STATENS SERUM INSTITUT

FACT SHEETS

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Fact sheets by department

The fact-sheets cover all Departments at Statens Serum Institut and describe what they do, what they wish to collaborate on, examples of past collaborations and how to contact them.

Introduction

Statens Serum Institut (SSI) is Denmark's national institute for infectious disease preparedness, surveillance, diagnostics, and vaccine research under the Ministry of the Interior and Health. We work across human and veterinary health, combining scientific research with national authority responsibilities.

Our role is strengthened by unique national assets: comprehensive microbiology surveillance, advanced laboratories, population-scale health data, and one of the world's largest biobank ecosystems. SSI's research is fully embedded in these activities, ensuring that guidance, diagnostics, and preparedness efforts are scientifically robust and continuously updated.

The purpose of this document is to introduce SSI to potential partners and collaborators. As such, the following will present our mission, vision and primary strongholds, including infectious disease preparedness in humans and animals, One Health, antimicrobial resistance (AMR), vaccine research, early life health and global health. In addition, this document presents a Fact Sheet for each of SSI´s departments and suggests possible areas of collaboration

Mission

We prevent and fight infectious and congenital diseases through research, monitoring, diagnostics and guidance.

Vision

SSI - an internationally leading research and preparedness organisation that strengthens the health of humans and animals.

In the coming years, our efforts to underpin the mission and fulfill the vision target six strategic action areas:

- Far-sighted and future-proof preparedness activities
- One-Health - health for humans and animals
- Research and evidence as the foundation
- A strong base of data
- Useful, open and transparent
- Cooperative and inclusive
- One of Denmark's most attractive workplaces

How we Collaborate

SSI works with:

- National authorities and healthcare providers,
- Universities and research organisations,
- International agencies including World Health Organisation (WHO), European Centre for Disease and Prevention Control (ECDC), and EU networks,
- Private partners and foundations.

Collaboration formats include joint research studies, infrastructure development, reference laboratory services, capacity building, and long-term multi-partner programmes.

Strategic Strongholds

SSI's work is anchored in strategic strongholds that combine national authority responsibilities, world-class research, and unique data and research infrastructure. Together, they enable SSI to detect, understand, and mitigate infectious diseases across human and animal populations as well as congenital diseases.

Infectious Disease Preparedness in human and animals: the One Health approach

As a public health institute, SSI provides research, advice and counselling directed at the health care system, authorities and other stakeholders as well as the general public in the human and veterinary area. Our unique strengths in this area include covering both the diagnostic and the epidemiological sides, applying a One Health approach. SSI provides integrated human–veterinary preparedness, leveraging diagnostics, whole-genome sequencing, outbreak investigation, wastewater surveillance, and epidemiology.

Antimicrobial Resistance (AMR)

SSI serves as National Reference Laboratory (NRL) for AMR in humans and provides the Danish health care system with validated diagnostics and advice to healthcare professionals and policy- and decision-makers based on evidence and expert knowledge. The EU has also designated SSI, together with DTU Food and EUCAST in Sweden, European Reference Laboratory (EURL) for AMR in bacteria. Furthermore, through Danish development aid, EU funding and privately funded projects, we provide tailored capacity building programs in NRL functions, WGS diagnostics, surveillance, and outbreak analysis for public health organisations globally.

Vaccine Research & Development

SSI is researching vaccines against tuberculosis, malaria and chlamydia, as well as a number of vaccine adjuvants, which help solicit a stronger immune response in the body. SSI has an R&D environment that collaborates with key stakeholders at universities, funders, policymakers and communities.

Doneguebougou and surrounding village, Mali, West Africa, Jordan Plieskatt

Early Life Health

Denmark conducts neonatal screening on all newborns for severe, treatable disorders, aiding early diagnosis and preventive therapy. Our Neonatal Screening Biobank, dating back to 1982, offers extensive biomedical research opportunities, linking samples with health data from national registries. An active research environment at SSI has pushed the boundaries for the types of analyses that can reliably be performed on very small amounts of dried blood spot sample material, providing unprecedented possibilities for research in early life health.

Digitalization, Biobanks & Precision Public Health

SSI collects and produces a remarkable amount of invaluable data for population-based public health research projects in a unique setup. Access to these current as well as historical health data creates the foundation for core activities at SSI, including both research and preparedness. SSI hosts the National Microbiology Database (MiBa), the Hospital Acquired Infections Database (HAIBA), and the Danish Vaccine Registry. SSI is also home to the Danish National Biobank, hosting more than 13 million biological samples.

A Strategic Focus Area: Climate Change & Health

Climate change is increasing the frequency and severity of flooding, heatwaves, droughts, and shifts in vector habitats. These changes affect the spread of infectious diseases and increase health risks for vulnerable populations.

SSI's strategic focus is to strengthen national preparedness by integrating environmental data, microbiological surveillance, and population-level registry data to model climate-related health impacts. This includes analysing how changing environmental conditions influence pathogen dynamics, vector distribution, and disease burden.

