Quegen Biotech

Cares

Customer’s Health and Beauty.

Natural Wellbeing Environment
Quegen Biotech Co., Ltd, is a venture company which develops and manufactures new biomaterials for cosmetics and functional foods, and specializes in fermentation for the production of highly efficacious bio—materials originated from microorganisms.

Quegen Biotech’s mission is to contribute to a healthy and beauty society by creating highly valuable products through R&D.

**Company Introduction**

**Business Field**

- Raw Materials for cosmetics
- Livestock feeds
- Functional foods for health
- Raw materials for medical devices and pharmaceuticals

**Quegen Biotech Product Characteristics**

**Natural**

Quegen Biotech Co., Ltd, searches for highly effective natural biomaterials and develops and launches raw materials or finished products in the area of functional foods and cosmetics by using up to date biotechnology.

**Wellbeing**

Quegen Biotech supports customers’ health and beauty by producing human—friendly products with natural materials through clean manufacturing processes.

**Environment**

As a technology—oriented biotechnology company, Quegen Biotech reduces environmental pollution by developing green technologies that enable it to reuse biowastes, and develops bioprocesses to create ecofriendly products from them.
Company History

2006  Jan.  Founded Quegen Biotech Co., Ltd. in Korea
      Oct.  Appointed as a venture company
      Dec.  Founded subsidiary company at Jeju National University

2007  Feb.  Completed the main factory (10 ton microbial liquid-state fermentation isolation and refining facility
      Nov.  Selected as the company for “Technology Business Incubator” by the ministry of the commerce, Industry and Energy

2008  Feb.  Launched a highly effective moisturizing material for cosmetics “GlucanREAL”
      Mar.  Launched a highly effective moisturizing material for cosmetics “GlucanPURE”
      Aug.  ISO9001, 14001 Approved
      Oct.  EU Reach Registration completed

2009  Oct.  INNO-BIZ Approved

2010  Jan.  AtoQuegen Plus USA FDA Test Passed

2011  Jan.  Export to Hong Kong, Thiland, Indonesia, China

2012  May.  Launched Ato Quegen II

2013  May.  Production of Sparassis crispa, Hyaluronic Acid

2014  Jan.  Export to Japan

2015  Feb.  BEP Achieved

2016  Jan.  Gamma PGA, Biobetter (tuberculosis, Diabetes, Obesity)

2017  Jan.  Launched Feed stuff, Pet foods, Relief hangover beverage

Patents

<table>
<thead>
<tr>
<th>Title</th>
<th>Registered date</th>
<th>Registered No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>β-1,6-branched-1,3-glucan high-yielding strain, Schizophyllum commune</td>
<td>JULY 22, 2009</td>
<td>KR10-0909857</td>
</tr>
<tr>
<td>QQ143-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large-scale production of β-1,6-branched-β-1,3-glucan using semi-continuous fermentation performed with Schizophyllum commune</td>
<td>April 01, 2009</td>
<td>KR10-0892355</td>
</tr>
<tr>
<td>Production of scleroglucan through cultivation of Sclerotium sp. in a culture medium adding mandarin peels as carbon source</td>
<td>April 01, 2009</td>
<td>KR10-0892359</td>
</tr>
<tr>
<td>Beta-Glucan based scaffold for biological tissue engineering using radiation fusion technology, and production method therefor</td>
<td>November 26, 2013</td>
<td>US 8,592,574 B2</td>
</tr>
<tr>
<td>Beta-Glucan based scaffold for biological tissue engineering using radiation fusion technology, and production method therefor</td>
<td>June 25, 2014</td>
<td>ZL 201080005298.0</td>
</tr>
<tr>
<td>Beta-Glucan based scaffold for biological tissue engineering using radiation fusion technology, and production method therefor</td>
<td>February 14, 2014</td>
<td>5474094</td>
</tr>
<tr>
<td>Preparation method of biodegradable porous polymer scaffolds containing hydroxyapatite for tissue engineering</td>
<td>January 07, 2008</td>
<td>10-0794174</td>
</tr>
</tbody>
</table>
The core technology of Quegen Biotech Co., Ltd.

Quegen Biotech Co., Ltd. is a technology-intensive bio-venture company that possesses the know-how of useful material production system using microorganism culture, and its core technology and quality are acknowledged in the cosmetic product raw material market by providing high-quality products reliably through microorganism fermentation technology and bioconversion technology.
Possessed technologies

1. Fermentation
Possession of liquid fermentation technology of various mushroom mycelia including lactobacillus and yeast culture. Especially, possessed production technology, which requires very precise and high-tech know-how, of useful materials through liquid fermentation of filamentous fungal cells.

01. Material search and evaluation of microorganism appropriateness
02. Microorganism fermentation and bioconversion technology establishment
03. Useful material analysis and efficacy evaluation
04. Development of liquid fermentation process for Mass Production

Develop of High-yielding strain Optimization of Production Medium by Statistical method
Establish standards and test methods for development materials Studies on Cultural Characteristics and optimization of cultural processes
Large-scaled fermentation technology of filamentous fungal cells

Certificates
Possessed technologies

2. Bioconversion
Bioconversion, also known as biotransformation, is the conversion of organic materials, such as plant or animal waste, into usable products or energy sources by biological processes or agents, such as certain microorganisms.

- Citrus peel
- Camellia flower
- Angelica gigas
- Morus alba bark
- Ginseng
- Natural Materials: Making powders after drying
- Soybean embryo
- Asparagus Cochinchinensis
- Noni
- Moringa
- Green tea

- Saccharomyces sp.
- Sclerotium sp.
- Phellinus linteus
- Schizophyllum commune
- Fermentation: Active ingredients
- Lactobacillus sp.
- Bifidobacterium sp.
- Galactomyces sp.
- Bacillus sp.

