ABOUT GEROPHARM
PHARMACEUTICAL MANUFACTURING AND DISTRIBUTION

The Headquarter company: business development strategies, sales and marketing

INNOVATIVE BIOTECHNOLOGY

GMP compliant manufacturing site
Full cycle production

R&D CENTER
All aspects of drug and pharmaceutical development and its industrial application
GEROPHARM IN FIGURES

3,9 BLN
rubles revenue in 2016

35%
revenue growth to the indicator of 2015

LEADER
GEROPHARM became the largest manufacturer of the human insulin in the Russian Federation by the end of Q3, 2016 with the share of 23%

>1,2 MLN
packs of insulin GEROPHARM put on the market

4,7 BLN
Rubles total investment in technological innovations and R&D in 2013–2016
GEROPHARM IN FIGURES

>10 drugs in company’s portfolio

>15 projects in the pipeline

>650 highly qualified specialists (full-time employees)

14 countries and all regions of the Russian Federation in which company is presented
GEROPHARM REVENUE IN 2010-2016

Revenue, bln. rub

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue, bln. rub</th>
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<tbody>
<tr>
<td>2012</td>
<td>2.0</td>
</tr>
<tr>
<td>2013</td>
<td>2.3</td>
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<tr>
<td>2014</td>
<td>2.4</td>
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<tr>
<td>2015</td>
<td>2.9</td>
</tr>
<tr>
<td>2016</td>
<td>3.9</td>
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</table>

OFFICIAL USD/RUB EXCHANGE RATES BY CENTRAL BANK OF RUSSIA
PRIORITIES OF GEROPHARM

Creation of innovative technological platforms

Development of crucial technologies

Investment projects in regional clusters

Build strong collaborations and partnerships worldwide

Integrated approach in accordance with PHARMA - 2020*, BIO - 2020

*State Federal Programs which aim to develop strong local pharmaceutical industry
GEROPHARM-Bio opens its own GMP facility

The launch of generic drugs: Levetinol®, Memantinol®

GEROPHARM-Bio plant is ready to provide 30% of insulin needs of the Russian Federation

GEROPHARM put on the market more than 1,2 million packs of insulin. This is 82% higher than the indicator of 2015.

Launch of full pipeline of analogues to the Russian market

Launch of production line - pharmaceutical substances for original drugs

Launch of production line - recombinant human insulin and biosimilar insulin analogues
GEROPHARM DEVELOPS EXPORT

PRODUCTS MARKETED IN 14 COUNTRIES

185 REPRESENTATIVES OF SALES FORCE IN RUSSIAN FEDERATION
PRODUCT PORTFOLIO
Original Drugs. Neurology

Cortexin®, Cortexin® for children are used with in the comprehensive treatment of:

- the blood supply to the brain
- craniocerebral trauma and its consequences
- different types of encephalopathies
- cognitive disorders
- acute and chronic encephalitis and encephalomyelitis
- epilepsy
- asthenic conditions (suprasegmental autonomic disorders)
- reduced learning capacity
- psychomotor and speech retardation in children
- different types of cerebral palsy
Retinalamin® is used within the comprehensive treatment of:

- compensated primary open-angle glaucoma
- diabetic retinopathy
- post-traumatic and post-inflammatory central retinal dystrophy
- myopic disease
- central and peripheral tapetoretinal abiotrophy

Russian design of packaging is shown. Packaging is adapted to each country’s regulatory requirements.
Gynecology is a new area of specialization for GEROPHARM. Pineamin® is the original drug, produced by technology of peptide extractions from the pineal glands.