To advance this work, SSI aims to develop data-driven early-warning systems and apply AI- and machine-learning methods in collaboration with national and international partners. These tools will support more precise risk assessments, enhanced outbreak prediction, and informed public health interventions.

Animal Facility

What we do

The department is dedicated to the design and execution of animal experiments for both internal and external collaborators and clients. The facility is purpose-built to support studies involving microorganisms in risk groups 1-3 (BSL 1-3), as well as housing animals inoculated with GMO classes I and II. All experimental planning is carried out in close collaboration with clients, ensuring that both scientific excellence and a high standard of animal welfare (EU Directive 2010/63/EU) remain central priorities.

Our department conducts a wide range of animal experimental activities, including testing active pharmaceutical ingredients (API) and vaccines under GMP conditions, GLP-like and pre-clinical studies, research experiments, and immunization protocols.

With a strong foundation in vaccine research, development, and quality control, the department also supports the development of antimicrobial compounds through in vivo models. Additionally, the department provides extensive technical and academic expertise in establishing customized animal models (infection models, vaccine models) across multiple species, including mice, rats, guinea pigs, hamsters, rabbits, and in the near future, ferrets.

All procedures are carried out by experienced technicians, biologists and veterinarians following extensive and documented training, ensuring reliable experimental data.

Why collaborate with us

We offer end-to-end expertise in the design and execution of animal studies within advanced, fully compliant biocontainment facilities. With a strong focus on vaccine research, infection models, and antimicrobial development, we deliver customized solutions across multiple species. Our experienced team ensures high-quality, reliable data through rigorous training, standardized procedures, and close collaboration with clients.

Highlighted activies

Advanced Infection and Vaccine Animal Models We provide specialized technical and academic expertise in establishing customized animal models across multiple species, including mice, rats, guinea pigs, hamsters, rabbits, (and ferrets). With extensive experience in vaccine research, immunization protocols, and infectious disease studies, we support both research and pre-clinical development through tailored in vivo models designed to meet specific scientific objectives.	**High-Containment Services and CRO Testing** Our state-of-the-art high-containment animal facility supports Biosafety Level 1-3 and GMO class I and II studies under fully compliant conditions. We deliver CRO services focused on infection models and vaccine research, development, and quality control, alongside in vivo testing of antimicrobial compounds. The department also contributes to microbiological preparedness through advanced infection and containment capabilities.	**GMP-Compliant Animal Care & Study Execution** We offer comprehensive housing, breeding, and caretaking services performed according to GMP standards and EU Directive 2010/63/EU on the protection of animals used for scientific purposes. All studies are executed by highly trained technicians, biologists, and veterinarians, ensuring high animal welfare, reliable data, and consistent experimental quality for both internal and external collaborators and clients.

Who we are

Name	Title	E-mail	Areas of interest/research
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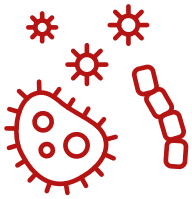
Bacteria, Parasites & Fungi



What we do

As national reference laboratories we perform specialized diagnostics and surveillance of human and veterinary infections with bacteria, fungi and parasites. The surveillance program includes the following pathogens:

- Bacterial sexually transmitted infections; Gonorrhea, chlamydia, *Mycoplasma genitalium*, and syphilis.
- Gastrointestinal and food- and waterborne infections caused by salmonella, campylobacter, shigella, listeria, yersinia, *E. coli*, C. *difficile*, Giardia and Cryptosporidium
- Systematic screening of wildlife species for zoonotic pathogens ex. Ecinococcus and Trichinella
- Respiratory infections and meningitis; *pneumococci*, hemolytic streptococci, meningococci, *Bordetella pertussis*, *Haemophilus influenzae*, legionella and *Chlamydia psittaci*.
- Fungemia and azole resistance in *Aspergillus fumigatus*.
- *Staphylococcus aureus* and methicillin resistant *Staphylococcus aureus* (MRSA)
- Vancomycin-resistant enterococci (VRE) and carbapenemase-resistant organisms (CPO)

Antimicrobial resistance (AMR) in bacteria and fungi, and usage of antimicrobials in hospitals and the primary sector is reported in the annual surveillance report DANMAP. Research and development within our core areas lead to understandings in disease pathogenesis, infection epidemiology, diagnostics, laboratory-based surveillance and outbreak investigations and prevention, antimicrobial resistance mechanisms and treatment of infectious diseases.

Why collaborate with us

The department has high level expertise within a number of activities such as WGS-based surveillance and outbreak detection, advanced bioinformatic data analysis, support to development of competences in AMR and typing internationally. We are highly skilled in complex bioinformatic tools for genomic epidemiology research, in reproductive microbiology, and in understanding of the evolution and detection of antimicrobial resistance determinants and we perform state of the art *in vitro* and in vivo experimental infection studies for evaluating antimicrobial compounds.

