Supplementary table 1. Treatment group composition and dose

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| **Capsule/component** | **Total/capsule** | **Total dose/day** |
| *Group 1: combination treatment*Capsule 1: N-acetylcysteineCapsule 2: acetyl-L-carnitineCapsule 3: Ubiquinone (coenzyme Q10) d-alpha-Tocopherol (vitamin E) Alpha-lipoic acid MagnesiumCapsule 4: Ubidecarenone (coenzyme Q10) d-alpha-Tocopherol (vitamin E) Thiamine hydrochloride Nicotinamide (vitamin B3)  Calcium pantothenate (equiv. pantothenic acid/vitamin B5) Pyridoxine hydrochloride (equiv. pyridoxine/vitamin B6) Folic acid (vitamin B9) Cyanocobalamin (vitamin B12) Calcium ascorbate dihydrate (equiv. ascorbic acid/vitamin C) Retinyl palmitate (equiv. vitamin A) Cholecalciferol (equiv. 250 IU vitamin D3) Biotin (vitamin H) |  |
| 500 mg 500 mg75 mg\*3.36 mg (5 IU) \*75 mg(as orotate 500 mg) 32 mg25 mg\*16.8 mg (25 IU) \*50mg100 mg50 mg (45 mg)50 mg (41.1 mg)400 mg400 mg121 mg (100 mg)450 mgRE (1,500 IU)6.25 mg (250 IU)300mg | 2,000 mg1,000 mg200 mg40.32 mg (60 IU)150 mg64 mg100 mg200 mg100 mg (90 mg)100 mg (82.2 mg)800 mg800 mg242 mg (200 mg)900 mgRE (3,000 IU)12.5 mg (500 IU)600mg |
| *Group 2: N-acetylcysteine group*Capsule 1: N-acetylcysteine Capsules 5, 6, 7: equivalent placebos of Capsules 2, 3, 4  |  |  |
| 500 mg | 2,000 mg |
| *Group 3: Placebo group*Capsule 8: equivalent placebo of Capsule 1 Capsules 5, 6, 7: equivalent placebos of Capsules 2, 3, 4 |  |  |

mgRE = micrograms of retinol equivalent.

\* Total dose of ubidecarenone is 200 mg and d-alpha-tocopherol is 40.32 mg (60 IU), combining capsules 4 and 5.