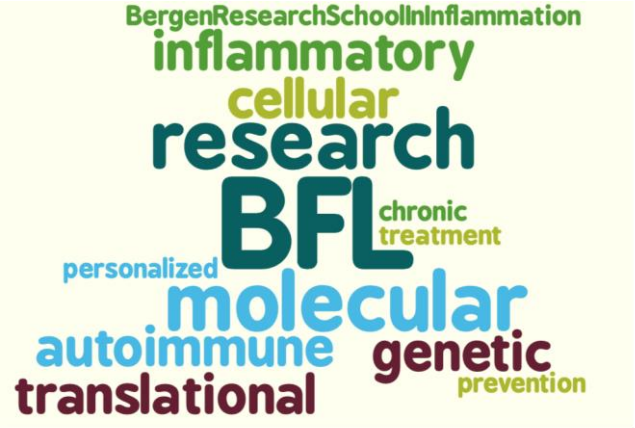
Annual Report 2022

Broegelmann Research Laboratory
University of Bergen



Photos: Silke Appel, Anne Sidsel Herdlevaer, Karl A. Brokstad, Roland Jonsson, Kim E. Andreassen, Helena Erlandsson Harris, UiB. Stefan Bladh

Front cover illustration by Kjerstin Jakobsen

Editor: Helena Erlandsson Harris

Content

Director’s comment

Photo: Stefan Bladh

Helena Erlandsson Harris, PhD.
Head of Broegelmann Research Laboratory, 2022

'' I am really excited about this opportunity to join the Broegelmann Research Laboratory and together with researchers there further develop BRL as a hub for research on inflammatory diseases. My goal is to ensure that the tradition of translational immunological research is continued and expanded by utilising the modern, state-of-the-art facilities available at UiB. Not only is this important in the quest to improve treatment and care of those affected by chronic inflammatory conditions, it is also the foundation for high quality doctoral education ''

These were my hopes and visions when I started as the head of the Broegelmann Research Laboratory in January 2022. Today, a bit more than a year later, I am still excited. Being more familiar with the environment I do see a lot of opportunities to fulfill my goals and we have started to realize them.

Thus 2022 has been a year when we have worked on strategies and visions, recruitments, initiating new projects and organisation. At the same time as moving established research projects forward successfully, securing external funding and pursuing activities within the Bergen Research school in Inflammation. 2022 was also the year when we could leave most of the digital meeting formats the pandemic compelled on us while retaining those that improve our interactions within the scientific community.

It is with pride that I look back on 2022 and how we at the Broegelmann Research Laboratory contributed with new science and knowledge, educated students and interacted with society.

With these introductory words we proudly present our annual report 2022.

Helena Erlandsson Harris

Head of Broegelmann Research Laboratory

Vision and Research Areas

'' To pave the way for personalized treatment and ultimately prevention of rheumatic diseases and their associated co-morbidities''

The researchers at the Broegelmann Research Laboratory have a mutual interest in translational research on chronic inflammatory and autoimmune diseases. The research performed spans from molecular and genetic studies, cellular studies and experimental models as well as studies on clinically well-characterized patient samples.

The mutual ambition is to understand the molecular mechanisms active in different inflammatory diseases and their subgroups, their underlying risk factors and triggers. This paves the way for better, personalized treatment and ultimately to prevention of disease.

Current major areas of research:

Translational studies in autoimmunity; autoantibodies and biomarkers

Immunopathogenesis of juvenile idiopathic arthritis

Functional genomics and genetic basis of the autoimmune exocrinopathy (Sjögren's syndrome)

Host microbe interactions (*P. gingivalis* – arthritis, Alzheimer)

Hyperinflammatory primary immunodeficiency syndromes

Inflammation in mental disorders

Cancer

The Board

The Broegelmann building at Strandgaten 5, downtown Bergen.