International collaboration examples

- Designated Coordinators of European Reference Laboratory for public health in the fields of AMR and Food and Waterborne Bacteria (EURL-PH-AMR and EURL- PH-FWDB)
- GenEpi-BioTrain (EU/EEA, ECDC)
- EUCAST- Development laboratory for Fungi

Who we are

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Eva Møller Nielsen	Head of Section	emn@ssi.dk	Food borne infections
Jørgen Skov Jensen	Head of Section	jsj@ssi.dk	Reproductive microbiology
Henrik Vedel Nielsen	Head of Section	hvn@ssi.dk	Parasites
Maiken Cavling Arendrup	Head of Unit	maca@ssi.dk	Fungi

Biosecurity and Biopreparedness

What we do

SSI's Centre for Biosecurity and Biopreparedness (CBB) is the national authority on biosecurity and polio 'virus containment. We issue licenses to institutions and companies to allow them to work with biological dual-use components and research and conduct audits at polio virus facilities through our capacity as the National Authority of Containment (NAC). Additionally, we maintain a specialized 24/7 biopreparedness response capability to counter the effects of a biological incident whether of accidental or malicious origins.

The staff is scientifically trained personnel with backgrounds in e.g. microbiology, biotechnology, social sciences, law, military history, or with previous experience from defense/preparedness organizations.

Why collaborate with us

At CBB we are good at; biosecurity, biopreparedness, bio-risk management systems, bio-threat analyses, dispersal modelling, outreach and awareness raising (ethics and responsible research), dual-use technologies, microbial analyses, open-source intelligence analysis, capacity building, teaching and training.

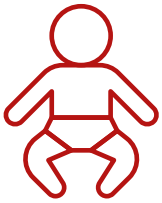
Highlighted activies

Capacity building in Kenya Through 6 years, CBB participated in a partnership programme with Kenya. The project pillars included: 1. Drafting biosecurity legislation and supporting implementation, 2. Building biosecurity and biopreparedness capacities to relevant agency(ies), 3. Raising awareness through activities in life-science universities and 4. Improving regional biosecurity	**Open source intelligence** CBB uses open-source intelligence as a tool to monitor the biological threat landscape in terms of developing technologies with potential for misuse, reports of unusual epidemiology in outbreak surveillance and the development in a range of topics within the broader field of biodefense. This kind of monitoring has proven to be highly valuable to CBB and various national stakeholders.	**Disarmament and response** CBB actively supports the UN Disarmament Agenda through the Secretary-General's mechanism to investigate alleged use of bioweapons. CBB is involved in ongoing collaboration in several professional networks, for instance the group "Friends of the Mechanism", centered around the UNSGM Designated Laboratories Workshop by Labor Spiez in Schwitzerland. CBB also actively participates in activities supporting the Convention against Biological Weapons (BWC) in cooperation with the Danish Ministry of Foreign Affairs.

Who we are

Name	Title	E-mail	Areas of interest/research
Vibeke Østergaard Thomsen	Director	vot@ssi.dk	Biosecurity, Biopreparedness, Disarmament and Non-proliferation, OSINT, dual-use technology assessment, rapid diagnostics

Congenital Disorders



What we do

The Department for Congenital Disorders screens around 60,000 newborns in Denmark for 25 treatable congenital disorders using neonatal dried blood spot samples, preventing death or disability in up to 70 infants per year. Our mission is to continuously improve the Danish neonatal screening program with the vision that every child born with a rare, treatable disorder can reach their full potential. We maintain a focused research program to:

1. Identify novel biomarkers to improve the detection of congenital and early-life disorders
2. Understanding prenatal exposures and their role in child health
3. Expanding newborn screening through sequencing

In addition to our core research program, we also led or participate in research projects employing a variety of molecular methods on dried blood spot cards to identify causal risk factors and underlying mechanisms for conditions affecting mothers and newborn children.

Why collaborate with us

Since 1981, all samples have been preserved at −20°C, creating a biobank of over two million PKU cards. This unique resource supports research on congenital disorders, subject to ethical approval and participant notification. We have extensive expertise in analyzing dried blood spot samples using short and long read sequencing, genotyping, methylation, RNAseq analysis, metabolomics, and proteomics *(OLINK and mesoscale)*.

Highlighted activies

Novel biomarkers for congenital and early-life disease	**Prenatal exposure and child health**	**Expanded newborn screening**
INSIGHT: Identifying Causes of Newborn Severe Intestinal Disorders: Gestational, Hereditary, and Environmental Triggers. **NEOPRIME:** Identifying novel biomarkers for newborn screening of biliary atresia using advanced mass spectrometry methods. **CODIBINE:** Identifying novel causes of premature birth. Genome-wide association studies of febrile seizures and epilepsy to identify genetic risk variants.	**Deep Fetal Development:** Analyses of pregnancy ultrasound images to understand disorders of fetal growth. Placental gene expression and gestational duration and health of children from pregnancies with and without preeclampsia. **DNBC Growth:** Understanding how the maternal proteome in pregnancy, fetal proteome at birth, and maternal and fetal genome influences growth in childhood. A project within the Danish National Birth Cohort.	**Large Flagship project:** **Heelix:** Expanding the Danish newborn screening using genomics, with a strong focus on ethics. **Prediposed:** Screening of large cohorts for ultra rare disease-causing variants using Double Batched Sequencing.

