

An Interview with Dr. Upasana Abbott



Upasana Abbott
Research & Development
Scientist & Supervisor

From an R&D standpoint, what is Protocol's philosophy regarding liquid products?

Abbott— Liquid supplements are an important part of NOW's product line. An impressive body of research shows that liquid supplements deliver health-promoting nutrients and/or botanical extracts in a more easily-absorbable form than conventional tablets and capsules. They're easier to swallow – a teaspoon or tablespoon will generally provide the same amount of nutrients one would get from a capsule or tablet. Liquid supplements are generally more consumer friendly and can be formulated using a variety of natural flavors. They're usually packaged in amber glass bottles that can be fitted with various sizes and types of caps to provide different serving options. Recently we've started introducing liquid products in convenient individual serving tubes called "shots".

What will you find in liquid supplements and, more importantly, what won't you find and, why not?

Abbott— What's in our liquids depends on the product. We have a good variety of nourishment and support formulations, including a multivitamin, a Glucosamine/Chondroitin/MSM joint support formula, Vitamin B12, CoQ10 and Omega-3, just to name a few. Our liquid supplements contain all-natural ingredients. A typical formulation is a blend of nutrients and botanicals in a base of water, glycerine, acids, natural sweeteners, gums, natural flavors, and natural colors.

Artificial sweeteners, artificial colors, and high fructose corn syrup (HFCS) are all big NO's because long-term use of these additives has been shown to be detrimental to one's health. We formulate our products with natural alternatives to these artificial substances. For instance, we use a synergistic combination of natural sweeteners such as stevia, xylitol and erythritol in certain products. Coloring is derived from natural sources such as beet root, berry extracts, and annatto extract instead of synthetically-produced dyes. We're very diligent about keeping our products as natural as possible.

In many cases "natural flavors" are not really natural at all. What do you do to ensure that natural flavors are actually natural?

Abbott— A very good question. In many instances a natural flavor is extracted from a natural source. However, a wide variety of extraction methods can be used, and many of them utilize chemicals or solvents. We carefully review the full ingredient list for each natural flavor to ensure that they don't contain undesirable substances such as propylene glycol, as well as other hidden chemicals and/or extractants. We also check to ensure that our natural flavoring ingredients are allergen-free; examples include dextrose, tapioca flour, rice maltodextrin, and glycerine.

What is the typical procedure for developing and launching a new liquid product?

Abbott— Launching of a new formulation starts with proposing the product idea, researching nutritional and scientific information, determining market potential and defining special features of the product.

One of the biggest challenges with liquid supplements is masking the "medicinal" flavor typically associated with certain vitamins, minerals and herbs used in formulation. For each formulation we test a number of natural flavors, both alone and in various combinations, to ascertain the most effective way to mask the taste of the base product formula. Formulator experience, information from existing formulas, food flavoring literature, supplier information, and odor and taste tests are all incorporated into this step of the development process.

The next phase in the development process involves a series of sensory evaluations (taste testing). As the supplement formula approaches an acceptable sensory level it's presented for internal evaluation. Samples are evaluated by experienced testers for taste and other sensory parameters. Final approval involves blind taste testing by a trained panel of ten testers; this blind test compares the new formulation to competitive products on the market. If the new formulation achieves the highest test rating it's ready for the final step. The final step before launch is stability testing during storage. The new liquid formula is stored under accelerated and/or ambient (room temperature) storage conditions and tested at specific intervals for potency and quality parameters. If the formula isn't stable we reformulate for stabilization or provide alternate recommendations.

Would you please discuss the bioavailability of liquids in greater detail?

Abbott— Bioavailability is a complex process that differs from the chemical potency of a nutrient in a dietary supplement. Bioavailability refers to the degree and rate at which a nutrient is absorbed from the supplement into the body. This is the amount of a nutrient that enters the bloodstream and nourishes the tissues and organs. Nutrients ingested but not released for absorption are of no nutritional value. The rate of absorption depends upon how easily a nutrient is released and absorbed from supplement in the digestive tract. The greater the rate of absorption and total amount absorbed, the higher the bioavailability.

