Leading with Science for Sustainability

LG Chem

WeConnectScience
Contents
Introduction of LG Chem

01 ——— Introduction of LG Group
02 ——— Introduction of LG Chem
03 ——— Business of LG Chem
LG Group | History

Established as Goldstar Co. (now LG Electronics) 1958
Established as a New Corporate Identity (Lucky Goldstar → LG) 1995
Established as LG Corp. 2003
LG Group spinned-off LX Group 2021

1947 Established as Lucky Chemical Industrial Co. (now LG Chem)
1987 Completed ‘Lucky Gold Star Tower’
1996 Established as LG Telecom (now LG U+)
2017 LG Group’s 70th Anniversary
LG Group | Affiliates

Chemicals

- LG Chem
- LG Energy Solution
- LG Household & Healthcare
- etc.

Electronics

- LG Electronics
- LG Display
- LG Innotek
- etc.

Telecommunications & services

- LG U+
- LG CNS
- LG Sports
- etc.

Affiliates

- 72 (Approx)

Workforce (Worldwide)

- 260,000 (Approx)

Annual Revenue

- USD 148.5bn

*Overseas Corporations: 350 (Approx)
## Sustainable Innovation for a Better Life

<table>
<thead>
<tr>
<th>Chemicals</th>
<th>Electronics</th>
<th>Telecommunications &amp; services</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS Plastics</td>
<td>Large OLED TV Panel / Rollable TV</td>
<td><strong>U</strong>+ 5G</td>
</tr>
<tr>
<td>Global No. 1</td>
<td>World’s 1st Global No.1</td>
<td>5G Network</td>
</tr>
<tr>
<td>Life Sciences</td>
<td>Home Appliance</td>
<td>World’s 1st</td>
</tr>
<tr>
<td>Domestic 1st New Drugs</td>
<td>Domestic 1st (W/M, REF, A/C)</td>
<td></td>
</tr>
<tr>
<td>U.S FDA Approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery for EV</td>
<td>Automotive Display</td>
<td>Home IoT</td>
</tr>
<tr>
<td>Global No. 1 (by Contract</td>
<td>Global No.1</td>
<td>Domestic No. 1</td>
</tr>
<tr>
<td>Size)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cosmetics</td>
<td>Smartphone Camera /3D Sensing Module</td>
<td>Platform Business</td>
</tr>
<tr>
<td>Domestic No. 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Platform Business**

- CloudXper
- Cityhub
Since its founding, LG Chem is vigorously moving forward towards a sustainable future.

**1947 - 1999**
- 1947: Established as Lucky Chemical Industrial Corporation
- 1969: Listed on Korea Stock Exchange
- 1974: Renamed as Lucky Corporation
- 1976: Completed construction of Yeosu PVC Resin Plant
- 1979: Opened Daejeon Central R&D Center
- 1991: Developed the world's first 4th-generation cephalosporin antibiotics
- 1995: Renamed as LG Chem, Ltd. Completed construction of Tianjin PVC plant in China

**2000 - 2009**
- 2001: Spun off business entities (LGIC, LG Chem, LG Household & Healthcare)
- 2003: Acquired Hyundai Petrochemicals
- 2004: Factive became first Korean new drug to receive U.S. FDA approval
- 2005: Developed the world's first nanotechnology-applied new EP material
- 2008: Established a sales subsidiary in Europe (in Germany)
- 2007: Merged with LG Petrochemicals Co., Ltd
- 2008: Developed Korea's first metalloocene-based elastomer
- 2009: Spun off Industrial Materials Business
  (now LX Hausys)

**2010 - 2021**
- 2016: Acquired Dongbu Farm Hannong (Farm Hannong)
- 2017: Merged with LG Life Sciences Co., Ltd
- 2019: Completed construction of Korea's largest petrochemical tech center (in Gyeonggi)
- 2020: Opened the Global Innovation Center in the bio sector (in Boston)
- 2021: Spun-off battery business (now LG Energy Solution)
- 2020: Acquired separator business
- 2021: Started construction of Cathode Material Plant for Gumi-type jobs (LG BCM)
2019: First Korean Chemical Company in GLOBAL TOP 10