Photo: Helena Harris

The Broegelmann Foundation Board

(Kjøbmand J.P. Broegelmanns Legat)

Attorney at Law
Bernt Jacob Pettersen
Chairman

Professor, MD, PhD
Lars A. Akslen

Professor, MD, PhD
Robert Bjerknes

The Broegelmann Research Laboratory was inaugurated in 1957, made possible by the legacy of merchant Johan Henrik Broegelmann.
JH Brogelmann had inherited a successful fabrics and finer ladies' clothing business from his father, Johan Petter Broegelmann. In his will, JH Broegelmann expressed his wish that his assets should form the basis for a foundation that in the name of his father should support humanitarian projects. He appointed his long-term co-worker Ingeborg Berg Nielsen as executer of his will. Ingeborg Berg Nielsen established the Merchant JP Broegelmann foundation with the purpose of supporting research on unexplored diseases performed at the University of Bergen; for example rheumatism, polio or cancer. Ingeborg Berg Nielsen further bequeathed her own assets to the foundation.
Thus, in 1957 the Broegelmann Research Laboratory could be inaugurated and has since then contributed the research field of immunology, including rheumatic diseases such as arthritis and Sjögren's syndrome. Even today, 65 years later, the support of the foundation forms the basis for immunology research at the University of Bergen.

Our Researchers

Head of Laboratory

Helena Erlandsson Harris, PhD (prof I)
Head of Bergen research school of inflammation
(inflammation/rheumatology)

Academic staff/senior researchers

/postdoctoral fellows

Silke Appel, Dr. rer. nat. (prof I)
(cellular/molecular immunology)

Yenan Bryceson, PhD (prof II)
(cellular/molecular immunology)

Richard Davies, PhD (post doc)
(cellular/molecular immunology)

Tim Holmes, PhD (post doc)
(cellular/molecular immunology)

Roland Jonsson, DMD, PhD (prof emeritus)
(rheumatology/immunology)

Marta Kaminska, PhD (post doc)
(biochemistry)

Piotr Mydel, MD, PhD (prof I)
(biochemistry/immunology)

Marie Wahren-Herlenius, MD, PhD (prof II)
(rheumatology/immunology)

Janka Babickova (researcher)
(Biochemistry/Nephrology)

Trainees

(supervisors in parentheses)
Noemi Dudzinska, PhD candidate
(Mydel/Kaminska)

Urszula Kalucka, PhD candidate
(Mydel/Appel/Kaminska)

Dorentina Osmani, PhD candidate
(Fossen/Appel/Kaminska)

Harini Pechiappan, PhD candidate
(Erlandsson Harris/Jonsson M/Aulin/Davies)

Aleksandra Petrovic, PhD candidate
(Appel/Jonsson R/Solberg)

Aina van der Meeren, PhD candidate
(Berentsen Jacobsen/ Appel/ Lied)

Ylva Bratterud Helgesen, Masters student
(Appel/Bergum)

Alireza Molai, Masters student
(Appel/Bergum/Borge)

Technical and administrative staff

Kate Froland, office manager

Marianne Eidheim, laboratory manager

Kjerstin Jakobsen, laboratory manager

Richard Davies, senior lab manager

Kjerstin Jakobsen and Harini Pechiappan

Tim Holmes

Silke Appel

Urzula Kalucka and Dorentina Osmani

Noemi Dudzinska

ADDITIONAL SCIENTISTS/ KEY COLLABORATORS AT UIB AFFILIATED WITH THE LABORATORY

Brith Bergum, PhD
Department of Clinical Science

Johan G. Brun, Professor,
Department of Clinical Science

Birgitte Berentzen Jacobsen, Assoc Professor
Department of Clinical Science
Haukeland University Hospital

