



Oslo Diabetes
Research Centre

ANNUAL REPORT 2015

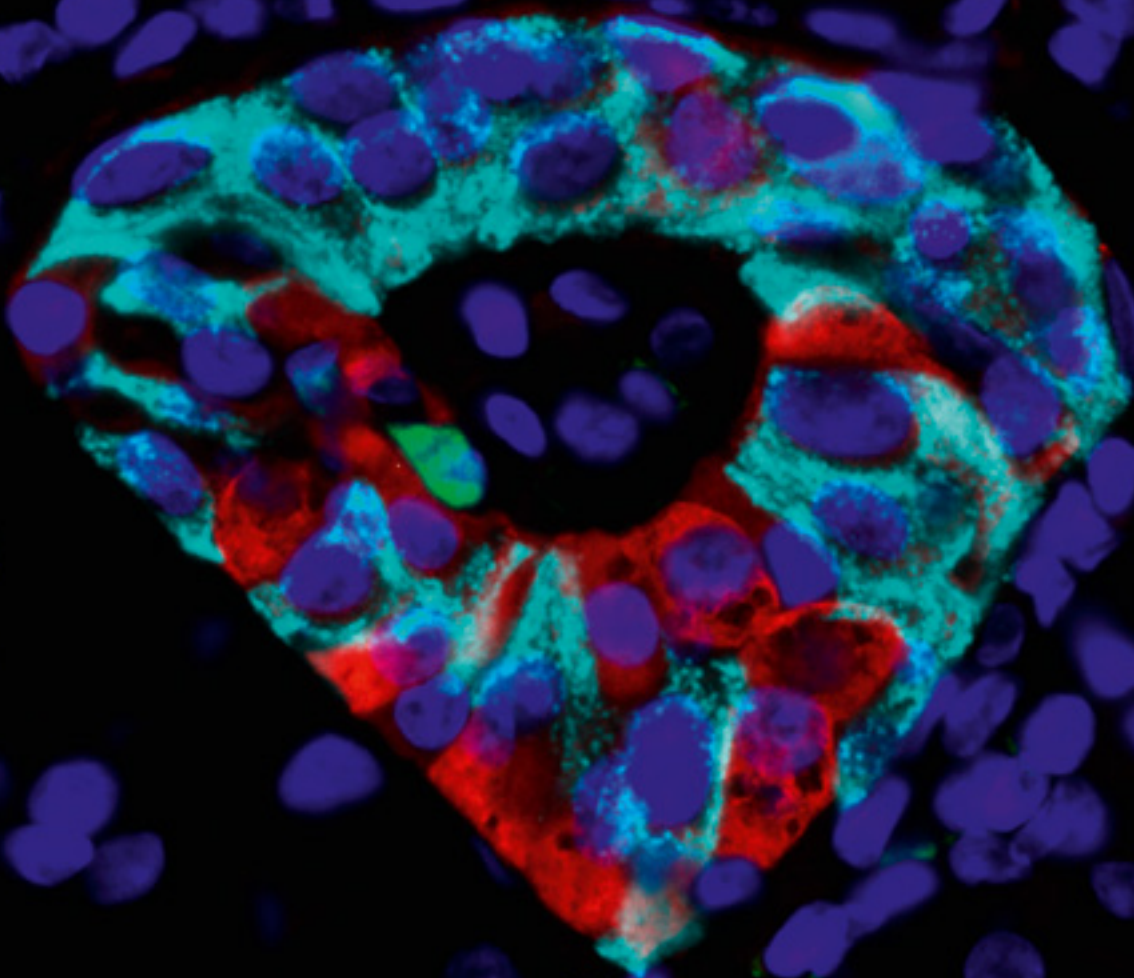


PHOTO: PIA LEEITE



Oslo
University Hospital



UiO : University of Oslo

ANNUAL REPORT 2015

Oslo Diabetes Research Centre



Print and layout:
GRØSET™

Frontpage: Islet of Langerhans in the pancreas at onset of type 1 diabetes (DiViD case). Insulin containing beta cells (light blue) and glucagon containing alpha cells (red). Courtesy of Pia Leete, University of Exeter, UK.

CONTENTS

Steering Committee for Oslo Diabetes Research Centre	4
Board for Aker and Ullevål Diabetes Research Fund	5
New milestones - Diabetes in a life-course perspective	6
Reports from the groups.....	10
Scientific production	34
Collaborating partners	46

STEERING COMMITTEE FOR **OSLO DIABETES RESEARCH CENTRE**

KNUT DAHL-JØRGENSEN

Professor, MD, PhD (Chairman)

KÅRE BIRKELAND

Professor, MD, PhD (Vice Chairman)

KRISTIAN F. HANSSEN

Professor, MD, PhD

TØRE JULSRUD BERG

Associate professor, MD, PhD

ANNE KAREN JENUM

Professor, MD, PhD

GEIR JØNER

Professor, MD, PhD

BENEDICTE LIE

Professor dr.philos

DAG UNDLIEN

Professor, MD, PhD

TROND G. JENSSEN

Professor, MD, PhD

TØRE HENRIKSEN

Professor, MD, PhD

JENS BOLLERSLEV

Professor, MD, PhD

JENS PETTER BERG

Professor, MD, PhD

TORILD SKRIVARHAUG

Associate Professor, MD, PhD

NINA MAAGAARD HOLM

Higher executive officer





FOTO: APELAND/KATRINE LUNKE

BOARD FOR **AKER AND ULLEVÅL DIABETES RESEARCH FUND**

KNUT DAHL-JØRGENSEN

Professor, MD, PhD (Chairman)

KRISTIAN F. HANSSEN

Professor, MD, PhD

ERIK SCHULTZ

MBA

PER M. THORSBY

MD, PhD, Chief Consultant

NEW MILESTONES – DIABETES IN A LIFE-COURSE PERSPECTIVE

This year we celebrated the 25th Anniversary of our Research Centre. In March we invited two of the world wide highest ranked diabetes researchers to a Scientific Symposium. Prof. Matthias von Herrath from La Jolla, USA reported hot topics in immunology of type 1 diabetes and autoimmune diseases. Prof. Leif Groop, Lund University, discussed how genetics of type 2 diabetes may be translated into the clinic. This was followed by a meeting open for the public and members of the center presented the latest news: the role of viruses as possible cause of type 1 diabetes and autoimmunity, new insulin pumps, continuous glucose sensors and the possibility of a wearable endocrine pancreas device, improved therapy of diabetes in pregnancy, and at last prevention of cardiovascular disease. The auditorium was packed with people, and the questions would never end. A festive dinner was served in the evening and our yearly intern staff scientific meeting was arranged the next day. Two days to remember.

The open meeting with the interaction with the public, the patients and their families was of special interest, and shall be repeated on a regular basis. It puts diabetes into perspectives. The importance of our work is illustrated by some facts: Today approximately 415 million people in the world have diabetes and it is expected to increase to 642 million in the next generation. 12.000 Norwegians get diabetes every year. In Norway approximately 300.000 know that they have diabetes, but 100-150.000 do still not know. Diabetes is a serious disease. In Norway three out of four have at least one complication, one of five get serious eye complications, 500 suffer amputation and 150 need kidney transplantation every year. The risk for life threatening myocardial infarction and stroke is three fold increased. Research to prevent this is extremely important both for people and society.

This center has a strong clinical basis and is the only center in Norway covering the whole life-span of diabetes, from the fetus, through childhood and adolescence, early and late adult life. This life-course approach to diabetes attempts to capture the complex influence of factors operating at different points in life integrating both early-life and adult lifestyle models into a wider framework through an extensive collaboration between our 10 established research groups and their internal and external collaborators. In the life-course perspective to diabetes we aim to assess how the effect of factors operating at different stages of life, from in utero to late adulthood, might accumulate and interact to determine development of diabetes and its complications later in life. Our high aim is to contribute substantially to prevent diabetes - and in the meantime - its complications.

Our center has 10 research groups spread throughout the Oslo University Hospital and Faculty of Medicine - in the Institute of Clinical Medicine and Institute of Health and Society, and Institute of Basic Medical Sciences. In this annual report you may count nearly hundred persons involved. It covers nearly all diabetes related research in these institutions.

We have reached several milestones in 2015. We were invited as partner to apply for an IMI2 EU consortium called INNODIA and the consortium was granted EUR 36 Mill for type 1 diabetes research the seven years to come. This will especially support the biobank of the Norwegian Childhood Diabetes Registry organized within our center, and facilitate collaboration with the best research laboratories in Europe. We were in total granted NOK 17 mill by the South-Eastern Norway Regional Health Authority for the coming years. The post-doctoral projects – “Gestational diabetes and offspring’s adiposity: A possible role for maternal folate and vitamin B12 status and epigenetics” lead by Professor Kåre I. Birke-

land and “Detection and treatment of post-transplant diabetes mellitus (PTDM)” lead by Professor Trond Geir Jenssen – were granted funding for three years each. The project “Fetal nutritional environment: the role of the placenta in the Maternal-Fetal Interaction” lead by Trond Melbye Michelsen was granted support as a doctoral project for three years. NOK 9 mill were granted “The Diabetes Virus Detection and Intervention Trial” lead by Professor Knut Dahl-Jørgensen to perform an intervention trial with antiviral drugs aiming to maintain endogenous insulin production at diagnosis of type 1 diabetes in children and adolescents. This is the result of our detection of a low grade persistent enterovirus infection in the pancreatic islets at diagnosis. The pancreatic biopsies obtained in our DiViD study, have become attractive and we recently arranged a meeting in Miami with 15 different international laboratories with whom we have signed research collaboration. We have been granted two postdoc positions, one in San Francisco and one in Lund, through the EU Scientia Fellows Program. Novo Nordisk and AstraZeneca have kindly supported research in the centre by an unrestricted grant each.

Thus 2015 was again a successful year for the Oslo Diabetes Research Centre. The center is steadily improving its’ international reputation. We produced about 90 international publications. In this year’s annual report you may notice many publications in the highest ranked diabetes related scientific journals. In 2015 we had five Ph.D. dissertations.

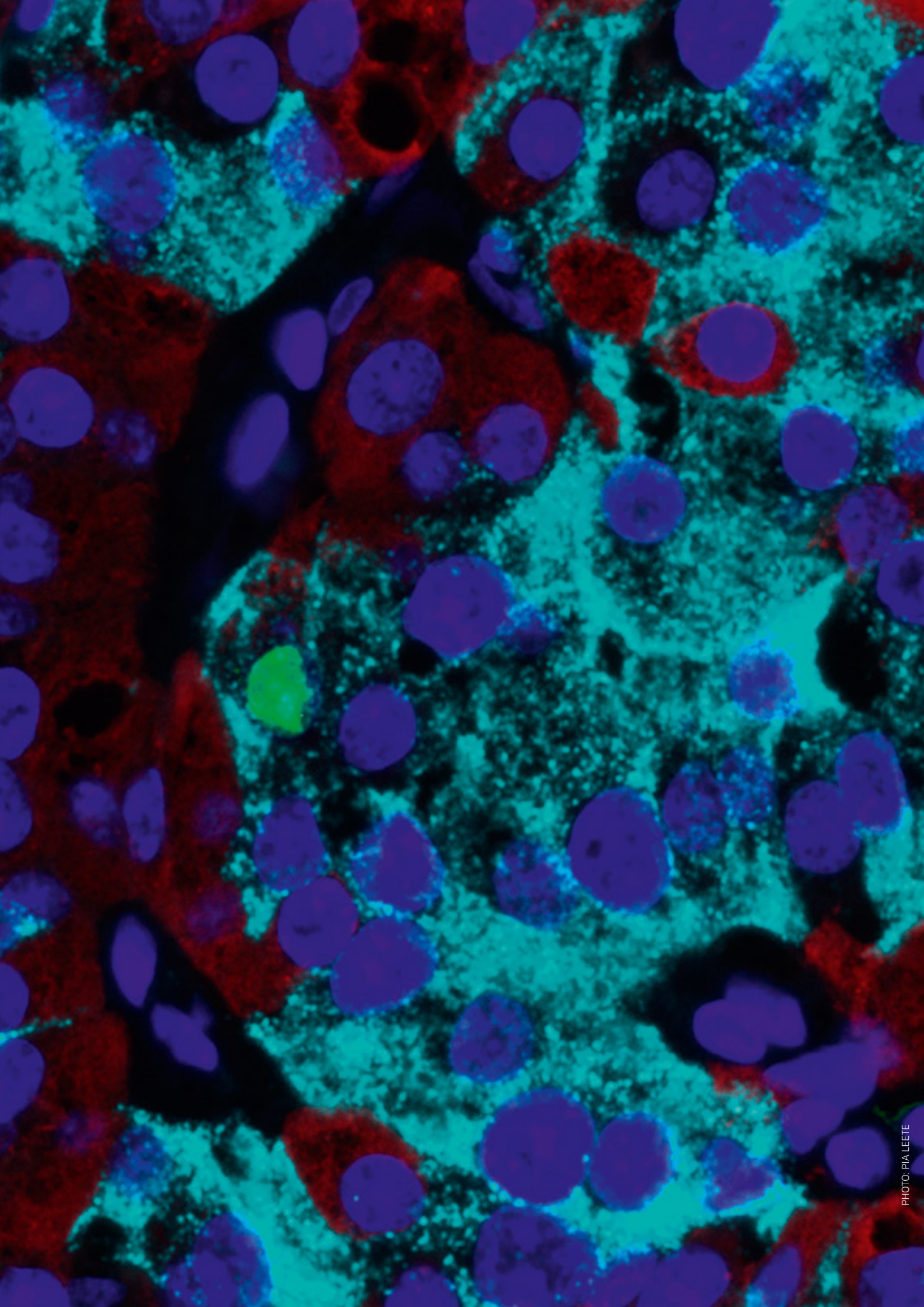
- Christine Sommer. Maternal adiposity: associations with gestational diabetes and neonatal fat in a multi-ethnic population.
- Astri Jeanette Meen. Proteoglycans in inflammation, atherosclerosis, diabetic nephropathy and during physical activity with emphasis on serglycin.

- Martin Heier: Early atherosclerosis in childhood onset diabetes – the impact of inflammation and advanced glycation.
- Line Wisting. Comorbid type 1 diabetes and disturbed eating behaviors – assessment, prevalence, psychological correlates and metabolic controls.
- Anne Pernille Ofstad. Myocardial dysfunction and cardiovascular disease in type 2 diabetes.

We thank and acknowledge them, and are looking forward to include many of them for further research within our center.

Knut Dahl-Jørgensen (signature)
CHAIRMAN PROFESSOR DR. MED.