* Source: Chemical & Engineering News, American Chemical Society
## Top 10 Most Valuable Brands

<table>
<thead>
<tr>
<th>Rank</th>
<th>Brand</th>
<th>Change</th>
<th>2020 Value</th>
<th>2019 Value</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BASF</td>
<td>—</td>
<td>$7,878m</td>
<td>$8,253m</td>
<td>-4.5%</td>
</tr>
<tr>
<td>2</td>
<td>DOW</td>
<td>—</td>
<td>$4,843m</td>
<td>$6,819m</td>
<td>-29.0%</td>
</tr>
<tr>
<td>3</td>
<td>巴斯夫</td>
<td>—</td>
<td>$4,334m</td>
<td>$3,964m</td>
<td>+9.3%</td>
</tr>
<tr>
<td>4</td>
<td>LG Chem</td>
<td>—</td>
<td>$3,500m</td>
<td>$3,338m</td>
<td>+4.9%</td>
</tr>
<tr>
<td>5</td>
<td>Linde</td>
<td>NEW</td>
<td>$2,851m</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>LyondellBasell</td>
<td>—</td>
<td>$2,637m</td>
<td>$3,073m</td>
<td>-14.2%</td>
</tr>
<tr>
<td>7</td>
<td>Asahi KASEI</td>
<td>▲ 3</td>
<td>$2,368m</td>
<td>$2,246m</td>
<td>+5.4%</td>
</tr>
<tr>
<td>8</td>
<td>Mitsubishi Chemical</td>
<td>—</td>
<td>$2,287m</td>
<td>$2,535m</td>
<td>-9.8%</td>
</tr>
<tr>
<td>9</td>
<td>DuPont</td>
<td>▼ 4</td>
<td>$2,200m</td>
<td>$3,261m</td>
<td>-32.5%</td>
</tr>
<tr>
<td>10</td>
<td>Air Liquide</td>
<td>▼ 3</td>
<td>$1,982m</td>
<td>$2,594m</td>
<td>-23.6%</td>
</tr>
</tbody>
</table>

### Brand value of chemical Companies

"Global No.4"

* Source: Brand Finance Group, U.K.
Prospering in the pandemic

TOP 100

* Source: Financial Times, 2020
To achieve our vision, “We Connect Science to Life for a Better Future,” LG Chem will become Top Global Science Company that leads with Science for Sustainability.
We do Everything for Sustainable Growth

- Carbon Neutral Growth by 2030 & Net-Zero by 2050
- Renewable Energy 100% by 2050
- Transition towards Circular Economy
- Zero Waste to Landfill
- Ethical and Sustainable supply chain
Carbon-neutral growth by 2030, Net-Zero by 2050

Accelerate decarbonization
- Introduce innovative processes and convert to eco-friendly raw materials and fuels
- Expand use of renewable energy
- Offset carbon emissions

Strengthen competitiveness of low-carbon products through LCA
- To be applied
  - To all Korean market products in 2022
  - All Korean/overseas products in 2023

Become a global leader in climate response
- The first and only Asian member of WEF Alliance of CEO Climate Leaders

*Alliance of CEO Climate Leaders: Climate alliance with over 30 corporate CEOs and government officials worldwide
Towards Top Global Science Company

**Sustainable business centered around eco-friendly materials**
- Develop bio materials
- Establish circular economy of waste plastics
- Foster renewable energy material business

**Battery material-oriented e-Mobility**
- Produce first-rate cathode materials in the world
- Expand core material business for secondary batteries
- Reinforce R&D for next-gen battery materials

**World-class innovative drug development**
- Expand domestic top-level pipelines
- Develop global clinical trials and accelerate business
- Bolster investment in R&D for new drug development
Towards Top Global Science Company

