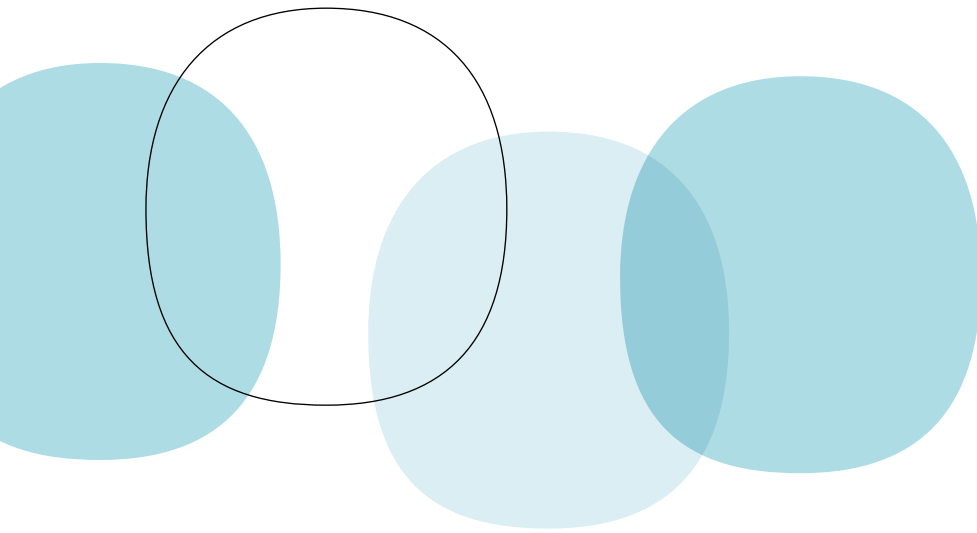


We enable development of
safer and more effective medicines





Ellegaard Göttingen Minipigs A/S was founded on the idea that biomedical research scientists needed a better research model to support them in their quest for clear results. Göttingen Minipigs come close to this vision as they share many similarities to humans.

Our core values - **animal welfare, respect, collaboration and quality** - are integral to our corporate culture and fundamental for our day-to-day business. We value our customers as close collaborators and we focus on supporting our customers as much as we can. In addition, we want to share all our knowledge and experience of Göttingen Minipigs with everyone in the industry.

Our corporate strategy is to ensure that Göttingen Minipigs remain the best characterized and validated minipigs for drug development and safety assessment and the preferred minipig for the development of disease models and transgenic minipigs. It is also our strategy to ensure that Göttingen Minipigs are commercially available in every major R&D market worldwide. All of the above is aimed at satisfying your need for a reliable animal model to achieve reliable scientific results, combined with reliable delivery, service, and support.

As we believe in the value of scientific validity, research, data and collaboration, we invest an increasing share of our resources in the development and accumulation of new knowledge about Göttingen Minipigs and in networking. We believe that this will lead to new achievements by our customers and our company in the future.

*Sincerely,
Jens Ellegaard, Chairman of the Board*

Ellegaard Göttingen Minipigs and Göttingen Minipigs are registered trademarks.

Follow us on **LinkedIn**

You can follow Ellegaard Göttingen Minipigs on LinkedIn. Our company page on LinkedIn will keep you updated with useful and interesting information regarding our company and Göttingen Minipigs.

We enable development of safer and more effective medicines

Besides breeding Göttingen Minipigs, our products and services have evolved significantly since the exclusive licensing agreement with the University of Göttingen was signed in 1991. Today our offerings include:

- Biological material and blood samples from Göttingen Minipigs
- Genetically altered Göttingen Minipigs
- Development of animal models
- Surgery and services
- Project management (proof of concept, early-phase study development, etc.)
- Educational courses and practical learnings

Established animal model

Today, Göttingen Minipigs are fully recognized as an established animal model by all regulatory authorities worldwide.

