

# PhytoChol®

Plant-derived cholesterol for mRNA delivery, gene therapy and cell culture



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**As one of the most important building blocks of life, cholesterol is an essential raw material used in innovative pharmaceutical technologies, from lipid nanoparticles for mRNA delivery to cell culture media. Traditionally, cholesterol is extracted from animal origins such as sheep wool. However, these sources can be linked to undesired immunological responses, inconsistent quality and may require more stringent regulatory control.**

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Our plant-derived PhytoChol® provides you with a secure and stable supply of synthetic cholesterol. Evonik supplies PhytoChol® in two grades that are tailored to the specific needs of injectable drug delivery and biopharmaceutical cell culture applications.

**PhytoChol® provides you with the following advantages:**

- Non-animal-derived
- Secure and stable supply
- Large-scale manufacturing
- High-purity, consistent quality

## PhytoChol® Inject

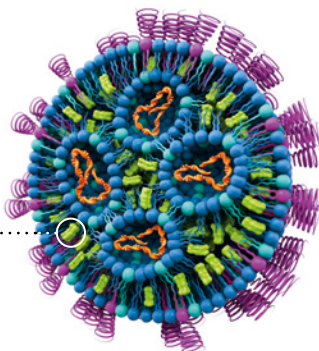
### PhytoChol® Inject: parenteral grade cholesterol for nucleic acid therapeutics

Cholesterol is an important functional excipient for parenteral mRNA-based drug delivery systems. As part of the lipid nanoparticle protecting the mRNA, it can modulate drug release, enhance the ability of the drug formulation to penetrate cell membranes, and provide a stabilization effect.

PhytoChol® Inject is Evonik's high-purity, vegetal-derived cholesterol suitable for parenteral applications. This ultra-low endotoxin cholesterol provides a first-rate alternative to traditional animal-based cholesterol, and is USP-NF, Ph.Eur and JP compliant.

### Lipid nanoparticle

PhytoChol®



Vaccines and other therapies such as treatments for cancer and infectious diseases will be developed faster with lower cost thanks to mRNA technology. Evonik's excipients for complex injectables set new standards by providing you with sustainable products for your drug delivery formulations.

## PhytoChol® BioPharma

### PhytoChol® BioPharma to optimize your cell culture

Supplementing a cell culture medium with cholesterol can improve cell culture outcomes or even be essential for some cell lines. Chemically defined cell culture media that are free from fetal bovine serum (FBS) and natural lipids often require the addition of cholesterol to help improve cell growth, protein production, virus production and infectivity of produced viruses.

Evonik's PhytoChol® BioPharma is a highly pure, non-animal-derived cholesterol with proven use in cell culture media or supplement formulations. PhytoChol® BioPharma can be used in a wide range of cell lines including NS0 cell culture for protein production, culture of insect cell lines and culture of packaging cell lines for virus production. In addition to offering a highly pure and consistent product, Evonik can also provide application and formulation guidelines.



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