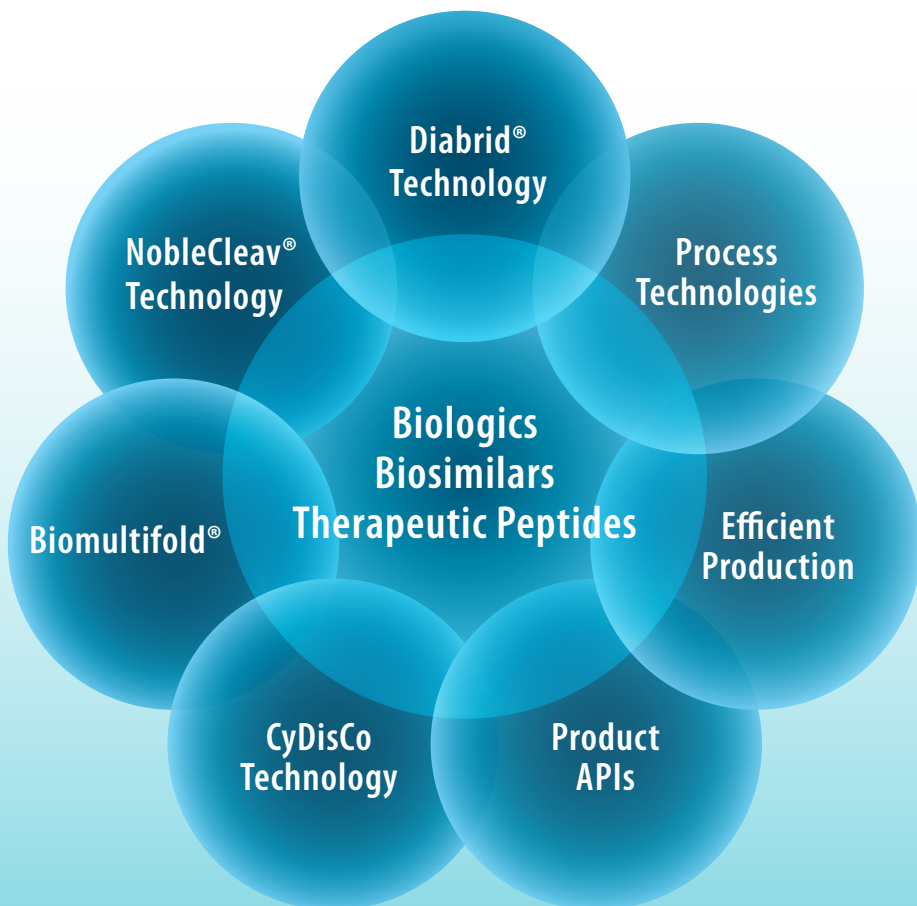


Paras Biopharmaceuticals Finland Oy



About Paras Biopharmaceuticals Finland Oy

Paras Biopharmaceuticals is a fast growing biopharmaceutical technology development company. Paras Biopharmaceuticals has successfully developed the propriety Diabrid Technology Platform for the high level expression of biosimilars and long therapeutic peptides in specially designed genetically stable clones.

Paras Biopharmaceuticals is specialized in design, development and optimization of manufacturing technologies for therapeutic peptides and soon to be off patent biologics. The company is building a robust portfolio of propriety technologies and has developed extensive intellectual property. Paras Biopharmaceuticals engages in the development and improvement of biological processes and expression of recombinant proteins in *E.coli* and *P. pastoris*.

Paras Biopharmaceuticals is a venture started in 2009 by a team of scientists and technologists who have extensive research experience and skills in the development of biologics and biosimilar technologies. Paras Biopharmaceuticals generate value from innovative ideas based on scientific and technological excellence to achieve quality products.

Paras Concept

Paras Biopharmaceuticals was established with the vision of using active synergy of academic expertise with proven industrial experience in bringing commercial scale protein production to market. Paras Biopharmaceuticals aims to bring workable innovative solutions to a range of problems. The business model for Paras Biopharmaceuticals is based on technology development for biosimilars and their out-licensing and work together in collaboration.

In Paras Biopharmaceuticals R&D we work on the principle –“Why have complications, you can avoid? Rational design of processes combining academic and industrial expertise means increased efficiency without compromising quality. At Paras, our ultimate objective is to use innovative scientific ideas to make healthcare more affordable.

Paras Novel Technologies

Paras Biopharmaceuticals has developed multiple novel technologies.

1. Diabrid Technology®
2. Noble Cleav®
3. Biomultifold®

Paras- Product offerings

Paras Biopharmaceuticals Finland have developed a number of products under the following categories.

