Nutraceuticals and Their Uses

Nutrient	Mechanism	Clinical Comment
Omega-3s (EPA/DHA)	Cell membrane fluidity benefits neurotransmission, enhances neurogenesis	Major depressive disorder (MDD) and bipolar depression: 1–2 g daily (more may be needed), mainly EPA-dominant formulations, esp. in deficient states, CVD, comorbid inflammatory conditions
N-acetyl cysteine	Antioxidant, anti-inflammatory, replenishes glutathione, enhances neurogenesis, modulates glutamate pathway, mitochondrial protectant	Bipolar depression, obsessive compulsive disorder, addiction: 1–1.5 g twice daily (bid); may take >8 weeks for response
S-adenosyl methionine	Methyl donor influences metabolism and synthesis of neurotransmitters, increases phosphatidylcholine conversion	MDD: 200–800 mg bid; caution in bipolar patients due to increased switching potential; may interact with serotonergic antidepressants; expensive
L-tryptophan/ 5-Hydroxytryptophan (5-HTP)	Required for conversion into serotonin in presence of vitamin B_6 and magnesium via intermediary step to active form of 5-HTP	MDD: 100–200 mg 5-HTP bid (or before sleep); may be used with antidepressants; caution with higher doses; monitor for serotonin syndrome
Vitamin D	A "neurosteroid" compound that's a ligand for receptors in the prefrontal cortex, hypothalamus, and substantia nigra; involved in the expression of genes encoding for tyrosine hydroxylase	MDD: dose should be based on serum 25-hydroxyvitamin D level; daily or weekly bolus doses; encourage sunlight exposure
Zinc	Prevalent trace element in the amygdala, hippocampus, and neocortex; involved with hippocampal neurogenesis upregulation of brain-derived neurotrophic factor; modifies NMDA (N-methyl-D-aspartate) and glutamate activity	MDD: 20–30 mg/day with food; adjunctive nutraceutical with antidepressants; works with cofactors vitamin B_6 and magnesium
Creatine	Role in brain energy homeostasis; modifies high-energy phosphate metabolism of the brain, which may be impaired in depression	MDD: 5 g/day; potential for activating; caution with bipolar disorder
St. John's Wort	Extracted from *Hypericum perforatum*; multiple proposed mechanisms with several known biologically active components that influence hypothalamic–pituitary–adrenal axis, gene expression, and inhibit reuptake of multiple monoamine neurotransmitters	Mild MDD: 600–1,200 mg bid or three times per day; caution with bipolar disorder and schizophrenia; induces cytochrome P450 3A4; caution with drug interactions

— SOURCES: SARRIS ET AL; NATURAL MEDICINES COMPREHENSIVE DATABASE