



The Novo Nordisk Postdoctoral Fellowship Programme at KI was initiated in 2015 and has completed five annual rounds of recruitments and we have to date appointed 20 postdoctoral fellows. The Fellowship Programme aims to support the development of a new generation of exceptional young diabetes and metabolism researchers, to become future leaders in the field, while further developing scientific excellence within these areas ultimately improving the lives of patients.

We welcome the 2018 intake

Vladimir Shavva completed his PhD at the Institute of Experimental Medicine in Saint-Petersburg, Russia. Vladimir started his Novo Nordisk fellowship in September 2018 in a project led by Peder Olofsson in Department of Medicine, Solna. The project will focus on the role of TChAT cells in human vascular inflammation and atherosclerosis, as well as their function in integrating immune and nervous systems. His project is entitled: “Neural regulation of inflammation in atherosclerosis.”



Lars Paeger completed his PhD at the University of Cologne, Germany. Lars started his Novo Nordisk fellowship in the beginning of 2019 in a project led by Christian Broberger at the Department of Neuroscience. The project will aim to characterize somatostatin expressing neurons in the periventricular nucleus of the hypothalamus and their contribution to glucose metabolism and energy homeostasis. His project is entitled: “The central control of growth hormone release – electrophysiology and functional role of neuroendocrine somatostatin neurons.”



Thomas Ebert completed his habilitation thesis (PhD equivalent) at the University of Leipzig, Germany. Thomas started his Novo Nordisk fellowship in the beginning of 2019 in a project led by Peter Stenvinkel and Annika Wernerson at the Department of Clinical Science, Intervention and Technology. The project will focus on investigating novel genes and proteins that are involved in development and progression of chronic kidney disease and its vascular complications. His project is entitled: “Chronic kidney disease – exploration of novel diagnostic, preventive and therapeutic targets for an emerging public health priority.”



We have recently completed the 2019 round of recruitment and are delighted to have offered four positions for the following projects to start in Autumn 2019:

| Project Title | Supervisors |
|--|----------------------------------|
| Metabolic crosstalk and the regulation of insulin sensitivity in Type 2 diabetes. | Juleen Zierath and Anna Krook |
| LADA-latent autoimmune diabetes in adults, risk factors and prognosis. | Sofia Carlsson |
| Neural control of inflammation and metabolism in liver disease. | Peder Olofsson and Stephen Malin |
| Identifying the role of human white adipose tissue for the development of cardiovascular complications in type 2 diabetes. | Mikael Rydén and Peter Arner |

Publications

Since the Fellowship Programme began, fellows have published 3 first-author research articles, 9 co-authored research articles and 2 reviews relating to their fellowship work.

Recent selected publications:

- **Isabel Cordero-Herrera** et al (2019) [AMP-activated protein kinase activation and NADPH oxidase inhibition by inorganic nitrate and nitrite prevent liver steatosis](#). *Proc Natl Acad Sci U S A*
- **Lucile Dollet**, Zierath JR (2019) [Interplay between diet, exercise and the molecular circadian clock in orchestrating metabolic adaptations of adipose tissue](#). Review. *J. Physiol.*
- Centa M, Jin H, Hofste L, **Sanna Hellberg** et al (2019) [Germinal center-derived antibodies promote atherosclerosis plaque size and stability](#). *Circulation*
- Gao H, **Alastair Kerr** et al (2018) [Long Non-Coding RNAs Associated with Metabolic Traits in Human White Adipose Tissue](#). *EBioMedicine*
- Petrus P, Bialesova L, Checa A, **Alastair Kerr** et al (2018) [Adipocyte Expression of SLC19A1 Links DNA Hypermethylation to Adipose Tissue Inflammation and Insulin Resistance](#). *J Clin Endocrinol Metab*
- **Alastair Kerr** et al (2019) [Epigenetic regulation of diabetogenic adipose morphology](#). *Mol Metab*
- Bayindir-Buchhalter I, ..., **Lars Ketscher** et al (2018) [Cited4 is a sex-biased mediator of the antidiabetic glitazone response in adipocyte progenitors](#). *EMBO Mol Med*
- Agudelo LZ, Ferreira DMS, Dadvar S, Cervenka I, **Lars Ketscher** et al (2019) [Skeletal muscle PGC-1 \$\alpha\$ reroutes kynurenine metabolism to increase energy efficiency and fatigue-resistance](#). *Nat Commun*
- **Kelvin Kwok**, et al (2019) [Prospective analyses of white adipose tissue gene expression in relation to long-term body weight changes](#). *Int J Obes*
- Johansson A, Nyberg W, Sjöstrand M, **Noah Moruzzi**, et al (2018) [miR-31 regulates energy metabolism and is suppressed in T cells from patients with Sjögren's syndrome](#). *Eur J Immunol.*
- Paschen M, Moede T, Valladolid-Acebes I, Leibiger B, **Noah Moruzzi**, et al (2019) [Diet-induced \$\beta\$ -cell insulin resistance results in reversible loss of functional \$\beta\$ -cell mass](#). *FASEB J.*
- Panizza E, Zhang L, Fontana JM, Hamada K, **Daniel Svensson**, et al (2019) [Ouabain-regulated phosphoproteome reveals molecular mechanisms for Na⁺, K⁺-ATPase control of cell adhesion, proliferation, and survival](#). *FASEB J.*
- Nilsson LM, Zhang L, Bondar A, **Daniel Svensson**, et al (2019) [Prompt apoptotic response to high glucose in SGLT-expressing renal cells](#). *Am J Physiol Renal Physiol.*
- Blanter M, Sork H, **Soile Tuomela**, Flodström-Tullberg M (2019) [Genetic and Environmental Interaction in Type 1 Diabetes: a Relationship Between Genetic Risk Alleles and Molecular Traits of Enterovirus Infection?](#) Review, *Curr Diab Rep.*