Rebecca Cox Brokstad, Professor
Department of Clinical Science

Torgils Fossen, Professor
Department of Chemistry

Daniel Hammenfors, MD, PhD
Haukeland University Hospital

Stephanie Le Hellard, Professor,
Department of Clinical Science

Erik Johnsen, Professor,
Department of Clinical Medicine

Malin V. Jonsson, Professor,
Department of Clinical Dentistry

Maria K. Jonsson, PhD,
Haukeland University Hospital

Karl-Henning Kalland, Professor,
Department of Clinical Science

Rune Kroken, Assoc Professor,
Department of Clinical Medicine

Hans Peter Marti, Professor
Department of Clinical Medicine

Roald Omdal, Professor emeritus,
Department of Clinical Science

Lene Frøyen Sandvik, Assoc Professor,
Department of Clinical Medicine

Kathrine Skarstein, Professor,
Department of Clinical Medicine

Jørn Skavland, PhD
Department of Clinical Science

Silje Solberg, Assoc. Prof.
Department of Clinical Medicine

Principal Investigators

Silke Appel

Yenan Bryceson

Helena Erlandsson Harris

Piotr Mydel

Marie Wahren Herlenius

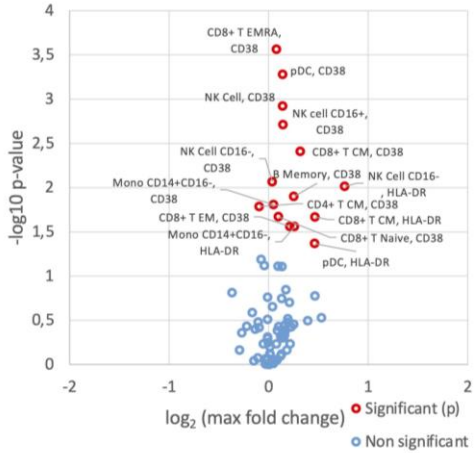
Silke Appel
Professor I

Single cell network profiling of distinct immune cells allows analyzing pathway specific activity of patient samples at the single cell level. This will enable us to stratify different categories of patients and develop personalized therapies. The overall aim of our research is to further unravel the mechanisms by which dendritic cells modulate T cell responses in autoimmunity. Our results will lead to a better understanding of the cellular mechanisms involved in antigen presentation, T cell stimulation and tolerance induction, thereby revealing new tools for diagnosis and targets for therapy of patients with cancer, autoimmune and infectious diseases as well as patients undergoing stem cell transplantation. Thus, it will lead to an increased survival and better quality of life for patients.

About Silke Appel:

Head of Research, Dept Clinical Science, UiB
Head of the core facility for flow cytometry, UiB

During the past year, we used multi-color flow cytometry to show that regulatory T cells from patients with Sjögren's syndrome have an impaired response upon stimulation with IL-2 (Keindl et al., Arthritis Res Ther, 2022). In addition, mass cytometry analyses of patients with Sjögren's syndrome revealed differences in immune cell composition and signaling profiles between different patient subgroups (Sarkar et al., Front Immunol, 2022).



Sarkar et al., 2022

GROUP MEMBERS
Roland Jonsson, professor emeritus
Alireza Molai, Master student
Dorentina Osmani, MSc, PhD candidate
Aleksandra Petrovic, MD, PhD candidate
Aina van der Meeren, MSc, PhD candidate

Yenan Bryceson Professor II

Our laboratory studies the molecular regulation of cytotoxic lymphocyte function in the context of inflammatory disease as well as cancer. Defects in cytotoxic lymphocyte function are associated with often-fatal hyperinflammatory primary immunodeficiency syndromes in infants, but many such patients cannot be explained by current molecular insights. Furthermore, harnessing lymphocyte differentiation and function represent a promising avenue increasing the efficacy of cellular immunotherapy of cancer.

About Yenan Bryceson:
Yenan Bryceson did his undergraduate training at the University of Oslo and PhD at the National Institutes of Health, Rockville, MD, USA. He was appointed professor II at the University of Bergen in 2012. He is also a professor at Karolinska Institutet, Stockholm, Sweden.

Our laboratory studies the molecular regulation of cytotoxic lymphocyte function in inflammation. Cytotoxic lymphocytes are broadly categorized into cytotoxic CD8+ T cells and natural killer (NK) cells. Defects in cytotoxic lymphocyte function are associated with often-fatal hyperinflammatory primary immunodeficiency syndromes in infants. These hyperinflammatory syndromes are also associated with an increased risk of developing hematological malignancies.

Recently, adoptive transfer of NK cells or T cells engineered to express chimeric activating receptors (CARs) have shown efficacy in clinical trials against hematological malignancies, but improving their persistence and potential utility against solid tumors remains a major challenge.

We are working to decipher the molecular regulation of cytotoxic lymphocyte differentiation and function in blood and tissues using cutting-edge single cell techniques, including advanced flow cytometry and sorting combined with high-throughput sequencing. A particular focus of ours is on how specific transcription factors can be harnessed to manipulate NK cell differentiation and potentiate function for improved immunotherapy of cancer.