Foster bioplastics and low-carbon technology

- Mechanical/chemical recycling technologies
  - Develop and commercialize biodegradable plastics
- CO2 capture/utilization technology

Improve battery performance and safety
Develop next-gen battery materials

- Develop single-crystal cathode materials
- Develop new materials for separators/pure silicon electrode materials
- Material technology for all-solid-state batteries

Gain leadership in cancer/autoimmune diseases, diabetes/metabolic diseases

- Accelerate global clinical development for new drug projects, e.g., gout, NASH, and obesity
- Implement multi-modality strategies for cell/gene therapy

* Various approach to drugs
Eco-friendly Material Brand LETZero

A compound word of “Let” and “Zero,” which means “to turn harmful substances to the environment and the net increase in carbon emissions into zero.”

LETZero Product Line

Recycle
- PCR ABS
  Electrical/electronic products, automobiles, construction materials, etc.
- PCR PC, PCR PC/ABS
  Electrical/electronic products, automobiles, industrial materials, building materials
- PCR PP
  Packaging materials, medical instruments
- PCR PE
  Packaging materials, medical instruments

Bio materials
- Bio balanced SAP
  Diapers, menstrual pads
- Bio balanced NPG
  Paint, PET film, coating agents, adhesives, UPR
- Bio IPA
  Semiconductor, LCD manufacturing, detergent, paint, pharmaceuticals, and cosmetics
- Bio balanced Acrylates
  Paints, adhesives, coating agents

Biodegradable
- PLA
  Packaging materials, film, 3D printing
- PLH
  Disposable bags and gloves
- PBAT
  Agricultural film, packaging materials

LETZero Certification

Royal Botanic Toothpaste by LG Household & Health Care with LETZero Certification

Bus stop built with PCR materials
**LG Chem | Financial Results**

* Included Subsidiaries

**Sales in 2021**

USD **37.3bn**

(Approx.)

**Workforce**

18,800 (Person)

Domestic 13,920
Overseas 4,880

(Approx.)

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**Sales**
(Unit: Billion USD)

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>16.9</td>
</tr>
<tr>
<td>2011</td>
<td>20.5</td>
</tr>
<tr>
<td>2012</td>
<td>20.7</td>
</tr>
<tr>
<td>2013</td>
<td>21.1</td>
</tr>
<tr>
<td>2014</td>
<td>21.5</td>
</tr>
<tr>
<td>2015</td>
<td>17.9</td>
</tr>
<tr>
<td>2016</td>
<td>17.8</td>
</tr>
<tr>
<td>2017</td>
<td>22.7</td>
</tr>
<tr>
<td>2018</td>
<td>25.6</td>
</tr>
<tr>
<td>2019</td>
<td>23.2</td>
</tr>
<tr>
<td>2020</td>
<td>25.5</td>
</tr>
<tr>
<td>2021</td>
<td>37.3</td>
</tr>
</tbody>
</table>

**Operating profit**
(Unit: Billion USD)

<table>
<thead>
<tr>
<th>Year</th>
<th>Operating profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>2.4</td>
</tr>
<tr>
<td>2011</td>
<td>2.6</td>
</tr>
<tr>
<td>2012</td>
<td>1.7</td>
</tr>
<tr>
<td>2013</td>
<td>1.6</td>
</tr>
<tr>
<td>2014</td>
<td>1.2</td>
</tr>
<tr>
<td>2015</td>
<td>1.6</td>
</tr>
<tr>
<td>2016</td>
<td>1.7</td>
</tr>
<tr>
<td>2017</td>
<td>2.6</td>
</tr>
<tr>
<td>2018</td>
<td>2.0</td>
</tr>
<tr>
<td>2019</td>
<td>0.7</td>
</tr>
<tr>
<td>2020</td>
<td>1.5</td>
</tr>
<tr>
<td>2021</td>
<td>4.4</td>
</tr>
</tbody>
</table>
LG Chem | R&D Status
* Included Subsidiaries