Who we are

Name	Title	E-mail	Areas of interest/research
Mette Nyegaard	Head of Department	meny@ssi.dk	Expanded newborn screening using genomics

Data Integration and Analysis

DIAS

What we do

The Department of Data Integration and Analysis (DIAS) systematizes, links, analyzes and visualizes national infectious disease data to ensure continuous surveillance of infectious diseases, vaccine uptake and effectiveness. We manage the Danish Microbiology database (MiBa), which forms the cornerstone of infectious disease surveillance in Denmark, and develop and maintain automated real-time surveillance systems for notifiable infectious diseases and the Healthcare-Associated Infections Database (HAIBA). We deliver data to and collaborate with internal and external stakeholders, including Danish and international health authorities, regional and municipal authorities, hospitals, clinical microbiology laboratories and researchers. Lastly, we process data for risk assessments and situation reports and produce automated reports and public interactive dashboards.

Why collaborate with us

DIAS' expertise lies in the intersection between clinical microbiology, epidemiology, data management and visualization, IT development, and architecture. Our key strengths are a deep understanding of MiBa data, digitalization and automation of infectious disease surveillance and building bridges between the above-mentioned fields.

Highlighted activies

Automated disease surveillance DIAS, together with SSI colleagues and regional partners, work to automatize the laboratory-based surveillance of infectious diseases. Data are captured in MiBa real time, andtime and systematized and translated into disease specific case definitions by use of algorithms. These data are linked with data from national registers and delivered to stakeholders in the form of dashboards, reports, or other outputs. It is an ongoing task to fully develop and automatize the chain from data capture to visualization and other outputs.	**HAIBA** HAIBA is a national surveillance system for healthcare-associated infections (HAIs). Using MiBa and various registers, we create case definitions for five HAIs: Bacteremia, Urinary Tract Infections, *C. difficile* infections, and infections after total hip and knee prosthesis. Data is sent to regional servers for infection control in hospitals.	**EU co-funded activities** As part of the Joint Action UNITED4Surveillance (U4S) (2023-2025), DIAS worked with partners to strengthen disease surveillance in the areas of laboratory-based reporting and One Health (zoonotic influenza). As a continuation, DIAS is now part of the EU co-funded grant UpSurvDK (2025-2029) that will expand on activities under U4S, and with EHDS in sight. Focus is on national and international classifications for clinical microbiology as well as active surveillance for zoonotic influenza virus infections.

Who we are

Name	Title	E-mail	Areas of interest/research
Marianne Voldstedlund	Head of Department	mav@ssi.dk	Clinical microbiology. Digitalization and automation of disease surveillance.
Sophie Gubbels	Head of Section	gub@ssi.dk	Infections disease epidemiology. Automated surveillance systems, visualization and output. HAIBA (Healthcare-Associated Infections Database).
Camilla Rasmussen	Head of Section	cmra@ssi.dk	Danish Microbiology Database (MiBa) and MiBAlert.

Data Science & AI in Health

What we do

The goal of the Department of Data Science & AI in Health is to uncover determinants of health- and disease with a strong focus on vaccinations, infections, antibiotics and pregnancy. Our research is rooted in the unique Danish population registers supplemented with data from prospective cohorts, surveys, and biobanks. We use state-of-the-art methodology and strive to inform on research questions of great importance to public health both nationally and internationally.

Why collaborate with us

The Department of Data Science & AI in Health has access to and experience in working with the Danish population register data. We are experts in the conduct of large cohort studies with individual-level and longitudinal information on a multitude of covariates, exposures and outcomes and with follow-up over many years. We also have an excellent track record of international collaborations, including insight into best practices for the conduct of common analyses and combination of results from study partners.

Highlighted activies

Safety of Aluminum Adsorbed Childhood Vaccines Vaccine safety is a key focus. This is exemplified in our recent nationwide cohort study of 1.2 million Danish children where we evaluated potential risks from aluminium adjuvants used in vaccines. We found no evidence of an increased risk for 50 autoimmune, atopic, or neurodevelopmental disorders. Studies such as this provide robust evidence and is much needed with misinformation on vaccine safety on the rise.	**Climate and Health** Both extreme heat and cold pose threats to human health. Current research has focused on average effects across populations in countries or cities. We are working on models that can estimate or predict health impacts in both high geospatial resolution and can consider individual-characteristics of vulnerability such as comorbidity and socio-economic disadvantage.	**AI to combat AMR** We are working on developing machine learning methods to better understand the causes and effects of AMR and to improve AMR stewardship. This involves developing predictive antibiograms to reduce time to effective treatment, and network analyses of hospital wards to understand and predict how resistance travels between wards.

