

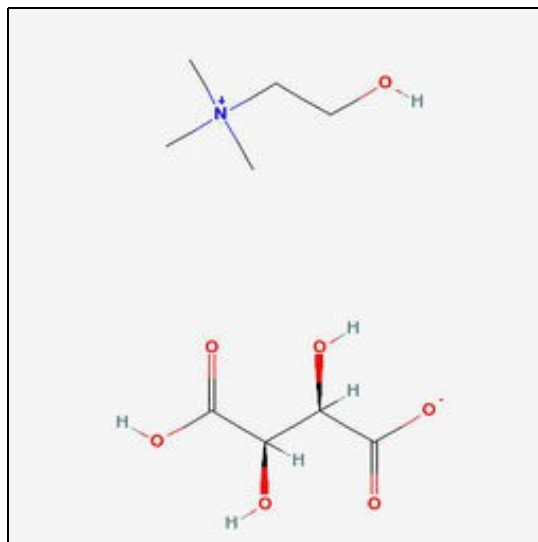
Choline Bitartrate

Contents

- 1 Overview
- 2 Intellectual Property
 - ◆ 2.1 Search Strategy
 - ◇ 2.1.1 **STN Search Strategy**
 - ◆ 2.2 Analysis Taxonomy
 - ◇ 2.2.1 IP activity over the years
 - ◇ 2.2.2 Top Assignees
 - ◇ 2.2.3 Patent Focus
 - ◇ 2.2.4 Action of Choline bitartrate containing Compositions
 - ◇ 2.2.5 Choline Bitartrate Patents categorised as per formulation
 - ◇ 2.2.6 Choline Bitartrate containing compositions
 - ◆ 2.3 Patent Analysis Sheets
 - ◆ 2.4 Scientific Literature Analysis
- 3 Dashboard

Overview

- Choline is an organic compound, usually grouped within the Vitamin B complex. There are eight B vitamins in the Vitamin B complex family. Although each performs a different function in the body, they all work together to maintain good health.



Structure of Choline bitartrate [Source](#)

- Choline is available in various forms namely, choline bitartrate, choline citrate, choline chloride and others.
- **Choline Bitartrate** (L(+)) choline bitartrate) is a colorless or white crystal powder, which is a water-soluble part of the B Vitamin family. Its IUPAC Name: 2-hydroxyethyl(trimethyl)azanium; (2R,3R)-2,3,4-trihydroxy-4-oxobutanoate and CAS Registry Number is : 87-67-2. [Source](#)
- The body needs B vitamins to manufacture neurotransmitters, chemicals that control alertness and mood by speeding nerve signals through the brain.
- As B vitamins are water soluble, they are excreted in the urine and can be quickly depleted from the body. Only a small amount is stored in the body. Because of this, it is important that we take supplements to replenish these important vitamins in our body. [Source](#)
- Choline bitartrate is an essential nutrient needed by the nervous system to produce acetylcholine. Acetylcholine is a neurotransmitter that facilitates the transmission of impulses between neurons. [Source](#)

Natural Source of Choline bitartrate: Egg yolk, peanuts, wheat germ, organ meats and legumes.

Health Benefits of Choline Bitartrate:

- Being a product of vitamin, it can be applied to medicine, healthcare product and food.
- It is a nutritious additive and fat remover, enhance fatty metabolism and eliminate the accumulation of fat in liver.
- Influence muscle contractions, movement, coordination and enhance memory.
- Involved in higher level brain functions like memory, thought and intellect.
- Is vital to the structural integrity of cell walls, the production of amino acids and proteins and the metabolism of fats.
- Aid in the treatment of Alzheimer's Disease, manic depression and improve the symptoms of Parkinson's Disease.

Deficiencies in B vitamins causes:

- Depression or signs of decreased mental functioning.
- Decrease cognitive function.

Intellectual Property

Search Strategy

- Databases: USG USA EPA EPB WO JP DEG DEA DET DEU GBA FRA
- Years: From 1836 - To April 18, 2009.