GROUP MEMBERS
Timothy Holmes, PhD (post doc)

Helena Erlandsson Harris
Professor I

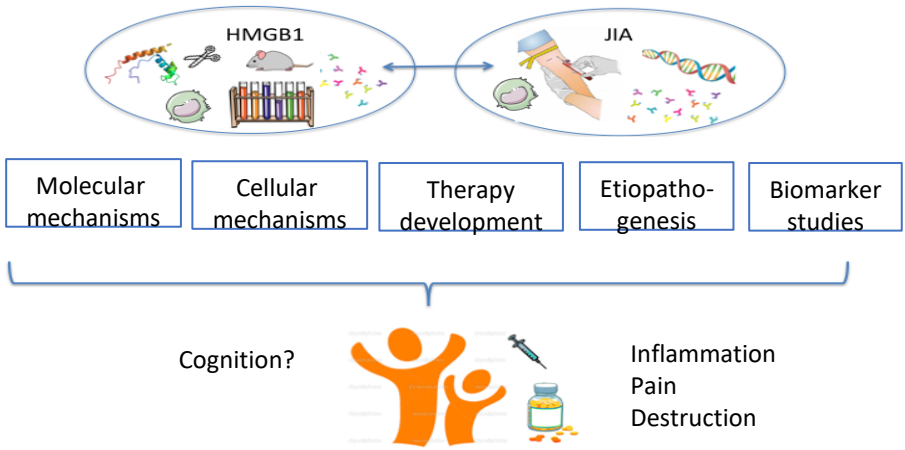
Juvenile idiopathic arthritis (JIA) is chronic arthritis affecting children. There is a great need for improved diagnostic and prognostics tools as well as new therapeutic options. In addition to joint inflammation, destruction of joint tissue and pain are hallmarks of the disease. In depth understanding of the molecular mechanisms driving these three hallmarks forms the basis for development of diagnostic/prognostic biomarker tests as well as development of new, specific therapy – precision medicine.

Alarmins are endogenous molecules released from stressed and dying cells with the function to initiate an inflammatory response. We study the alarmin HMGB1, how it can induce cell migration, cytokine production, cell differentiation and regeneration. All important features of chronic inflammation, including arthritis.

About Helena Erlandsson Harris:
Helena Erlandsson Harris did her undergraduate training at the University of Uppsala and PhD at the Karolinska Institutet, Sweden. She was appointed professor at Karolinska institutet in 2014. She became head of the Broegelmann Research Laboratory and Professor in Immunology at the University of Bergen in 2022.

Our projects are focused on expanding the molecular knowledge of the immune mechanisms active in JIA as a basis for biomarker and therapy development. To achieve this we analyse biosamples collected from children with JIA and compare generated data with information retrieved from national quality registers. In a recently started project we are investigating the possible connection of JIA, neuroinflammation and its potential influence on quality of life.

How HMGB1 is contributing to inflammation, pain and destruction is studied with a translational approach using molecular and cellular functional studies, analyses of HMGB1 in patient samples and model systems.



GROUP MEMBERS
Richard Davies, Senior Lab manager
Harini Pechiappan, PhD Candidate

Piotr Mydel
Professor I

The group believes in interdisciplinary cooperation with medical and dental clinicians, epidemiologists, bio-scientists, industrial scientists to achieve our goals of elucidating the role of post-translational modifications in the aetiology of autoimmune diseases.

About Piotr Mydel: Piotr Mydel did his PhD education at the Jagiellonian University in Krakow, Poland and at the University of Boston, MA, USA followed by post doctoral work at Washington University, University of Gothenburg and University of Bergen. He was appointed Professor I at the University of Bergen in 2019. Piotr Mydel also holds a professorship at the Jagiellonian University.

Taking into account that up to 30% of the adult population worldwide suffers from severe periodontitis, the impact of this disease on human health is immense. Periodontitis (PD) is largely caused by infection, in which *Porphyromonas gingivalis* is a major pathogen, and is the most prevalent infectious inflammatory disease of mankind.

Mounting evidence suggests a causative link between PD and rheumatoid arthritis (RA), as well as periodontitis and cardiovascular disease. *P. gingivalis* is the only bacterium expressing the enzyme peptidylarginine deiminase (PAD) which converts arginine to citrulline, a process referred to as citrullination. Antibodies towards such citrullinated proteins, i.e ACPAs/anti-CCP, are of central importance in RA a chronic autoimmune disease which affect 0.5-1% worldwide. The presence of ACPAs or anti-CCP autoantibodies is not only highly specific for RA but the presence is also related to a more severe and destructive disease progression.

We hypothesise that anti-citrullinated protein antibodies can be generated, in genetically susceptible individuals, as a consequence of *P.gingivalis*-induced citrullination in the gingiva.