Fermentation of natural materials such as plant or animal waste using certain microorganisms.
- The bioconversion of organic materials to active ingredients by microbial fermentation
  - The use of natural resources
  - The activation of the ingredients
  - A conversion to new materials

- The material with reduced molecular weight by fermentation enhances its skin absorption.
- Reduction of toxic substances in natural extracts
Main Product

<table>
<thead>
<tr>
<th>Product name</th>
<th>INCI Name</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>GlucanREAL</td>
<td>Beta-Glucan</td>
<td>Quegen Biotech Co., Ltd.</td>
</tr>
</tbody>
</table>

- **Typical properties**
  - Chemical structure: $\beta$-1,6-branched-$\beta$-1,3-glucan
  - Origin: Schizophyllum commune [biotechnological product]
  - Content of beta-glucan: 0.4%
  - Description: colorless or light yellow, Transparent viscous liquid
  - Odor: Characteristic slightly odor
  - pH: 5.5~7.5
  - Viscosity: 340~500 cps

- **Key functions**
  - Moisturizing
  - Alleviation molecule for skin irritation [Anti-irritation]
  - Induction of collagen biosynthesis [Anti-aging]
  - Immunomodulation [Enhancement of skin immunity]
  - Sunburn cure [Recovery of damaged skin]
  - Anti-inflammatory effect

- **Applications**
  - General cosmetics: skin care, Bath and shower, etc.
  - Sun block cream: sun care
  - Moisturizing lotion for atopic patient
  - Moisturizing cosmetics for dryness

GlucanREAL is an Efficient Raw Material for the Production of Skin Care Cosmetics.

Product List

**Fermentation products**

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>INCI Name</th>
<th>Efficacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>GlucanREAL</td>
<td>Beta-Glucan</td>
<td>Moisturizing, Anti-inflammation</td>
</tr>
<tr>
<td>GlucanPURE</td>
<td>Sclerotium gum</td>
<td>Moisturizing, Soothing</td>
</tr>
<tr>
<td>HyaluREAL[1.0]</td>
<td>Sodium Hyaluronate</td>
<td>Moisturizing, Anti-aging</td>
</tr>
<tr>
<td>BifidoREAL</td>
<td>Bifida Ferment Filtrate</td>
<td>Moisturizing, Improvement of skin texture</td>
</tr>
<tr>
<td>SaccharREAL</td>
<td>Saccharomyces Ferment Filtrate</td>
<td>Moisturizing, Anti-aging</td>
</tr>
<tr>
<td>LactoREAL</td>
<td>Lactobacillus Ferment Lysate Filtrate</td>
<td>Moisturizing, Whitening</td>
</tr>
<tr>
<td>GalactoREAL</td>
<td>Galactomyces Ferment Filtrate</td>
<td>Moisturizing, Improvement of skin tone</td>
</tr>
<tr>
<td>FlavoymeCP</td>
<td>Schizopodium Commune/Citrus Unshiu Peel Extract Ferment Filtrate</td>
<td>Moisturizing, Improvement of wrinkles</td>
</tr>
<tr>
<td>LactoREAL[Milk]</td>
<td>Lactobacillus/Milk Ferment Filtrate</td>
<td>Moisturizing, Nutrient supply</td>
</tr>
</tbody>
</table>

**Natural Extracts**

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>INCI Name</th>
<th>Efficacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>MoringaREAL</td>
<td>Moringa Oleifera Leaf Extract</td>
<td>Moisturizing, Antioxidation</td>
</tr>
<tr>
<td>OelREAL</td>
<td>Avena Sativa (Oat) Kernel Extract</td>
<td>Antioxidation, Skin emollient</td>
</tr>
<tr>
<td>CitrusREAL</td>
<td>Citrus Unshiu Peel Extract</td>
<td>Antioxidation, Anti-microbial</td>
</tr>
<tr>
<td>CentellaREAL</td>
<td>Centella asiatica extract</td>
<td>Skin regeneration, Anti-inflammation</td>
</tr>
<tr>
<td>AroniaREAL</td>
<td>Aronia Melanocarpa Fruit Extract</td>
<td>Anti-inflammation</td>
</tr>
<tr>
<td>MorusREAL</td>
<td>Morus Alba Bark Extract</td>
<td>Whitening</td>
</tr>
<tr>
<td>PortuREAL</td>
<td>Portulaca Oleracea Extract</td>
<td>Anti-inflammation, Soothing</td>
</tr>
<tr>
<td>CamelliaREAL</td>
<td>Camellia Sinensis Leaf Extract</td>
<td>Antioxidation, Skin emollient</td>
</tr>
<tr>
<td>DioscoREAL</td>
<td>Dioscorea Japonica Root Extract</td>
<td>Moisturizing, Improvement of skin texture</td>
</tr>
<tr>
<td>HippoREAL</td>
<td>Hippophae Rhamnoides Fruit Extract</td>
<td>Antioxidant</td>
</tr>
<tr>
<td>Bulgaria Rose Water</td>
<td>Rosa Damarasca Flower Water</td>
<td>Fragrance, Improvement of skin texture</td>
</tr>
<tr>
<td>HPDR Solution[1%]</td>
<td>Sodium DNA</td>
<td>Hydration, Skin regeneration</td>
</tr>
</tbody>
</table>
QUEGEN BIOTECH’s mission is to contribute to human health and beauty by creating high value products through R&D.