

# Did you ever wonder what's in... ?

## Breastmilk

Water  
Carbohydrates (energy source)  
Lactose  
Oligosaccharides (see below)  
Carboxylic acid  
Alpha hydroxy acid  
Lactic acid  
Proteins (building muscles and bones)  
Whey protein  
Alpha-lactalbumin  
HAMELET (Human Alpha-lactalbumin Made Lethal to Tumour cells)  
Lactoferrin  
Many antimicrobial factors (see below)  
Casein  
Serum albumin  
Non-protein nitrogens  
Creatine  
Creatinine  
Urea  
Uric acid  
Peptides (see below)  
Amino Acids (the building blocks of proteins)  
Alanine  
Arginine  
Aspartate  
Cysteine  
Glutamate  
Histidine  
Isoleucine  
Leucine  
Lysine  
Methionine  
Phenylalanine  
Proline  
Serine  
Threonine  
Tryptophan  
Tyrosine  
Valine  
Carnitine (amino acid compound necessary to make use of fatty acids as an energy source)  
Nucleotides (chemical compounds that are the structural units of RNA and DNA)  
5'-Adenosine monophosphate (5'-AMP)  
3':5'-Cyclic adenosine monophosphate (3':5'-cyclic AMP)  
5'-Cytidine monophosphate (5'-CMP)  
Cytidine diphosphate choline (CDP-choline)  
Guanosine diphosphate (UDP)  
Guanosine diphosphate - mannose  
3'-Uridine monophosphate (3'-UMP)  
5'-Uridine monophosphate (5'-UMP)  
Uridine diphosphate (UDP)  
Uridine diphosphate hexose (UDPH)  
Uridine diphosphate-N-acetyl-hexosamine (UDPAH)  
Uridine diphosphoglucuronic acid (UDPGA)  
Several more novel nucleotides of the UDP type  
Fats  
Triglycerides  
Long-chain polyunsaturated fatty acids  
Docosahexaenoic acid (DHA) (important for brain development)  
Arachidonic acid (AHA) (important for brain development)  
Linoleic acid  
Alpha-linolenic acid (ALA)  
Eicosapentaenoic acid (EPA)  
Conjugated linoleic acid (Rumenic acid)  
Free Fatty Acids  
Monounsaturated fatty acids  
Oleic acid  
Palmitoleic acid  
Heptadecenoic acid  
Saturated fatty acids  
Stearic  
Palmitic acid  
Lauric acid  
Myristic acid  
Phospholipids  
Phosphatidylcholine  
Phosphatidylethanolamine  
Phosphatidylinositol  
Lysophosphatidylcholine  
Lysophosphatidylethanolamine  
Plasmalogens  
Sphingolipids  
Sphingomyelin  
Gangliosides  
GM1  
GM2  
GM3  
Glucosylceramide  
Glycosphingolipids  
Galactosylceramide  
Lactosylceramide  
Glabriacyceramide (GB3)  
Globoside (GB4)  
Sterols  
Squalene  
Lanosterol  
Dimethylsterol  
Methosterol  
Lathosterol  
Desmosterol  
Triacylglycerol  
Cholesterol  
7-dehydrocholesterol  
Stigma-and campesterol  
7-ketcholesterol  
Stosterol  
β-lathosterol  
Vitamin D metabolites  
Steroid hormones  
Vitamins  
Vitamin A  
Beta carotene  
Vitamin B6  
Vitamin B8 (inositol)  
Vitamin B12  
Vitamin C  
Vitamin D  
Vitamin E  
α-Tocopherol  
Vitamin K  
Thiamine  
Riboflavin  
Niacin  
Folic acid  
Pantothenic acid  
Biotin  
Minerals  
Calcium  
Sodium  
Potassium  
Iron  
Zinc  
Chloride  
Phosphorus  
Magnesium  
Copper  
Manganese  
Iodine  
Selenium  
Choline  
Sulphur  
Chromium  
Cobalt  
Fluorine  
Nickel  
Metal  
Molybdenum (essential element in many enzymes)  
Growth Factors (aid in the maturation of the intestinal lining)  
Cytokines  
Interleukin-1β (IL-1β)  
IL-2  
IL-4  
IL-6  
IL-8  
IL-10  
Granulocyte-colony stimulating factor (G-CSF)  
Macrophage-colony stimulating factor (M-CSF)  
Platelet derived growth factors (PDGF)  
Vascular endothelial growth factor (VEGF)  
Hepatocyte growth factor-α (HGF-α)  
HGF-β  
Tumor necrosis factor-α  
Interferon-γ  
Epithelial growth factor (EGF)  
Transforming growth factor-α (TGF-α)  
TGF-β1  
TGF-β2  
Insulin-like growth factor-I (IGF-I) (also known as somatomedin C)  
Insulin-like growth factor- II  
Nerve growth factor (NGF)  
Erythropoietin  
Peptides (combinations of amino acids)  
HMGF I (Human growth factor)  
HMGF II  
HMGF III  
Cholecystokinin (CCK)  
β-endorphins  
Parathyroid hormone (PTH)  
Parathyroid hormone-related peptide (PTHrP)  
β-defensin-1  
Calcitonin  
Gastrin  
Motilin  
Bombesin (gastric releasing peptide, also known as neuromedin B)  
Neurotensin  
Somatostatin  
Hormones (chemical messengers that carry signals from one cell, or group of cells, to another via the blood)  
Cortisol  
Triiodothyronine (T3)  
Thyroxine (T4)  
Thyroid stimulating hormone (TSH) (also known as thyrotropin)  
Thyroid releasing hormone (TRH)  
Prolactin  
Oxytocin  
Insulin  
Corticosterone  
Thrombopoietin  
Gonadotropin-releasing hormone (GnRH)  
GRH  
Leptin (aids in regulation of food intake)  
Ghrelin (aids in regulation of food intake)  
Adiponectin  
Feedback inhibitor of lactation (FIL)  
Eicosanoids  
Prostaglandins (enzymatically derived from fatty acids)  
PG-E1  
PG-E2  
PG-F2  
Leukotrienes  
Thromboxanes  
Prostacyclins  
Enzymes (catalysts that support chemical reactions in the body)  
Amylase  
Arylsulfatase  
Catalase  
Histaminase  
Lipase  
Lysozyme  
PAF-acetylhydrolase  
Phosphatase  
Xanthine oxidase  
Antiproteases (thought to bind themselves to macromolecules such as enzymes and as a result prevent allergic and anaphylactic reactions)  
α-1-antitrypsin  
α-1-antichymotrypsin  
Antimicrobial factors (are used by the immune system to identify and neutralize foreign objects, such as bacteria and viruses).  
Leukocytes (white blood cells)  
Phagocytes  
Basophils  
Neutrophils  
Eosinophils  
Macrophages  
Lymphocytes  
T lymphocytes (also known as B cells)  
B lymphocytes (also known as C cells)  
IgA (Secretory immunoglobulin A) (the most important anti-infective factor)  
IgA2  
IgG  
IgD  
IgM  
IgE  
Complement C1  
Complement C2  
Complement C3  
Complement C4  
Complement C5  
Complement C6  
Complement C7  
Complement C8  
Complement C9  
Glycoproteins  
Mucins (attaches to bacteria and viruses to prevent them from clinging to mucosal tissues)  
Lactadherin  
Alpha-lactoglobulin  
Alpha-2 macroglobulin  
Lewis antigens  
Ribonuclease  
Haemagglutinin inhibitors  
Bifidus Factor (increases growth of Lactobacillus bifidus - which is a good bacteria)  
Lactoferrin (binds to iron which prevents harmful bacteria from using the iron to grow)  
Lactoperoxidase  
B12 binding protein (deprives microorganisms of vitamin B12)  
Fibronectin (makes phagocytes more aggressive, minimizes inflammation, and repairs damage caused by inflammation)  
Oligosaccharides (more than 200 different kinds!)