Supplements formulated as tablets and capsules are typically blended with other powdered excipients and binders to help the blend flow and bind during the manufacturing process. When ingested, the bonding of particles must be released for a tablet to disintegrate (or a capsule to dissolve) and release the nutrients. Typical disintegration time values range from 20 to 40 minutes. Liquid supplements have eliminated this time lapse and between ingestion and availability, resulting in a faster rate of absorption and higher bioavailability.

Liquid supplements deliver nutrients in a highly solubilized state that allows them to be absorbed quickly and well. Nutrient absorption from tablets and capsules must wait for disintegration and then gastric solubilization before being absorbed. The amount of nutrients absorbed from liquid supplements is higher, contributing to their higher bioavailability.

In closing, liquid supplements are a great substitution for tablets and capsules, however, they pose their own formulation challenges. For instance, we've faced challenges with many botanical extracts that contain bitter compounds like alkaloids, and have found that this bitterness is very difficult to mask at the potency level we want to deliver with the finished product. These challenges are just one of the many reasons why Research & Development Science is so exciting, rewarding and necessary. We will continue to research new ingredients and technologies that will allow us to develop and provide the best line of liquid formulations.



Code
P3175

Code
P1659

Code
P3186

Recommended Liquid Products

Vitamin B-12

Liquid Tri-Formula & B Complex

Vitamin B-12 is a water-soluble vitamin necessary for the maintenance of a healthy nervous system and for the metabolic utilization of fats and proteins. Vitamin B-12 is also essential for the synthesis of DNA during cell division and therefore is especially important for rapidly multiplying cells, such as blood cells. In addition, adequate intake of Vitamin B-12, along with Folic Acid and Vitamin B-6, supports healthy serum homocysteine levels already within the normal range, thereby supporting cardiovascular health*. Because Vitamin B-12 is found predominantly in animal products, strict vegetarians are at risk of developing Vitamin B-12 deficiency and may benefit from supplementation. Protocol for Life Balance Vitamin B-12 is also formulated with the entire B-Complex family of vitamins, which work together to support cellular energy production.

Vitamin D-3 Liquid

Each drop contains 100 IU of Vitamin D: 4 drops provide 400 IU, 20 drops provide 2,000 IU. A full dropper provides approximately 50 drops, or 5,000 IU. Vitamin D enhances the uptake of calcium from the diet, is necessary for bone and dental health, and supports healthy immune function and healthy cell division.* Recent research indicates that Vitamin D also may play an important role in supporting cardiovascular health.*

Ortho Multi™

Nutritional Support

Multiple vitamins help to bridge the nutrient gap in our daily diets. In today's world of processed foods and fast-paced lifestyles, many of us do not get the daily recommended allowance of vitamins, minerals and other nutrients. Multiple vitamins can help fill in the areas lacking in our diets, and are formulated to provide a broad range of nutrition in a synergistic manner. This unique vegetarian formula from Protocol For Life Balance™ utilizes brown rice protein as a stabilizing agent for maximum bioavailability of vitamins, minerals and phytonutrients. It provides the daily required vitamins and minerals to support general health and well-being.

- Tropical Orange Flavor
- Liquid Vitamin & Mineral
- High Potency - Fast Absorption
- Added Phytonutrients
- Stabilized with Rice Protein
- Iron-Free
- With Xylitol
- Vegetarian Formula