Available in large, uniform groups with a well-defined genetic background and a unique health status, Göttingen Minipigs are a reliable non-rodent model for pharmacology, pharmacodynamics, pharmacokinetics, safety assessment, experimental surgery, and fundamental science.

Genetic management is performed in collaboration with the University of Göttingen to ensure that Göttingen Minipigs are outbred while improving important characteristics such as small size and good temperament.

Accreditation

Studies performed on Göttingen Minipigs have supported non-clinical development of marketed drug products covering many treatment areas including: psoriasis, diabetes, osteoporosis, ophthalmology, arthritis, hypertension, heart failure, arrhythmia, imaging agents, Alzheimer's Disease, Parkinson's Disease, actinic keratosis, antibiotics, stem cell therapy, and oncology products.

Regulatory acceptability was also confirmed in the RETHINK report (J. of Pharmacological & Toxicological Methods 62 (2010) p. 184-195). The objective of the RETHINK report was to evaluate the minipig as an alternative species in regulatory toxicity testing and the report confirms that the minipig is suitable as a non-rodent model.



Barrier-bred Göttingen Minipigs have a unique health status and are tested semi-annually for a wide range of pathogens based on FELASA recommendations.



Small size and early sexual maturity

Small size

Sexual maturity males: 3-4 months of age (7-9 kg)

Sexual maturity females: 4-5 months of age (9-11 kg)

Closure of growth lines: 18+ months of age

Fully grown: 24 months of age (~35 kg)

Göttingen Minipigs are the smallest purpose-bred minipig available for research. Göttingen Minipigs reach sexual maturity at 3 to 4 months of age for males weighing 7 to 9 kg and at 4 to 5 months of age for females weighing 9 to 11 kg. The small size makes them ideal models if only limited test article is available. The housing and handling procedures used for minipigs are more similar to those used for dogs than for larger swine breeds. In fact, many of our customers only need to make minor modifications to existing dog pens to house Göttingen Minipigs.

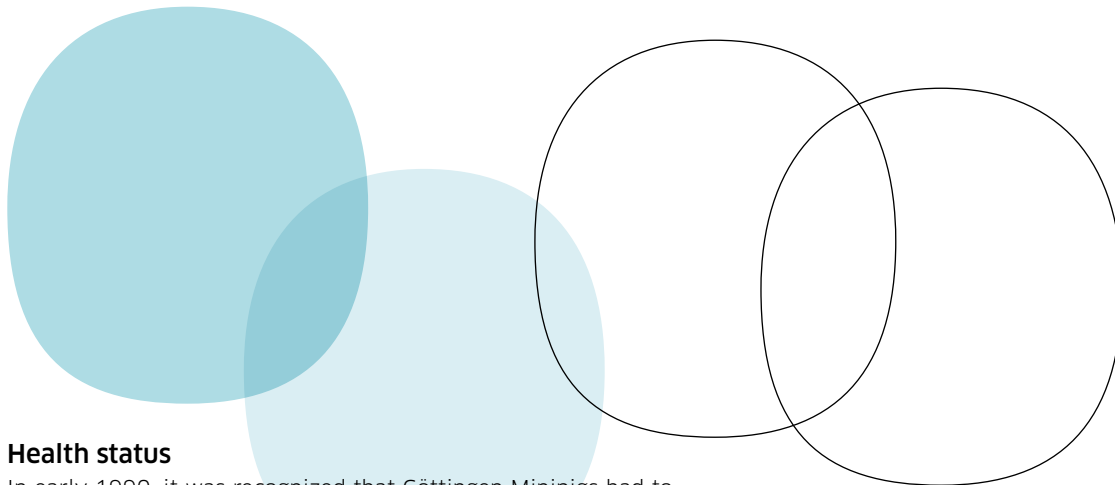
Genetic background

Göttingen Minipigs were bred at the University of Göttingen in the 1960s. It originates from crossing the Minnesota Minipig with the Vietnamese Potbelly Pig and the German Landrace. This cross-breeding combined the Minnesota Minipig's small size with the fertility of the Vietnamese Potbelly Pigs and the white phenotype of the German Landrace. The goal was to develop a genetically outbred minipig with a low adult weight and white skin with sparse hair. The University of Göttingen is still responsible for the overall genetic management of all Göttingen Minipigs breeding colonies.



