelial dysfunction in patients with subclinical hypothyroidism.** In 2010, this study found that “antioxidant alpha-lipoic acid can improve endothelial function, through decrease of oxygen-derived free radicals”.

• **Assessment of the antioxidant effectiveness of alpha-lipoic acid in healthy men exposed to muscle-damaging exercise.** In 2009, this study found that “alpha-lipoic acid supplementation diminishes oxidative damage”.

**Alpha-Lipoic Acid and Acetyl-L-Carnitine to Support Brain Detoxification**

This clinical study review confirms that supplementation of the combination of Alpha-Lipoic Acid and Acetyl-L-Carnitine may support detoxification:

• **Acetyl-L-carnitine and alpha-lipoic acid: possible neurotherapeutic agents for mood disorders?** In 2008, this review observed that “L-carnitine and alpha-lipoic acid may offer neurotherapeutic effects (e.g., neurocognitive enhancement) via disparate mechanisms including antioxidant, anti-inflammatory, and metabolic regulation”.

**Ginkgo Biloba Supplementation to Support Healthy Brain Aging**

Supplementation of Ginkgo Biloba extract may support healthy brain aging according to these clinical studies on humans:

• **Efficacy and safety of Ginkgo biloba extract EGB 761 in mild cognitive impairment with neuropsychiatric symptoms: a randomized, placebo-controlled, double-blind, multi-center trial.** In 2014, this study found that Ginkgo "improved [neuropsychiatric symptoms] and cognitive performance in patients with [mild cognitive impairment]. The drug was safe and well tolerated”.

• **Effect of Western medicine therapy assisted by Ginkgo biloba tablet on vascular cognitive impairment of none dementia.** In 2012, this study found that Ginkgo "can improve the therapeutic efficacy as well improve cognitive ability and cerebral blood flow supply of patients with vascular cognitive impairment of none dementia (VCIND)".
• **Ginkgo biloba extract EGB 761® in dementia with neuropsychiatric features: a randomised, placebo-controlled trial to confirm the efficacy and safety of a daily dose of 240 mg.** In 2012, this study found that "treatment with [Ginkgo] was safe and resulted in a significant and clinically relevant improvement in cognition, psychopathology, functional measures and quality of life of patients and caregivers".

• **Efficacy and tolerability of a once daily formulation of Ginkgo biloba extract EGB 761® in Alzheimer's disease and vascular dementia: results from a randomised controlled trial.** In 2012, this study found that Ginkgo "improved cognitive functioning, neuropsychiatric symptoms and functional abilities in both types of dementia".

• **Ginkgo biloba special extract in dementia with neuropsychiatric features. A randomised, placebo-controlled, double-blind clinical trial.** In 2007, this study found that "the data add further evidence on the safety and efficacy of [Ginkgo] in the treatment of cognitive and non-cognitive symptoms of dementia".

• **A double-blind placebo-controlled trial of tanakan in the treatment of idiopathic cognitive impairment in the elderly.** In 2004, this study found that Ginkgo "might be helpful in treating the early stages of primary degenerative dementia".

• **Treatment of age-related memory complaints with Ginkgo biloba extract: a randomized double blind placebo-controlled study.** In 1998, this study found that "use of Ginkgo extracts in elderly individuals with cognitive impairment might be promising".

These clinical study reviews confirm that supplementation of Ginkgo Biloba extract may support healthy brain aging:

• **Ginkgo Biloba for Mild Cognitive Impairment and Alzheimer's Disease: A Systematic Review and Meta-Analysis of Randomized Controlled Trials.** In 2016, this meta-analysis found that Ginkgo "is potentially beneficial for the improvement of cognitive function, activities of daily living, and global clinical assessment in patients with mild cognitive impairment or Alzheimer's disease".

• **Meta-analysis of the efficacy and safety of Ginkgo biloba extract for the treatment of dementia.** In 2015, this meta-analysis found that "taking [Ginkgo] is effective and safe in the treatment of dementia".
• **Efficacy and adverse effects of ginkgo biloba for cognitive impairment and dementia: a systematic review and meta-analysis.** In 2015, this meta-analysis found that Ginkgo "is able to stabilize or slow decline in cognition, function, behavior, and global change at 22-26 weeks in cognitive impairment and dementia, especially for patients with neuropsychiatric symptoms".

These clinical studies reported divergent results:

• **Long-term use of standardised Ginkgo biloba extract for the prevention of Alzheimer's disease (GuidAge): a randomised placebo-controlled trial.** In 2012, this study (GuidAge) found that Ginkgo "did not reduce the risk of progression to Alzheimer's disease compared with placebo".

• **Ginkgo biloba for preventing cognitive decline in older adults: a randomized trial.** In 2009, this study (JAMA) found that "compared with placebo, the use of [Ginkgo] did not result in less cognitive decline in older adults with normal cognition or with mild cognitive impairment".

These clinical study reviews challenge the studies that reported divergent results:

• **Analysing time to event data in dementia prevention trials: The example of the guidage study of EGB761®.** This 2016 analysis of the GuidAge study advised "performing another randomised clinical trial of [Ginkgo] explicitly testing the hypothesis of a late treatment effect" because "a significant treatment-by-time interaction for the incidence of [Alzheimer's] was observed in a protocol-specified subgroup analysis, suggesting that the hazard ratio is not constant over time."

• **Efficacy and adverse effects of ginkgo biloba for cognitive impairment and dementia: a systematic review and meta-analysis.** Regarding the GuidAge and JAMA studies, respectively five and six years in length, this 2015 meta-analysis (summarized above) observed that "due to the particularly long pre-dementia phase, expecting a preventive effect of Ginkgo biloba on the incidence of dementia over a period of 3–6 years may be overoptimistic".

• **Ginkgo Biloba Extract and Long-Term Cognitive Decline: A 20-Year Follow-Up Population-Based Study.** Regarding the GuidAge study, this 2013 study observed that "another alternative interpretation of [its] negative results might be that [Ginkgo] is no longer effective once the neurodegenerative process of
dementia is too advanced. In this case, dementia outcome over a relatively short follow-up would not be the most relevant outcome to assess the efficacy of [Ginkgo] on cognitive aging."