LEADER	WORK PLACE	RESEARCH AREA	E-MAIL
Knut Dahl-Jørgensen (Chairman)	Pediatric Department, Oslo University Hospital	Diabetes in children and adolescents, etiology of type 1 diabetes, complications	knut.dahl-jorgensen@medisin. uio.no
Kåre I. Birkeland (Vice Chairman)	Department of Endocri- nology, Oslo University Hospital	Prevention and treatment of type 2 diabetes	k.i.birkeland@medisin.uio.no
Kristian F. Hanssen / Tore Julsrud Berg	Department of Endocri- nology, Oslo University Hospital	Diabetic late complications	k.f.hanssen@medisin.uio.no t.j.berg@medisin.uio.no
Geir Joner	Pediatric Department, Oslo University Hospital	Epidemiology and etiology of type 1 diabetes, complications, mortality	geir.joner@medisin.uio.no
Anne Karen Jenum	Department of General Practice, University of Oslo	Diabetes and primary health issues in primary care	a.k.jenum@medisin.uio.no
Tore Henriksen / Jens Bollerslev	Departments of Endocri- nology and Obstetrics, Oslo University Hospital	Diabetes and pregnancy	tore.henriksen@rikshospitalet.no jens.bollerslev@rikshospitalet.no
Trond Jenssen	Department of Nephrol- ogy, Oslo University Hospital	Diabetic nephropathy	trond.jenssen@rikshospitalet.no
Benedicte Lie / Dag Undlien	Department of Medical Genetics, Oslo University Hospital	Genetics and epigenetics of type 1 diabetes	b.a.lie@medisin.uio.no d.e.undlien@medisin.uio.no
Jens Petter Berg	Department of Biochem- istry, Oslo University Hospital	Metabolomics of hyperglycemia	j.p.berg@medisin.uio.no
Torild Skrivarhaug	Pediatric Department, Oslo University Hospital	The Norwegian Childhood Diabetes Registry	torild.skrivarhaug@medisin.uio.no



Research Group: CHILDHOOD DIABETES

Group Leader: Professor Knut Dahl-Jørgensen

Research focus:

The group has four main research areas. The first is the etiology and prevention of type 1 diabetes and autoimmune diseases, especially focusing the role of viruses and the interaction with the immune system in pancreatic and thyroid tissue samples. The last years we have succeeded in detecting a low grade persistent enterovirus infection in the insulin producing pancreatic islets of patients with newly diagnosed type 1 diabetes, and also in the thyroid of patients with newly diagnosed Graves' Disease. This strongly indicates that viruses are important for the development of autoimmune diseases.

The DiViD study has got worldwide attention for its unique collection of pancreatic biopsies in live young adult patients at the onset of type 1 diabetes. We have signed material transfer and research collaboration contracts with 15 international, highly recognized laboratories, and we recently arranged a group meeting in Miami in conjunction with the nPOD meeting (www.jdrf.org) to discuss the results and the next steps. Much focus has been on the role of enteroviruses, the insulinitis and the role of innate immune system, and viral "footprints" in the pancreatic islets. We were granted NOK 9 mill from the South-Eastern Norway Regional Health Authority to start a Scandinavian multicentre, randomized trial (The DiViD Intervention Trial) to study the effect of antiviral treatment aiming to preserve endogenous insulin production at diagnosis, as measured by C-peptide. In addition to standard mixed meal tolerance tests, we will perform filterpaper blood tests for C-peptide monitoring at home.

The second research area of our group is diabetes late complications. We have long term clinical studies on microvascular complications and the influence of glycemic control and advanced glycation. Recently the risk of early atherosclerosis in childhood onset type 1

diabetes has been the focus in several of our studies, with measurement of vessel wall thickness (IVUS, IMT, MRI) and vessel elasticity, and biochemical markers, as well as clinical data and risk factors. Martin Heier is now a postdoc in San Francisco as part of the EU Scientia Fellow Program, studying HDL Cholesterol function. The 10 years follow up of the prospective study "Atherosclerosis in Childhood Diabetes" will start in 2016.

In our large, nationwide clinical studies, now as part of the Childhood Diabetes Registry, we focus on important issues as intensified insulin treatment and pumps, diabetic nephropathy, diet, physical activity, quality of life and psychosocial problems and eating disturbances (together with Skrivarhaug's Group).

Projects:

Etiology and prevention of type 1 diabetes and autoimmune diseases:

1. Diabetes Virus Detection Project (DiViD)
2. Genetic studies of the importance of copy-number polymorphism in the development of type 1 diabetes.
3. Viruses, genetics and autoimmunity in thyroiditis. A biopsy study.

Diabetes late complications:

4. Atherosclerosis in Childhood Diabetes – a population based, prospective study.
5. Long term vascular changes in type 1 diabetes – Clinical aspects and biological markers – 30 years follow-up of the Oslo Study.
6. Advanced glycation of proteins and vascular complications in childhood diabetes.
7. Diabetic nephropathy: Hypertension and microalbuminuria in Norwegian children with type 1 diabetes.



KNUT DAHL-JØRGENSEN

Clinical diabetes:

8. Collaboration with the Norwegian Childhood Diabetes Registry (see pages 30-31). A nationwide prospective population-based study for research and quality improvement by means of benchmarking.
9. Dietary intake, meal pattern and physical activity in children and adolescents with type 1 diabetes.
10. Diabetes in body and mind. The theory of the specific psychological processes in type 1 diabetes.
11. Children and adolescents with diabetes - present state and future possibilities - A population-based study of factors affecting competences and treatment results in children and adolescents with type 1 diabetes.
12. Eating disturbances in childhood diabetes.
13. Childhood diabetes and celiac disease – a population based study.

Obesity and type 2 diabetes:

14. Pathways contributing to childhood weight development and overweight in Norway. Sub-study of the Mother and Child National Cohort.

Achievements 2015

Detection of a low grade persistent enterovirus infection in the insulin producing islets of Langerhans at diagnosis of type 1 diabetes. In depth description of the insulinitis at diagnosis.

Ambitions 2016-2017

Start a randomized controlled trial of antiviral treatment in newly diagnosed type 1 diabetes patients aiming to maintain and restore endogenous insulin production.

GROUP MEMBERS

KNUT DAHL-JØRGENSEN

Professor, MD, PhD

LARS KROGVOLD

MD, Pediatrician, PhD student

HILDEGUNN STYVE BORKAMO

MD, Pediatrician, PhD student (together with Skrivarhaug's Group)

MARTIN HEIER

MD, Pediatrician, PhD, post doc

LINE WISTING

Master Degree Psychology, PhD, post doc

HANNA DIS MARGEIRSDOTTIR

MD, PhD, Pediatrician, post doc

JAKOB LARSEN

MD, PhD, Pediatrician, post doc

DAG HELGE FRØISLAND

MD, PhD, Pediatrician, post doc

SARA HAMMERSTAD

MD, PhD, Endocrinologist, post doc

UNNI METTE KØPP

MD, PhD, Pediatrician, post doc

SIV JANNE KUMMERES

R.N. Diabetes specialist nurse

HANS JACOB BANGSTAD

Professor, MD, PhD

JON HAUG

Dr.Philos, clinical psychologist

KARI ANNE SVEEN

MD, physician (together with Kristian Hanssens Group)

Research Group: TYPE 2 DIABETES AND METABOLISM

Group Leader: Kåre I. Birkeland

Research focus

Our focus is on clinical epidemiological studies, observational studies and randomized clinical trials in subjects with obesity, prediabetes, gestational diabetes, metabolic syndrome and type 2 diabetes. We design and conduct our own studies, but also participate in international multi-center studies, both researcher initiated and studies sponsored by pharmaceutical companies, (phase II-IV studies). Several of our researchers are also engaged in mechanistic studies and translational research in collaboration with different laboratories.

Our long-term goal is to contribute to prevention and better treatment of diseases related to overweight and physical inactivity, primarily type 2 diabetes and its complications. To achieve this, we search for etiological factors in disease development through hypothesis-generating epidemiological and observational studies and seek to test the hypotheses in mechanistic and randomized, controlled clinical trials. We aim to publish our results in internationally well recognized scientific journals and in relevant national and international meetings. We also engage ourselves in popular scientific publishing to increase knowledge about ours and others' research to the public. We collaborate closely and partly overlap with Anne Karen Jenum's group on the STORK-Groruddalen studies and with Tore Henriksen's/Jens Bollerslev's group on the STORK-Rikshospitalet studies.

Our special focus for the coming years is epigenetics, gestational glucose metabolism and pregnancy outcomes. This project aims to characterize the influence of T2DM risk alleles and allele expression in pregnancy, combining two reasonably large cohorts of pregnant women (STORK, STORK Groruddalen; the second representing a multiethnic population). The multiethnic cohort will enable us to describe variant alleles and compare common SNP effects



KÅRE I. BIRKELAND

in different ethnic groups relative to established screening endpoints and glucose curve patterns. The influence of GDM and folate levels on methylation patterns will be analyzed in mid and late gestation. Additionally, glucose data will be analyzed using all available time points to extract additional information based on functional data analysis (FDA), which has shown to be superior in providing physiological interpretable and important temporal information, and can differentiate between women that did and did not develop GDM during pregnancy.

The epigenetic modelling studies, showing activation or quiescence of the variant alleles by methylation, histone modifications etc. will be performed in close collaboration with Professor L. Groop, Lund University Diabetes Centre. As a continuation project, analysis of gene expression in placental tissue in our cohorts could allow determination and comparison of alleles with a putative relation to fetal glucose supply and neonatal fat mass, relative to the maternal metabolic changes in pregnancy. The combination of risk alleles and FDA will give novel insights in glucose responses during OGTT in healthy pregnant women, and increase knowledge of how variant genes and their expression during gestation influence pregnancy outcomes, and could guide later preventive interventions.

Projects

1. A genetic/epigenetic sub-project under the STORK and STORK-Groruddalen studies.
2. The 4B study: The effect of bariatric surgery on bone marrow fat and glucose metabolism in subjects with type 2 diabetes and morbid obesity.
3. The DIVINE-study – a randomized, placebo-controlled intervention with high-dose vitamin D in type 2 diabetes.
4. The MyoGlu-study – A controlled, intervention study of high-intensive exercise training in subjects with abnormal glucose tolerance and controls.
5. The HypoAlert-study – An observational study with hypo- and euglycaemic glucose clamp investigations of subjects with type 1 diabetes and hypoglycemia unawareness.
6. The ABCD (Asker and Baerum Cardiovascular Diabetes) Study
7. The FIBERDIA – a randomized controlled trial of the effects of probiotics on incretin responses in type 2 diabetes.
8. 10 year follow up of subjects after bariatric surgery with focus on the prevalence of diabetes and metabolic risk factors.
9. Several multi-center phase II, III and IV clinical trials in collaboration with the pharmaceutical industry.

Achievements 2015

- Christine Sommer defended her thesis: “Maternal adiposity: Associations with gestational diabetes and neonatal fat in a multi-ethnic population”.
- We obtained funding from Helse SørØst for post-doc Christine Sommer “Gestational diabetes and offspring’s adiposity. A possible role for maternal folate and vitamin B12 status and epigenetics”

Ambitions 2016-17

- To recruit and obtain financial support for at least 1 new PhD or Post.doc each year
- To analyze and publish genetic and epigenetic results from the STORK-cohorts in collaboration with Lund Diabetes Research Center

GROUP MEMBERS

KÅRE I. BIRKELAND

Professor, MD, PhD

ANNE-MARIE AAS

Associate Professor, PhD

KIRSTI BJERKAN

MSc

CECILIE WIUM

MD, PhD, consultant

CHRISTINE SOMMER

PhD

CHRISTIN W. WAAGE

PhD student

ANNE-PERNILLE OFSTAD

MD, PhD

SEDEGHEH GHARAGZLIAN

PhD

HILDE RISSTAD

MD, PhD student

SUSANNA E. HANVOLD

MSc, PhD student

TORGRIM MIKAL LANGLEITE

MSc, PhD student

INGVILD HØGESTØL

MD, PhD student

ÅSE HALSNE

research nurse

ELINE BIRKELAND

PhD student

GØRIL VINJE

research nurse

GRO BOZELIEN

research nurse

ANNE KAREN JENUM

Professor, MD, PhD

LINE SLETNER

MD, PhD, post doc

GUNN-HELEN MOEN

MSc PhD student

ELISABETH QVIGSTAD

MD, PhD, consultant

PAZ LOPEZ-DORIGA RUIZ

MD, PhD student

HANNE LØVDAL GULSETH

MD, PhD

Research Group: DIABETIC LATE COMPLICATIONS

Group Leaders: Tore Julsrud Berg and Kristian F. Hanssen

Research focus

Epidemiology and mechanisms of late complications. The mechanism by which hyperglycaemia is so deleterious to large and small blood vessels is basically unknown. A leading hypothesis is that glycation (the chemical reaction between glucose or intracellular metabolites of glucose and proteins) and subsequent rearrangements (Advanced Glycation Endproducts AGE's) is a main culprit. We have developed unique assays for different AGE's (CML, hydroimidazolone and Glucosepane) in blood. We have previously shown that serum AGE is associated with, and predicts coronary heart disease in type 2 diabetes. Furthermore, that serum AGE is associated with micro-vascular complications.

Projects

1. 30 years prospective study of late complications in type 1 diabetes (The Oslo Study)
 - Prospective study: We have studied the progression of vascular changes, especially coronary vascular changes as measured by intravascular ultrasound (IVUS) and coronary angiography in the prospective Oslo Study and identified predictive parameters for this progression, especially AGE parameters (together with Dahl-Jørgensen's group).
 - Specific aims: Serum- and skin AGE, oxidative and inflammatory markers in relationship to status of vascular complications.
2. Advanced glycation end products and vascular complications in childhood diabetes (together with Dahl-Jørgensen's group).
Prospective study of early markers of atherosclerosis in a large group of adolescents with type 1 diabetes and controls. Study of the relationship to glycation.

3. Coronary and glomerular morphology in kidney transplants. Long term study in two contrasting groups. PI: Trond G. Jenssen together with Svein Kolset, Institute of Nutrition.

Study the effect of long-term normoglycaemia vs. hyperglycemia on changes in the coronary arteries and the renal function and structure in type 1 diabetes patients. Two groups of patients with type 1 diabetes are studied, one group transplanted with a single kidney (HbA_{1c} 8-8.5%), the other who received combined kidney-pancreas grafts and has obtained perfect normoglycaemia over the same period of time (HbA_{1c} 4.5-5.5%). Advanced Glycation Endproducts (AGE, CML, hydroimidazolone) by immunohistochemistry in the glomerulus and in serum samples to test the hypothesis that glycation markers can predict the development and progression of late complication specifically early diabetic nephropathy and coronary heart disease.

4. DIALONG: A study of long-term survivors with more than 45 years of type 1 diabetes. A large clinical and biochemical study focusing on macrovascular disease and skin and joint complications. Collaborators within the Oslo University Hospital and in Sweden, Denmark and the US.
5. Prospective study of pre-eclampsia in pregnant type 1 diabetes. In collaboration with research groups in Australia and US.

Ambitions and Achievements

One of the leading groups combining Clinical and Molecular Medicine data to understand diabetic late complications (Translational Medicine).