Daily socialisation between staff and animals.

Health and animal welfare at its best



Health status

In early 1990, it was recognized that Göttingen Minipigs had to be microbiologically defined in order to follow modern developments in laboratory animal science.

Microbiological standardization is necessary because of the possible interference of pathogens with experimental results. The known effects of microorganisms on animal experiments are pathological changes, immunomodulation, physiological changes, interference with reproduction, competition of pathogens with the animal, oncogenesis and contamination of biological products.

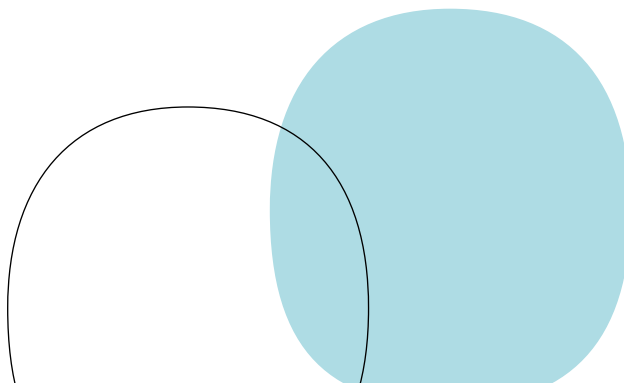
Using microbiologically defined animals for experiments reduces the influence of these factors. Barrier-bred Göttingen Minipigs are produced in independent, full-barrier, SPF facilities to ensure microbiological quality. The colonies are health monitored twice a year, based on FELASA recommendations.



Animal welfare

Animal welfare is our top priority and it is incorporated into every procedure and daily routine performed at Ellegaard Göttingen Minipigs. Our facility has been fully accredited by AAALAC International since 1998.

All procedures in the full-barrier breeding facility are described and carried out as standard operating procedures (SOPs). These procedures include a comprehensive socialization program where the minipigs have daily, positive contact with staff members. Group housing in compatible groups and pen design, including toys that maintain interest in playing, are other major factors that ensure a high level of animal welfare and accommodate the needs of the minipigs.



Our products

Göttingen Minipigs

From our facility in Denmark, our experienced and dedicated staff supply pharmaceutical companies, CROs and universities with high-quality Göttingen Minipigs for biomedical research.

The capacity in our two barrier units enables us to supply customers with large, uniform groups of Göttingen Minipigs with a unique health status.

Please provide us with as many details about your requirements as possible and we will select the best possible group of minipigs for your study.

We can deliver minipigs from 4 weeks of age, and pregnant minipigs are also available upon request.

Research Barrier

In June 2016, we had the grand opening of our new Research Barrier, which allows access to a state-of-the-art minipig housing facility and a surgical suite that will enable the development, characterization and validation of new Göttingen Minipig disease models, animal model preparation, and expand our business offerings into new areas.

Transgenic animal models

To ensure that Göttingen Minipigs will be the preferred minipig for the creation of transgenic animal models, we have recently signed an agreement with the University of Göttingen enabling us to start developing and commercializing transgenic Göttingen Minipigs and to offer these rights to third parties. Furthermore, in the future we can offer to breed transgenic animals in our Research Barrier depending on customer interest and request.

Surgically prepared Göttingen Minipigs

With the Research Barrier now in operation, we are further able to supply Göttingen Minipigs with telemetry, pre-implanted permanent catheters, VAB and VAP ports for easy vascular access. Please contact us to discuss further as several options are available depending on your requirements.