Who we are

Name	Title	E-mail	Areas of interest/research
Anders Hviid	Head of Department	aii@ssi.dk	Vaccine effectiveness and safety, post-acute sequelae of infections, antibiotics / AMR, machine learning in public health, data science
Lasse Engbo Christiansen	Head of Section	lsec@ssi.dk	Dynamics and prognosis of infectious diseases
Morten Frisch	Head of Section	mfr@ssi.dk	Sexual health, sexually transmitted infections

Department of Sequencing and Bioinformatics

What we do

At the Department of Sequencing and Bioinformatics, our work spans wet and dry lab activities. In the wet lab, we generate sequencing data for microbial surveillance and research at Statens Serum Institut, while also exploring new technologies. Applications include microbial community analysis linked to disease, single-cell sequencing, wastewater studies, and metagenomics of polymicrobial infections and AMR. A dedicated team drives method development and implementation.

On the bioinformatics side, we build and maintain IT systems and pipelines for sequencing analysis, support capacity-building through teaching and collaborations, and contribute to pathogen surveillance. Research priorities include One Health studies of pathogen and AMR flow—especially in LMIC contexts—longstanding work on Staphylococci and hospital-associated infections, and microbiome research focused on the transition from commensal carriage to disease.

Why collaborate with us

Research is central to Statens Serum Institut. We collaborate with hospitals and universities in Denmark, Europe, and beyond to study microbial evolution, adaptation, and disease potential. Our team combines expertise in genomics, method development, bioinformatics, and microbiomics pipelines, always with a focus on public health and surveillance. With automated labs and strong IT resources, we handle projects from clinical samples to complex data analyses. We continuously adopt new tools and approaches, working with partners, students, and visiting researchers to address clinically relevant questions.

Highlighted activies

Dynamics of staphylococci infections in hospitals – selection and dissemination.	Discrepancies in transmission of microbes and resistance between reservoirs in industrialized & LMICs.	Understanding the underlying genomic characteristics that define virulence, transmission and disease in pathogens.

Who we are

Name	Title	E-mail	Areas of interest/research
Lance Price	Senior Researcher	lapr@ssi.dk	Antibiotic resistance evolution and transmission, One Health surveillance, policy and intervention strategies
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Katja Nyholm Andersen	Head of Section	kno@ssi.dk	Genomic sequencing, laboratory management, preparedness, laboratory automation
Marc Stegger	Head of Department	mtg@ssi.dk	Microbial evolution and selection, One Health, microbiome, antimicrobial resistance

Digital Infrastructure

What we do

The Department for Digital Infrastructure (DIGINF) at Statens Serum Institut (SSI) supports biomedical research, biobanking, and high-capacity diagnostics by providing, maintaining, and implementing IT optimization and data-driven automation solutions.

Since 2012, we have supported the Danish National Biobank (DNB) by automating laboratory data flows and optimizing and digitalizing laboratory processes. Since 2020, our team has developed and continues to enhance a flexible IT system supporting the rapidly established TestCenter Denmark laboratories for large-scale population COVID-19 testing.

DIGINF has a lead on SSI's data strategy initiative, which includes, among other efforts, the establishment of SSI's shared data infrastructure — the Preparedness and Research Grid (PRG) — built on a local high-performance computing (HPC) infrastructure provider.

Why collaborate with us

Our department brings experience and expertise within the following areas:

- Full-stack development of web and mobile applications & (micro-) services
- Implementation of data solutions (data extractions, ETL, stored procedures, etc.)
- Data modelling and analysis
- Design and implementation of relational databases
- IT system & data integration, automation of laboratory processes
- Planning of new IT solutions, requirement specifications, solution architecture design

Highlighted activies

Danish Biobank Register A national IT system that integrates Danish biobanks with major national health registries, providing researchers with a powerful tool to support the design of new research projects and the identification of relevant cohorts for future studies. Aggregated information about existing biological material available for research is accessible through a secure, web-based search platform. To date, the system contains data on approximately 30 million biological samples from 6 million Danish citizens.	**RegApp** An IT solution designed for use on mobile devices, providing essential functionality for the collection of data in research projects or health surveillance-oriented initiatives that require both direct (unsupervised) and supervised interaction with citizens. The solution integrates with the Danish national eID (MitID), includes a built-in scanner for various types of codes, and features a flexible questionnaire module. RegApp is developed in accordance with applicable data protection and information security standards, ensuring a security-proofed and compliant platform for handling sensitive health and research data.

Who we are

Name	Title	E-mail	Areas of interest/research
Bartlomiej Wilkowski	Head of department	baw@ssi.dk	Data strategy, data-driven IT solutions, biobanking, data infrastructure
Anders Jensen	IT solutions architect	anje@ssi.dk	Data-driven IT solutions, data modelling, automated data flows, IT infrastructure, biobanking

Infectious Disease Epidemiology & Prevention

What we do

We are responsible for the national surveillance of infectious diseases in Denmark, and we perform epidemiological research in relation hereto. Further, we detect and investigate outbreaks, we do risk assessments related to infectious diseases and provide evidence-based advice within the Danish health system on prevention of infectious diseases and vaccination. We communicate about risks and infectious disease matters, i.e. via our website and several national epi bulletins. We also participate in international projects and activities as well as serve as a host site for training activities (including the EU EPIET programme and the Danish medical public health specialization). We are the hub for the all-cause mortality monitoring system (EuroMOMO) with participation from 27 countries in 2025.