GROUP MEMBERS

TORE JULSRUD BERG

MD, PhD, Associate Professor

KRISTIAN F. HANSSEN

MD, PhD Senior Professor of
Medicine (Endocrinology)

KARI ANNE SVEEN

MD, PhD

BENTE K. KILHOVD

Consultant PhD

DAG FOSMARK

Consultant, PhD (Department of
Ophthalmology)

MARTIN HEIER

PhD (together with
Dahl-Jørgensens group)

HANNA DIS MARGEIRSDOTTIR

PhD (together with
Dahl-Jørgensens group)

MILIAM PEPAJ

PhD

KRISTINE B. HOLTE

PhD student



TORE J. BERG



KRISTIAN F. HANSSEN

Research Group:

CHILDHOOD DIABETES AND DIABETES EPIDEMIOLOGY

Group Leader:

Geir Joner

Research focus

Diabetes epidemiology, causes of type 1 diabetes and prevention, diabetes complications and mortality. Special emphasis on risk factors for type 1 diabetes using epidemiological approaches, including studies of infectious, dietary and other environmental factors, and potential gene-environment interactions. Research to prevent complications and premature death by studying of risk factors is also central in the group's work. The long-time goal is to reduce the incidence of type 1 diabetes in children and reduce the impact of complications of diabetes in children that already have the disease. The most important source for research is the Norwegian Childhood Diabetes Registry with biobank with > 90% of new cases of diabetes below 15 years included, the MOBA-study with biobank and other registers.

Projects

1. The PAGE study (Prediction of Autoimmune diabetes and celiac disease in childhood by Genes and perinatal Environment): Studies of risk factors for type 1 diabetes and for celiac disease in The Norwegian Mother and Child Cohort (MOBA) linked to the Norwegian childhood diabetes registry (PI: Lars Chr. Stene).
2. Biomarkers for intrauterine environment and risk of childhood diabetes. Sera from 30 000 pregnant women linked to diabetes registry to identify women whose children later developed type 1 diabetes selected for biomarker studies, dietary and infectious (Ingvild S. Sørensen).
3. Mortality in a nationwide, population-based cohort of childhood-onset type 1 diabetes in Norway. PhD-project by Vibeke Gagnum, MD.
4. Classification of diabetes in children. Study of phenotypic presentation compared with genotypes, autoantibodies, c-peptid and family background.
- 5a. Cardiovascular and end-stage renal disease in type 1 diabetes with onset before 15 years of age and long duration (project in preparation).
- 5b. Nephropathy and hypertension in type 1 diabetes with onset before 15 years of age and long duration.

Achievements 2015

The PAGE-study is in steady progress, several analyses have been completed and publications are in the pipeline.

The first paper in the mortality study has been published.

Ambitions 2016-2017

To be a leading group in epidemiological studies on genetic and environmental risk factors in the etiology of type 1 diabetes in children and adolescents.

To publish exciting scientific results from the PAGE study.

Recruit and get financial support for 1-2 PhD-students and start a population based study on diabetes complications and risk factors based on long-term follow up through the Norwegian Childhood Diabetes Registry.



GROUP MEMBERS

GEIR JONER

Professor, MD, PhD

LARS CHRISTIAN STENE

PhD, senior researcher

TORILD SKRIVARHAUG

MD, PhD, Director, Norwegian
Childhood Diabetes Registry

GERMAN TAPIA

PhD, researcher/postdoc

VIBEKE GAGNUM

MD, PhD student

INGVILD MENES SØRENSEN

MD, PhD, paediatric endocrinology

NICOLAI LUND-BLIX

cand. scient, PhD student

MARIA C. MAGNUS

PhD, researcher



GEIR JONER

Research Group: DIABETES AND RELATED HEALTH ISSUES IN PRIMARY CARE

Group Leader:
Anne Karen Jenum



ANNE KAREN JENUM

Research focus

We apply a life course approach in our research into the causation, care and prevention of type 2 diabetes and cardiovascular complications, especially when studying social and ethnic differences in health. The group members have a diverse professional background, facilitating synergies and convergence in research. Our group has two main areas of research, both originating from observations in primary care of the epidemic of diabetes, its different faces and the need to develop culturally sensitive interventions due to the demographic transition in Norway to a multiethnic country:

1. *The Diabetes Care group* – working with the epidemic of type 2 diabetes, its complication and the quality of diabetes care in a multiethnic society and strategies for prevention.
2. *The Mother and Child Health group* – working with the developmental origin of health and disease, not least type 2 diabetes and gestational diabetes, in a Norwegian mother, father and child multiethnic cohort and together with international collaborators.

We have performed and are involved in cross-sectional studies, cohort studies, qualitative studies, one RCT using new technology, and are involved in developing culturally sensitive interventions in primary care. Through 2015 we have included new members and collaborative partners and increased the number of subprojects.

Projects

1. *The STORK-Groruddalen cohort study* of 823 pregnant women from multiethnic women investigates the effect of ethnicity and a range of environmental determinants on the prevalence and development of gestational diabetes (GDM), intrauterine growth and development and neonatal birth weight and anthropometric measures,

<http://www.med.uio.no/helsam/forskning/prosjekter/stork-groruddalen/>. This project has so far developed 11 PhD projects, covering gestational diabetes and related maternal health issues, as well as neonatal body composition and fetal and childhood growth. Four PhD students using data from this cohort have finished their dissertations, and one has become a post-doc researcher in my group. Five PhD projects for general practitioners are funded by the Norwegian Medical Association. Further, two more PhD students will use our data for at least one paper.

2. Cardiovascular disease, diabetes and ethnicity, and the quality of diabetes care in a multiethnic general practice population. After one thesis on this subject in 2013, we have now established a multiregional Norwegian research group to set up a large study in primary care and in collaborating hospitals (ROSA 4). Data collection started in January 2015 and will be finished in March 2016 and covers five counties: Oslo, Akershus, Rogaland, Hordaland and Nordland. My group leads the data collection in Oslo and Akershus. We have developed research protocols related to ethnicity and gender - and to collaboration between primary care and hospitals. The former PhD student in this field has now got a postdoc grant to work with these issues.
3. *The Norwegian study in Renewing Health*: Stimulating self-management in patients with Type 2 diabetes mellitus through tele-care with the Few Touch application and health counseling - a randomized controlled trial, is a EU-funded project with the Norwegian study developed by Faculty of Health Sciences, Oslo and Akershus University College of Applied Sciences, Oslo The Oslo and Akershus University College.
4. *The need for drug information about diabetes among Pakistani females in Norway*. A qualitative study about the need for drug information about diabetes among Pakistani and other non-western

women in Norway, originating from School of Pharmacy, Faculty of Mathematics and Natural Sciences.

5. *Innovative Prevention Strategies for type 2 Diabetes in South Asians Living in Europe* (InPreSD-SA) - a coordinated effort to target the excessive risk for T2D in South Asian populations in Europe. This multinational collaboration was initiated by Prof K Stronks, The Netherlands, AMC, Amsterdam and has collaborative partners in Edinburgh, Glasgow and Norway (Jenum and B Kumar). The aim of this project is to build on the findings of recent trials in order to accelerate knowledge production and the process of implementation of research findings by bringing together European experts. The focus will be on dietary behavior and physical activity. We plan to conduct in-depth analyses of the findings from relevant interventions studies with particular focus on the behavioural strategies employed (WP 4 – to be delivered by Norwegian partners). Furthermore, we will critically evaluate dietary goals employed in current behavioural interventions. The findings will specify HOW to support South Asian people in the uptake and maintenance of a healthy diet and WHAT to focus on. This is an EU-funded three year project on the topic - Innovation to prevent and manage chronic diseases.

Achievements 2015

We have published 6 papers, one more paper is accepted, five more papers submitted. One PhD student (Christine Sommer) defended her thesis in November 2015 and has now achieved funding from Helse Sør Øst for a postdoc. We have also achieved funding for one new PhD student (Birgitta Skavoll).

Ambitions 2016-2017

Three PhD students are expected to submit their thesis before July/August 2016. Beside the planned progress of the PhD and postdoc projects based on the STORK Groruddalen study, AK Jenum will devote time to WP 4 in the EU funded InPreSD-SA study together with B Kumar, Idunn Brekke and a statistician. Line Sletner has received funding for a one year visit to our collaborators in Southampton, UK, from Summer 2016. Further, my group, in collaboration with other national partners, will soon have finished data collection in a new large, multi-regional Norwegian study on diabetes, with great potential for future research (ROSA 4). Data analyses will start in April 2016. Through collaborations with our partners in India, UK, The Netherlands, Sweden and Finland, our international network will be substantially strengthened in 2016-2017, facilitating more high quality research related to diabetes and ethnicity, applying a life course perspective.

GROUP MEMBERS

ANNE KAREN JENUM

Professor, MD, PhD, MPH

LINE SLETNER

MD, PhD postdoc

PER LAGERLØV

pediatrician, ass. prof, PhD

ANH THI TRAN

MD, PhD, postdoc

BJØRN GJELSVIK

MD, PhD

TARJA KINNUNEN

PhD, Tampere, Finland

TØRE JULSRUD BERG

ass. prof, MD, PhD

IDUNN BREKKE

PhD

BERNADETTE KUMAR

Head of NAKMI, PhD

CHRISTINE SOMMER

PhD student

NILAM SHAKEEL

PhD student

ÅSE RUTH EGGEMOEN

PhD student

CHRISTIN WIEGELS WAAGE

PhD student

INGUN TOFTENO

PhD student

MARTHE-LISE NÆSS-ANDRESEN

PhD student

ASTRID TORBJØRNSSEN

PhD student

KÅRE RØNN-RICHARDSEN

PhD student

BIRGITTA SKAVOLL

PhD student

WALAA METWALLY ALI

ABDALAAH ABUELMAGD

PhD student

ANAM SHAKIL

(Master 2014)

Research Group: DIABETES AND PREGNANCY

Group leaders: Tore Henriksen and Jens Bollerslev

Research focus

The nutritional and environmental conditions under which an individual develops from the one cell stage at conception to birth is now known to have major impact on the future health of the newborn child. Inadequate nutrition in this very early (fetal) period of life increases the risk of cardiovascular diseases, diabetes, overweight and certain cancers.

The research group "The maternal-fetal unit: Metabolic, nutritional, neuroendocrine and vascular interactions" investigates how fetal developmental conditions are formed by studying how maternal nutritional, metabolic and pathogenic factors interact with the placenta. Our research group has recently established a new sampling method that enables us to perform such investigations in a novel way.

The association between the developmental condition of the fetus and future health of the newborn is conceptualized in the term DOHaD (Developmental Origins of Health and Disease or "The Barker hypothesis"). As pointed out in recent international surveys the most effective way of preventing major cardiovascular diseases, diabetes and some forms of cancer is to optimize the developmental environment of the fetus and of early childhood. A variety of factors may influence the condition under which a fetus develops, including maternal obesity and other malnutritional states, infections, preeclampsia with placental dysfunction and exposure to toxic compounds. Worldwide maternal obesity has now become a main risk factor for pregnancy complications and fetal development. In Norway around 20% of young women (mothers to be) are now obese (BMI >30 kg/m²), and obesity has surpassed smoking as a risk factor in pregnancy.

The reason that obesity has adverse effects on pregnancy is primarily not high BMI per se, but the profound changes in metabolism, endocrinology and inflammation that accompany adiposity. The result is obesity-induced metabolic dysfunction that has large impact on the environment in which the fetus develops. Many of the factors that may cause adverse fetal environments are preventable. However, in order to establish effective preventive measures it is fundamental to understand how a fetus may become

exposed to inadequate nutrition and other adverse developmental conditions.

Projects

1. STORK-Rikshospitalet

The STORK cohort focuses on nutritional, metabolic, neuroendocrine and vascular aspects of the maternal-fetal interaction during development and growth of the fetus.

Two new projects have recently been started based on the STORK cohort.

1. Healthy and unhealthy overweight in pregnancy: A longitudinal study of metabolic status and body mass index (BMI) in relation to pregnancy complications.

The STORK cohort enables us to analyze subgroups of obese pregnant women with respect to the relation between metabolic profiles and pregnancy outcome. This project is highly relevant in terms of selecting obese women for special pregnancy follow up.

2. Does hypercholesterolemia in pregnancy influence short- and longterm risk for cardiovascular disease in offspring by modulating markers of disease?

The atherosclerotic process is driven by increased cholesterol levels in combination with an enhanced inflammatory response. Hypercholesterolemia is primarily lifestyle induced or it may be caused by a genetic disposition such as familial hypercholesterolemia (FH). Women with FH have been shown to experience very high levels of plasma lipids, in particular LDL cholesterol and they develop a prothrombotic and proinflammatory phenotype during pregnancy compared to non-hypercholesterolemic women. The significance of elevated cholesterol levels and prothrombotic "in utero" environment in relation to markers of risk in offspring has not been thoroughly investigated. The Barker hypothesis suggests that the risk of cardiovascular disease in adult life may be determined by an adverse environment before birth. This project aims to generate new knowledge about the effect of hypercholesterolemia during pregnancy and to elucidate if this is associated with increased levels of markers of risk in their offspring.



TORE HENRIKSEN



JENS BOLLERSLEV

2. The STORK placenta-study

Transfer of nutrients from mother to fetus

The nutritional and environmental conditions under which an individual develops from conception to birth is now known to have major impact on the future health of the newborn child. In particular, inadequate nutrition in this very early (fetal) period of life may increase the risk of cardiovascular diseases, diabetes, overweight and certain cancers. Other environmental factors, including toxic compounds, may have long term consequences for the developing individual also in absence of structural malformation. Therefore, developmental origins of diseases have become a major conceptual framework and early life intervention is emerging as a primary objective in prevention of diseases. In fetal life placenta, which is situated between the mother and the fetus, is the organ that governs the environmental conditions of the developing fetus. Virtually all substances have to pass this "check-point" before reaching the fetus. The fundamental role of placenta in fetal development is therefore now increasingly acknowledged. Accordingly, our research group has recently developed a new method to study how maternal nutritional, metabolic and pathogenic factors interact with the placenta (The 4 vessel sampling method). The method is novel in a global perspective, and enables us to study the placenta in vivo by analyzing blood and tissue samples from arterial and venous vessels both on the maternal and fetal side. We have currently obtained blood samples from 170 mother-fetus pairs which is almost twice what we considered realistic at the start of the project.

Preeclampsia

Factors originating in placenta are a sine qua non in development of pregnancy induced hypertension (preeclampsia). "The 4 vessel sampling method" offers also a unique opportunity to study that placenta derived factors that induce hypertension during pregnancy. Many of these factors act on the maternal vascular endothelial cells and we have found that in women with preeclampsia, there is increased release of the antiangiogenic factor sFlt from placenta, whereas the proangiogenic factor PlGF shows decreased release.

3. The Norwegian Fit for Delivery (NFFD)

Overweight and obesity have become increasingly prevalent in Norway over the last two decades, also among women of childbearing years. It is now estimated that approximately 20% of all Norwegians are overweight. According to the North Trøndelag population study, the incidence of BMI>30 among women aged 25-30 has increased from 4% during the 1980's to 12% during the 1990's.