R&D Expense
Unit: Million USD

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>525</td>
<td>591</td>
<td>789</td>
<td>965</td>
<td>971</td>
<td>990</td>
<td>1,212</td>
</tr>
</tbody>
</table>

R&D Workforce
Unit: Person

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>3,400</td>
<td>4,400</td>
<td>4,800</td>
<td>5,300</td>
<td>5,700</td>
<td>5,300</td>
<td>6,300</td>
</tr>
</tbody>
</table>
LG Chem | Domestic Sites

Headquarter/R&D Campus Magok (Est.1987/Est.2018)

Leadership Center / CS Center (Est.1991/Est.2019)

R&D Campus Daejeon (Est.1979)

Osong Plant (Est.2009) Bio Similar, Vaccine


Naju Plant (Est.1984) Octanol, Butanol, Plasticizers

Yeosu Complex (Est.1976) NCC, PVC, ABS, SAP, PE, AA

Daesan Complex (Est.2005) NCC, SSBR, PVC

Ochang Plant (Est.2005) Stripper

Cheongju Complex (Est.1980 / Est.2009) OLED Material, Photoresist, Cathode Material, RO membrane / Battery Separator

Gimcheon Plant (Est.2008) SAP

Onsan Plant (Est.1979) Fine Chemical
LG Chem | Business Area

**Petrochemicals**
- NCC
- Polyolefins
- PVC/Plasticizers
- ABS
- Acrylates/SAP
- HPM (High Performance Materials)
- Catalyst
- CNT

**Advanced Materials**
- Battery Separator
- Cathode Materials
- Engineering Material
- IT Materials
- Semiconductor Materials
- RO Filter

**Life Sciences**
- Primary Care
- Specialty Care
- Aesthetic
Petrochemicals Company
Petrochemicals Company

**Establishment (Year)**
1976

**Sales ($)** *As of 2021*
18.1bn

**Workforce (Person)**
Domestic 6,388 / Overseas 2,150

**Business Area**
Petrochemical Products

- **2021**
  - Acquired *ISCC for Korea's first eco-friendly bio-balanced product*
  - *ISCC (International Sustainability and Carbon Certification)*
  - Launched digital CRM system LG Chem On

- **2019**
  - Established the largest petrochemical tech center in Korea (Osan CS Center)

- **2015**
  - Launched Hwanam Tech Center in Nanjing, China

- **2010**
  - Acquired Dow Polycarbonate business

- **2007**
  - Merged with LG Petrochemicals Co., Ltd.

- **2003**
  - Acquired PVC Business of Hyundai Petrochemicals Co., Ltd.

- **1995 – 1998**
  - Established Manufacturing Subsidiary in China / India / Vietnam (PVC, ABS)

- **1976**
  - Completed construction of Yeocheon PVC resin factory
  - Entry into the petrochemical business
Leading Business Sustainability with Eco-Friendly Materials

Promoting bio materials, recycling, and energy transition as future growth engines

Bio Materials

• About 40 bio products certified by ISCC Plus
• World’s first mass production of bio-balanced SAP
• Internalize bio materials production, strengthen partnerships for development

Establish circular economy of waste plastics

• Produce PCR products
• Partner with waste plastic suppliers
• Establish an eco platform

Discover new renewable energy materials

• Produce high value-added products for solar panels
• POE, EVA, EP
## Production Capacity (As of 2021)

