

BETULIN DERIVATIVES, BETULINIC ACID AND LUPEOL

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STRATEGIES TO GROW YOUR BUSINESS

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In this case study, a global bio-refined speciality chemicals company engaged CPL Business Consultants to determine the potential opportunities in betulin derivatives, with a particular focus on betulinic acid and lupeol. CPL provided a 'snapshot' of the main characteristics of the current or potential industries and markets for betulin derivatives. In addition, CPL identified opportunities, supply chain structure and potential partners in the most appropriate market sectors.

Following an analysis of the market potential for betulin derivatives, betulinic acid and lupeol, we estimated the likely size and scope of the opportunities. We also identified the barriers to entry and success factors for supplying plant/tree-derived bioactive chemicals into markets such as pharmaceuticals, fine chemicals, dietary supplements and cosmetics. CPL identified which opportunities were likely to have the most potential and also the most suitable partners to access those opportunities.

Click to see [the contents of the study](#), or otherwise, look below for an outline.

BETULIN DERIVATIVES, BETULINIC ACID AND LUPEOL

Executive Summary

Objective

Background

Scope

Method

Principal Findings

- Properties and Sources
- Overview of Betulin/Betulin Derivative Markets
- Research and Patents
- Pharmaceuticals
- Fine Chemicals
- Dietary Supplements
- Cosmetics

Conclusions

- Overview of Betulin/Betulin Derivatives Markets
- Fine Chemicals and Pharmaceuticals
- Dietary Supplements
- Cosmetics

Recommendations

- Cosmetics
- Pharmaceuticals & Fine Chemicals
- Dietary supplements

Betulin and Derivatives

- Terpenes Background
- Lupeol
- Betulin

- Betulinic Acid
- Isolation of Betulinic Acid
- Synthesis of Betulinic Acid

Scientific Research

- Betulin
- Betulinic Acid
- Lupeol

Patents

- Manufacturing of Betulin
- Applications of Betulin
- Manufacturing of Betulinic Acid
- Applications of Betulinic Acid
- Manufacturing of Lupeol
- Applications of Lupeol

Betulin and Derivatives Potential in Pharmaceuticals

- Overview
- Opportunities
- Contact Overview
- Potential Partners
- Companies with Pharmaceutical Research activities relating to Betulin, Betulinic acid
Lupeol
- Additional Material

Potential of Betulin and Derivatives in Cosmetics/Cosmeceuticals

- The Characteristics of the Cosmetics/Personal Care and Supply Industry
- Opportunities in Cosmetics/Cosmeceuticals
- Betulin and Derivatives as Cosmeceuticals
- Contact Overview
- Potential Partners
- Companies in the Bioactive Supply Business (examples)
- Companies with Consumer Products Containing Betulin, Betulinic acid or Lupeol
- Formulators using Betulin, Betulinic acid or Lupeol as an Ingredient
- Companies with Cosmetic Research Activities relating to Betulin, Betulinic acid or
Lupeol

Betulin and Derivatives Potential in Dietary Supplements

- Opportunities
- Contact Overview
- Potential Partners

- Companies with Products Containing Betulin, Betulinic acid or Lupeol

Potential of Betulin and Derivatives in Fine Chemicals

- Opportunities
- Contact Overview
- Potential Partners
- Companies currently supplying triterpene derivatives as fine chemicals

Overview of The Current Market for Triterpene Derivatives

- Market
- Current Players, Products and Prices
 - Manufacturers
 - Processors and Traders

Overview Of The Global Pharmaceutical Industry

- Market
 - Trends
- The Drug Development Process
 - Cost of developing a new medicine
 - Drug development and the conduct of medical research
 - Clinical trials
 - Success rates in Drug Development
 - The promotion of drugs
 - Market Penetration for New Drugs
 - Historical Data
- Intellectual Property Protection
 - Procedures for Drug Approval
- Market Players

The Pharmaceutical Industry by Region

- The US Pharmaceutical Industry
- The European Pharmaceutical Industry
- US vs. Europe – Competitive Comparison
- The Pharmaceutical Industry in the ROW

Overview Of Global Fine Chemicals Industry

Definitions

- Performance and Speciality chemicals
- Pharmaceutical Fine Chemicals

Market Size

- Growth (CAGR)

Industry Structure

- North America
- Europe
- Asia

Trends

- Market drivers
- Market Barriers

Main Players**Overview Of Global Cosmetics Industry*****Markets And Trends***

- Market Size and Growth (CAGR)

Main Players***Regulatory***

- Regulation of Cosmetics in the EU
- Regulation of Cosmetics in the USA
- Regulation of Cosmetics in Canada
- Regulation of Cosmetics in Japan

Overview Of Global Dietary Supplement Industry***Dietary Supplements***

- Definitions
- Product Categories
- Distribution Channels
- Market Structure
- Product and Brand Differentiation

Markets and Trends

- Market Size and Growth (CAGR)
- Market Drivers
- Success Factors
- Barriers to Entry