This is a randomized clinical trial that examines whether a combination of dietary counselling and supervised exercise groups affects pregnancy outcomes, including gestational weight gain (GWG), birth weight, proportion of macrosomic newborns, and use of operative deliveries.

4. SOFUS

SOFUS cohort study studies psychological stress among parents to be who have become to know that their unborn child has a developmental anomaly. The endpoints which are compared to a control group include psychometric and endocrine variables in the mother and circulatory parameters in the fetus.

5. Stork-3

The fetal liver is central in the energy use and metabolism of nutrients during fetal development. This project studies how blood flow in the umbilical vein (coming from placenta) is (re-)distributed between the liver and heart (ductus venosus) at different stages in the fetal development.

Achievements 2015

To have established a, on global basis, unique and large cohort of 170 mother-fetus pairs. To have received funding for one more fellow and one more post doc. To have determined maternal delivery to placenta and fetal uptake of all amino acids in each of the 170 mother-fetus pairs.

Ambitions 2016-2017

To test in a human in vivo setting the current, mainly experimentally based, concepts of placental nutrient transport and metabolism.

Research Group: DIABETES AND PREGNANCY
Group Leaders: Tore Henriksen and Jens Bollerslev

GROUP MEMBERS

TORE HENRIKSEN
Professor, MD, PhD

GUTTORM HAUGEN
Professor, MD, PhD

JENS BOLLERSLEV
Professor, MD, PhD

SVEIN OLAV KOLSET
Professor

KIRSTEN HOLVEN
Professor, MD, PhD

ELISABETH QVIGSTAD
MD, PhD

TROND MICHELSEN
MD, PhD

BJØRG LORENTZEN
MD, PhD

KRISTIN GODANG
MSc

THOR UELAND
Post doc

ANNE HELBIG
MD, PhD

CAMILLA M FRIIS
MD, PhD

MARIE CECILIE PAASCHE ROLAND
MD, PhD

ANNE KAASEN
PhD, midwife

KATHRINE F FRØSLIE
PhD, Dep. Of Biostatistics

GUN LISBETH OPHEIM
MD, PhD student

ANE MOE HOLME
MD, PhD student

MAIA BLOMHOFF
MD, PhD student

HILDEGUNN HORNE
MD, PhD student

JACOB JUEL CHRISTENSEN
PhD student, Dept. Of Nutrition



GROUP MEMBERS

TROND JENSSEN

Professor OUS RH

HANNE SCHOLZ

PhD, Leading researcher,
University of Oslo

SVEIN O KOLSET

Professor, University of Oslo

TRINE M REINE

PhD, University of Oslo

JØRN PETTER LINDAHL

MD, OUS RH

ANDERS HARTMANN

Professor, OUS RH

KARSTEN MIDTVEDT

MD PhD, OUS RH

MARIT ELIZABETH VON DÜRING

University of Oslo

IVAR EIDE

MD, PhD student, OUS RH

FINN REINHOLT

Professor, OUS RH

OLE ØYEN

MD PhD, OUS RH

RUNE HORNELAND

MD, PhD student OUS RH

THI THU VAM PHAM

University of Oslo

THEA ANINE STRØM HALDEN

PhD student, University of Oslo

ASTRI J MEEN

PhD, University of Oslo

Research Group: DIABETIC NEPHROPATHY AND TRANSPLANTATION

Group Leader:
Trond Jenssen



TROND JENSSEN

Research focus

Cardiovascular risk factors and diabetes after organ transplantation.

Pancreas and islet cell transplantation.

Molecular and morphological changes in the diabetic kidney.

Projects

1. Posttransplant diabetes mellitus (PTDM). Occurrence, Pathogenesis, Risk factors, Follow-up and Treatment.
2. Studies on the role of glucagons in PTDM.
3. Studies on endothelial function and dysfunction in posttransplant diabetes, and after normalization of glycemia with pancreas transplantation.
4. Pancreas transplantation.
 - Long-term development of diabetic and non-diabetic complications
 - Surgical and medical prerequisites for successful outcome of graft function
5. Islet cell transplantation – optimization of islet isolation, islet function and clinical outcome.
6. Metabolic risk factors for kidney graft and patient survival in renal transplant patients.
7. Molecular changes in transplanted kidneys with emphasis on morphometry, basement membrane and proteoglycans.
8. Extracellular matrix changes due to hyperglycemia and inflammations in human endothelial cells.

At present 6 PhD candidates are directly involved in the projects. The group published 28 papers in peer reviewed journals in 2015.

The islet group (Hanne Scholz) is in charge of islets isolation from deceased donors for clinical islet transplantation in patients with severe type 1 diabetes at OUS. Dr. Scholz was invited speaker at the joint congress IPITA-IXA-CTS 2015 held on November 15–19, 2015 in Melbourne, Australia.

The glycobiology group (professor Svein O Kolset) is internationally one of the leading research groups on proteoglycan/ endothelial biology and physiology. One of the group members, Astri Jeanette Meen defended her thesis: Proteoglycans in inflammation, atherosclerosis, diabetic nephropathy and during physical activity with emphasis on serglycin in October 2015.

The organ transplantation group (professor Trond Jenssen) is internationally in the research front on posttransplant diabetes mellitus, as well as clinical outcomes on beta cell replacement therapy (pancreas and islet transplantation). Professor Jenssen was in 2015 invited as a speaker at several international meetings.

Achievements 2015

Ongoing research grants upheld. Received a new postdoc position from Helse Sør-Øst.

Ambitions 2016-17

Three of the candidates will finish their PhD thesis with scheduled defence in the 2nd quarter of 2016. Since we were granted a new postdoc position for studies on PTDM in the period 2016-18, we will evolve follow-up studies on diagnostic criteriae for PTDM, microdissection studies on tubular cells from transplanted kidneys (glucose transport studies), and also initiate an efficacy/ safety study on the SGLT2-inhibitor empagliflozin in PTDM patients. Furthermore, we will continue our studies on functional and molecular processes in the diabetic kidney before and after normoglycemia is obtained by pancreas transplantation. Further studies will also be undertaken to explore extracellular matrix changes in human endothelial cells exposed to normal and high glucose levels, and also proinflammatory substances.

Research Group:

IMMUNOGENETICS OF AUTOIMMUNE DISEASES

Group Leaders:

Benedicte Lie and Dag Undlien

Research focus

Our main research focus is to identify and functionally characterize genetic factors that predispose to type 1 diabetes and other autoimmune diseases. The genetic risk factors have to a large extent been connected to gene expression and gene regulation of immune cells. To get a deeper understanding of such aspects, we are studying different layers of genomic information; e.g. transcriptome, methylation and microRNA across a wide specter of immune cells both from blood and thymus. These regulatory profiles are investigated against autoimmune genetic risk loci (revealed through genome-wide association studies), and analysed against response to treatment

Projects

1. Characterization of the transcriptome of various immune cells in thymus and profiling of expression of tissue restricted autoantigens.
2. Exploring genetic, epigenetic and environmental risk factors, and their interactions, in rheumatoid arthritis, an autoimmune disease sharing many risk factors with type 1 diabetes.
3. Epigenetic profiling of immune cells from rheumatoid arthritis patients and their correlation with treatment response.
4. Quantification of the expression levels of HLA alleles, the main genetic determinant for autoimmune diseases, on different immune cells from thymus and blood.

Achievements 2015

- Identified genetic risk variants for type 1 diabetes and other autoimmune diseases that correlate with gene expression in the immunologically important thymus.
- Characterizing the genetic contribution of HLA complex to different autoimmune diseases.
- Identified environmental risk factors for autoimmune disease.
- Characterized the genetic sharing and heritability of several autoimmune diseases.

Ambitions 2016-2017

- Characterize the transcriptome of various thymic immune cells, including antigen-presenting cells and different T cell subsets.
- Identify tissue specific antigens and its alternative splice variants that are expressed in thymic epithelial cells with regard to presentation for positive and negative selection of T cells.
- Quantitatively measure the expression of different HLA alleles, including type 1 diabetes susceptibility and protective variants, in thymus.
- Explore epigenetic signatures of different immune cells and the influence of methotrexate treatment on the methylation patterns.



BENEDICTE A. LIE

DAG UNDLIEN

GROUP MEMBERS

BENEDICTE A. LIE

Professor, PhD

DAG UNDLIEN

Professor, MD, PhD

MARTE K. VIKEN

post doc

HANNA HELGELAND

post doc

FATEMEH KAVEH

post doc

INGVILD GABRIELSEN

PhD student

KARI GUDERUD

PhD student

LINE SUNDE

PhD student

FATIMA HEINICKE

PhD student

MARIA DEHLI VIGELAND

PhD student

EIRIK ELIAS HANSEN

Master student

MARTHE VESTBY

Master student

HAFAH HUSSAIN

Master student

SIRI FLÅM

Medical Laboratory Scientist

HELLE AKSELSEN

Medical Laboratory Scientist



FOTO: FREDRIK NAUMANN/FELIX FEATURES



Research Group: BIOMARKERS IN ENDOCRINOLOGY AND METABOLISM

Group Leader:
Jens P. Berg

Research focus

One of the research aims in our group is to increase our understanding of the mechanisms leading to and the metabolic consequences of increased blood glucose by studies of small molecule metabolite profiles (metabolomics). Projects at the Hormone Laboratory study the mechanisms leading to β -cell dysfunction and aim to identify adequate biomarkers to assess changes in β -cell health and function. In addition we focus on the use, quality control, and interpretation of measures of glycemic control such as HbA1c and glycated albumin.

Projects

1. Prediction of early metabolite biomarkers in serum of autoimmune diabetes.
2. Biomarkers of pancreatic β -cell mass.
3. Studies of metabolic profiles in gestational diabetes.

Achievements 2015

Daniel Sachse's PhD based on urine metabolomic analyses of urine from the STORK-Groruddalen project studies of gestational diabetes.

Proteomic analysis of vitamin D induced changes of the secretome from insulin secreting cells in culture.

Ambitions 2016-2017

Start of Mette E. Bornstedt's PhD project of proteomic analysis of insulin secreting cells.

Establish and perform studies of clinical samples to evaluate the performance of additional markers of glucose homeostasis such as glycated albumin, fructosamine and 1,5-anhydroglucitol.



JENS P. BERG

GROUP MEMBERS

JENS PETTER BERG

Professor, MD, PhD

PER M. THORSBY

MD, PhD, medical head of Hormone Laboratory

MILAIM PEPAJ

PhD

METTE E. BORNSTEDT

MD

BENEDICTE JØRGENRUD

PhD-student

MAY K BRED AHL

PhD

NINA GJERLAUGSEN

MSc

KARI JULIEN

B.Sc.

THE NORWEGIAN CHILDHOOD DIABETES REGISTRY (NCDR)

Registry leader:
Torild Skrivarhaug

30

Research focus

The main research focus in this population-based, nationwide childhood-onset diabetes registry:

1. Epidemiology in childhood-onset diabetes, focusing on incidence, prevalence, classification of childhood-onset diabetes in Norway, ethnicity and long-term complications and mortality.
2. Quality in childhood diabetes care – a nationwide prospective population-based study for research and quality improvement by means of benchmarking.
3. Clinical childhood diabetes, especially focusing on quality of life, diabetes treatment, co-morbidity, eating disorders and the transition from paediatric to adult diabetes care.
5. Classification of childhood-onset diabetes in Norway. To assess the epidemiology of different forms of diabetes and to classify incident cases on the basis of family history, clinical data, C-peptide, autoantibodies and HLA-genotypes.
6. A national, population based study of the double diagnosis of celiac disease and T1D.
8. The incidence of severe hypoglycaemia in children with T1D in Norway and in the Nordic countries.
9. The PAGE study (Prediction of Autoimmune diabetes and celiac disease in childhood by Genes and perinatal Environment).

Projects

1. Mortality in childhood-onset type 1 diabetes (T1D). All-cause mortality, SMR, causes of death.
2. Co-morbidity in children and adolescents with T1D. Assessing competencies and coping; factors affecting functional and dysfunctional behaviour in children and adolescents with T1D.
3. Assessing metabolic control in the transition between paediatric and adult diabetes care, a collaboration between NCDR and the Norwegian adult diabetes registry.
4. How do young people with T1DM experience transition from paediatric to adult health care?
10. Childhood diabetes and ethnicity in Norway.
11. Hypoglycemia in children and adolescents with T1D. To determine the prevalence of IAH (Impaired Awareness of Hypoglycemia). Population-based, nationwide study.
12. International HbA1c benchmarking in T1D: Do we need HbA1c variation in addition to average Hb1Ac values? International joint project.
13. Prevalence of monogenic diabetes in NCDR estimated by targeted deep sequencing. Treatment implications?



TORILD SKRIVARHAUG

14. The EURODIAB collaborative group established in 1988, 44 centers representing most European countries and Israel. To study the epidemiology of childhood-onset T1D in Europe.
15. Long-Term Sulfonylurea Response in KCNJ11 Neonatal Diabetes (SuResponsKIR).
16. EU-IMI 2. NCDR is part of the INNODIA consortium.
At present 3 PhD students and 1 post-doc are directly involved in the projects.

Achievements 2015

Line Wisting defended her thesis "Comorbidity type 1 diabetes and disturbed eating behaviors – Assessment, prevalence, psychological correlates and metabolic control". Conducted a national survey of life quality in children with diabetes using Disabkids, a validated PROM (Patient Reported Outcome Measure). We have started the work to develop a validated PREM (Patient Reported Experience Measure) for NCDR.

Ambitions 2016-2017

Two of the candidates will finish their PhD thesis, one in 2016 and one in 2017.

To implement a national survey of life quality in children with diabetes using Hypokids, a validated PROM (Patient Reported Outcome Measure). To publish data on incidents of severe hypoglycemia in children with T1D in Norway and the Nordic countries. To implement a national PREM survey in 2017.

GROUP MEMBERS

TORILD SKRIVARHAUG

Associate Professor, MD, PhD

GEIR JONER

Professor, MD, PhD

KNUT DAHL-JØRGENSEN

Professor, MD, PhD

LARS CHRISTIAN STENE

Senior researcher,
Norwegian Institute for Public Health

VIBEKE GAGNUM

MD, PhD student

SIV JANNE KUMMERES R.N.

diabetes nurse, masterstudent

ANN KRISTIN DRIVVOLL

MSc

DAG HELGE FRØISLAND

MD, PhD

LINE WISTING

PhD, post doc

HILDEGUNN STYVE BORKAMO

MD

PER THORSBY

MD, PhD

HILDE BJØRNDALEN

MD, MHA

DANIEL KWEKU DZIDZONU

Msc

KRISTIN HODNEKVAM

MD



FOTO: FREDRIK NAUMANN/FELIX FEATURES



THESIS 2015

CHRISTINE SOMMER. Maternal adiposity: Associations with gestational diabetes and neonatal fat in a multi-ethnic population, University of Oslo 2015.