Vitamin B-12

Supplement Facts		P0452
Serving Size 1 Teaspoon (5 mL)		
Servings Per Container 23		
		Amount Per Serving
Calories		10
Total Carbohydrate		2.5 g
Vitamin C (as Ascorbic Acid)		120 mg
Vitamin B ₁ (from Thiamine HCl)		3 mg
Riboflavin (Vitamin B ₂)		3.4 mg
Vitamin B ₃ (as Niacinamide)		50 mg
Vitamin B ₆ (from Pyridoxine HCl)		10 mg
Folic Acid		800 mcg
Vitamin B ₁₂		5.0 mg (5,000 mcg)
[as Cyanocobalamin, Methylcobalamin (Co-enzyme Form) and Dibenzoyl (Co-enzyme Form)]		
Biotin		300 mcg
Vitamin B ₅ (from Calcium d-Pantothenate)		50 mg
Stevia Extract (Leaf)		10 mg
(Stevia rebaudiana) (min 80% Glucosylsteviosides)		
Choline (from Choline Bitartrate)		5 mg
Inositol		5 mg

Other ingredients: De-ionized Water, Vegetable Glycerine, Xylitol, Barley Malt Extract, Malic Acid, Natural Flavors, Potassium Sorbate, Ginger Root (*Zingiber officinale*), Grapefruit Fiber and Cinnamon Bark (*Cinnamomum verum*) Oil.

Ortho Multi™

Supplement Facts		P3772
Serving Size 1 Tablespoon		
Servings Per Container 31		
		Amount Per Serving
Calories		25
Total Carbohydrate		6 g
Sugar Alcohols (as Xylitol)		3 g
Vitamin A		5,000 IU
[from 60% Retinyl Palmitate & 40% Beta-Carotene (as pro-Vitamin A 1.2 mg)]		
Vitamin C (as Ascorbic Acid)		250 mg
Vitamin D (as Ergocalciferol)		400 IU
Vitamin E (from d- <i>alpha</i> -Tocopheryl Acetate)		100 IU
Vitamin B ₁ (from Thiamine Hydrochloride)		10 mg
Riboflavin (Vitamin B ₂)		10 mg
Vitamin B ₃ (from Niacinamide)		25 mg
Vitamin B ₆ (from Pyridoxine Hydrochloride)		10 mg
Folate (as Folic Acid)		400 mcg
Vitamin B ₁₂ (as Cyanocobalamin)		100 mcg
Biotin		100 mcg
Vitamin B ₅ (from Calcium d-Pantothenate)		25 mg
Calcium (from Calcium Carbonate)		25 mg
Iodine [from Kelp (<i>Laminaria digitata</i>)]		75 mcg
Magnesium (from Magnesium Oxide)		10 mg
Zinc (from Zinc AAC)		3 mg
Selenium (from Selenopure™ L-Selenomethionine)		15 mcg
Manganese (from Manganese AAC)		2 mg
Chromium (from Chromium Chelavite® AAC)		10 mcg
Potassium (from Potassium Chloride)		95 mg
Orange Juice Powder		100 mg
Vitaberry™ Hi-ORAC Fruit Blend		50 mg
Aloe Vera Juice		50 mg
Colloidal Minerals (Fulvic Acid)		50 mg
Rice Protein Concentrate (from Non-GMO Brown Rice)		30 mg
Choline (from Choline Bitartrate)		25 mg
Inositol		25 mg
Kelp (<i>Laminaria digitata</i>)		15 mg
Grapeseed Extract (<i>Vitis vinifera</i>) (90% Polyphenols)		10 mg
Citrus Bioflavonoids		10 mg
Lutein (from Marigold Extract)		100 mcg
Lycopene (from Natural Tomato Extract)		100 mcg

Other Ingredients: De-ionized Water, Vegetable Glycerin, Xylitol, Natural Flavors, Non-GMO Soy Lecithin, Citric Acid, Malic Acid, Xanthan Gum and Potassium Sorbate.