GROUP MEMBERS
Janka Babickova, PhD, Researcher
Noemie Dudzińska, PhD candidate
Urszula Zofia Kalucka, MSc, PhD candidate
Marta Kaminska, PhD, postdoc

Marie Wahren-Herlenius
Professor II

The majority of autoimmune diseases are more common in women than in men, but the molecular basis for this sex-bias remains poorly understood. In our projects we focus on the autoimmune exocrinopathy Sjögren's syndrome which has among the highest observed female-to-male ratios, to dissect the genetic and hormonal contribution to sex-dependent immune regulation at single cell resolution and how these differences may lead to autoimmune disease.

About Marie Wahren Herlenius:
Marie Wahren-Herlenius did part of her PhD training and a postdoctoral period at the Broegelmann Research Laboratory. She was appointed professor II, University of Bergen in 2020. She is also a professor at Karolinska Institutet, Stockholm, Sweden

Women are at much higher risk of developing autoimmune disease, with the most extreme numbers in systemic disorders such as SLE and Sjögren's syndrome for which more than nine out of ten patients are women. There is a clear genetic contribution to these diseases and genome-wide studies have identified polymorphisms associated with Sjögren's syndrome. Interestingly, many of the associated genetic variants lead to differential gene regulation. However, the influence of sex, or why these immune-pathways and related genes would become dysregulated specifically in women is not clear.

In our projects, we build on the observation that genetic polymorphisms associated with Sjögren's syndrome that we identify dramatically increase the likelihood for the disease to develop in women carrying these genetic traits compared to men. Consequently, the context "female sex" may lead to a different functional impact of the genetic polymorphisms associated with systemic autoimmunity than the context "male sex". Our projects aim to identify sex-influenced eQTLs, and dissect the genetic and hormonal contribution to sex-dependent immune regulation at single cell resolution and how these differences may lead to autoimmune disease.

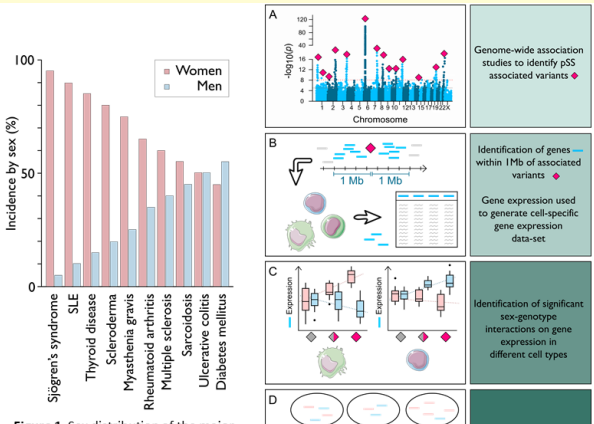


Figure 1. Sex distribution of the major Autoimmune diseases.

Figure 2. Steps to identify sex-influenced eQTLs and their mechanistic basis.


Fisherbrand
NAPP Run
Run 1 -> Run 6

Research Education

Bergen Research School in Inflammation (BRSI)

BRSI, coordinated by Helena Erlandsson Harris, is open to PhD candidates at UiB and encompasses activities such as courses, seminars, journal clubs – all with the aim to provide subject-specific knowledge to the participants.
Furthermore BRSI is an important platform for the interaction between PhD candiates and experienced scientists, to build networks, provide input on research projects and facilitate informal mentoring on research careers.

Courses given during 2022

- **HUIMM320** – Basic Immunology (5 ECTS)
- **HUIMM307** – Basic course in Flow Cytometry (5 ECTS)
- **HUIMM901** – Translational Immunology/project seminars (3 ECTS)
- **HUIMM902** – Journal club and watch (3 ECTS)
- **HUIMM903** – Human Immunobiology (10 ECTS)
- **HUIMM 905** – Advanced immunology course, precision medicine for inflammatory diseases (3 ECTS)
- **HUIMM306A/906A** – Molecular and Cellular Methods in Immunology (8 ETCS)

HUIMM 905, advanced immunology, is given every third year on different topics. This year's topic was 'precision medicine for inflammatory diseases'. The course was held at Myrkdalen hotel over days and had 30 participants.