ASTRI JEANETTE MEEN. Proteoglycans in inflammation, atherosclerosis, diabetic nephropathy and during physical activity with emphasis on serglycin, University of Oslo 2015.

MARTIN HEIER. Early atherosclerosis in childhood onset diabetes – The impact of inflammation and advanced glycation, University of Oslo 2015.

LINE WISTING. Comorbid type 1 diabetes and disturbed eating behaviors – Assessment, prevalence, psychological correlates and metabolic Controls, University of Oslo 2015.

ANNE PERNILLE OFSTAD. Myocardial dysfunction and cardiovascular disease in type 2 diabetes, University of Oslo 2015

PUBLICATIONS 2015

International publications:

Aass C, Norheim I, Eriksen EF, Thorsby PM, Pepaj M. Single unit filter-aided method for fast proteomic analysis of tear fluid. *Anal Biochem* 2015; 480:1-5

Andreassen OA, Desikan RS, Wang Y, Thompson WK, Schork AJ, Zuber V, Doncheva NT, Ellinghaus E, Albrecht M, Mattingsdal M, Franke A, Lie BA, Mills IG, Aukrust P, McEvoy LK, Djurovic S, Karlsen TH, Dale AM. Correction: Abundant Genetic Overlap between Blood Lipids and Immune-Mediated Diseases Indicates Shared Molecular Genetic Mechanisms. *PLoS One* 2015; 10:e0128048

Andreassen OA, Desikan RS, Wang Y, Thompson WK, Schork AJ, Zuber V, Doncheva NT, Ellinghaus E, Albrecht M, Mattingsdal M, Franke A, Lie BA, Mills IG, Aukrust P, McEvoy LK, Djurovic S, Karlsen TH, Dale AM. Abundant genetic overlap between blood lipids and immune-mediated diseases indicates shared molecular genetic mechanisms. *PLoS One* 2015; 10:e0123057

Basu A, Yu JY, Jenkins AJ, Nankervis AJ, Hanssen KE, Henriksen T, Lorentzen B, Garg SK, Menard MK, Hammad SM, Scardo JA, Aston CE, Lyons TJ. Trace elements as predictors of preeclampsia in type 1 diabetic pregnancy. *Nutrition research (New York, NY)* 2015; 35:421-430

Birkeland KI. Hyperglycaemia in pregnancy: still a lot to learn. *The lancet Diabetes & endocrinology* 2015; 3:752-753

Bodin J, Stene LC, Nygaard UC. Can exposure to environmental chemicals increase the risk of diabetes type

1 development? *BioMed research international* 2015; 2015:208947

Bossini-Castillo L, de Kovel C, Kallberg H, van 't Slot R, Italiaander A, Coenen M, Tak PP, Posthumus MD, Wijmenga C, Huizinga T, van der Helm-van Mil AH, Stoeken-Rijsbergen G, Rodriguez-Rodriguez L, Balsa A, Gonzalez-Alvaro I, Gonzalez-Gay MA, Gomez-Vaquero C, Franke B, Vermeulen S, van der Horst-Bruinsma I, Dijkmans BA, Wolbink GJ, Ophoff RA, Maehlen MT, van Riel P, Merriman M, Klareskog L, Lie BA, Merriman T, Crusius JB, Brouwer E, Martin J, de Vries N, Toes R, Padyukov L, Koeleman BP. A genome-wide association study of rheumatoid arthritis without antibodies against citrullinated peptides. *Ann Rheum Dis* 2015; 74:e15

Brunner S, Stecher L, Ziebarth S, Nehring I, Rifas-Shiman SL, Sommer C, Hauner H, von Kries R. Excessive gestational weight gain prior to glucose screening and the risk of gestational diabetes: a meta-analysis. *Diabetologia* 2015; 58:2229-2237

Chiaroni-Clarke RC, Li YR, Munro JE, Chavez RA, Scurrah KJ, Pezic A, Akikusa JD, Allen RC, Piper SE, Becker ML, Thompson SD, Lie BA, Flato B, Forre O, Punaro M, Wise C, Saffery R, Finkel TH, Hakonarson H, Ponsonby AL, Ellis JA. The association of PTPN22 rs2476601 with juvenile idiopathic arthritis is specific to females. *Genes Immun* 2015; 16:495-498

Cortes A, Pulit SL, Leo PJ, Pointon JJ, Robinson PC, Weisman MH, Ward M, Gensler LS, Zhou X, Garchon HJ, Chiocchia G, Nossent J, Lie BA, Forre O, Tuomilehto J, Laiho K, Bradbury LA, Elewaut D, Burgos-Vargas R, Stebbings S, Appleton L, Farrah C, Lau J, Haroon

N, Mulero J, Blanco FJ, Gonzalez-Gay MA, Lopez-Larrea C, Bowness P, Gaffney K, Gaston H, Gladman DD, Rahman P, Maksymowycz WP, Crusius JB, van der Horst-Bruinsma IE, Valle-Onate R, Romero-Sanchez C, Hansen IM, Pimentel-Santos FM, Inman RD, Martin J, Breban M, Wordsworth BP, Reveille JD, Evans DM, de Bakker PI, Brown MA. Major histocompatibility complex associations of ankylosing spondylitis are complex and involve further epistasis with ERAP1. *Nature communications* 2015; 6:7146

Dahle DO, Asberg A, Hartmann A, Holdaas H, Bachtler M, Jenssen TG, Dionisi M, Pasch A. Serum Calcification Propensity Is a Strong and Independent Determinant of Cardiac and All-Cause Mortality in Kidney Transplant Recipients. *Am J Transplant* 2016; 16:204-212

Dahle DO, Eide IA, Asberg A, Leivestad T, Holdaas H, Jenssen TG, Fagerland MW, Pihlstrom H, Mjoen G, Hartmann A. Aortic Stiffness in a Mortality Risk Calculator for Kidney Transplant Recipients. *Transplantation* 2015; 99:1730-1737

Dorje C, Mjoen G, Strom EH, Holdaas H, Jenssen T, Oyen O, Akkoc CA, Cvancarova M, Midtvedt K, Reisaeter AV. One-year protocol biopsies from ABO-incompatible renal allografts compared with a matched cohort of ABO-compatible allografts. *Clin Transplant* 2015; 29:268-276

Dzidzonu DK, Skrivarhaug T, Joner G, Moger TA. Ethnic differences in the incidence of type 1 diabetes in Norway: a register-based study using data from the period 2002-2009. *Pediatr Diabetes* 2015;

Eide IA, Halden TA, Hartmann A, Asberg A, Dahle DO, Reisaeter AV, Jenssen T. Limitations of hemoglobin A1c for the diagnosis of posttransplant diabetes mellitus. *Transplantation* 2015; 99:629-635

Eide IA, Halden TA, Jenssen T. The Authors' Reply: HbA1c Is Insensitive at Month 3 After Kidney Transplantation. *Transplantation* 2015; 99:e38

Eide IA, Jenssen T, Hartmann A, Diep LM, Dahle DO, Reisaeter AV, Bjerve KS, Christensen JH, Schmidt EB, Svensson M. The association between marine n-3 polyunsaturated fatty acid levels and survival after renal transplantation. *Clin J Am Soc Nephrol* 2015; 10:1246-1256

Ellis JA, Scurrah KJ, Li YR, Ponsonby AL, Chavez RA, Pezic A, Dwyer T, Akikusa JD, Allen RC, Becker ML, Thompson SD, Lie BA, Flato B, Forre O, Punaro M, Wise C, Finkel TH, Hakonarson H, Munro JE. Epista-

sis amongst PTPN2 and genes of the vitamin D pathway contributes to risk of juvenile idiopathic arthritis. *J Steroid Biochem Mol Biol* 2015; 145:113-120

Eriksen BO, Lochen ML, Arntzen KA, Bertelsen G, Winther Eilertsen BA, von Hanno T, Herder M, Jenssen TG, Mathisen UD, Melsom T, Njolstad I, Solbu MD, Mathiesen EB. Estimated and Measured GFR Associate Differently with Retinal Vasculopathy in the General Population. *Nephron* 2015; 131:175-184

Estensen ME, Grindheim G, Remme EW, Godang K, Henriksen T, Aukrust P, Aakhus S, Gullestad L, Ueland T. Elevated inflammatory markers in preeclamptic pregnancies, but no relation to systemic arterial stiffness. *Pregnancy Hypertens* 2015; 5:325-329

Flam ST, Gunnarsson R, Garen T, Lie BA, Molberg O. The HLA profiles of mixed connective tissue disease differ distinctly from the profiles of clinically related connective tissue diseases. *Rheumatology (Oxford)* 2015; 54:528-535

Gagnum V, Stene LC, Sandvik L, Fagerland MW, Njolstad PR, Joner G, Skrivarhaug T. All-cause mortality in a nationwide cohort of childhood-onset diabetes in Norway 1973-2013. *Diabetologia* 2015; 58:1779-1786

Gopinathan U, Brusletto BS, Olstad OK, Kierulf P, Berg JP, Brandtzaeg P, Ovstebo R. IL-10 immunodepletion from meningococcal sepsis plasma induces extensive changes in gene expression and cytokine release in stimulated human monocytes. *Innate Immun* 2015; 21:429-449

Gorgens SW, Hjorth M, Eckardt K, Wichert S, Norheim F, Holen T, Lee S, Langley T, Birkeland KI, Stadheim HK, Kolnes KJ, Tangen DS, Kolnes AJ, Jensen J, Drevon CA, Eckel J. The exercise-regulated myokine chitinase-3-like protein 1 stimulates human myocyte proliferation. *Acta physiologica (Oxford, England)* 2016; 216:330-345

Hals IK, Bruerberg SG, Ma Z, Scholz H, Bjorklund A, Grill V. Mitochondrial Respiration in Insulin-Producing beta-Cells: General Characteristics and Adaptive Effects of Hypoxia. *PLoS One* 2015; 10:e0138558

Haugen G. Is acetylcholine constriction of umbilical vessels clinically relevant? *BJOG* 2015; 122:1640

Haugen G, Novakovic Z, Kirste U, Husby H, Dorenberg E. Uterine artery Doppler flow velocity waveform analysis following uterine fibroid embolisation. *J Obstet Gynaecol* 2015; 35:316-317

Heier M, Margeisdottir HD, Brunborg C, Hanssen KE, Dahl-Jorgensen K, Seljeflot I. Inflammation in childhood type 1 diabetes; influence of glycemic control. *Atherosclerosis* 2015; 238:33-37

Heier M, Margeisdottir HD, Gaarder M, Stensaeth KH, Brunborg C, Torjesen PA, Seljeflot I, Hanssen KE, Dahl-Jorgensen K. Soluble RAGE and atherosclerosis in youth with type 1 diabetes: a 5-year follow-up study. *Cardiovasc Diabetol* 2015; 14:126

Heier M, Margeisdottir HD, Torjesen PA, Seljeflot I, Stensaeth KH, Gaarder M, Brunborg C, Hanssen KE, Dahl-Jorgensen K. The advanced glycation end product methylglyoxal-derived hydroimidazolone-1 and early signs of atherosclerosis in childhood diabetes. *Diab Vasc Dis Res* 2015; 12:139-145

Hjorth M, Norheim F, Meen AJ, Pourteymour S, Lee S, Holen T, Jensen J, Birkeland KI, Martinov VN, Langleite TM, Eckardt K, Drevon CA, Kolset SO. The effect of acute and long-term physical activity on extracellular matrix and serglycin in human skeletal muscle. *Physiological reports* 2015; 3

Hjorth M, Pourteymour S, Gorgens SW, Langleite TM, Lee S, Holen T, Gulseth HL, Birkeland KI, Jensen J, Drevon CA, Norheim F. Myostatin in relation to physical activity and dysglycemia and its effect on energy metabolism in human skeletal muscle cells. *Acta physiologica (Oxford, England)* 2015;

Hofso D, Birkeland KI, Holst JJ, Bollerslev J, Sandbu R, Roislien J, Hjelmessaeth J. Gastric bypass surgery has a weight-loss independent effect on post-challenge serum glucose levels. *Diabetol Metab Syndr* 2015; 7:69

Holme AM, Roland MC, Lorentzen B, Michelsen TM, Henriksen T. Placental glucose transfer: a human in vivo study. *PLoS One* 2015; 10:e0117084

Horneland R, Paulsen V, Lindahl JP, Grzyb K, Eide TJ, Lundin K, Aabakken L, Jenssen T, Aandahl EM, Foss A, Oyen O. Pancreas transplantation with enteroanastomosis to native duodenum poses technical challenges--but offers improved endoscopic access for scheduled biopsies and therapeutic interventions. *Am J Transplant* 2015; 15:242-250

Hov JR, Zhong H, Qin B, Anmarkrud JA, Holm K, Franke A, Lie BA, Karlsen TH. The Influence of the Autoimmunity-Associated Ancestral HLA Haplotype AH8.1 on the Human Gut Microbiota: A Cross-Sectional Study. *PLoS One* 2015; 10:e0133804

Jenssen T, Hartmann A. Emerging treatments for post-transplantation diabetes mellitus. *Nature reviews Nephrology* 2015; 11:465-477

Kloster-Jensen K, Vethe NT, Bremer S, Abadpour S, Korsgren O, Foss A, Bergan S, Scholz H. Intracellular sirolimus concentration is reduced by tacrolimus in human pancreatic islets in vitro. *Transpl Int* 2015; 28:1152-1161

Kolseth IB, Reine TM, Vuong TT, Meen AJ, Fan Q, Jenssen TG, Gronning-Wang LM, Kolset SO. Serglycin is part of the secretory repertoire of LPS-activated monocytes. *Immunity, inflammation and disease* 2015; 3:23-31

Kringen MK, Stormo C, Berg JP, Terry SF, Vocke CM, Rizvi S, Hendig D, Piehler AP. Copy number variation in the ATP-binding cassette transporter ABCC6 gene and ABCC6 pseudogenes in patients with pseudoxanthoma elasticum. *Molecular genetics & genomic medicine* 2015; 3:233-237

Krogvold L, Edwin B, Buanes T, Frisk G, Skog O, Anagandula M, Korsgren O, Undlien D, Eike MC, Richardson SJ, Leete P, Morgan NG, Oikarinen S, Oikarinen M, Laiho JE, Hyoty H, Ludvigsson J, Hanssen KE, Dahl-Jorgensen K. Detection of a low-grade enteroviral infection in the islets of langerhans of living patients newly diagnosed with type 1 diabetes. *Diabetes* 2015; 64:1682-1687

Krogvold L, Skog O, Sundstrom G, Edwin B, Buanes T, Hanssen KE, Ludvigsson J, Grabherr M, Korsgren O, Dahl-Jorgensen K. Function of Isolated Pancreatic Islets From Patients at Onset of Type 1 Diabetes: Insulin Secretion Can Be Restored After Some Days in a Non-diabetogenic Environment In Vitro: Results From the DiViD Study. *Diabetes* 2015; 64:2506-2512