Main Players

- US
- EU

Regulations

- US
- EU

News**Contact Reports**

- Academia
- Chemical Manufacturers, Processors and Traders

- Pharmaceutical Industry
- Cosmetic Industry
- Fine Chemical Industry
- Dietary Supplement Industry

Tables

Pharmaceutical Markets

- Global Pharmaceutical Market, \$b
- Size of the Pharmaceutical Market, \$b
- Largest Pharmaceutical Markets, \$m
- Market Consolidation in the Global Pharmaceutical Industry
- The EU Pharmaceutical Industry in Figures
- Research and Development in the EU Pharmaceutical Industry
- The Pharmaceutical Market in Europe, €b
- The German Pharmaceutical Basic Substances Market, €b
- Italian Pharmaceutical Market \$m
- Italian Import and Export of Pharmaceuticals
- Brazilian Pharmaceutical Industry, \$m
- Chilean Pharmaceutical industry, \$m

Epidemiology

- Cancer incidence rates in the US by race and sex
- Estimates of cancer prevalence in 17 European countries
- The 10 cancers with the highest mortality in 38 European countries
- The early stages of malignant melanoma
- The latter stages of malignant melanoma
- Global Melanoma Statistics Overview
- Global Incidence and Prevalence of Malignant Melanoma
- Incidence of Actinic keratosis
- Herpes diagnoses at GUM clinics in the UK

Markets for Specific Drugs

- Overview of the potential market for triterpene derivatives in pharmaceuticals
- Overview of potential partners in the pharmaceutical industry
- Sales of anti-HIV drugs
- Costs involved in HIV treatment
- Market size and estimated growth for oncology treatments
- Sales of top 20 cancer treatments in major pharmaceutical markets
- Sales of Drugs against Herpes Viruses
- Sales of Labial Herpes Drugs, \$m
- Estimated Price and Cost for Prescriptible Herpes Treatments
- Price comparison of Generic Acyclovir Drugs

Potential Partners

- Interest from Potential Partners in the Cosmetics Industry
- Main uses of Triterpene Extracts in Dietary Supplements
- Interest from Potential Partners in the Dietary Supplements Industry
- Interest from Potential Partners in the Fine Chemicals Industry

Competitors

- Manufacturers and Processors of Betulin, Listed by Price of Product
- Manufacturers and Processors of Betulinic acid, Listed by Price of Product

- Global Manufacturers and Processors of Lupeol, Listed by Price of Product
- Overview of patents filed by xxx

Fine Chemicals

- Definitions of Terms used in the Fine Chemical Industry
- Types and Numbers of Fine Chemical Companies
- Customers of the Fine Chemicals Industry
- Global Value of Amino Acids in Synthesis Applications (\$m)
- Recent Activity in the Fine Chemicals Industry
- Top 10 Companies in the Fine Chemicals industry

Cosmetics

- Cosmetic Product Category with Greatest Growth by Region
- The Global Top 10 Players in the Cosmetics and Toiletries Market

Dietary Supplements

- List of Dietary Supplement Product Categories
- The Most Common Dietary Supplements and its Benefits
- Market Concentration in the Dietary Supplement Industry in the US
- US Dietary Supplement Market by Manufacturer/Marketer
- Estimated Dietary Supplement Market Size by Product Category in US

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Chemical Structures

- Isoprene
- Squalene
- Lupeol
- Betulin
- Betulinic acid

Synthesis of Betulinic Acid from Betulin

- Two-step synthetic scheme
- Five-step synthetic scheme

Pharmaceutical activity of Betulinic Acid and Derivatives

- Anti cancer
- Anti-HIV-1 activity
- IC₉₅₆₄ HIV drug
- A bi-functional drug

Epidemiology

- Survival curve for Melanoma stage IV
- World age-standardised incidence rates of malignant melanoma
- European age-standardised incidence rates of malignant melanoma
- Percentage distribution of malignant melanoma on body parts
- Age specific incidence rates for malign melanoma in the UK
- Incidence and mortality of malignant melanoma in Great Britain
- Incidence rates of malignant melanoma for men in Great Britain
- Incidence rates of malignant melanoma for women in Great Britain
- Genital herpes – Initial visits to physicians' offices: United States

Pharmaceutical Development

- Cost of developing a new medicine
- Development of a drug from target identification to post-launch product review

- New Molecular Entities approved in the US
- Success rates in drug development
- Percentage market share for products launched in the last five years
- Pharmaceutical Industry Expenditure in R&D in Europe
- Split of European Pharmaceutical Market
- Funding of health-related R&D in the UK
- Comparison of share of global pharmaceutical R&D investment

Fine Chemicals

- Fine Chemicals Breakdown by Target Sectors
- Breakdown of Fine Chemicals by Production Type

Cosmetics

- Global sales of cosmetics and toiletries
- Cosmetics and toiletries market performance by region
- Sales per product category in the cosmetic industry
- Global growth per product category in the cosmetic industry

Dietary Supplements

- US Dietary Supplement Sales by Market Channel
- US Dietary Supplement Market by Category

Have a look at our [PowerPoint Introduction](#) and [Brochure](#) describing deliverables, differentiators and case studies. You can also review [eight case studies](#).