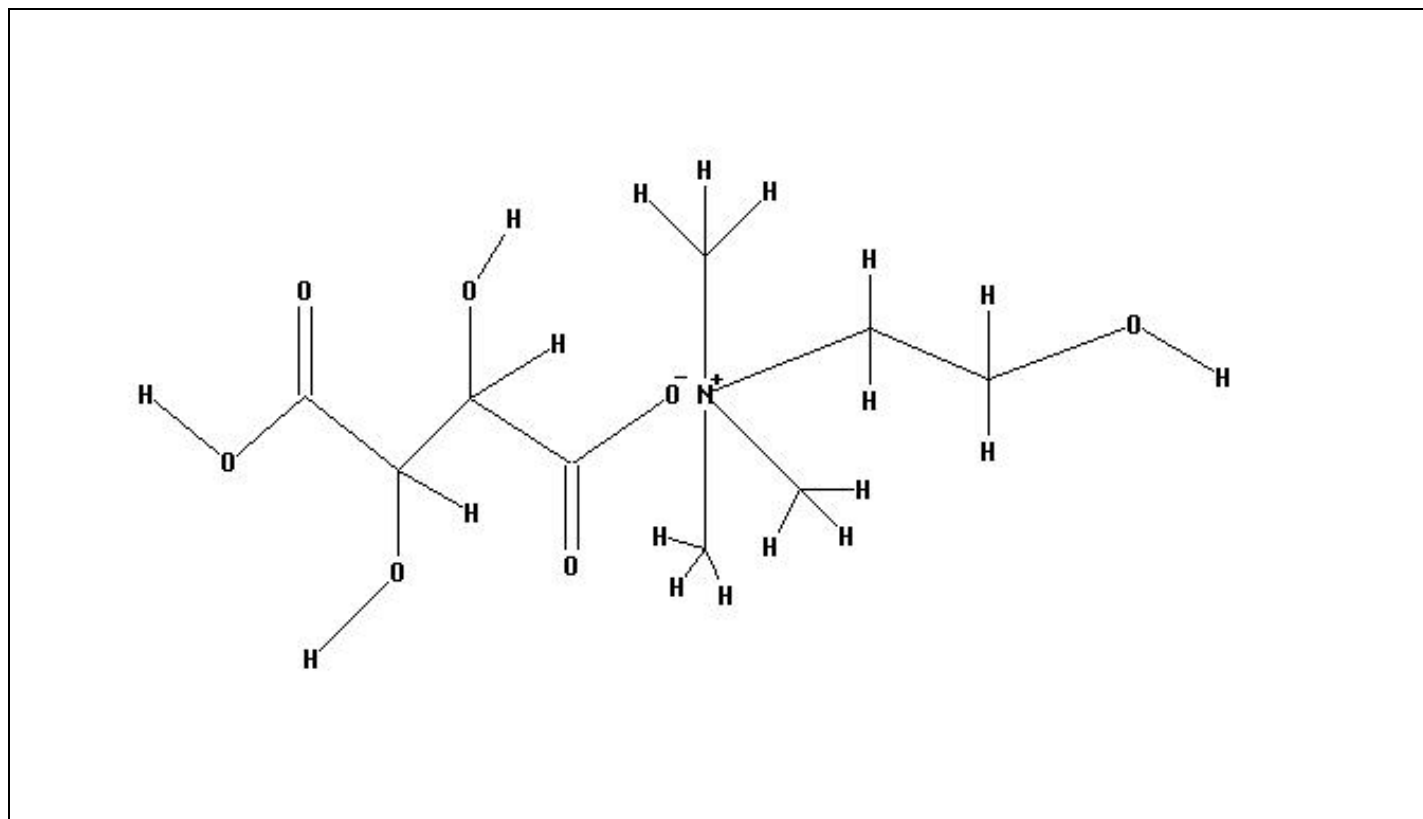
S.No	Concept	Scope	Search Query	Hits
1	Choline bitartrate	Full Spec.	((choline ADJ1 bitartrate*) OR (choline ADJ1 bitartrate*) OR (choline ADJ1 bi ADJ1 tartrate*) OR (2-Hydroxyethyl ADJ1 trimethyl ADJ1 ammonium ADJ1 bitartrate) OR ((2-Hydroxyethyl) ADJ1 trimethyl ADJ1 ammonium ADJ1 bitartrate) OR ((2-Hydroxyethyl)trimethylammonium ADJ1 bitartrate))	1016 hits
2	Food & beverage	Claims, Title or Abstract	(beverage* OR drink* OR juice* OR potion OR tonic OR spirit* OR (liquid ADJ1 refreshment) OR Tea OR milk OR coffee OR cocoa OR (liquid ADJ (formulation*1 OR preparation*1)) OR capsule* OR caplet* OR tablet* OR powder*2 OR (Nutri* ADJ supplement*) OR Food* OR Meal* OR composition OR (Nutrition* NEAR3 adjuvant*) OR (food NEAR3 supplement*) OR formula OR formulation*)	3677912 hits
3		Combine	1AND 2	881 hits (Unique Records 444)