Pineamin® – the first in class premium injectable drug for alleviating symptoms of menopause. The drug has remarkable rejuvenating effects along with high safety profile and tolerability. It acts centrally through "PPGT class effect" (Polypeptides of Pineal Gland Therapy).
Levetinol® (INN: levetiracetam)

- the current standard of remission in epilepsy
- an optimal option for treatment of most patients with epilepsy
- high efficacy and tolerability vs other AEDs
- treatment choice for mono- and combined therapy in focal and generalized epilepsy

Dosage forms: 250 mg, 500 mg, 1000 mg

Russian design of packaging is shown. Packaging is adapted to each country’s regulatory requirements.
Memantinol® (INN: memantine)

- the current medicine for dementia treatment
- included in the list of Essential and Vital Medicines,
- and in the approved standards of Dementia treatment, validated by the Ministry of Health of the Russian Federation
- various sets pills: №30, №90

Russian design of packaging is shown. Packaging is adapted to each country’s regulatory requirements
Recognan® (INN: citicoline) is a neuroprotective agent which has a wide range of therapeutic indications:

- ischemic stroke (post-stroke rehabilitation)
- acute and recovery stage of traumatic brain injury
- cognitive and behavioral impairment associated with neurodegenerative and cerebrovascular diseases
- mental and cognitive dysfunction

Recognan® is adjusted to human physiology more than any other identified neuroprotective agent. It makes Recognan® the treatment of choice in therapy, prevention and improvement of nervous system functional activity.
Pregabalin is a potent gabapentinoid and structural analogue of the neurotransmitter GABA. It is a ion channel modulator that has rapid analgesic, anticonvulsant and anxiolytic effects.

Pregabalin is used to treat:

- neuropathic pain
- epilepsy
- generalized anxiety disorder
- fibromyalgia

Dosage forms: 75 mg, 150 mg, 300 mg
Own unique patent protected technology process of the insulin substance synthesis

Produced in the various drug forms: vials, cartridges, pre-filled multidose disposable pens

Low level of impurities of insulin substance that corresponds to pharmacopeia requirements*

* USP and Ph.Eur pharmacopoeia reference standard of impurities
Russian design of packaging is shown. Packaging is adapted to each country’s regulatory requirements
MARKET SHARE INCREASE OF GEROPHARM’S RECOMBINANT HUMAN INSULIN IN 2014-2016

IMS Health
GEROPHARM'S Internal Data

2014 (q1) 2014 (q2) 2014 (q3) 2014 (q4) 2015 (q1) 2015 (q2) 2015 (q3) 2015 (q4) 2016 (q1) 2016 (q2) 2016 (q3)
2% 2,2% 2,8% 3,0% 3,2% 5,8% 7,1% 8,4% 10,1% 12,4% 23,2% 22%
## PRODUCT PIPELINE. INSULIN ANALOGUES

<table>
<thead>
<tr>
<th>CODE/DRUG</th>
<th>THERAPEUTIC AREA</th>
<th>STAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulin Mix</td>
<td>Endocrinology</td>
<td></td>
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<tr>
<td>Insulin Lispro</td>
<td>Endocrinology</td>
<td></td>
</tr>
<tr>
<td>Insulin Lispro Mix</td>
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<tr>
<td>Insulin Aspart</td>
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<td></td>
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<tr>
<td>Insulin Aspart Mix</td>
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<td></td>
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<tr>
<td>Insulin Glargin</td>
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<td></td>
</tr>
<tr>
<td>Insulin Degludec</td>
<td>Endocrinology</td>
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</tbody>
</table>

*Notes:*
- **Insulin Mix** and **Insulin Lispro** are in **PHARMACEUTICAL DEVELOPMENT**
- **Insulin Lispro Mix** is in **CLINICAL STUDIES**
- **Insulin Aspart**, **Insulin Aspart Mix**, **Insulin Glargin**, and **Insulin Degludec** are in **REGISTRATION**
- **Insulin Lispro** is a **biosimilar**
RESEARCH AND DEVELOPMENT
RESEARCH & DEVELOPMENT

- Full cycle of drug development in accordance with ICH, GLP, GCP, GMP standards
- Main R&D areas: neurology, endocrinology, ophthalmology
- State-of-the-art technologies: genetic engineering, molecular and cellular biology
- Team of more than 20 PhD scientists with extensive hands-on expertise and experience
- R&D center covers 1500 sq.m.

