Lipidome Lifesciences

A Healthy You
Lipidome Lifesciences: The PC Experts

Introduction:
Lipidome Lifesciences is a manufacturer of Essential Phospholipids (EPLs) & is engaged in highest available concentrations (up to 90%) of phosphatidylcholine (PC) as Active Pharmaceutical Ingredient (API).

Lipidome Lifesciences is constantly striving to increase and improves its range of Essential Phospholipids for Pharmaceutical / Cosmetic use.

Essential Phospholipids are complex molecules which are used in the formation of cell membranes. In humans and other higher animals, the phospholipids are also employed as natural digestive aids and act as carriers for both fat-miscible and water-miscible nutrients which are easily absorbed orally.

Essential Phospholipids:
- Phosphatidylcholine
- Phosphatidylserine
- Phosphatidylethanolamine
- Phosphatidylinositol
- Phosphatidylglycerol
- Cardiolipin
- Sphingomyelin

(1) Physiological role:
As natural substance inside the body they (EPLs):
1. Support the cell membrane structure and function
2. Supply choline for the synthesis of acetylcholine (ACh)
3. Help in energy production and storage
4. Help in the synthesis of prostaglandins
5. Become a part in emulcification of fat & bile
6. Aid in blood clotting
7. Increase the solubility of cholesterol
8. Act as antioxidants
9. Significantly increase patients’ physical working capacity

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(2) Nutraceutical role:
EPLs are used as nutraceutical to improve certain pathological conditions like liver abnormalities, pulmonary disorders, cardiovascular disorders, etc. when used as adjunct to specific therapies.

(3) Pharmaceutical role:
The Essential Phospholipids are a major part of novel drug delivery system. They are useful in formation of liposomes, phytosome and other novel drug delivery systems. Recently the technology is also focused on novel drug delivery system. Novel drug delivery system is becoming popular and is delivering better therapeutic formulations in the hands of medical practitioners. The novel drug delivery system helps in better assimilation of active drug, better bioavailability, predictive drug concentrations in biological structures, improve drug potency, control drug release to give a sustained therapeutic effect, provide greater safety, etc. The novel drug delivery system is challenging and based on interdisciplinary approaches that combine polymer science, pharmaceutics, bioconjugate chemistry, and molecular biology.

Apart from this, these phospholipids are also useful as permeation enhancer, solubility enhancer, emulsion stabilizer, gel formulation, making of nano-suspension, micelle formulation etc. They are also useful as wetting agents, coating agents and carriers. Thus, they act as instrumental excipients. They have proved themselves as excipients to improve drug therapeutics in many ways viz.
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(1) They decrease toxicity of some drugs, such as Amphotericin B.

(2) Liposomal doxorubicin is designed to target to tumor cells and spare healthy tissue, maintaining efficacy while reducing toxicity.

(3) As emulsifying agent and skin conditioner, they are used in shampoos, make-up foundations, blushes, lipsticks and moisturizing creams or lotions (For facial care, body care, baby care, hair care etc.)

(4) They increase quality of cosmetic products (nutritional, rejuvenation, regenerating functions), and considerably improves its organoleptic parameters without significant rise in price.

(5) For injection, for e.g. Propofol inj.

We, at Lipidome Lifesciences are engaged in manufacturing different phospholipids (with different perecentile purity) from soybeans and eggyolk.

**Range Available as**

<table>
<thead>
<tr>
<th>(A) From Soybeans:</th>
<th>Powder</th>
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</thead>
<tbody>
<tr>
<td>LIPC-S 25, LIPC-S 35, LIPC-S 40,</td>
<td>Powder, Liquid</td>
</tr>
<tr>
<td>LIPC-S 50, LIPC-S 70, LIPC-S 90,</td>
<td>Powder, Liquid, Wax</td>
</tr>
<tr>
<td></td>
<td>Wax</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(B) From Eggyolk:</th>
<th>Powder</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIPC-E 25, LIPC-E 60, LIPC-E 80,</td>
<td>Wax</td>
</tr>
<tr>
<td>LIPC-E 90, LIPC-E 100</td>
<td>Wax</td>
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</table>