STN Search Strategy

=> FILE REGISTRY

=> UPLOAD STRUCTURE

L1



Cholinebitartrate

=> D L1

=> S L1 EXACT SAM

L2

=> D SCAN

=> S L1 EXACT FULL

L3

SET PLURAL ON PERM

SET ABBREVIATION ON PERM

SET SPELLINGS ON PERM

=> S L3 AND PATENT/DT

L4

=> S L3 NOT PATENT/DT

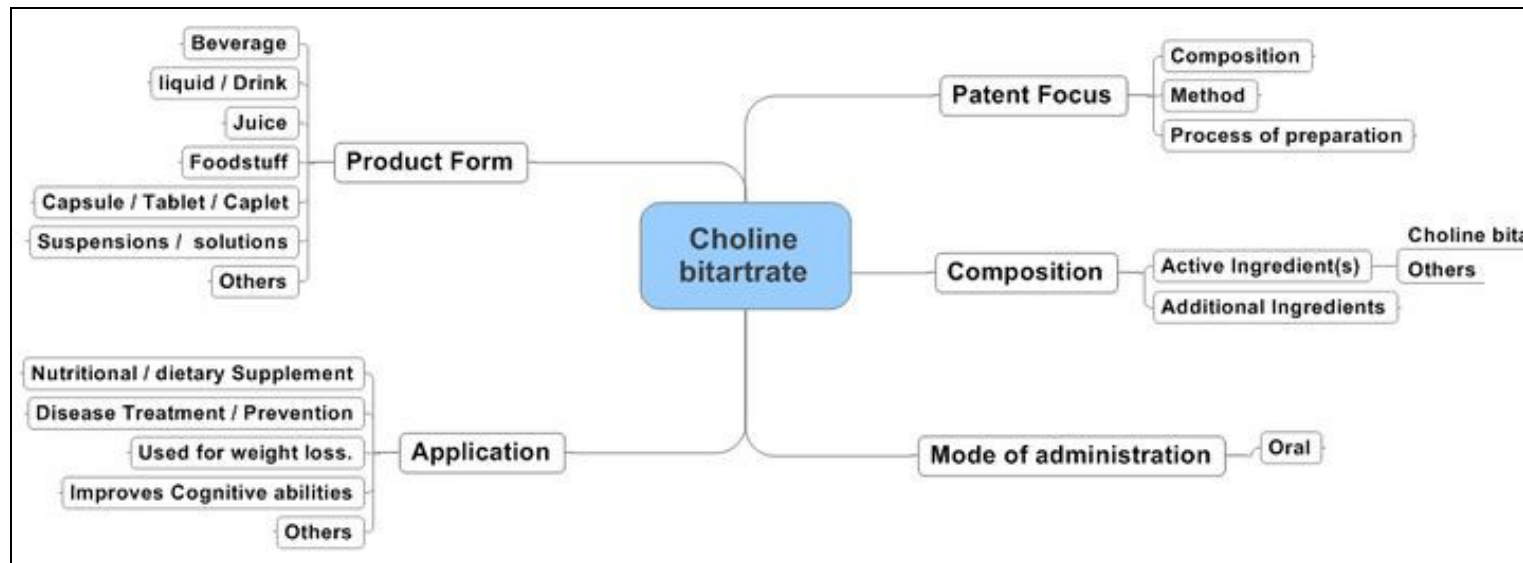
L5

=> D L4 IALL 1-

=> D L5 IALL 1-

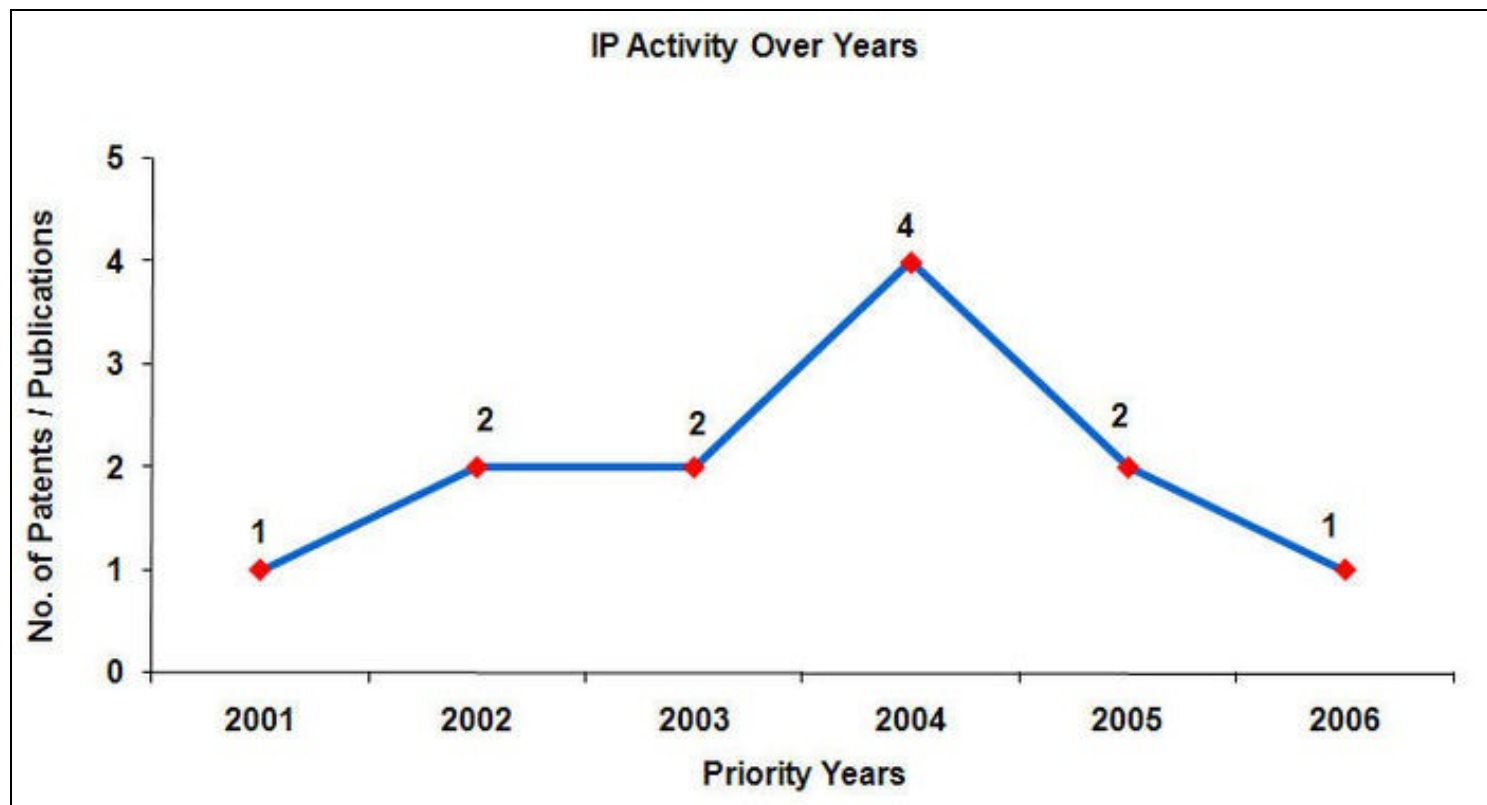
=> LOGOFF Y