Code	Products	Size
P0105	5-HTP 100 mg	90 Vcaps®
P0108	5-HTP 200 mg + Glycine, Taurine and Inositol	60 Vcaps®
P1811	A - Biotic™ Enteric Coated, Potent	60 Gels
P0076	Acetyl-L-Carnitine 500	100 Vcaps®
P3344	Adrenal Cortisol Support™	90 Vcaps®
P3032	AHCC® 500 mg	60 Vcaps®
P3282	Aller-All™ Seasonal Support	60 Tabs
P3036	Aloe Vera 5,000	100 Gel
P3042	Alpha Lipoic Acid 250 mg	90 Vcaps®
P3046	Alpha Lipoic Acid 600 mg Plus	60 Vcaps®
P0030	L-Arginine 500 mg	180 Caps
P2958	BioCore® Enhanced Enzymes	90 Vcaps®
P0471	Biotin 5000 mcg	90 Vcaps®
P1228	Bone Strength™	180 Caps
P1720	Borage/GLA 1050 mg	60 Gels
P3303	Brain Regain™	60 Vcaps®
P3063	Brocco Immune™	60 Vcaps®
P2943	Bromelain 2400 gdu/500 mg	90 Vcaps®
P3308	C.Away™	90 Vcaps®
P1268	Cal-Mag, Liquid Lemon	16 oz
P1675	CardioTri-Plex™	120 Gels
P0072	L-Carnitine 500 mg Carnipure®	60 Caps
P3019	Celadrin® Joint Liposome Lotion	4 oz
P9470	Celadrin® Tabletop Display	12 Bottles
P1415	ChromeMate® 200 mcg	90 Caps
P1731	CLA Away™	90 Gels
P0405	CoEnzyme B Complex	60 Tabs
P3163	CoQ10 60 mg + Fish Oils	90 Gels
P3208	CoQ10 100 mg Softgels	90 Gels
P3196	CoQ10 200 mg Lozenges	60 Loz
P3198	CoQ10 400 mg Softgels	60 Gels
P3182	CoQ10 600 mg Softgels	60 Gels
P3186	CoQ10 Liquid 100 mg/tsp	4 oz
P4638	Curcumin 665 mg 95% Extract	60 Vcaps®
P3121	D-Flame™ Cox-2 Formula	90 Vcaps®
P2956	Dairy Digestion™	90 Vcaps®
P4704	EGCg 400 mg/50%	90 Vcaps®
P2963	Enzymes-HCl™	120 Caps
P5993	Fiber O-3™	16 oz
P1770	Flax Seed Oil 1000 mg Organic	120 Gels
P0498	Flush Free Niacin 500 mg	90 Vcaps®
P4683	Ginkgo Biloba 120 mg/24% Plus	100 Vcaps®
P3318	Glucose Balance™	90 Caps
P3170	Gluc/Chond/MSM Caps	90 Caps
P3172	Gluc/Chond/MSM Caps	180 Caps
P3243	Gluc/Chond 2 per day, Extra Strength	120 Tab
P3130	Gluc & MSM, Vegetarian 1000 mg	120 Vcaps®
P3175	Liquid Glucosar™, Chond, MSM	16 oz
P0094	L-Glutamine 1000 mg	120 Caps
P3274	Grape Seed OPC 250 mg Extract	90 Vcaps®
P3055	Immune Renew™ (Org. Mushrooms)	90 Vcaps®
P3134	Joint-UC™ Collagen	60 Vcaps®
P1625	Krill Oil, Neptune (NKO®) 500 mg	60 Gels
P2448	Liver Detox™	90 Caps
P3062	LYC-O-MATO® 20 mg Lycopene	60 Gels
P2811	D-Mannose Urinary 500 mg	90 Caps
P3258	Melatonin 3 mg Lozenge & B-6	120 Loz
P3326	MetaboEnergetics™	90 Caps
P0495	Methyl B-12 1,000 mcg	100 Loz
P0496	Methyl B-12 5,000 mcg	60 Loz
P4739	Milk Thistle 300 mg/80% Plus	90 Vcaps®
P2120	MSM 1,000 mg	180 Caps
P0085	NAC N-acetyl cysteine 600 mg + Antioxidants	100 Caps
P3140	Nattokinase 100 mg/2000 FU units	60 Vcaps®
P0453	Nutri-Dose™ B-12 10,000 mcg NEW!	12: 15 mL