## Formula

Water  
Carbohydrates  
Lactose  
Corn maltodextrin  
Protein  
Partially hydrolyzed reduced minerals whey protein concentrate (from cow's milk)  
Fats  
Palm olein  
Soybean oil  
Coconut oil  
High oleic safflower oil (or sunflower oil)  
M. alpina oil (Fungal DHA)  
C.ohnii oil (Algal ARA)  
Minerals  
Potassium citrate  
Potassium phosphate  
Calcium chloride  
Tricalcium phosphate  
Sodium citrate  
Magnesium chloride  
Ferrous sulphate  
Zinc sulphate  
Sodium chloride  
Copper sulphate  
Potassium iodide  
Manganese sulphate  
Sodium selenate  
Vitamins  
Sodium ascorbate  
Inositol  
Choline bitartrate  
Alpha-Tocopheryl acetate  
Niacinamide  
Calcium pantothenate  
Riboflavin  
Vitamin A acetate  
Pyridoxine hydrochloride  
Thiamine mononitrate  
Folic acid  
Phylloquinone  
Biotin  
Vitamin D3  
Vitamin B12  
Enzyme  
Trypsin  
Amino acid  
Taurine  
L-Carnitine (a combination of two different amino acids)  
Nucleotides  
Cytidine 5-monophosphate  
Disodium uridine 5-monophosphate  
Adenosine 5-monophosphate  
Disodium guanosine 5-monophosphate  
Soy Lecithin