Analysis Taxonomy



IP activity over the years

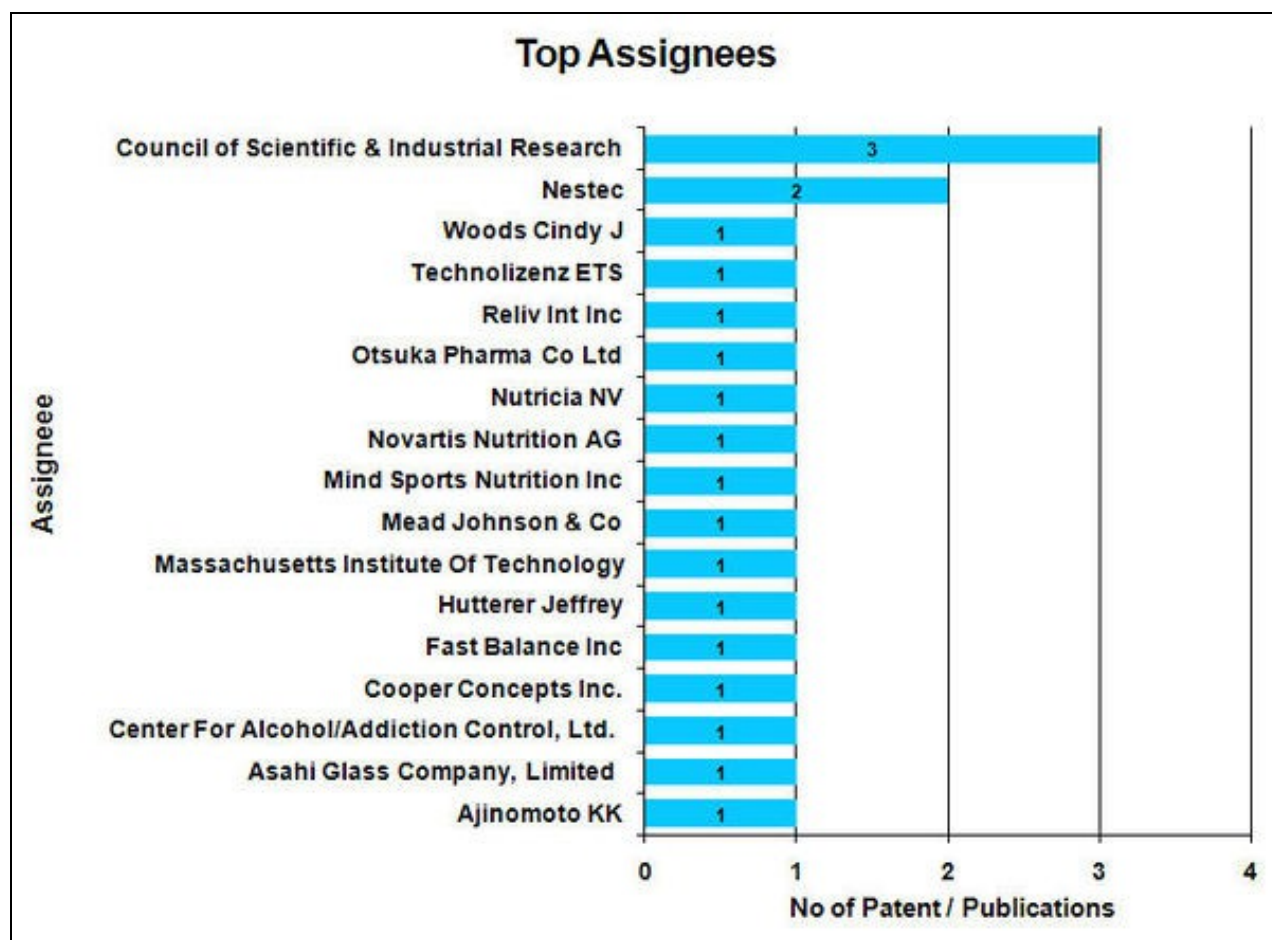
- Maximum number of patents have been filed in the year 2004.
- Patents are published 18 months after application.