Landro NI, Jonassen R, Clark L, Haug KB, Aker M, Bo R, Berg JP, Neumeister A, Stiles TC. Serotonin transporter polymorphisms predict response inhibition in healthy volunteers. *Neurosci Lett* 2015; 584:109-112

Lekva T, Berg JP, Lyle R, Heck A, Bollerslev J, Ueland T. Alternative splicing of placental lactogen (CSH2) in somatotroph pituitary adenomas. *Neuro Endocrinol Lett* 2015; 36:136-142

Lekva T, Bollerslev J, Godang K, Roland MC, Friis CM, Voldner N, Henriksen T, Ueland T. beta-cell dysfunction in women with previous gestational diabetes is associated with visceral adipose tissue distribution. *Eur J Endocrinol* 2015; 173:63-70

Lekva T, Bollerslev J, Norwitz ER, Aukrust P, Henriksen T, Ueland T. Aortic Stiffness and Cardiovascular Risk in Women with Previous Gestational Diabetes Mellitus. *PLoS One* 2015; 10:e0136892

Li YR, Li J, Zhao SD, Bradfield JP, Mentch FD, Maggadottir SM, Hou C, Abrams DJ, Chang D, Gao F, Guo Y, Wei Z, Connolly JJ, Cardinale CJ, Bakay M, Glessner JT, Li D, Kao C, Thomas KA, Qiu H, Chiavacci RM, Kim CE, Wang F, Snyder J, Richie MD, Flato B, Forre O, Denson LA, Thompson SD, Becker ML, Guthery SL, Latiano A, Perez E, Resnick E, Russell RK, Wilson DC, Silverberg MS, Annese V, Lie BA, Punaro M, Dubinsky MC, Monos DS, Strisciuglio C, Staiano A, Miele E, Kugathasan S, Ellis JA, Munro JE, Sullivan KE, Wise CA, Chapel H, Cunningham-Rundles C, Grant SF, Orange JS, Sleiman PM, Behrens EM, Griffiths AM, Satsangi J, Finkel TH, Keinan A, Prak ET, Polychronakos C, Baldassano RN, Li H, Keating BJ, Hakonarson H. Meta-analysis of shared genetic architecture across ten pediatric autoimmune diseases. *Nat Med* 2015; 21:1018-1027

Li YR, Zhao SD, Li J, Bradfield JP, Mohebbnasab M, Steel L, Kobie J, Abrams DJ, Mentch FD, Glessner JT, Guo Y, Wei Z, Connolly JJ, Cardinale CJ, Bakay M, Li D, Maggadottir SM, Thomas KA, Qiu H, Chiavacci RM, Kim CE, Wang F, Snyder J, Flato B, Forre O, Denson LA, Thompson SD, Becker ML, Guthery SL, Latiano A, Perez E, Resnick E, Strisciuglio C, Staiano A, Miele E, Silverberg MS, Lie BA, Punaro M, Russell RK, Wilson DC, Dubinsky MC, Monos DS, Annese V, Munro JE, Wise C, Chapel H, Cunningham-Rundles C, Orange JS, Behrens EM, Sullivan KE, Kugathasan S, Griffiths AM, Satsangi J, Grant SF, Sleiman PM, Finkel TH, Polychronakos C, Baldassano RN, Luning Prak ET, Ellis JA, Li H, Keating BJ, Hakonarson H. Genetic sharing and heritability of paediatric age of onset autoimmune diseases. *Nature communications* 2015; 6:8442

Lindahl JP, Hartmann A, Aakhus S, Endresen K, Midtvedt K, Holdaas H, Leivestad T, Horneland R, Oyen O, Jenssen T. Long-term cardiovascular outcomes in type 1 diabetic patients after simultaneous pancreas and kidney transplantation compared with living donor kidney transplantation. *Diabetologia* 2015;

Lund-Blix NA, Stene LC, Rasmussen T, Torjesen PA, Andersen LE, Ronningen KS. Infant feeding in relation to islet autoimmunity and type 1 diabetes in genetically susceptible children: the MIDIA Study. *Diabetes Care* 2015; 38:257-263

Maehlen MT, Olsen IC, Andreassen BK, Viken MK, Jiang X, Alfredsson L, Kallberg H, Brynedal B, Kur-

reeman E, Daha N, Toes R, Zhernakova A, Gutierrez-Achury J, de Bakker PI, Martin J, Teruel M, Gonzalez-Gay MA, Rodriguez-Rodriguez L, Balsa A, Uhlig T, Kvien TK, Lie BA. Genetic risk scores and number of autoantibodies in patients with rheumatoid arthritis. *Ann Rheum Dis* 2015; 74:762-768

Magnus MC, Olsen SF, Granstrom C, Joner G, Skriverhaug T, Svensson J, Johannesen J, Njolstad P, Magnus P, Stordal K, Stene LC. Infant Growth and Risk of Childhood-Onset Type 1 Diabetes in Children From 2 Scandinavian Birth Cohorts. *JAMA Pediatr* 2015; 169:e153759

Meen AJ, Drevon CA, Pejler G, Jenssen TG, Olstad OK, Abrink M, Kolset SO. Serglycin protects against high fat diet-induced increase in serum LDL in mice. *Glycoconjug J* 2015; 32:703-714

Melsom T, Fuskevag OM, Mathisen UD, Strand H, Schei J, Jenssen T, Solbu M, Eriksen BO. Estimated GFR is biased by non-traditional cardiovascular risk factors. *Am J Nephrol* 2015; 41:7-15

Melsom T, Schei J, Stefansson VT, Solbu MD, Jenssen TG, Mathisen UD, Wilsgaard T, Eriksen BO. Prediabetes and Risk of Glomerular Hyperfiltration and Albuminuria in the General Nondiabetic Population: A Prospective Cohort Study. *Am J Kidney Dis* 2015;

Ofstad AP, Urheim S, Dalen H, Orvik E, Birkeland KI, Gullestad L, M WF, Johansen OE, Aakhus S. Identification of a definite diabetic cardiomyopathy in type 2 diabetes by comprehensive echocardiographic evaluation: A cross-sectional comparison with non-diabetic weight-matched controls. *Journal of diabetes* 2015; 7:779-790

Omair A, Mannion AF, Holden M, Fairbank J, Lie BA, Hagg O, Fritzell P, Brox JJ. Catechol-O-methyltransferase (COMT) gene polymorphisms are associated with baseline disability but not long-term treatment outcome in patients with chronic low back pain. *Eur Spine J* 2015; 24:2425-2431

Onengut-Gumuscu S, Chen WM, Burren O, Cooper NJ, Quinlan AR, Mychaleckyj JC, Farber E, Bonnie JK, Szpak M, Schofield E, Achuthan P, Guo H, Fortune MD, Stevens H, Walker NM, Ward LD, Kundaje A, Kellis M, Daly MJ, Barrett JC, Cooper JD, Deloukas P, Todd JA, Wallace C, Concannon P, Rich SS. Fine mapping of type 1 diabetes susceptibility loci and evidence for colocalization of causal variants with lymphoid gene enhancers. *Nat Genet* 2015; 47:381-386

Patterson CC, Gyurus E, Rosenbauer J, Cinek O, Neu A, Schober E, Parslow RC, Joner G, Svensson J, Castell C, Bingley PJ, Schoenle E, Jarosz-Chobot P, Urbonaite B, Rothe U, Krzisnik C, Ionescu-Tirgoviste C, Weets I, Kocova M, Stipancic G, Samardzic M, de Beaufort CE, Green A, Soltesz G, Dahlquist GG. Seasonal variation in month of diagnosis in children with type 1 diabetes registered in 23 European centers during 1989-2008: little short-term influence of sunshine hours or average temperature. *Pediatr Diabetes* 2015; 16:573-580

Pepaj M, Bredahl MK, Gjerlaugsen N, Bornstedt ME, Thorsby PM. Discovery of novel vitamin D-regulated proteins in INS-1 cells: a proteomic approach. *Diabetes Metab Res Rev* 2015; 31:481-491

Pourteymour S, Lee S, Langleite TM, Eckardt K, Hjorth M, Bindsboll C, Dalen KT, Birkeland KI, Drevon CA, Holen T, Norheim F. Perilipin 4 in human skeletal muscle: localization and effect of physical activity. *Physiological reports* 2015; 3

Reine TM, Kolseth IB, Meen AJ, Lindahl JP, Jenssen TG, Reinholdt FP, Zaia J, Shao C, Hartmann A, Kolset SO. Effects of restoring normoglycemia in type 1 diabetes on inflammatory profile and renal extracellular matrix structure after simultaneous pancreas and kidney transplantation. *Diabetes Res Clin Pract* 2015; 107:46-53

Reine TM, Vuong TT, Rutkovskiy A, Meen AJ, Vaage J, Jenssen TG, Kolset SO. Serglycin in Quiescent and Proliferating Primary Endothelial Cells. *PLoS One* 2015; 10:e0145584

Reppe S, Noer A, Grimholt RM, Halldorsson BV, Medina-Gomez C, Gautvik VT, Olstad OK, Berg JP, Datta H, Estrada K, Hofman A, Uitterlinden AG, Rivadeneira F, Lyle R, Collas P, Gautvik KM. Methylation of bone SOST, its mRNA, and serum sclerostin levels correlate strongly with fracture risk in postmenopausal women. *J Bone Miner Res* 2015; 30:249-256

Risstad H, Sovik TT, Engstrom M, Aasheim ET, Fagerland MW, Olsen ME, Kristinsson JA, le Roux CW, Bohmer T, Birkeland KI, Mala T, Olbers T. Five-year outcomes after laparoscopic gastric bypass and laparoscopic duodenal switch in patients with body mass index of 50 to 60: a randomized clinical trial. *JAMA surgery* 2015; 150:352-361

Rizvi SM, Veierod MB, Thorsby PM, Helsing P. Vitamin D in Norwegian renal transplant recipients: A longitudinal study with repeated measurements in winter and summer. *Eur J Dermatol* 2015; 25:234-239

Robinson PC, Costello ME, Leo P, Bradbury LA, Hollis K, Cortes A, Lee S, Joo KB, Shim SC, Weisman M, Ward M, Zhou X, Garchon HJ, Chiocchia G, Nossent J, Lie BA, Forre O, Tuomilehto J, Laiho K, Jiang L, Liu Y, Wu X, Elewaut D, Burgos-Vargas R, Gensler LS, Stebbings S, Haroon N, Mulero J, Fernandez-Sueiro JL, Gonzalez-Gay MA, Lopez-Larrea C, Bowness P, Gaffney K, Gaston JS, Gladman DD, Rahman P, Maksymowych WP, Xu H, van der Horst-Bruinsma IE, Chou CT, Valle-Onate R, Romero-Sanchez MC, Hansen IM, Pimentel-Santos FM, Inman RD, Martin J, Breban M, Evans D, Reveille JD, Kim TH, Wordsworth BP, Brown MA. ERAP2 is associated with ankylosing spondylitis in HLA-B27-positive and HLA-B27-negative patients. *Ann Rheum Dis* 2015; 74:1627-1629

Ronning SB, Carlson CR, Stang E, Kolset SO, Hollung K, Pedersen ME. Syndecan-4 Regulates Muscle Differentiation and Is Internalized from the Plasma Membrane during Myogenesis. *PLoS One* 2015; 10:e0129288

Sahraoui A, Winzell MS, Gorman T, Smith DM, Skrtic S, Hoeyem M, Abadpour S, Johansson L, Korsgren O, Foss A, Scholz H. The effects of exendin-4 treatment on graft failure: an animal study using a novel re-vascularized minimal human islet transplant model. *PLoS One* 2015; 10:e0121204

Schei J, Stefansson VT, Mathisen UD, Eriksen BO, Solbu MD, Jenssen TG, Melsom T. Residual Associations of Inflammatory Markers with eGFR after Accounting for Measured GFR in a Community-Based Cohort without CKD. *Clin J Am Soc Nephrol* 2015;

Schive SW, Scholz H, Sahraoui A, Kloster-Jensen K, Hafsaal G, Korsgren O, Foss A, Jenssen TG. Graft function 1 year after pregnancy in an islet-transplanted patient. *Transpl Int* 2015; 28:1235-1239

Shakeel N, Eberhard-Gran M, Sletner L, Slinning K, Martinsen EW, Holme I, Jenum AK. A prospective cohort study of depression in pregnancy, prevalence and risk factors in a multi-ethnic population. *BMC Pregnancy Childbirth* 2015; 15:5

Skaffeld A, Iversen MM, Holme I, Ribu L, Hvaal K, Kilhovd BK. A pilot study testing the feasibility of skin temperature monitoring to reduce recurrent foot ulcers in patients with diabetes--a randomized controlled trial. *BMC Endocr Disord* 2015; 15:55

Skog O, Korsgren S, Wiberg A, Danielsson A, Edwin B, Buanes T, Krogvold L, Korsgren O, Dahl-Jorgensen K. Expression of human leukocyte antigen class I in endocrine and exocrine pancreatic tissue at onset of type 1 diabetes. *Am J Pathol* 2015; 185:129-138

Sletner L, Rasmussen S, Jenum AK, Nakstad B, Jensen OH, Vangen S. Ethnic differences in fetal size and growth in a multi-ethnic population. *Early Hum Dev* 2015; 91:547-554

Sommer C, Jenum AK, Waage CW, Morkrid K, Sletner L, Birkeland KI. Ethnic differences in BMI, subcutaneous fat, and serum leptin levels during and after pregnancy and risk of gestational diabetes. *Eur J Endocrinol* 2015; 172:649-656

Sommer C, Sletner L, Morkrid K, Jenum AK, Birkeland KI. Effects of early pregnancy BMI, mid-gestational weight gain, glucose and lipid levels in pregnancy on offspring's birth weight and subcutaneous fat: a population-based cohort study. *BMC Pregnancy Childbirth* 2015; 15:84

Sorgjerd EP, Thorsby PM, Torjesen PA, Skorpen F, Kvaloy K, Grill V. Presence of anti-GAD in a non-diabetic population of adults; time dynamics and clinical influence: results from the HUNT study. *BMJ open diabetes research & care* 2015; 3:e000076

Storhaug HM, Toft I, Norvik JV, Jenssen T, Eriksen BO, Melsom T, Lochen ML, Solbu MD. Uric acid is associated with microalbuminuria and decreased glomerular filtration rate in the general population during 7 and 13 years of follow-up: The Tromso Study. *BMC Nephrol* 2015; 16:210

Sveberg L, Vik K, Henriksen T, Tauboll E. Women with epilepsy and post partum bleeding--Is there a role for vitamin K supplementation? *Seizure* 2015; 28:85-87

Sveen KA, Dahl-Jorgensen K, Stensaeth KH, Angel K, Seljeflot I, Sell DR, Monnier VM, Hanssen KE. Glucosepane and oxidative markers in skin collagen correlate with intima media thickness and arterial stiffness in long-term type 1 diabetes. *J Diabetes Complications* 2015; 29:407-412