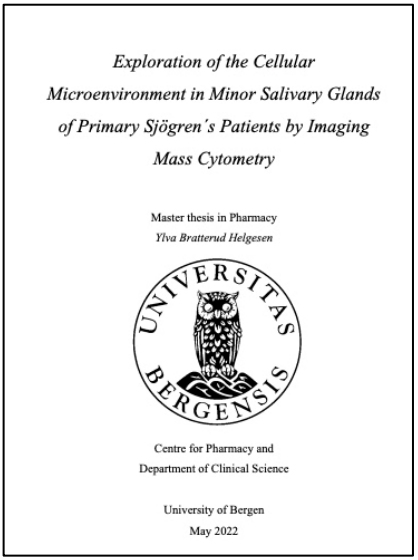
Graduations

Master thesis:

Ylva Bratterud Helgesen– Master in **Pharmacy**

Exploration of the Cellular Microenvironment in Minor Salivary Glands of Primary Sjögren´s Patients by Imaging Mass Cytometry

Supervisors: Silke Appel and Brith Begum



Exploration of the Cellular Microenvironment in Minor Salivary Glands of Primary Sjögren´s Patients by Imaging Mass Cytometry

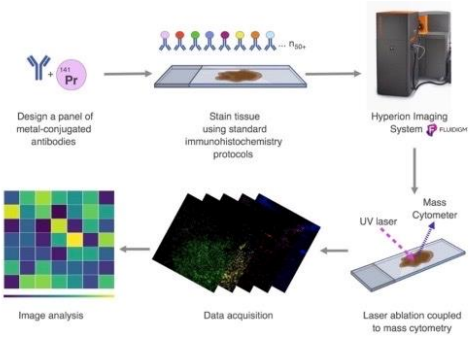
Master thesis in Pharmacy

Ylva Bratterud Helgesen

UNIVERSITAS BERGENSIS

Centre for Pharmacy and
Department of Clinical Science

University of Bergen
May 2022



External funding - major grants

2019 – 2024
Piotr Mydel: National Institutes of Health (RO1 DE022597) "Bacterial peptidylarginine deiminase, a link between gums and joint disease", Total 6.4 mill NOK

2020-2023
Foundation for Research in Rheumatology (FOREUM) "Genetic variants associated with Sjögren's syndrome leading to differential gene expression in males and females and their functional impact on the immune system"; Karolinska Institutet v/Marie Wahren Herlenius as coordinator, UiB and Harvard as partners. Appel/Jonsson Total 1 500 000 NOK

2020 – 2023
Piotr Mydel: National Science Center Poland (2019/33/B/NZ4/01889) "Protein Carbamylation in Hemostatic Dysfunctions in Chronic Kidney Disease"; Total 505 000 €

2020 – 2023
Piotr Mydel: EU Joint Programme – Neurodegenerative Disease Research (EC/JPND; ES655895) "Alzheimer's disease as a co-morbidity of chronic periodontitis with *Porphyromonas gingivalis* as a causative link between both diseases" Total 575 000 €

2019-2024
Roland Jonsson/Marie Wahren Herlenius: The European Commission Horizon 2020 contract NECESSITY (IMI2-JU/EU/H2020 nr. 806975) "New Clinical Endpoints in primary Sjögren's Syndrome: an Interventional Trial based on stratifying patients"

2021 – 2024
Piotr Mydel: EC/Grieg “Novel mechanisms of PAD activity regulation. Substrate specificity and activation of peptidyl arginine deiminases in the context of RA” Total 499 000 €

2021-2025
Yenan Bryceson: Norwegian Research Council ‘’Engineering NK cells for improved functionality in immunotherapy’’ Total 12 mill NOK

2021-2025
Marie Wahren Herlenius: Norwegian Research Council ‘’The molecular basis of sex differences in Sjögren’s syndrome’’ Total 10 mill NOK

2022
Helena Erlandsson Harris: Norwegian Rheumatism Association ’’ Molecular profiling of juvenile idiopathic arthritis, a necessary basis for implementation of precision medicine’’ Total 300 000 NOK

We are greatful for the financial support to our research projects from all our financiers

Meetings, Lectures and Dissemination

The 23nd Broegelmann Lecture

Broegelmann Research Laboratory

Department of Clinical Science
Faculty of Medicine

invites you to

The 23rd Broegelmann Lecture

held by

Marie Wahren Herlenius, MD, PhD
Professor of Experimental Rheumatology
Division of Rheumatology
Karolinska Institutet, Stockholm

'' Molecular basis for sexual dimorphism in autoimmune disease''

Monday, 30th May, 2022, at 14.00-15.00
Auditorium, Armauer Hansen building

Arranged by the research group Immunology and Rheumatology, NSI Bergen and the Bergen Research School in Inflammation
http://www.uib.no/rg/broegelmann

This year's Broegelmann lecture was given by Professor Marie Wahren Herlenius, Karolinska Institutet and Broegelmann Research Laboartory.