Neudorf special economic zone, Saint-Petersburg
R&D EXPERTISE AND FOCUS

Synthesis and screening of the original substances

Drug development

Full range of pre-registration studies

Testing and implementation of new technologies in industrial production

QUALITY BY DESIGN

GEROPHARM develops sophisticated technologies in drug development utilizing its expertise and knowledge in the pharmaceutical industry. These endeavours require financial investments as well as time and continued diligence.
LABORATORIES

- Bioorganic Chemistry
- Analytical
- Genetic Engineering
- Finished Dosage Form
- Bioprocess Development
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<th>CODE/DRUG</th>
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</thead>
<tbody>
<tr>
<td>Evogliptin (DA-1229)</td>
<td>Endocrinology</td>
<td><img src="Image" alt="Pharmaceutical Development" /> <img src="Image" alt="Preclinical Studies" /> <img src="Image" alt="Clinical Studies" /> <img src="Image" alt="Registration" /></td>
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<td>Evogliptin + Metformin</td>
<td>Endocrinology</td>
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<tr>
<td>TSP + hyaluronic acid</td>
<td>Ophtalmology</td>
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<td>GPh-401</td>
<td>Orphan drug</td>
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- original drug
- biosimilar
- generic
- medical product
GEROPHARM-BIO PLANT (OBOLENSK, MOSCOW REGION)

- **GMP**
  - A modern GMP manufacturing enterprise

- **Full cycle basis:**
  - from scratch substance to the finished filled drug form

- **Advanced technologies and the latest methods of control**

- **The control service includes a quality control testing laboratory certified by Rosstandart**

- **Proprietary technology**

- **Equipment of the world leading companies**
  - Stilmas, Olsa, Groninger, Seidenader, Bausch+Ströbel, Uhlmann, Pester
RINSULIN PRODUCTION: FROM SUBSTANCE TO THE FINISHED DOSAGE FORM

SUBSTANCE MANUFACTURING

1. Extraction of insoluble protein fraction (inclusion-body preparation)
2. Purification of the recombinant proinsulin protein
3. Purification of the insulin protein

PREPARATION OF FINISHED DOSAGE FORM

4. Solution preparation
5. Aseptic filling
6. Inspection
7. Packaging and labeling
GEROPHARM INDUSTRIAL PROJECT IN ST. PETERSBURG

- High industry and social significance recognized at the state level
- Innovative manufacturing platform for production of biotechnological drugs on a full cycle basis
- Sophisticated technology: the production of pharmaceutical substances
- Investment volume: > 2 billion rub.
- Location: «Pushkinskaya» industrial area, St. Petersburg
GEROPHARM INDUSTRIAL PROJECT IN ST. PETERSBURG

Launch of production lines:

- 2017 – pharmaceutical substances for original drugs
- 2018 - recombinant human insulin and biosimilar insulin analogues

Launch of the new pharmaceutical production will fully meet the needs of the population of Russia in insulin and will allow to export a substance.
GEROPHARM is one of the leaders in the field of biotechnology products – in development and production of recombinant human insulin and insulin analogues in Russia.

A modern manufacturing site of protein drugs - the first Russian producer of recombinant human insulin which is manufactured on a full cycle basis: from scratch substance to the finished filled form.

- Creation of modern pharmaceutical infrastructure – R&D center and high-tech production in compliance with GMP standards.
WHY WE ARE THE LEADERS?

- One of the priorities is production of active pharmaceutical substances

- Production of original drugs by means for treatment of socially significant diseases as well as some generics that have priority in terms of import substitution

- Aims to operate as a full cycle - defines the business development strategy, engages in drug development, manufacturing, sales and marketing of its drug products
GEROPHARM CONSIDERS VARIOUS PLATFORMS OF COOPERATION

- In-licensing of original drugs and smart generics to Russian and other CIS markets
- Out-licensing of GEROPHARM products
- In-house development and co-development of innovative medicines
- Contract manufacturing and drug development services
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