Why collaborate with us

We work with surveillance systems and with data and take advantage of the extensive Danish health and administrative registers for surveillance, aiming to do data-driven surveillance. We have the possibility to do sophisticated and often big-data analyses where we combine surveillance data (who is ill, where and when) with a number of explanatory factors and examine questions relating to determinants for infection, burden of illness, types of infectious agents, host and social factors, vaccine uptake & effectiveness and more. This may be used for research (the department published 64 peer-reviewed papers in 2024), but also timely 'data for action' analyses.

Highlighted activies

Monitoring of vaccination-programmes We provide advice regarding vaccines to healthcare-workers and monitor the uptake, effect and safety of vaccines. We study determinants for vaccination.	**Monitoring of all-cause mortality in Europe** We provide advice regarding vaccines to healthcare-workers and monitor the uptake, effect and safety of vaccines. We study determinants for vaccination.	**National surveillance of infectious diseases** We detect and investigate outbreaks and do risk assessments related to infectious diseases and provide evidence-based advice within the Danish health system on prevention of infectious diseases. We communicate about risks and infectious disease matters. An example of a risk assessment is found here tbe-risikovurdering-061223.pdf (ssi.dk).

Who we are

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Lasse Skafte Vestergaard	MD PhD	lav@ssi.dk	Emerging infections, vector-borne diseases, SARS-CoV-2 surveillance, Climate change

International Reference Laboratory of Mycobacteriology

What we do

The International Reference Laboratory of Mycobacteriology (IRLM) conducts research on tuberculosis (TB) and non-tuberculous mycobacteria (NTM) and provides expert guidance on prevention, treatment, transmission, contact tracing, and interpretation of diagnostic results. Since 1910, we have been diagnosing mycobacterial infections—beginning with microscopy, later expanding to culture and molecular biological methods. Today, we serve as the national reference laboratory for TB and NTM for Denmark, the Faroe Islands, and Greenland, and we also act as an international reference center for WHO and ECDC. Each year, the laboratory receives approximately 30,000 specimens.

Why collaborate with us

IRLM's main research areas include TB, mycobacteria, and molecular biology, with a particular focus on molecular epidemiology. We specialize in whole genome sequencing of mycobacteria. Our mission is to ensure that research in molecular epidemiology contributes directly to global health — for example, by uncovering molecular epidemiological patterns and informing both local and international disease control strategies.

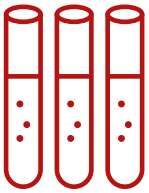
Highlighted activies

Occurrence and distribution of TB/NTM on national and international scales Using advanced DNA-based techniques, we characterize mycobacterial genomes and map tuberculosis transmission patterns. We also investigate genetic and environmental risk factors to understand how these factors influence both individual and public health. This knowledge contributes to improved prevention and treatment strategies.	**Rapid detection of TB/NTM** We develop and apply improved methods for the rapid detection of TB and NTM, including fast genotypic identification of species and resistance profiles.	**Mapping of TB transmission patterns** We investigate TB and NTM transmission patterns at both national and international levels, using the results to strengthen disease control and provide evidence-based guidance to national and international partners. Nationwide genotyping of mycobacteria using DNA-based methods was introduced in 1992, and strain collections extend back to the 1950s.

Who we are

Name	Title	E-mail	Areas of interest/research
Troels Lillebæk, Prof., DMSc, DTM&H	Head of Department	tll@ssi.dk	Tuberculosis (TB) and non-tuberculous mycobacteria (NTM)

The Danish National Biobank



What we do

The Danish National Biobank (DNB) stores more than 11 million biological samples and is thus one of the world's largest biobanks. The DNB is a unique resource nationally and internationally and of great use for research on disease pathogenesis, prevention and treatment.

The Danish National Biobank initiative consists of three parts: The National Biobank Register, containing anonymous information about samples available in Danish biobanks around the country, the biobank facilities at Statens Serum Institut (SSI) and a Coordinating Centre, which guides and advises researchers.

The Danish National Biobank initiative provides researchers from Denmark and abroad with an unprecedented possibility to exploit the potential of the many biological samples and associated health data collected by the Danish health sector. Some of the samples are stored in the DNB at SSI, whereas others are stored in other biobanks around the country.

Why collaborate with us

The Danish National Biobank's mission is to strengthen Danish research infrastructure and thus the opportunities for Danish health research and international collaboration and to be the preferred collaborator for researchers in scientific health research projects.

We offer a high throughput laboratory and storage facility with fully automated laboratory procedures, which minimize sample and data errors. We have extensive experience with all aspects of collecting and handling samples; labelling, transport, aliquoting, analysis, storage and retrieval, and are aiming to obtain the Biobank ISO 20387 accreditation to strengthen biobank processes quality further. Furthermore, with a sample collection of 11M biological samples in store, we help researchers find and select relevant samples for their research projects and guide them through the administrative processes.