Invited Lecturers

The Bergen Research School in Inflammation has the pleasure to invite you to

A lecture by

Prof. Gunnar Pejler
Department of Medical Biochemistry and Microbiology
Uppsala University

Mast cells – versatile effector cells in inflammatory conditions

12th October 2022
BBB, Auditorium 4, 10:15

About prof. Pejler's research

Mast cells are traditionally thought of as being the main cause of the symptoms associated with allergic reactions, including allergic asthma. When mast cells become activated they may respond by degranulation, which is associated with the release of a panel of inflammatory substances, and it is these substances that cause the typical allergic symptoms. Although mast cells certainly are main players in allergy, more recent research has revealed that they cause damage also in a large panel of other diseases, including arthritis, multiple sclerosis, cancer and atherosclerosis. On the other side, it has been discovered that mast cells in addition possess a number of beneficial functions, including a role in host defense towards bacteria, parasites and even snake venom. In this project we are studying the biological function of mast cells. In particular, we are studying the mechanisms by which mast cells contribute to various pathological conditions and how they contribute to host defense. We also study the mechanisms behind formation of the mast cell secretory granules as well as the function of individual granule compounds, in particular the mast cell proteases and proteoglycans. Our experimental systems include cell biological approaches, genetic approaches such as knockouts, immunological and biochemical technology. A number of projects are available, with a large flexibility depending on preferences by the student. The group publishes on a regular basis in international journals (see PubMed; Pejler) and represents a dynamic and welcoming milieu.

Prof. Pejler will hold **one-on-one meetings**. Slots are limited!
To set up a meeting contact: marta.kaminska@uib.no

Prof. Pejler group

The Bergen Research School in Inflammation has the pleasure to invite you to

A lecture by

Prof. Vivianne Malmström
Department of Medicine, Solna
Karolinska Institute

Current understanding of T cells in rheumatoid arthritis (RA) – antigen specificities, repretoires, and effector functions

26th October 2022
BBB, Auditorium 4, 12:00

About prof. Malmström's research

I have defended my thesis in 1997. I did my first postdoc in Oxford University Hospital NHS Trust, UK. I have been at the rheumatology unit at Karolinska Institute since 2000, where I became a full professor in 2014. My group's overall aim is to identify critical immune reactions involved in development and perpetuation of rheumatic disease. We focus on both T and B cells and methods enabling the possibility to monitor immune responses in patient-derived research samples.
In the longer perspective the data we generate can contribute to new therapeutic (curative or preventive) approaches beyond general immunosuppression, e.g. by antigen-specific tolerization or selective targeting of T cell clones etc.

Prof. Malmström will hold **one-on-one meetings**. Slots are limited!
To set up a meeting contact: marta.kaminska@uib.no

Prof. Malmström group

The Bergen Research School in Inflammation has the pleasure to invite you to

A lecture by

Prof. Anna Blom
Department of Translational Medicine
Lund University

Cytoprotective roles of cytosolic forms of C3

9th November 2022
BBB, Auditorium 4, 12:00

About prof. Blom's research

Anna Blom received basic education in biochemistry and molecular biology from the Jagiellonian University in Krakow, Poland. Her PhD studies in medical and physiological chemistry were focused on bikunin-containing proteins, plasma protease inhibitors also involved in organisation of extracellular matrix. After defending PhD thesis in Uppsala in 1997 she moved to Lund University for a postdoctoral training with Prof. Dahlbäck who is expert translational coagulation researcher. Supported by long-term funding for salary from Swedish Research Council she established independent research group focused on studies of the complement system, a crucial part of innate immunity. In 2005 she was appointed a full professor of medical protein chemistry at Lund University. She has contributed significantly to understanding the role of complement in various pathologies such as infections, rheumatic diseases, cancer and immune deficiencies. Most recently she showed a role of complement in diabetes and contributed to discovery of a novel field of intracellular complement. Her research was recognized by award of large grants such as Wallenberg Scholar from the Wallenberg Foundation (Sweden) and Distinguished Investigator within Endocrinology from the Novonordisk Foundation (Denmark).

Prof. Blom will hold **one-on-one meetings**. Slots are limited!
To set up a meeting contact: marta.kaminska@uib.no

Prof. Blom group

K2 department conference Solstrand, 24-25 February

Broegelmann Research Laboratory was well represented at the bi-annual Department conference for K2, Dept clinical medicine 2, UiB.