Graph showing IP Activity Over Years (Assignee versus earliest priority year)

Top Assignees

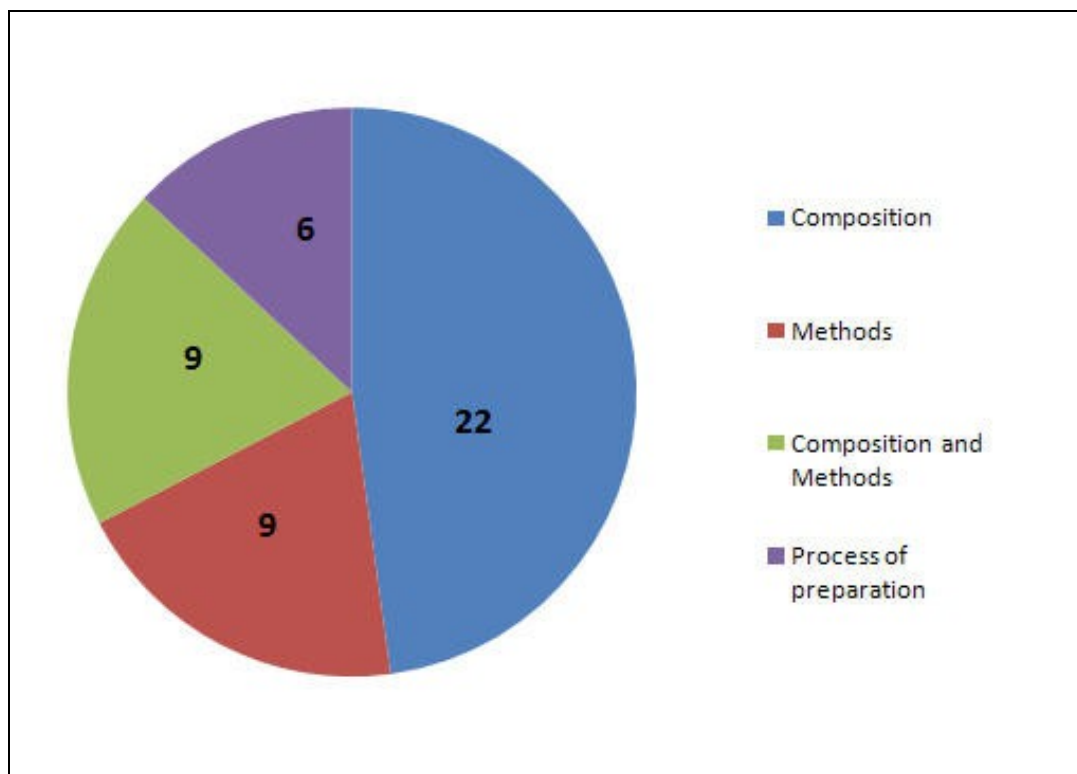
- Council of Scientific & Industrial Research found to be the Top assignees with 3 patents.
- For 2 patent / publications Assignee name is not available.