P3301	Ocu Support™ Clinical Strength	90 Caps
P1659	Omega-3 Lemon Liquid /Molec Distilled	7 oz
P1656	Omega-3/Enter 180/120 /Molec Distilled	90 Gels
P1657	Omega-3/Enter 180/120 /Molec Distilled	180 Gels
P1661	Ultra Omega-3 500/250/Molec Distilled	90 Gels
P1662	Ultra Omega-3 500/250/Molec Distilled	180 Gels
P3281	Ortho Detox™	90 Caps
P2912	Ortho Dophilus™ 8 Strains, 4 Billion	60 Vcaps®
P0950	Ortho-E™ NON-GMO	60 Gels
P3772	Ortho Liquid Multi™ - Iron Free/Xylitol	16 oz
P3788	Ortho Multi™ Greens	180 Vcaps®
P3878	Ortho Multi™ for Men Caps	90 Vcaps®
P3875	Ortho Multi™ for Men Tabs	90 Tabs
P3816	Ortho Multi™ Softgel w/ Flax 400 mg	90 Gels
P3798	Ortho Multi™ for Women Caps	120 Vcaps®
P3796	Ortho Multi™ for Women Tabs	90 Tabs
P3340	Ortho Prostate™	90 Gels
P3368	Ortho Thyroid™	90 Vcaps®
P1413	OsteoBoron® 3 mg, Natural Form/base	90 Vcaps®
P0487	Pantethine 300 mg Co-enzyme A	60 Gels
P4727	Peppermint Oil G.I.™ Enteric	90 Gels
P3345	PepZin G.I.® Soothe™	60 Tabs
P2385	Phosphatidyl Serine 100 mg & Ginkgo 60 mg	60 Gels
P3338	Progesterone Cream Pump - 20 mg	3 oz
P5955	ProtoClear™ Berry Flavor	2.3 lbs
P5956	ProtoClear™ Info Card & Sample - Berry	25 g
P5957	ProtoClear™ Orange Flavor	2.3 lbs
P5958	ProtoClear™ Info Card & Sample - Orange	25 g
P5960	ProtoClear™ Vanilla Flavor	2.3 lbs
P5961	ProtoClear™ Info Card & Sample - Vanilla	25 g
8931	ProtoClear™ Premium Shaker Cup	12 oz
P0716	ProtoSorb™ C 500	100 Vcaps®
P0726	ProtoSorb™ C 1000	100 Tabs
P2928	ProtoDophilus™ 50 Billion/Cap NEW!	50 Vcaps®
P3321	Red Yeast & CoQ10 30 mg, ALA	90 Vcaps®
P3500	Red Yeast Rice Extract 600	90 Vcaps®
P3353	Resveratrol 200 mg Extra Strength	60 Vcaps®
P2147	D-Ribose Powder, Bio Energy Pure	300 g
P0138	SAME 200 mg Enteric + B Complex	60 Tabs
P4756	Saw Prostetto™ 320 mg/85-95% Extract	90 Gels
P1485	Selenium 200 mcg, Yeast-Free	90 Vcaps®
P2954	Serrazimes® 33 mg/20,000 units	90 Vcaps®
P1905	Slimaluma® Plus	60 Vcaps®
P6957	Stevia Complete Packets	100/box
P6955	Stevia Non-Bitter Liquid, Sweet	2 fl oz
P6960	Stevia Non-Bitter Powder, Sweet	1 oz
P3507	Sytrinol® Cholesterol Formula	60 Vcaps®
P0142	Taurine 1000 mg Caps	100 Caps
P3145	Ubiquinol CoQH-CF™ 50 mg	60 Gels
P3142	Ubiquinol 100 mg NEW!	60 Gels
P3380	True Balance™ Multi	120 Caps
P0166	L-Tryptophan 500 mg	60 Vcaps®
P0167	L-Tryptophan 500 mg	120 Vcaps®
P0169	L-Tryptophan 1000 mg	60 Tabs
P3123	Vein Integrity™ with Trunorin®	90 Vcaps®
P2168	Virility For Men with LJ100®	60 Vcaps®
P0452	Vitamin B-12 Liquid Tri-Formula 5,000 mcg	4 oz
P0690	Vitamin C-1000 Cap+100 Bioflavonoids	120 Caps
P0365	Vitamin D-3 1,000 IU	120 Gels
P0367	Vitamin D-3 2,000 IU	120 Gels
P0372	Vitamin D-3 5000 IU	120 Gels
P0370	Vitamin D-3, Liquid 5000 IU	2 oz
P0374	Vitamin D-3 10,000 IU NEW!	90 Vcaps®
P0906	Vitamin E-400 20% Mixed + Selenium	120 Gels
P1554	Zinc Glycinate, 30 mg Softgels NEW!	120 Gels