As a team, we are innovative, effective, and flexible and operate with great trust amongst our colleagues and research partners.

Highlighted activies

Danish Cancer Society – Diet, Cancer and Health Cohort In the years 2015-2018 DNB collected, transported, automatically pipetted, analyzed and stored 450.000 blood and urine samples from 40.000 individuals for future projects in collaboration with the Danish Cancer Society.	**Samples for research projects** In the years 2013-2024 DNB has handed out in total 520.320 biological samples for 334 national and international health research projects.	**Covid-19 sample collection, handling, and storage** In the first stage of the Covid-19 pandemic, the DNB was highly involved in developing the workflow for throat swab and blood sample management in what was to become TestCenter Denmark.

Who we are

Name	Title	E-mail	Areas of interest/research
Karina Meden Sørensen	Head of Division	kms@ssi.dk	Sample Quality, Biobank Processes

Vaccine Development

What we do

The Department of Vaccine Development facilitates development of vaccine candidates, adjuvants and biologicals suitable for clinical phase 1 evaluation according to good manufacturing practice (GMP), good laboratory practice (GLP) and good clinical practice (GCP) requirements. We possess the expertise for taking especially vaccine protein candidates from research through GMP development into the first clinical trial. Our competences include cloning into bacterial systems, process and analytical development for subunit proteins, formulation with adjuvants, and coordination of toxicology studies and clinical trials.

Our animal facility (BIO) possesses expertise in animal models in various species for research with BSL class 1-3 and GMO I-II organisms. BIO especially has experience with infection models for vaccine research. Additionally, BIO can perform QC GMP services for vaccines.

Why collaborate with us

The Department of Vaccine Development is a qualified partner to lead projects from research to clinical phase 1 studies. As such, VUA has substantial experience in collaborating as sponsor, coordinator or project partner, and is currently active in numerous national and international partnerships.

Highlighted activies

H107-CAF10B GOOD VENTURES FOUNDATION - To develop and validate a new manufacturing process of the H107eV vaccine antigen for protection against pulmonary tuberculosis.
SSI will continue the development of the TB vaccine for further testing in late clinical phases for moving the vaccine into a licensure trial.

H107-CAF10B GF - First in Human Trial of the Novel TB Vaccine Candidate, H107/CAF10b. A phase Ia/Ib trial in South Africa
SSI will be sponsor for this study regarding the development of the next-generation TB vaccine candidate, H107e/CAF®10b consisting of eight Mycobacterium tuberculosis-specific antigens not shared with BCG and a novel adjuvant with the capacity to induce Th1/Th17 responses. Of interest, the Mtb-specific design allows for co-administration between BCG and the subunit vaccine, which shows potential for a mutual adjuvating effect.

Malaria (EDCTP - RIA - 2018 Strategic malaria vaccines) - Drug product for clinical sites in Africa – Burkina Faso and Mali. Rapid evaluation of Plasmodium falciparum Transmission Blocking Vaccine (PfTBV) candidates through enhanced African Resource Centers (ARC) for integration into malaria control and elimination.
The R0.6C and ProC6C vaccine antigens are produced in Lactococcus lactis. The cGMP production and analysis are set up and produced at SSI's Vaccine Development Department (cGMP pilot plant facility, VUA).

Vax2Muc (**NEXT-GENERATION VACCINES AGAINST MODERATE INFLAMMATION GASTROINTESTINAL MUCOSAL PATHOGENS**)
Vax2Muc will develop, as a proof-of-concept, a prophylactic H. pylori vaccine candidate that will be evaluated in a phase I clinical trial.
VUA - SSI: Development of GMP production and quality control of IMP for FIH.
Generation of an Investigational Medicinal Product Dossier (IMPD) for regulatory submission.

FAIR (**F**lagellin **A**erosol therapy as an **I**mmunomodulatory adjunct to the antibiotic treatment of drug-**R**esistant bacterial pneumonia)
VUA - SSI: Toxicological evaluation of GLP-grade nebulized flagellin.
Development of GMP production and quality control for nebulized flagellin.
Generation of an Investigational Medicinal Product Dossier (IMPD) for regulatory submission.

Who we are

Name	Title	E-mail	Areas of interest/research
Charlotte Jensen	Head of Department	cgj@ssi.dk	Vaccine Development and Animal Facility

Vaccine Research - Infectious Disease Immunology

What we do

Discovering and developing vaccines lie at the historical heart of SSI. Serum to curb diphtheria and the development of the tuberculosis vaccine BCG in the 1920s and 1930s are all part of our track-record in this area. Today, SSI does research into the interplay between host and microorganism to obtain information that can help develop new vaccines against infections that affect the mucosal surfaces (respiratory tract, urogenital tract, gastrointestinal tract) and on diseases that are given lower priority by industry, as further research is needed to develop an effective vaccine. This includes many of the most serious diseases prevalent in the Global South. The research is supported by collaborations with hospitals and universities in Africa, India, Europe, and the Americas.