Graph showing Top assignee names

Patent Focus

- Patents focusing on Composition.
- Patents focusing on Methods.
- Patents focusing on Composition and Methods.
- Patents focusing on process of preparation.



Graph showing patents focusing on composition / methods or Both
Action of Choline bitartrate containing Compositions

```
.markmap-node {
  cursor: pointer;
}

.markmap-node-circle {
  fill: #fff;
  stroke-width: 1.5px;
}

.markmap-node-text {
  fill: #000;
  font: 10px sans-serif;
}

.markmap-link {
  fill: none;
}

pre, .mw-code{
  background-color: transparent;
}

d3.xml("https://www.dolcera.com/wiki/images/Choline_bitartrate.mm", function(error, data) {
  if (error) throw error;

  markmap("svg#mindmap_7e40fd4a1a94db4b22c81d2cdc9a2e27", data, {
    preset: "colorful",
    linkShape: "diagonal"
  }, "xml");
});
```

Choline Bitartrate Patents categorised as per formulation

Product form	Patent/publication	Patent focus	Ingredients other than Choline Bitartrate	Application
	US20040005368A1	Composition and Method	1. At least one substance that enhance oxygen uptake such as Gingko A, Caffeine, Green Tea, L-pyroglutamate, Xanthinol nicotinate. 2. A protein supplement.	Used for weight loss.
	US20040191294A1	Composition, Method, Process of prepration	1. one or more omega 3 fatty acids. 2. milk or milk-based products .	lowers levels of cholesterol and triglycerides.
	US20060121158A1	Composition	1. A first ingredient comprising at least one of a polyol, a fiber or a combination thereof. 2. Second ingredient comprising calcium. 3. Third ingredient comprising at least one of flavanol, stimulant and antioxidant.	Used for weight management.
	US5626849A	Composition and Method	An essentially dry mixture of chromium, L-carnitine, gamma-linolenic acid, (-) hydroxycitric acid, inositol,	A dietary supplement to help facilitate weight loss

			antioxidants and herbs.	
	US5904948A	Composition and Process of prepration	An protein component and a carbohydrate component.	Nutritional Supplement
	WO2006052231A1	Composition and Process of prepration	Sugar including the carbohydrates, fructose and maltodextrin, and electrolytes chromium, copper, potassium, magnesium, sodium, and citric acid.	Restoring human growth hormone.
	US20050171034A1	Composition and Method	Betaine, pyridoxal-5-phosphate, and N-acetyl-cysteine.	Promotes decrease of homocysteine levels in humans.
	US20060241077A1	Composition and Method	A uridine, an acyl derivative thereof, a uridine phosphate, uracil, or a salt thereof;	Ameliorating or inhibiting decline in memory or intelligence.
	US20070065456A1	Composition	Wasabia japonica, Silybum marianum, Cynara scolymus.	Nutritional supplement for a human diet.
	US20070248696A1	Composition and Method	Dimethylaminoethanol, cytidine 5'-diphosphocholine, turmeric extract, decaffeinated green tea extract, vitamin B1,B5, B6, B12,folic acid, Dimethylglycine, huperzine A, Griffonia simplicifolia extract and 1-phenylalanine.	Improves neuromuscular facilitation and enhances cognitive functions, such as memory and mental focus.
	US20080317868A1	Composition	An energy content, a protein fraction, a lipids fraction, a nucleotide fraction and a mineral fraction.	An anti-allergic infant formulation.
	US4497800A	Composition	A protein equivalent, a suitable lipid, a carbohydrate component , essential vitamins , minerals and an emulsion stabilizer.	Providing nourishment for a human patient in need of such nourishment .
	US4499076A	Composition	Essential amino acids, carbohydrates, fats, vitamins namely vitamin A, B1, B6, B12, C, D2, E, K1, calcium pantothenate, nicotinic acid amide, biotin, folic acid or choline bitartrate and minerals.	New elemental diets for liver diseases.
	US4837219A	Composition, Method, Process of prepration	L-Tyrosine, L-Phenylalanime, L-Leucine, Zinc (from Zinc Gluconate) and Copper (from Copper Gluconate).	A medication for Alzheimer?s disease.
	US5437880A	Composition	Digestible saccharide and a carotenoid.	A health drink
	WO1994015488A2	Composition	Carbohydrate, electrolyte, ammonia neutralizer, energy enhancer namely choline Bitartrate and others , antioxidant, neuromuscular function enhancer.	
Foodstuff	US20050208191A1	Composition and Process of prepration	Whole wheat, Roasted (defatted) soy Peanut paste, Sesame seed paste Sesame seed , Wheat germ (roasted), Non fat dry milk, Sugar Powder, Liquid, Lecithin, Sodium Chloride, mmonium bicarbonate, vitamins and others.	Nutritious baked snack food with high protein content
	WO2005087018A1	Composition and Process of prepration	vegetable sources as wheat flout, roasted peanut paste, sesame seed, soybean flour and well balanced mixture of vitamins, minerals and others.	Food stuff for children and adult supplementing their nutritional requirement.