Conferences and Workshops

Recent oral presentations at national and international conferences include:

- **Thomas Ebert** – *“Adipokines are not dysregulated in gestational diabetes mellitus but are affected by pregnancy status.”* Annual Meeting of the German Diabetes Society, Berlin, Germany (2019).
- **Sanna Hellberg**
 - *“The molecular and cellular consequences of acute dyslipidemia”* Karolinska CVP-CVR Retreat, Stockholm, Sweden (2018)
 - *“The molecular and cellular consequences of acute dyslipidemia”* Finnish Atherosclerosis Society meeting, Tampere, Finland (2019)
- **Noah Moruzzi** - *“Insulin receptor isoform expression is altered in mouse tissues of genetic and dietary models of obesity and type 2 diabetes mellitus”*, SRP Diabetes-EndoMet-MetEndo Retreat at Vår Gård, Saltsjöbaden, Sweden (2019).
- **Soile Tuomela** – *“Discovery of host and virus derived peptides presented on MHC-1 in Coxsackievirus infected human beta cells”*, The 2nd Persistent Virus Infection in Diabetes Network (Pevnet) Follow-up meeting, Stockholm, Sweden (2018).

Recent poster presentations at national and international conferences include:

- **Isabel Cordero** – *10th International Conference on the biology, chemistry and therapeutic applications of nitric oxide.* Oxford, UK (2018).
- **Lucile Dollet** - *Keystone symposium Bioenergetics in Metabolic Disease*, Keystone, Colorado, USA (2018); *Swedish Diabetes Summit*, Stockholm, Sweden (2018); *Cell Symposium Exercise Metabolism*, Sitges, Spain (2019).
- **Thomas Ebert** - *Annual Meeting of the German Diabetes Society*, Berlin, Germany (2019).
- **Sanna Hellberg** – *Joint Cardiovascular Inflammation Workshop*, Evia, Greece (2018); *EAS Advanced course*, Vienna, Austria (2018); *CMM day*, Stockholm, Sweden (2018); *Karolinska Institutet Inflammation and Immunology network retreat*, Lidingö, Sweden (2018).
- **Alastair Kerr** – *EMBO workshop: RNA: structure meets function*, Stockholm, Sweden (2018); *Non-coding RNAs in Metabolic Disease*, Novo Nordisk Foundation Auditorium, Copenhagen, Denmark (2019).
- **Lars Ketscher** – *SRP diabetes retreat*, Saltsjöbaden, Sweden (2018).
- **Kelvin Kwok** – *Non-coding RNAs in Metabolic Diseases*, Novo Nordisk Foundation Auditorium, Copenhagen, Denmark (2019).
- **Lars Paeger** – *9th SRP DIABETES-ENDOMET-METENDO Retreat*, Stockholm, Sweden (2019).
- **Nicole Schmitner** - *Nordic Zebrafish and Husbandry meeting*, Stockholm, Sweden (2018).
- **Daniel Svensson** – *Experimental Biology*, Orlando, USA (2019); *9th SRP DIABETES-ENDOMET-METENDO Joint Retreat*, Stockholm, Sweden (2019).
- **Soile Tuomela** - *JDRF nPOD 10th Annual Scientific Meeting*, Miami, US (2018).
- **Montserrat Visa** – *Third Swedish Diabetes Summit*, Stockholm, Sweden (2018); *3th NEUBIAS conference*, Luxembourg (2019).