<table>
<thead>
<tr>
<th>Product</th>
<th>Capacity (KTA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene</td>
<td>3,400</td>
</tr>
<tr>
<td>Propylene</td>
<td>1,733</td>
</tr>
<tr>
<td>BD</td>
<td>414</td>
</tr>
<tr>
<td>BZ</td>
<td>851</td>
</tr>
<tr>
<td>SM</td>
<td>692</td>
</tr>
<tr>
<td>EG</td>
<td>180</td>
</tr>
<tr>
<td>Phenol</td>
<td>709</td>
</tr>
<tr>
<td>BPA</td>
<td>505</td>
</tr>
<tr>
<td>HDPE</td>
<td>650</td>
</tr>
<tr>
<td>LDPE/EVA</td>
<td>460</td>
</tr>
<tr>
<td>POE</td>
<td>280</td>
</tr>
<tr>
<td>PP</td>
<td>380</td>
</tr>
<tr>
<td>PVC</td>
<td>1,265</td>
</tr>
<tr>
<td>VCM</td>
<td>1,363</td>
</tr>
<tr>
<td>CA/EDC</td>
<td>1,120</td>
</tr>
<tr>
<td>Plasticizer</td>
<td>225</td>
</tr>
<tr>
<td>Oxo-Alcohol</td>
<td>299</td>
</tr>
<tr>
<td>Acrylic Acid</td>
<td>715</td>
</tr>
<tr>
<td>SAP</td>
<td>499</td>
</tr>
<tr>
<td>ABS/SAN</td>
<td>2,160</td>
</tr>
<tr>
<td>PS</td>
<td>40</td>
</tr>
<tr>
<td>EPS</td>
<td>90</td>
</tr>
<tr>
<td>Specialty Resin</td>
<td>495</td>
</tr>
<tr>
<td>Synthetic Rubber</td>
<td>445</td>
</tr>
</tbody>
</table>
NCC (Naphtha Cracking Center) produces base chemicals such as ethylene and propylene for petrochemical products. They are supplied as raw materials for various products such as PO, synthetic rubber, and ABS. LG Chem is achieving the world’s highest energy efficiency and developing a wide range of technologies from hydrogen energy to carbon capture.
Polyolefin (PO)

PE (polyethylene) and PP (polypropylene) are general-purpose plastics often used to make containers, packaging materials, film, and encapsulant for solar modules, which produces green energy. PCR PE and PCR PP are used in packaging materials and medical devices.

<table>
<thead>
<tr>
<th>LD, LLD, HD, POE, EVA, PP, PCR-PE PCR-PP</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical devices</td>
</tr>
<tr>
<td>Ondol pipes</td>
</tr>
<tr>
<td>Packaging materials/product containers</td>
</tr>
<tr>
<td>Cable insulators</td>
</tr>
<tr>
<td>Photovoltaic encapsulant film</td>
</tr>
<tr>
<td>Automotive interior and exterior parts</td>
</tr>
</tbody>
</table>
PVC (polyvinyl chloride) is used as a raw material for flooring, sashes, and pipes, and plasticizers are used for PVC to provide flexibility. Caustic soda is widely used, from basic industries such as wastewater neutralization and textile dyeing, to high-tech sectors including cathode material manufacturing. PC (polycarbonate) has excellent impact resistance and heat resistance, and is used in home appliance housings and automobile materials.
Acrylonitrile butadiene styrene (ABS) has excellent heat resistance, impact resistance, and processability. It is a high-performance material used in automobiles, home appliances, and IT devices. LG Chem is the first in the chemical industry to mass-produce white PCR ABS, providing differentiated solutions to customers.

**Applications**

- Electronics housing
- Automotive interior/exterior materials
- Building materials
- Toys
- Product containers
- Building insulation

**Materials**
- ABS
- PCR-ABS
- SAN
- PS
- EPS
LG Chem’s acrylate processes produce raw materials used for paint, adhesives, and SAP. SAP effectively absorbs fluids in diapers and items for sanitary purposes.

In 2021, we mass-produced and exported the world’s first ISCC Plus certified bio-balanced SAP.