Why collaborate with us

Improve global health through research and development of innovative vaccines.

SSI's Vaccine research works to improve global health through translational vaccine research, where we invent, patent, and develop promising candidates through a combination of basic research, technological development, and human clinical trials. To ensure that our inventions are translated to the benefit of the population, we actively engage in public-private partnerships and collaborations.

Highlighted activies

Research activities within mucosal immunity

Lungs (Tuberculosis and respiratory viruses)	**Genital tract** (Chlamydia)	**Intestines**	**Adjuvant and delivery**
Intranasal recombinant protein subunit vaccine targeting TLR3 induces respiratory tract IgA and CD8 T cell responses and protects against respiratory virus infection. EBioMedicine 2025. Immunogenicity, safety, and efficacy of the vaccine H56:IC31 in reducing the rate of tuberculosis disease recurrence in HIV-negative adults successfully treated for drug-susceptible pulmonary tuberculosis: a double-blind, randomised, placebo-controlled, phase 2b trial. Lancet Infect Dis 2025.	Post-exposure vaccine protection of CTH522/CAF® 01 against reinfection with Chlamydia trachomatis requires Th1/Th17 but not Th2-immunity. npj Vaccines 2025. Immune signature of Chlamydia vaccine CTH522/CAF®01 translates from mouse-to-human and induces durable protection in mice. Nat Commun 2024.	(*H. pylori* and *E. coli*) Retinoic acid-adjuvanted vaccine induces antigen-specific secretory IgA in the gut of newborn piglets. Vaccine 2025. Effects of different immunomodulating liposome-based adjuvants and injection sites on immunogenicity in pigs. Microbes and Infection 2024.	MINCLE and TLR9 agonists synergize to induce Th1/Th17 vaccine memory and mucosal recall in mice and non-human primates. Nat Commun. 2024. A single immunization with CAF08 provides newborns with Th1-mediated protection against Respiratory Syncytial Virus infection. Nat Commun. 2022.

Who we are

Name	Title	E-mail	Areas of interest/research
Gabriel K. Pedersen	Head of Section	gakp@ssi.dk	Adjuvant research
Rasmus S. Mortensen	Head of Section	rjm@ssi.dk	TB vaccine research
Gregers Jungersen	Head of Section	grju@ssi.dk	Gastrointestinal research
Frank Follmann	Head of Department	frf@ssi.dk	Vaccine R&D

Virology and Microbiological Preparedness

What we do

The Department of Virology and Microbiological Preparedness at Statens Serum Institut serves as Denmark's One Health central and reference laboratory. We provide diagnostics, surveillance, and national preparedness for both human and veterinary viruses, as well as serological and molecular diagnostics and laboratory surveillance of other microorganisms.

The department encompasses the national sentinel system, the laboratory for wastewater monitoring, and the national high-capacity diagnostic and surveillance laboratory.

We are organized into eight specialized sub-divisions focusing on: Medical virology, molecular diagnostics, serology, influenza and other respiratory viruses, veterinary virology, virus preparedness, virus genomics and virus infection and immunology. Our team of highly skilled scientists collaborates closely with healthcare providers, public health authorities, veterinary institutions, and research organizations, both nationally and internationally.

Why collaborate with us

We are a trusted partner for advanced laboratory testing and analysis of viruses and other microbiological agents. Collaborating with us gives healthcare providers, public health authorities, veterinary agencies, and research institutions access to cutting-edge expertise, scalable resources, and in-depth knowledge essential for:

1. Diagnosing and investigating infectious disease outbreaks,
2. Monitoring disease trends and
3. Conducting research on emerging pathogens

Our state-of-the-art equipment and adherence to international standards ensure accurate, reliable results. With extensive cross-sectoral experience and a strong track record, we deliver timely and effective support during public health emergencies and develop scalable, research-driven preparedness solutions.

Highlighted activies

Diagnostics and preparedness Research and development at VMB focus on diagnostics, surveillance, and preparedness. We target virus families with pandemic potential and develop family-wide detection tools using PCR, WGS, serology, cultivation, and immune profiling. Key areas include molecular epidemiology, sample optimization, transmission, and pathogenesis.	**Wastewater analysis** We develop automated protocols for viral concentration and purification from wastewater, with standardized quality assurance. Samples are analyzed by RT-PCR, digital PCR, and targeted metagenomics.	**Virology – Influenza and Beyond** We investigate viruses and host markers relevant to zoonotic influenza transmission (swine and avian influenza). This includes research on host-virus interactions with a focus on functional humoral immunology, as well as influenza vaccine responses across different populations (humans, swine, and birds).

Who we are

Name	Title	E-mail	Areas of interest/research
Uffe Vest Schneider	Head of Department	ufvs@ssi.dk	Molecular Microbiology, Laboratory developed tests, Near-patient-testing/Point-of-care testing, virological preparedness focusing on respiratory and emerging/ vector-borne viruse