Tapia G, Boas H, de Muinck EJ, Cinek O, Stene LC, Torjesen PA, Rasmussen T, Ronningen KS. Saffold Virus, a Human Cardiovirus, and Risk of Persistent Islet Autoantibodies in the Longitudinal Birth Cohort Study MIDIA. *PLoS One* 2015; 10:e0136849

von Düring ME, Jenssen T, Bollerslev J, Asberg A, Godang K, Eide IA, Dahle DO, Hartmann A. Visceral fat is better related to impaired glucose metabolism than body mass index after kidney transplantation. *Transpl Int* 2015; 28:1162-1171

Vuong TT, Reine TM, Sudworth A, Jenssen TG, Kolset SO. Syndecan-4 is a major syndecan in primary human endothelial cells in vitro, modulated by inflammatory stimuli and involved in wound healing. *J Histochem Cytochem* 2015; 63:280-292

Waage C, Falk R, Sommer C, Morkrid K, Richardsen K, Baerug A, Shakeel N, Birkeland K, Jenum A. Ethnic differences in postpartum weight retention: a Norwegian cohort study. *BJOG* 2015;

Wisting L, Bang L, Skrivarhaug T, Dahl-Jorgensen K, Ro O. Adolescents with Type 1 Diabetes--The Impact of Gender, Age, and Health-Related Functioning on Eating Disorder Psychopathology. *PLoS One* 2015; 10:e0141386

Witso E, Cinek O, Tapia G, Brorsson CA, Stene LC, Gjessing HK, Rasmussen T, Bergholdt R, Pociot FM, Ronningen KS. Genetic Determinants of Enterovirus Infections: Polymorphisms in Type 1 Diabetes and Innate Immune Genes in the MIDIA Study. *Viral Immunol* 2015; 28:556-563

Zykova SN, Storhaug HM, Toft I, Chadban SJ, Jenssen TG, White SL. Cross-sectional analysis of nutrition and serum uric acid in two Caucasian cohorts: the AusDiab Study and the Tromso study. *Nutrition journal* 2015; 14:49

Accepted papers:

Carlsen S, Skrivarhaug T, Thue G, Cooper JG, Goransson L, Lovaas K, Sandberg S. Glycemic control and complications in patients with type 1 diabetes - a registry-based longitudinal study of adolescents and young adults. *Pediatr Diabetes* 2016;

Eggemoen AR, Falk RS, Knutsen KV, Lagerlov P, Sletner L, Birkeland KI, Jenum AK. Vitamin D deficiency and supplementation in pregnancy in a multiethnic population-based cohort. *BMC Pregnancy Childbirth* 2016; 16:7

Jorgenrud B, Stene LC, Tapia G, Boas H, Pepaj M, Berg JP, Thorsby PM, Oresic M, Hyotylainen T, Ronningen KS. Longitudinal plasma metabolic profiles, infant feeding, and islet autoimmunity in the MIDIA study. *Pediatr Diabetes* 2016;

Krogvold L, Wiberg A, Edwin B, Buanes T, Jahnsen FL, Hanssen KE, Larsson E, Korsgren O, Skog O, Dahl-Jorgensen K. Insulinitis and characterisation of infiltrating T cells in surgical pancreatic tail resections from patients at onset of type 1 diabetes. *Diabetologia* 2016; 59:492-501

Leete P, Willcox A, Krogvold L, Dahl-Jørgensen K, Foulis AK, Richardson SJ, Morgan NG. Differential insulinitic profiles determine the extent of beta cell destruction and the age at onset of type 1 diabetes. *Diabetes* 2016;

Pepaj M, Bredahl MK, Gjerlaugsen N, Thorsby PM. Proteomic analysis of the INS-1E secretome identify novel vitamin D-regulated proteins. *Diabetes Metab Res Rev* 2016;

Seldin MF, Alkhairy OK, Lee AT, Lamb JA, Sussman J, Pirskanen-Matell R, Piehl F, Verschuuren JJ, Kostera-Pruszyk A, Szczudlik P, McKee D, Maniaol AH, Harbo HF, Lie BA, Melms A, Garchon HJ, Willcox N, Gregersen PK, Hammarstrom L. Genome-wide Association Study of Late-Onset Myasthenia Gravis: Confirmation of TNFRSF11A, and Identification of ZBTB10 and Three Distinct HLA Associations. *Mol Med* 2015;

Solbu MD, Toft I, Lochen ML, Mathiesen EB, Eriksen BO, Melsom T, Njolstad I, Wilsaard T, Jenssen TG. N-Acetyl-beta-d-Glucosaminidase Does Not Enhance Prediction of Cardiovascular or All-Cause Mortality by Albuminuria in a Low-Risk Population. *J Am Soc Nephrol* 2016; 27:533-542

Sollid ST, Hutchinson MY, Berg V, Fuskevåg OM, Fingschaug Y, Thorsby PM, Jorde R. Effects of Vitamin D Binding Protein Phenotypes and Vitamin D Supplementation on Serum Total 25(OH)D and Directly Measured Free 25(OH)D. *Eur J Endocrinol* 2016;

Wisting L, Bang L, Natvig H, Skrivarhaug T, Dahl-Jørgensen K, Lask B, Ro O. Metabolic Control and Illness Perceptions in Adolescents with Type 1 Diabetes. *Journal of diabetes research* 2016; 2016:3486094

Other publications/ Book chapters:

Hagve TA, Berg JP (red.). *Klinisk biokjemi og fysiologi*. Gyldendal Akademisk, Oslo 5. Utgave, 2015.

INTERNATIONAL INVITED LECTURES / ORAL PRESENTATIONS / POSTER PRESENTATIONS:

Invited lectures:

Dahl-Jørgensen K. The Swedish Child Diabetes Foundations Nordic Johnny Ludvigsson Award. Prize Lecture. The pathogenesis of type 1 diabetes - new aspects from the DiViD study. Scandinavian Society for the Study of Diabetes 50th Annual Meeting, Oslo 24. April 2015.

Krogvold L. The DiViD Study - Pancreatic Biopsies. Annual Meeting of the International Society for Pediatric

and Adolescent Diabetes (ISPAD), Brisbane, Australia 7.-10. Oct. 2015.

Skrivarhaug T. 1) Diabetes in children and adolescents -Definition / Diagnosis /Classification / Etiology, 2) Care approach in Norway : Outpatient care – Diabetes team –Diabetes registry, 3) Principles of insulin therapy and monitoring, 4) Adolescence; physiological and psychological issues. Life for a child, Dushanbe, Tajikistan 11.-14. May 2015

Oral presentations:

Abadpour S, Gopel S, Foss A, Scholz H. Glial Cell-derived Neurotrophic Factor protects human islets from apoptosis induced by serum starvation and endoplasmic reticulum stress through PI3K/AKT signaling pathway. Oral at IPITA-IXA-CTS in Melbourne, Australia, November 15–19, 2015.

Berg C, Strøm H, Selmer R, L.C. Stene LC. Is the increase in diabetes levelling off? Use of glucose-lowering drugs in Norway 2005-2014. Oral presentation at the 50th Scandinavian Society for the Study of Diabetes (SSSD) meeting, Oslo, April 24-27, 2015.

Birkebak IM, Drivvoll AK, Aakeson C, Bjarnason R, Johansen A, Samuelsson U, Skrivarhaug T, Thorsson A, Svensson J. Incidence of severe hypoglycemia in children with type 1 diabetes in the Nordic countries in the period 2008–2012. Influence of HbA1c and treatment modality. Oral presentation at the 41th Annual Meeting of the International Society for Pediatric and Adolescent Diabetes (ISPAD), Brisbane, Australia 7.-10. Oct. 2015.

Borkamo HS, Drivvoll AK, Kummernes SJ, Dahl-Jørgensen K, Skrivarhaug T. Reduced incidence of severe hypoglycemia and changing trends in treatment of type 1 diabetes (T1D) in children the last 12 years in Norway – a nationwide study. Oral presentation at the 41th Annual Meeting of the International Society for Pediatric and Adolescent Diabetes (ISPAD), Brisbane, Australia, October 7-10, 2015.

Bøås, Tapia et al. Saffold Virus and autoimmunity in MIDIA. Oral presentation at the 50th Scandinavian Society for the Study of Diabetes (SSSD) meeting, Oslo, April 24-27, 2015.

Lund-Blix, et al. Breastfeeding and type 1 diabetes in the PAGE study. Oral presentation at the 50th Scandinavian Society for the Study of Diabetes (SSSD) meeting, Oslo, April 24-27, 2015.

Elvebakk, O, Tronstad C, Gulseth HL, Jenssen TG, Bjørgeas MRR, Høgetveit, JO, Martinsen ØG, Birkeland KI. Physiological and symptomatic responses to hypoglyce-

mia in patients with impaired awareness. Oral presentation at the 50th Scandinavian Society for the Study of Diabetes (SSSD) meeting, Oslo, April 24-27, 2015.

Halden TAS, Eide IA, Hartmann A, Åsberg A, Dahle DO, Varberg Reisæter A, Jenssen T. "Mortality risk in post-transplant diabetes mellitus: Discordance between glucose and HbA1c based diagnostic criteria", Oral at Scandinavian Society for the Study of Diabetes, Oslo, April 24-26, 2015.

Halden TAS, Egeland EJ, Åsberg A, Hartmann A, Midtvedt K, Khiabani HZ, Holst JJ, Knop FK, Hornum M, Feldt-Rasmussen B, Jenssen T. "Post-transplantation diabetes mellitus: A bihormonal disease", Oral at the 33rd Biennial Congress of the Nordic Society of Nephrology, Stavanger, August 26-29, 2015.

Magnus MC, Joner G, Skrivarhaug T, Njølstad PR, Magnus P, Stene LC. Postnatal weight and height and subsequent risk of type 1 diabetes in the Norwegian Mother and Child Cohort Study. Oral presentation at the 50th Scandinavian Society for the Study of Diabetes (SSSD) meeting, Oslo, April 24-27, 2015.

Jenum AK, Gestational diabetes – a Nordic approach. Oral presentation at Scandinavian Society for the Study of Diabetes 50th Annual Meeting, Oslo 24. April 2015.

Lindahl JP, Massey RJ, Hartmann A, Aakhus S, Endresen K, Günther A, Midtvedt K, Holdaas H, Leivestad T, Horneland R, Øyen O, Jenssen T. Long-term progression of coronary artery disease after simultaneous pancreas-kidney transplantation alone in patients with type 1 diabetes, Oral at Scandinavian Society for the Study of Diabetes, Oslo April 24-26, 2015.

Kinnunen T, Waage C, Sommer C, Sletner L, Raitanen J, Jenum AK. Ethnic differences in gestational weight gain: a population-based cohort study in Norway. Oral presentation/abstract/ Poster to the 2nd Nordic Congress on Obesity in Gynaecology and Obstetrics. Middelfart, Denmark, August 27-29, 2015.

Næss-Andresen ML, Berg JP, Jenum AK. Ethnic Differences in Iron Deficiency and Anemia in Pregnancy: A Population-Based Cohort Study. Oral Presentation. 19th Nordic Congress of General Practice, Gothenburg, June 16-18, 2015.

Reine TM, Kolset SO, et al. Serglycin in primary human endothelial cells. Oral at Nordic Proteoglycan Meeting, Bergen, May 20-21, 2015.

Richardsen K, Jenum AK, Berntsen S. Ethnic differences in moderate-to-vigorous physical activity (MVPA) in

pregnancy and postpartum, Oral presentation. European College of Sports Science Annual Congress. Malmö, Sweden, June 24-27, 2015

Schive S, Mirlashari MR, Josefsen D, Foss A, Kvalheim G, Scholz H. Human adipose tissue derived stem cells incubated in 1% O₂ increase secretion of islet protective factors, improves function and reduces apoptosis in human islet in vitro, Abstract 1039, Oral at IPITA-IXA-CTS Melbourne, Australia, November 15-19, 2015.

Sletner L, Jenum AK, Mørkrid K, Birkeland KI, Vangen S. Gestational diabetes and fetal growth in ethnic Europeans and South Asians in Groruddalen, Oslo. Oral presentation at Scandinavian Society for the Study of Diabetes' 50th Annual Meeting, Oslo, 25. April 2015.

Wisting L, Frøisland DH, Skrivarhaug T, Dahl-Jørgensen K, Bang L, Natvig H, Lask B, Rø Ø. Comorbid type 1 diabetes and disturbed eating behaviors – assessment, prevalence, psychological correlates and metabolic control. Scandinavian Society for the study of diabetes (SSSD), 50 th annual meeting, Oslo, April 24-26, 2015.

Poster presentations:

Abadpour S, Gopel S, Sörhede Winzell M, Foss A, Scholz H. Glial Cell-derived Neurotrophic Factor Protects Human Islets from Apoptosis Induced by Serum Starvation and Endoplasmic Reticulum Stress. Poster at 5th EPITA Winter Symposium & 34th AID-PIT Workshop. Innsbruck, Igls, Austria. January 25-27, 2015.

Carlsen S, Skrivarhaug T, Thue G, Cooper JC, Sandberg S. Glycemic control and complications in adolescents and young adults with type 1 diabetes - longitudinal data from two Norwegian diabetes quality registers. Poster presentation, EASD 2015, Stockholm, September 14-18, 2015.

Eckardt K, Lee S, Langleite TM, Holen T, Jensen J, Birkeland KI, Drevon CA. Stearoyl-CoA desaturase and its regulation in human skeletal muscle by exercise. Poster presentation, , EASD 2015, Stockholm, September 14-18, 2015.

Eggemoen ÅR, Falk RS, Knutsen KV, Lagerlöv P, Birkeland KI, Jenum AK. Vitamin D deficiency and supplementation in pregnancy– a pre-post evaluation of a simple intervention in a multiethnic population-based cohort. Abstract, poster presentation, Vitamin D 18th Workshop, Delft, Netherlands, April 2015.



FOTO: FREDRIK NAUMANN/FELIX FEATURES



Eggemoen ÅR, Knutsen KV, Wändell P, Andersen R, Grønborg I. Vitamin D deficiency among immigrants in the Nordic countries. ÅRE: Vitamin D status, prevalence of deficiency among immigrants in Norway, and intervention among pregnant multi-ethnic women. Symposium, 19th Nordic Congress of General Practice, June 2015.

Eide IA, Halden TAS, Hartmann A, Åsberg A, Dahle DO, Varberg Reisæter A, Jenssen T. The mortality risk in post transplantation diabetes mellitus is better predicted by glucose than HbA1c based diagnostic criteria. Poster at 51st EASD Annual Meeting, Stockholm, September 14-18, 2015.

Gagnum V, Stene LC, Sandvik L, Joner G, Njølstad PR, Skrivarhaug T. Causes of death in a cohort of childhood onset type 1 diabetes diagnosed during 1973– 2012. A nationwide, population-based study in Norway. Poster presentation at the 41th Annual Meeting of the International Society for Pediatric and Adolescent Diabetes (ISPAD), Brisbane, Australia October 7-10, 2015.