<table>
<thead>
<tr>
<th>(C) Hydrogenated Phospholipids:</th>
<th>Powder</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIPC-HSPC- 70, LIPC-HSPC-90</td>
<td>Powder</td>
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The range is useful to manufacture various pharmaceutical formulations as mentioned below

**Pharmaceutical/ Cosmetic formulation**

**Lipidome product range**

<table>
<thead>
<tr>
<th>Formulation</th>
<th>Powder</th>
<th>Capsule</th>
<th>Liquid</th>
<th>Wax</th>
<th>Injection</th>
<th>Cream</th>
<th>Gel</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>LIPC-S 50,</td>
<td>LIPC-S 25,</td>
<td>LIPC-S 50,</td>
<td>LIPC-S 50,</td>
<td>LIPC-S 70,</td>
<td>LIPC-S 50,</td>
<td>LIPC-E 60</td>
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<td>LIPC-E 80,</td>
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**Facilities and marketing:**
As far as **Lipidome Lifesciences** is concerned, the company has taken many steps to deliver high quality products right from the selection of raw materials to finished products.

**Production:**
Our production management team is constantly evaluating their efforts to increase sustainability and reproducibility of manufacturing operations for their time bound deliveries by following the Quality standards and Standard Operating Procedures (SOPs). The team of experts thriving to ensure error free production.
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Quality assurance:
Our Q.C control and assurance meet the highest international standard set by the regulatory authorities of advanced countries. Our facility is frequently evaluated by our own internal Q.A professionals and the state FDA officers. We follow very stringently as every step right from the manufacture of products to the final despatch. Since our products are obtained from natural source (Non-GMO and non-synthetic), we are very much vigilant to provide various concentrates exactly as they are desired. We may provide our in-house validated analytical reports if requested, especially for export purpose.

Research and Development:
Our scientists are constantly thriving to find out new methods & extracting procedures to make the overall operation economical & time saving. They are always busy in applying their research skill to improve the current product range and to increase the number of products. Most of these works are customer driven as our company believes in providing offering the products as described and demanded by our customers.

Marketing:
Our advanced technologically driven manufacturing is creating many new products day in and day out for long awaiting demands of our customers. The products are promoted by our marketing team keeping in the mind the ethics of the promotion despite our only biggest manufacturing unit and huge presence in the Southeast Asia. Our despatch department accompanies them to honour their commitments given to customers.
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Industrial applications:
Our products meet the highest standards and all relevant regulations of the pharmaceutical industry and are manufactured under GMP conditions on industrial scale. The followings are the industrial applications of the PCs.

Pharmaceutical applications:
Phospholipids (PL) are amphiphilic molecules and are integral part of the membrane of any living cell. They are indispensable to life and are involved in the metabolism & respiration of the cells. Due to their functional properties, phospholipids are ideal additives in pharmaceutical applications that offer excellent opportunities to the developers of pharmaceutical formulations such as liposomes, emulsions, mixed micelles, solid lipid nanoparticles, suspensions and coating of active ingredients. The application of these systems makes it possible to impact on the release, absorption, bioavailability and efficacy of drug and vital substances.

Cosmetic applications:
Phosphatidylcholine is predominant within this important group of lipids. Due to their ability to form structures similar to those of cell membranes and the lipid layers in the stratum corneum (SC) as well as their affinity towards the SC lipids, phospholipids are ideal raw materials for the preparation of functional cosmetics with high skin compatibility. Phospholipids give the skin smoothness and elasticity. Hydrogenated phospholipids strengthen the natural skin barrier function leading to reduced moisture loss. PCs are natural and skin compatible, biodegradable and therefore environmentally friendly & toxicologically safe. Due to their amphiphilic character, phospholipids can fulfill different functions in cosmetic formulations. Therefore PCs are used as Actives (Active ingredient), liposome builders, penetration enhancers and stabilizers.

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Survey No. 2050-2051,
Vanthwari-Dehvansol Road, Ta. Mahemdavad,
PIN : 387430 District : Kheda, State : Gujarat, India.

Phone No : +91-9998219379, 91-9428631621

Email id : 27lipidome@gmail.com
Website : http://www.lipidome.in

Professional Registration :
https://www.exportersindia.com/lipidome-lifesciences