Biological products

Ellegaard Göttingen Minipigs A/S provides a wide range of biological products and specimens as well as customer specific biological samples from Göttingen Minipigs to support your research. Blood, serum, plasma, skin, organs and other tissues from Göttingen Minipigs can be delivered according to your specifications.

Auxiliary equipment

A range of auxiliary equipment is offered for the handling of Göttingen Minipigs, such as different sizes of slings, bite bars, restraint chairs for gavaging, hammocks, restraint benches for blood sampling etc. Please ask for our complete assortment and price list.



... and services

Courses in handling, dosing and surgery

In order to maintain the minipig's willingness to cooperate, it is of great importance that the staff handling the minipigs in a study is well acquainted with the correct handling of the minipigs in different procedures. We arrange courses in e.g. minipig handling, dosing, surgery and training.

Please contact us if you would like us to arrange a course for you or your staff.

Support beyond the standards you expect

We welcome questions of any kind regarding Göttingen Minipigs and our professional staff is ready to assist you. Our veterinary and scientific experts are available for assistance before, during and after your studies involving Göttingen Minipigs. Furthermore, we would also like to provide you with the information you need for designing and preparing minipig facilities.



An extensive amount of background data is available in our literature database, and we provide scientific advice and assistance if so required. In many cases, we can provide contact to colleagues in your own field for the exchange of non-proprietary scientific and technical knowledge.

Delivery

We deliver Göttingen Minipigs to most parts of the world and have dedicated partners who supply the markets in North America, Japan and Korea.

Göttingen Minipigs are transported to your facility in vehicles for deliveries in Europe. The vehicles are HEPA-filtered and air-conditioned and driven by well-trained staff.

The minipigs are transported in VariKennel transport boxes with bedding and are watered and fed regularly during transport. If preferred, we include enough feed with the delivery for the adaptation period and refer to the feed producer for larger quantities.



Our story

Ellegaard Göttingen Minipigs A/S was founded to supply scientists in biomedical research with a better non-rodent animal model, than what was already available. Such a model should have many similarities to humans, a high-quality health status, and be small and easy to handle.

The first colony of barrier-bred, microbiologically defined Göttingen Minipigs was derived in Denmark in 1992. The minipigs were obtained through Caesarean section to establish the unique health status and the foundation of the herd, which is still in breeding today.

Today Göttingen Minipigs are fully recognised as an established animal model by all regulatory authorities worldwide. High

health, welfare, quality, knowledge, and service standards have turned Ellegaard Göttingen Minipigs A/S into a leading international company supplying Göttingen Minipigs for biomedical research in close cooperation with our dedicated partners.

From our AAALAC-accredited facility in Denmark, we breed Göttingen Minipigs and genetically modified strains and enable the development of safer and more effective medicines, all based on our core values:

**Animal welfare, quality,
respect, and collaboration**



Ellegaard Göttingen Minipigs A/S

Sorø Landevej 302,
4261 Dalmose, Denmark

Europe and Asia

Tel: +45 5818 5818
ellegaard@minipigs.dk
www.minipigs.dk

North America

Research Services and genetically altered Göttingen Minipigs

Ellegaard Bioresearch Inc.
USA
Tel: +1 410 693 7101
jca@minipigs.com

North America

Göttingen Minipigs breeding and distribution

Marshall BioResources
North Rose, NY 14516
USA
Tel: +1 315 587 2295
Fax: +1 315 587 2109
infous@marshallbio.com

Japan & Taiwan

Oriental Yeast Co. Ltd.
3-6-10, Azusawa, Itabashi-ku
Tokyo, 174-8505, Japan
Tel: +81 3 3968 1192
Fax: +81 3 3968 4863
fbi@oyc.co.jp

Korea

WOOJUNGBIO
New Drug Development Cluster
593-8, Dongtangiheung-ro,
Hwaseong-si, Gyeonggi-do,
Korea 18469
Tel: +82 31 888 9369
Fax: +82 31 888 9368
ljhong@woojungbio.kr