Applications

- Plasticizer/SAP Resin
- Diapers
- Paint
- Adhesives
- Cleaning agent for Semiconductors
- Acrylic Fibers
NBR latex is used to make medical and industrial gloves, and MBS and SBS serve as special additives that perform various functions. Synthetic Rubber is used as a raw material for tires and golf balls.
Catalysts are the core technology for various petrochemical processes. We were the first in Korea and the fourth in the world to independently develop catalysts for acrylic acid production. Polymer catalysts are used to manufacture metallocene polyolefins and functional chemical materials. We provide tailored solutions to customers with exceptional technology.
Carbon Nanotube (CNT) is a tube-shaped carbon allotrope with a nanometer-sized diameter. It has excellent electrical, thermal, and mechanical properties and is used to make conductive agents for cathode materials in lithium-ion batteries, conductive plastic compounds, and plate heaters.

LG Chem is producing the largest capacity of high-quality CNTs in Korea.
Advanced Materials Company

**Establishment (Year)**
1999

**Sales ($)** *As of 2021*
5.2bn

**Workforce (Person)**
Domestic 4,044 / Overseas 1,991

**Business Area**
Battery Materials, Engineering Materials, IT Materials

- **2021** Commercialized battery separators (Acquired separator business from LG Electronics, established LG-Toray J/V in Hungary)
- **2019** Reorganized Advanced Materials Company (to provide customized solutions in high-performance materials)
- **2018** Established Chinese joint venture for manufacturing Precursor and cathode material
- **2016** Acquired GS E&M, a renowned cathode manufacturer
- **2006** Commercialization of battery materials (cathode material, electrolyte)
- **2003** Established IT&E Manufacturing Subsidiary in Nanjing, China
- **2000 - 2004** Commercialized LCD, OLED, Process materials
- **2000** First to develop PDP fluorescent substance in Korea.
Towards World's Top Comprehensive Battery Materials Company

Global Top Tier Cathode Materials
- Began construction of Gumi Plant in December 2021
- Signed JV with a mining company
- Reinforced competitiveness for metal sourcing

Separator Business
- Rapid market entry through M&A and JV
- Established global production sites in 2021 (China, Hungary, Poland)

CNT Capacity Expanded Over 3x
*CNT: Conductive agents for cathode materials (under Petrochemicals Company)

Focused Resources for R&D
- Differentiate e-mobility technologies and acquire market leadership through intensive focusing of resources in cathode materials, anode binders, and thermal adhesives

Timeline
- 40K tons to 260K tons
  - 2020 to 2026

Capacity Growth
- 1700 tons x3
  - 2021 to 2025
In addition to cathode binders and dispersants, LG Chem is producing over 10 types of battery materials, including cathode materials and separators, which are core materials for secondary batteries. We are also bolstering R&D across a wide range of fields, such as developing new materials for the technological advances in the next-generation batteries. LG Chem will continue to strive to become the world’s No. 1 comprehensive battery materials company with the highest level of safety and competitiveness.

Cathode materials, separators, anode binders, and anode dispersants

Applications
- Mobility & IT batteries
- Automotive batteries
- ESS batteries

Major Customers

LG Energy Solution
In mega trends such as e-mobility and sustainability, LG Chem is striving to create world no. 1 products by producing high-strength, lightweight automotive materials and eco-friendly PCR materials that are optimized for customer products and processes.

**EPC, TPE, Specialty Compound PC**

**Applications**
- Automotive interior and exterior materials / Engine parts
- Eco-friendly PCR materials

**Major Customers**
- HYUNDAI
- GM
- Volkswagen
- Ford
- STELLANTIS
- LG Electronics
- DELL
- Amazon
LG Chem produces unique solutions for IT devices with products such as OLED materials, display materials and various high-functional films and semiconductors.
Semiconductor Materials

LG Chem produces semiconductor substrate materials and films for post-processing, the core components for manufacturing semiconductors.

CCL, PPG, BGT, DAF

Applications

Board for Semiconductor Packages
Memory Layers
Wafer Processing

Major Customers

Samsung Electronics
SK Hynix
Samsung Electro-Mechanics
LG Innotek
LG Chem’s seawater desalination and industrial RO filter is a water treatment filter that utilizes our proprietary Thin-Film Nanocomposite (TFN) nanotechnology. This product is leading the global market with an unrivaled removal efficiency of 99.89%.