Left to right: Marianne Eidsheim, Brith Bergum, Richard Davies, Silke Appel, Kjerstin Jacobsen

Hva kan vi lære av Karolinska institutt?

Kan vi laere noet av Karolinska Institutet?

Can we learn something from Karolinska Institutet (KI)?

Helena Erlandsson Harris gave a presentation discussing her experiences from KI and visions for BRL

Scandinavian Society for Immunology
Reykjavik, Iceland. June 2022

Silke Appel, Helena Erlandsson Harris, Marta Kaminska & Dorentina Osmani participated with oral presentations and posters.

Dorentina Osmani and Silke Appel

Silke Appel

Sjögren's meeting
Rome, Italy. June 2022

Roland Jonsson

‘OPPLEV på Marineholmen’

a knowledge and science festival held as part of the 75th anniversary of the University of Bergen 23rd April

PhD candidate Dorentina Osmani presented her project on plant-derived substances as therapeutics against CovSars2 infection.

Annual meeting 2022

NORWEGIAN society for IMMUNOLOGY

National NSI Speaker
Helena Erlandsson Harris, The Broegelmann Chair in Translational Immunology Broegelmann, Research Laboratory, University of Bergen
Revealing immune mechanisms active in juvenile arthritis by a proteomics approach

International Publications 2022

- Alim MA, Njenda D, Lundmark A, Kaminska M, Jansson L, Eriksson K, Kats A, Johannsen G, Arvidsson CK, **Mydel PM**, Yucel-Lindberg T. Pleckstrin Levels Are Increased in Patients with Chronic Periodontitis and Regulated via the MAP Kinase-p38α Signaling Pathway in Gingival Fibroblasts. Front Immunol. 2022 Jan 11;12:801096. doi: 10.3389/fimmu.2021.801096. eCollection 2021. *IF 9.8*
- Aulin C, Larsson S, Vogl T, Roth J, Åkesson A, Swärd P, Heinbäck R, **Erlandsson Harris H**, Struglics A. The alarmins high mobility group box protein 1 and S100A8/A9 display different inflammatory profiles after acute knee injury. Osteoarthritis Cartilage. 2022 Sep;30(9):1198-1209. Epub 2022 Jul 6. PMID: 35809846. *IF 6.6*
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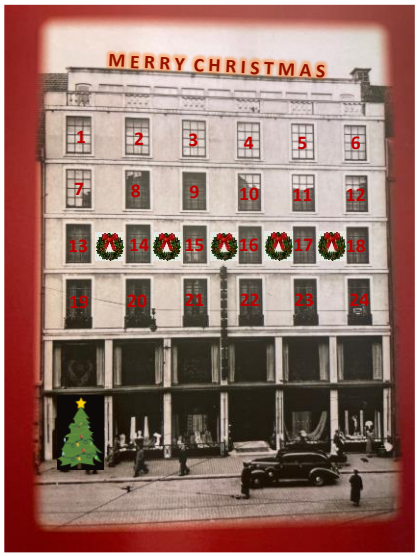
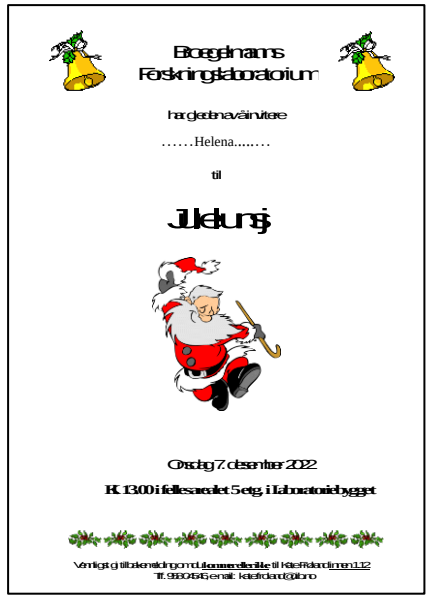
Social activities

Summer dinner



The BRL advent calendar



Christmas lunch

Farewell and thank you celebration for our office manager Kate Frøland

The Broegelmann board expressed their gratitude for the excellent work Kate has provided for many years

Many colleagues wanted to say farewell to Kate and wish her happy retirement

Professor emeritus Roland Jonsson

Department head Pål Njølstad and Kate Frøland

Social Media

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https://www.uib.no/en/rg/broegelmann/105088/broegelmann-research-laboratory

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