Halden TAS, Eide IA, Hartmann A, Åsberg A, Dahle DO, Varberg Reisæter A, Jenssen T. "Mortality risk in posttransplantation diabetes mellitus: Discordance between glucose and HbA1c based diagnostic criteria". Poster at the 33rd Biennial Congress of the Nordic Society of Nephrology, Stavanger, August 26-29, 2015.

Halden TAS, Egeland EJ, Åsberg A, Hartmann A, Midtvedt K, Khiabani HZ, Holst JJ, Knop FK, Hornum M, Feldt-Rasmussen B, Jenssen T. "Post-transplantation diabetes mellitus is characterized by increased pancreatic α -cell function in addition to β -cell dysfunction". Poster at the 17th Congress of the European Society for Organ Transplantation (ESOT), Brussels, September 13-16, 2015.

Hatle H, Bjørgaas MR, Skrivarhaug T, Graveling AJ, Frier BM, Rø TB. Evaluation of questionnaires to classify awareness of hypoglycemia in children and adolescents with type 1 diabetes. Poster presentation at the 41th Annual Meeting of the International Society for Pediatric and Adolescent Diabetes (ISPAD), Brisbane, Australia, October 7-10, 2015.

Kummernes SJ, Fredriksen STD, Skrivarhaug T. Diabetes nurses have an important role in preparing families for pubertal challenge during transition through adolescence in type 1 diabetes. Poster presentation at the 41th Annual Meeting of the International Society for Pediatric and Adolescent Diabetes (ISPAD), Brisbane, Australia, October 7-10, 2015.

Magnus MC, Joner G, Skrivarhaug T, Magnus P, Stene LC. Growth in the first year of life and risk of type 1 diabetes in the Norwegian Mother and Child Cohort Study. Poster presentation at the Immunology of Diabetes Society (IDS) meeting, Munich, Germany April 12-16, 2015.

Reine TM, Kolset SO, et al. Serglycin in quiescent and proliferating primary endothelial cells. ICP & PPCTSS (9th International Conference on Proteoglycans and 10th Pan-Pacific Connective Tissue Societies Symposium), South-Korea 2015.

Schive S, Mirlashari MR, Josefsen D, Foss A, Kvalheim G, Scholz H. Co-culturing human islets with preconditioned media from human adipose derived stem cells reduces apoptosis and improves islet function. Poster at 5th EPITA Winter Symposium & 34th AIDPIT Workshop. Innsbruck, Igls, Austria, January 25-27, 2015.

Sletner L, Jenum AK, Rasmussen S, Vangen S. Fetal size and growth and the association with parental anthropometry in a multi-ethnic population. Oral poster presentation at the DOHaD 2013. 8th World Congress on Developmental Origins of Health and Disease, Cape Town, South Africa, November 12-16, 2015.

Sletner L, Jenum AK, Mørkrid K, Birkaland IK, Vangen S. Fetal growth and associations with European and South Asian ethnic origin and gestational diabetes. Accepted abstract/Poster to the 8th International DIP Symposium on Diabetes, Hypertension, Metabolic Syndrome and Pregnancy. Berlin, Germany, April 15-18, 2015.

von Düring ME, Jenssen TG, Bollerslev J, Godang K, Eide IA, Åsberg A, Hartmann A. Can visceral fat predict hyperglycemia after kidney transplantation. Poster at Scandinavian Society for the Study of Diabetes, Oslo, April 24-26, 2015.

Waage CW, Mdala I, Jenum AK, TM Michelsen, Birkeland KI, Sletner L. Ethnic differences in blood pressure from early pregnancy to postpartum: a Norwegian cohort study. Accepted abstract/Poster to the 2nd Nordic Congress on Obesity in Gynaecology and Obstetrics. Middelfart, Denmark, August 27-29, 2015.

Wisting L, Frøisland DH, Skrivarhaug T, Dahl-Jørgensen K, Bang L, Natvig H, Lask B, Rø Ø. Type 1 diabetes and disturbed eating behaviors - comorbidity, prevalence, psychological correlates and metabolic control. Poster presentation at the 41th Annual Meeting of the International Society for Pediatric and Adolescent Diabetes (ISPAD), Brisbane, Australia, October 7-10, 2015.

NATIONAL INVITED LECTURES / ORAL PRESENTATIONS /POSTER PRESENTATIONS:

Invited lectures:

Skrivarhaug T. The Norwegian Childhood Diabetes Registry. Annual Meeting: Den Norske Barnelegeforening, Skien, June 4th 2015.

Skrivarhaug T. National Quality registers in Norway. Annual Meeting: Den Norske Barnelegeforening, Skien, June 4th 2015.

Skrivarhaug T. Is it possible to prevent childhood onset type 1 diabetes? 24. OUS-Symposium, Oslo University Hospital, Oslo, October 30th 2015.

Skrivarhaug T. The use of data from national quality registers to improve quality registers to improve quality of health and management. The Norwegian Directorate of Health, December 7th 2015.

Oral presentations:

Halden TAS, Eide IA, Hartmann A, Åsberg A, Dahle DO, Varberg Reisæter A, Jenssen T. "Does HbA1c predict graft loss and death in post-transplant diabetes mellitus"?, Oral at Norwegian Society of Pharmacology and Toxicology's Vintermøte, Beitostølen, January 29th – February 1st 2015.

Halden TAS, Eide IA, Hartmann A, Åsberg A, Dahle DO, Varberg Reisæter A, Jenssen T. "Mortality risk in post-transplant diabetes mellitus: Discordance between glucose and HbA1c based diagnostic criteria", Oral at Oslo Diabetes Research Centre 25th Anniversary, Oslo March 6th 2015.

Lindahl JP. Kidney Transplantation in patients with type 1 diabetes. Oral at Bergen Spring Meeting of Nephrology. Bergne, April 16-17, 2015.



FOTO: APELAND/KATRINE LUNKE

COLLABORATING PARTNERS

Oslo University Hospital

Harald Arnesen, Professor, dr.med. (Em), Centre for Clinical Heart Research

Ragnheidur Bragadottir, Consultant dr.med., Ophthalmological Dep

Magne Brekke, Consultant, Dep of Interventional Radiology

Cathrine Brunborg, Statistician, Centre for Clinical Research

Helene Holm, Midwife/Diabetes nurse, Dep of Obstetrics and Gynecology

Peter Kierulf, Professor dr.med. (Em), Dep of Clinical Biochemistry

Morten Fagerland, PhD, Centre for Clinical Research

Leiv Sandvik, PhD, Centre for Clinical Research

Ingebjørg Seljeftot, Professor PhD, Centre for Clinical Heart Research

Mario Gaarder, Dep of Radiology

Kristin Ørstavik, PhD, Dep of Neurophysiology

Bassam Karime, PhD, Dep of Neurophysiology

Kjetil Steine, Ass. Professor dr.med., Dep of Cardiology, AHUS

Tone Nerdrum, Consultant PhD, Dep of Cardiology, AHUS

Reidun Mosand, Diabetes nurse, Dep of Endocrinology

Anders Hartmann, Professor, Dep of Nephrology

Ludvig Sollid, MD Professor, Institute of Immunology

Siri Vangen, Consultant dr.med., Centre for Women's health

Haakon Stensæth, MD, Dep of Radiology

Frode Lars Jahnsen, MD, PhD, Dep of Pathology

Bjørn Edwin, MD, PhD, Dep of Surgery

Trond Buanes, Professor, Dep of Surgery

Arne Rosseland, MD, PhD, Dep of Surgery

Nils Gunnar Juel Consultant, Department of Physical Medicine and Rehabilitation

Jens Ivar Blix, Professor, dr.med. Department of Physical Medicine and Rehabilitation

Svein Solheim, Consultant, PhD, Dep of Cardiology

Nils-Einar Kløw, Professor, dr.med. Dep of Radiology

Prof Frode Rise, Dept of Chemistry, University of Oslo

Torbjørn Leivestad, MD, PhD, Director of The Norwegian Nephrology Registry

Anna Varberg Reisæter, MD, PhD, Section of nephrology, Dep of Organ Transplantation Medicine

Section of Endocrinology, Oslo University Hospital

Department of Medical Genetics, Oslo University Hospital

National Competence Centre for Women's Health, Oslo University Hospital

Hormone Laboratory, Oslo University Hospital

Department of Neuropsychiatry and Psycho-somatic medicine, Oslo University Hospital
RASP (Regional Centre for Eating Disorders), Oslo University Hospital

Department of Nutrition, University of Oslo
Department of Biostatistics, University of Oslo
Center for Diabetes Genetics, Haukeland University Hospital
Women's Health, Haukeland University Hospital and University of Bergen
Department of Obstetrics and Gynecology, Sørlandet Hospital, Kristiansand
National Public Health Institute, Oslo
The Norwegian Childhood Diabetes Study Group
The Norwegian Knowledge Centre for the Health Services
Lise Lund Håheim, Professor, Institute of Basic Medical Sciences, University of Oslo and The Norwegian Knowledge Centre for the Health Services

Diakonhjemmet Hospital

Karin Magnusson, PhD, Department of Rheumatology, Diakonhjemmet Hospital

Department of Nutrition University of Oslo

Lene Frost Andersen, Professor dr.philos.
Christian A. Drevon, Professor dr.med.
Per Ole Iversen, Professor dr.med.
Svein Olav Kolset, Professor dr.philos.
Hilde Nebb, Professor
Margareta Wandel, Professor
Lena Grønning-Wang, PhD

Asker and Bærum Hospital

Odd Erik Johansen, dr.med.

Norwegian Institute of public health

Sidsel Graff-Iversen, Researcher PhD
Wenche Nystad, PhD

Institute of Health and Society, University of Oslo

Gerd Holmboe-Ottesen, Professor dr.philos.
Bernadette Kumar, Cand.med., PhD student
Bjørgulf Clausen, Professor dr.med.
Akthar Hussain, Professor dr.philos.

FOTO: APELAND/KATRINE LUNKE



Norwegian School of Sports Science

Roald Bahr, Professor dr.med.

Sigmund Andersen, Professor dr.philos

Lillehammer University College

Finn Skårderud, Professor PhD

Helseundersøkelsen i Nord-Trøndelag (HUNT)

Kristian Midthjell, Professor dr.med.

University of Bergen, Haukeland University Hospital

Rolv Terje Lie, Professor, Medical Birth Registry

Pål Rasmus Njølstad, Professor dr.med., Dep of Pediatrics

Oddmund Søvik, Professor dr.med. (Em), Dep of Pediatrics

Trond Markestad, Professor dr.med., Dep of Pediatrics

Grethe S. Tell, Professor, Department of Global Public Health and Primary Care, University of Bergen.

Pål R. Njølstad, Professor, KG Jebsen Center for Diabetes Research, Department of Clinical Science, University of Bergen.

Sverre Sandberg, Professor, Department of Global Public Health and Primary Care, University of Bergen.

Bergen University College

Marit Graue, PhD, Assoc. Professor

University of Northern Norway

Svein Ivar Mellgren, Professor dr.med., Dep of Neurology

Sunnås sykehus

Nils Hjeltne, Consultant dr.med.

INTERNATIONAL COLLABORATORS

- Timothy Lyons, Professor, Queens University, Belfast, Northern Ireland
 - Alicia Jenkins, Professor, University of Sydney, Australia
 - John Todd, Professor, University of Cambridge, UK
 - Flemming Poicot, Professor, Copenhagen, Denmark
 - Jim McGuire PhD, Steno Diabetes Centre, Copenhagen, Denmark
 - John Gerich, Professor, Rochester NY, USA
 - Michael Stumvoll, Professor, Tübingen, Germany
 - Ashimina Mitrakou, Professor, Athens, Greece
 - Timon van Haeften, Professor, Holland
 - Ole Schmitz, Professor, Aarhus, Denmark
 - Allan Flyvbjerg, Professor, Aarhus, Denmark
 - Steve Chadban, Professor, Sydney, Australia
 - Michael N. Oda, Professor, CHORI, Oakland, USA
 - Vincent Monnier, Professor, Cleveland, USA
 - Thomas Jansson, Professor, University of Colorado, Denver, USA
 - Theresa Powel, Professor, University of Colorado, Denver, USA
 - Yaron Tomer, Professor, Dept. of Endocrinology, Diabetes and Bone Disease, Mt. Sinai Hospital, NY, USA.
 - Chris R. Cardwell, Professor, Centre for Public Health, Queen's University Belfast, Belfast, UK
 - Janet Svensson, Professor, Department of Pediatrics, Copenhagen University Hospital, Denmark
- The DiViD Study Group:**
- Heiki Hyöty, Professor, Dept of Virology, University of Tampere, Finland
 - Gun Frisk, Professor, University of Uppsala, Sweden
 - Olle Korsgren, Professor, University of Uppsala, Sweden
 - Oskar Skog, Assoc. Professor, University of Uppsala, Sweden
 - Decio Eizirik, Professor, University of Bruxelles, Belgium
 - Karsten Buchard, Professor, University of Copenhagen, Denmark
 - Gun Forsander, Assoc. Professor, University of Gothenburgh, Sweden
 - Henrik B. Mortensen, Professor, University of Copenhagen, Denmark
 - Johnny Ludvigsson, Professor, Dept. of Pediatrics, University of Linköping, Sweden
 - Noel Morgan, Professor, University of Exeter, UK
 - Sara Richardsson, Assoc. Professor, University of Exeter, UK
 - Bart Roep, Professor, Dept. of Immunology, Leiden University, Holland
 - Mikael Knip, Professor, Dept. of Pediatrics, University of Helsinki, Finland
 - Gunilla Westermark, Professor, University of Uppsala, Sweden
 - Yuval Dor, Professor, University of Jerusalem, Israel
 - Antonio Toliono, Professor, Laboratory of medical Microbiology, University of Varese, Italia
 - Ben Giepmans, Professor, University of Groningen, Netherlands
 - Riitta Lahesmaa, Professor, University of Turku, Finland
 - Matthias von Herrath, Professor, University of California La Jolla, USA
 - Ian Lipkin, Professor, Columbia University, New York, USA
 - Ivan C. Gerling, Professor, Memphis, USA
 - Shiva Reddy, Professor, Auckland University, New Zealand
 - David Dunger, Professor, University of Cambridge, UK
 - Malin Thulin-Flodström, Professor, Karolinska Institutet, Stockholm, Sweden
 - Professor Mark Peakman, Kings College, London, UK
 - Professor Mark Atkinson, University of Florida, USA (nPOD)
 - Professor Alberto Pugliese, University of Miami, USA (nPOD)
- EURODIAB – Study Group
The Nordic Childhood Diabetes Registry Study Group
University of Texas, Health Science Center San Antonio, Center for Pregnancy and Newborn Research, Department of Obstetrics and Gynecology, USA
EU-IMI 2, the INNODIA consortium,
www.innodia.eu

WWW.OSLODIABETES.NO