**SW R/ES/GR/SR**

**Applications**

- Seawater Desalination
- Industrial Water
- Wastewater Reuse

**Major Customers**

- METITO
- GS Inima
- acciona
- SUEZ
Life Sciences Company

**Establishment** (Year)
1984

**Sales ($)** As of 2021
0.7bn

**Workforce** (Person)
Domestic 1,833 / Overseas 226

**Business Area**
Pharmaceuticals, Vaccines, Aesthetic

- **2021** Established LG-Jiansheng Life Science in China  
  Successfully completed Phase II clinical trial for new gout drug in the US
- **2019** Established Life Sciences Innovation Center in Boston, USA
- **2012** Developed 1st Korean diabetes medicine, ‘Zemiglo’
- **2003** 1st Korean new chemical entity (NCE) approved by U.S. FDA (Factive)
- **1996** 1st Korean hepatitis B vaccine ‘Euvox’ approved by WHO PQ
- **1991** Developed World’s first 4th generation Cephalosporin
- **1984** Start of pharmaceutical business  
  (Established Pharmaceuticals business division)
- **1961** Acquire of manufacturing license pharmaceuticals products
Toward a World-Class Innovative Drug Developer

2 or more innovative new drugs by 2030

- First-rate pipelines in Korea
- Invested over USD 250mil in annual R&D
- Open innovation

Diabetes, metabolic diseases, cancer, autoimmune diseases

Expand new drug pipelines in clinical development stage

Accelerate clinical developments and business growth worldwide

- Reinforcing talent pool of clinical/regulatory specialists
- Increase overseas sales by 50%
LG Chem has developed Korea’s first diabetes drug, Zemiglo, and arthritis drug, Synovian, increasing its competitiveness in Korea as well as overseas, and has expanded its efforts to develop new drugs and to collaborate with other companies through partnerships in the areas of diabetes and cardiovascular, musculoskeletal, and autoimmune diseases.
LG Chem is the first company in Korea that has successfully developed a growth hormone stimulator, and is also concentrating its R&D capabilities on treatments for special diseases. LG Chem has been strengthening competitiveness in the global market with its WHO-approved hepatitis B and pentavalent combination (5-in-1) vaccine.

**Representative Products**

- **Grow Hormone (Eutropin)**
- **Ovulation Induction (Follitrope)**
- **Pentavalent Combination (Euperta)**
- **Polio Vaccine (Eupolio)**
YVOIRE, the first hyaluronic acid filler developed with LG Chem's proprietary technology in Korea, is receiving attention for its superior product quality leading to expanding market share.

Representative Products

- **Y-SOLUTION, Global**
- **YVOIRE, Global**
- **YVOIRE, China**
- **Y-SOLUTION, China**
LG Energy Solution embarked on a new journey as a global battery company when we became a separate entity from LG Chem’s battery business in 2020.

We were the first to mass-produce lithium-ion batteries and supply them for electric vehicles, and have been offering a comprehensive portfolio of products related to automotive batteries.

LG Energy Solution also provides battery systems for ESS batteries in various applications, including power grids, residential and commercial use, and uninterruptible power supplies (UPS).

- **Automobile Battery**: No. 1 in automotive battery global market
- **Mobility & IT Battery**: 1st in Korea to successfully mass produce small lithium-ion batteries
- **ESS Battery**: No. 1 in ESS batteries globally
Farm Hannong

Farm Hannong, an LG Chem's affiliate, is the top domestic agricultural company—No. 1 in agricultural chemicals and No. 2 in the fertilizer and seed in the Korean Market—and aims to be a global leader in green agriculture and ICT industry technologies.

- **Crop Protection Products**
  - No. 1 domestic market share

- **Fertilizer**
  - No. 2 domestic market share

- **Seed**
  - No. 2 domestic market share
Leading with science to sustain our valuable life