Recommended Liquid Products

Recommended Liquid Products



NEW!
Call for a free sample!

Nutri-Dose™ B-12 10,000 mcg Shots

B Vitamins are essential components in most major metabolic reactions as they play an important role in energy production, including the metabolism of lipids, carbohydrates, and proteins. Vitamin B-12 facilitates energy production and is required for nucleic acid (DNA) synthesis, methionine synthesis from cysteine, and normal myelin synthesis in the nervous system. Along with Vitamin B₆ and folic acid, adequate levels of Vitamin B-12 are required to maintain healthy plasma homocysteine levels already in the normal range.*

The elderly and strict vegetarians are often at risk for Vitamin B-12 deficiency, either due to low dietary intake or decreased absorption. B-12 10,000 mcg Nutri-Dose™ is a convenient and palatable liquid formulation that is absorbed quickly by the body, delivering rapid, energizing nutrition.*

- * **Convenient Vial Delivery System**
- * **With Complete Liquid B-Complex**
- * **Mixed Berry Flavor**
- * **Vegetarian Formula**



Supplement Facts

Serving Size 1 Tube (15 mL)
Servings Per Container 12

	Amount Per Serving
Calories	50
Total Carbohydrate	13 g
Sugars	3 g
Sugar Alcohol (as Xylitol)	2.5 g
Vitamin C (as Ascorbic Acid)	100 mg
Vitamin B ₁ (from Thiamine HCl)	3 mg
Riboflavin (Vitamin B-2)	3.4 mg
Niacin (as Niacinamide) (Vitamin B-3)	50 mg
Vitamin B ₆ (from Pyridoxine HCl)	10 mg
Folic Acid	400 mcg
Vitamin B₁₂ (as Cyanocobalamin)	10 mg (10,000 mcg)
Biotin	300 mcg
Pantothenic Acid (from Calcium Pantothenate)	50 mg
Choline (from Choline Bitartrate)	5 mg
Inositol	5 mg

Other ingredients: De-ionized Water, Vegetable Glycerine, Fructose, Xylitol, Natural Berry and Cherry Flavors, Malic Acid, Potassium Sorbate (as preservative) and Natural French Vanilla Flavor.

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

The Professional Educator

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FOR LIFE BALANCE™
PROTOCOL
www.protocolforlife.com
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May Tradeshows

American Chiropractic Board of Sports
Physicians (ACBSF) 2010 Symposium
April 30 - May 2
Palmer House Hilton Hotel
Chicago, IL

Northwest Naturopathic Physicians Convention (NWNPC) 2010

Marriott Portland Downtown Waterfront
Portland, OR
May 7-9

Booth # 27 (subject to change)

New York Association of Naturopathic Physicians (NYANP) Spring Conference 2010

May 22
META Center
New York, NY

Institute For Functional Medicine (IFM) 2010

May 20-23
La Costa Resort & Spa
Carlsbad, CA

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