Choline Bitartrate containing compositions

- Composition components matrix showing all the ingredients used along with Choline Bitartrate.

[illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible]

US20070065456A1		Green tea extract		Taurine		Wasabia japonica, Silybum marianum and Cynara scolymus.	Mn, Se Zn			x		
US20070248696A1										B1,B5, B6, B12,folic acid		Dimethylarginine, 57-diphosphorus, turmeric oil, Green tea
US20080317868A1				x	x		x	x				Nucleotide
US4497800A			x		x		x	x		x		
US4499076A	Essential AA?S		x		x		x			Calcium pantothenate, nicotinic acid amide, biotin, folic acid		
US4837219A	L-Tyrosine, L-Phenylalanine, L-Leucine						Zn and Cu					
US5437880A		x	Digestible saccharide							A B, C, D, E and K .		Carotenoids
WO1994015488A2		x	x	choline Bitartrate								Neuromuscular function
Foodstuff												
US20050208191A1			x				Fe, Zn, Cu, I ,			x	Sesame seed paste, Sesame seed	Whole wheat (defatted), Sesame (roasted), milk
WO2005087018A1							x			x	Wheat flour, roasted peanut paste, sesame seed, soybean flour	x

- [Click here](#) for Composition matrix showing all the ingredients used along with Choline Bitartrate.

Patent Analysis Sheets

- [Click here for all Patents spread sheet - Total count: 444](#)
- [Click here for the complete Analysis spread sheet ON Target count: 22](#)
- [Click here](#) for list of ingredients that are in combination with Choline Bitartrate, obtained from Patents.

Scientific Literature Analysis

S.No.	Title	Citations	Publication Date	Results / Statistical data	Dolcera Summary
1	Effect of choline supplementation on fatigue in trained cyclists.	Med Sci Sports Exerc. 1995 May;27(5):668-73.	1995-05-01	1. Twenty male cyclists (ages 23-29) with maximal aerobic power (VO2max) between 58 and 81 ml.min-1.kg-1 were randomly divided into BRIEF (N = 10) and PROLONGED (N = 10) groups. 2. One hour after drinking a beverage with or without choline bitartrate (2.43 g), cyclists began riding at a power output equivalent to approximately 150% (BRIEF) and 70% (PROLONGED) of VO2max at a cadence of 80-90 rpm. 3. Time to exhaustion, indirect calorimetry and serum choline, lactate, and glucose were measured.	Trained cyclists do not deplete choline during supramaximal brief or prolonged submaximal exercise, nor do they benefit from choline supplementation to delay fatigue under given conditions.

- [Click here for Scientific Literature Analysis spread sheet](#)

Dashboard

- Click at this link for [Dashboard](#)