- Osteoporosis
- Rheumatoid Arthritis
- Metabolic Disorders (Diabetes)
- Oncology products

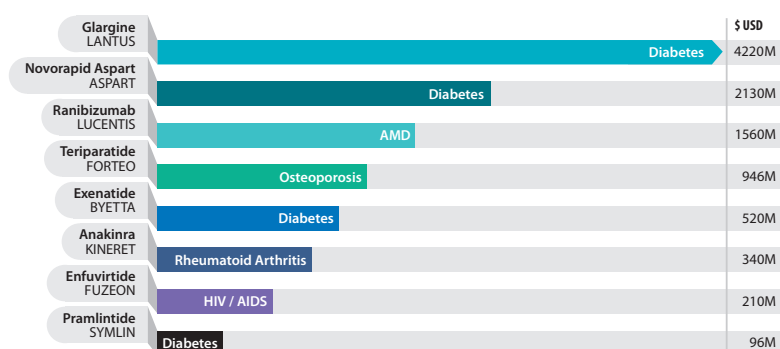
Paras products are in an advanced stage of development. These include Teriparatide (osteoporosis), Anakinra (rheumatoid arthritis), and biosimilar diabetes long acting insulin (Glargine), and a rapid acting insulin (Aspart). There are other products in the Paras pipeline.

Efficient Production of Biologics

Paras Biopharmaceuticals efficient production hosts including *E. coli*. There are several advantages to use *E. coli* as host organism.

- Low cost
- Rapid growth
- High biomass
- Easy cultivation and manipulation
- FDA friendly

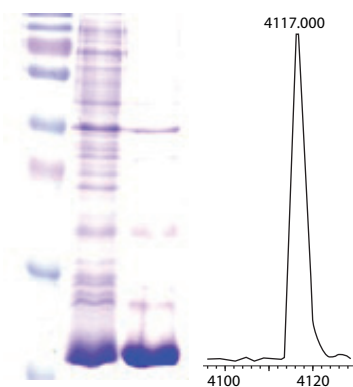
Worldwide Sales of Selected Therapeutic Peptides & Biosimilars (2010)



Paras Biopharma - Immediate Targets.

Paras Product –Validation & Characterization

Paras products are extensively characterized and validated. The SDS- PAGE and mass spectrometry analysis of a diabetes product and an osteoporosis product of Paras portfolio is shown below. Full fingerprinting of the protein includes validation of the appropriate primary, secondary and tertiary structures, control and validation of appropriate post translational modification and of quality and consistency of the initial expression through to the final product.



SDS- PAGE showing Glargine production and MS data of Teriparatide.

Technology Collaboration

Paras Biopharmaceuticals is actively looking to provide its core strengths to its partners to shorten the timelines to bring products to market. Paras aims to provide very robust and optimized technology package including the following.

Reports on cloning, cell line (clone) development, media optimization, fermentation, scale-up, product optimization, purification development, analytical methods (detailed report, including MS/ proteomics) and product API characterization.

Clone Development

Paras Biopharmaceuticals clone development is based on the most advanced and latest scientific and technological knowledge in codon utilization, sequence optimization plasmid selection, optimal strain selection, bioinformatics, oligo-synthesis, gene assembly, cloning, and final product confirmation.

Core Strengths

- Codon optimization
- Detailed report on codon optimization
- Plasmid selection
- Documentation on clone development
- Sequences and product confirmations

Upstream Process Development

A robust upstream process development is critical in achieving the highest production efficiencies. This facilitates the greatest possible economic value. Paras team is highly experienced to provide exceptional process development to achieve the highest levels of production.

Core Strengths

- Selection and development of media in laboratory scale.
- Development of the most suitable process parameters for scale-up and large scale production.
- Achieving the highest expression levels and production on the market today.

Purification Development

Paras Biopharmaceuticals utilizes the most advanced understanding of protein purification, thereby achieving the highest purification efficiencies and quality of the product. Paras team have extensive experience of all chromatography columns and most advanced column packing systems. Our quality by design approach ensures, process quality, robustness and cost savings.

Core Strengths

- Resin screening for the highest yields.
- Minimize aggregation concepts in purification.
- Scale-up and scale-down approaches in determining the most economic outcome.
- Achieve the highest purification efficiencies.



For more details, write to us

Paras Biopharmaceuticals Finland Oy
www.parasbioharma.com
Kurkelantie 5C-2, OULU
FINLAND, 90230
email: info@parasbiopharma.com

Trademark

Biomultifold Expression Technologies and Diabrid NobleCleave®
Technologies are trademark of Paras Biopharmaceuticals Finland Oy.

Printed in Finland.