Grants and Awards

Lucile Dollet has been awarded travel grants from Karolinska Institutet (2018). Furthermore, Lucile received the EFSD/Lilly Young Investigator Research Award 2019.

Thomas Ebert has received the Silvia King Award 2019 of the German Diabetes Association.

Sanna Hellberg has received research grants from the Finnish Cardiac Foundation (2018 and 2019), Stiftelsen för ålderssjukdomar at KI (2018) and Karolinska Institutets Forskningsstiftelser (2019). In addition, Sanna also received a travel grant from Nanna Svartz's foundation (2018).

Noah Moruzzi has been awarded a research grant from Karolinska Institutet Funding (2018) and an EASD travel grant (2019).

Soile Tuomela has received a travel grant from Karolinska Institutet (2018).

Save the date

7-8 November 2019 – Novo Nordisk Fellowship Symposium, Favrholt, Denmark.

13 November 2019 – 4th Annual KI-Novo Nordisk Workshop, Biomedicum Lecture Hall, Karolinska Institutet Solna.

14 November 2019 – Diabetes Day Symposium on Molecular and Physiological Aspects of Type 2 Diabetes and Obesity, Biomedicum Lecture Hall, Karolinska Institutet Solna.

Collaborations and visits to Novo Nordisk



10 KI fellows, along with 55 other Novo Nordisk fellows, attended the annual Novo Nordisk Fellowship Symposium in Favrholm, Denmark (November 2018, above).

Montserrat Visa visited Novo Nordisk to meet her mentor and discuss about the project results. Montserrat presented the results for a group of Novo Nordisk scientists working in areas related to her project.

Lucile Dollet visited Novo Nordisk for a week in August 2019. She learned some of the techniques used at Novo Nordisk to screen metabolic effects of compounds on adipocyte lipolysis and lipogenesis using primary rodent cells. Lucile also gave a talk to Novo Nordisk scientists.

Sanna Hellberg had a one-day visit to Novo Nordisk Måløv in April 2019. Sanna gave a talk to Novo Nordisk scientists and discussed the fellowship project and potential collaboration with her mentor.

Alastair Kerr and **Kelvin Kwok** visited Novo Nordisk in Måløv for a one day on-site visit to plan a longer 2-4 weeks visit nearer the end of their Fellowships.

Lars Ketscher visited Novo Nordisk in April 2018 where he gave a talk to Novo Nordisk scientists. The discussion resulted in collaborative experiments involving an antibody validation carried out by Lars.

Nicole Schmitner spent two weeks at Novo Nordisk research facilities in April 2019 where she performed experimental work and was introduced to methodology not routinely performed at KI.

Alumni Fellows and Next Steps

We have recently said farewell to a number of fellows:

Soile Tuomela (2015 intake) ended her fellowship in July 2018. Soile now holds a permanent position at PerkinElmer in Finland.

Ester Bachar-Wikström (2015 intake) ended her fellowship in September 2018. Ester is currently a postdoctoral researcher at the Department of Medicine, Karolinska Institutet.

Lars Ketscher (2015 intake) ended his fellowship in December 2018. Lars now holds a permanent position at Clinical Molecular Pathology at the Karolinska University Hospital in Stockholm.

Montserrat Visa (2015 intake) ended her fellowship in February 2019. Montserrat is staying as a postdoctoral researcher in the research group led by Per-Olof Berggren.

Nicole Schmitner (2016 intake) ended her fellowship in June 2019. Nicole is currently a postdoctoral researcher at the Institute of Molecular Biology, University of Innsbruck, Austria.

Lucile Dollet (2016 intake) ended her fellowship in August 2019. Lucile is staying as a postdoctoral researcher in the Integrative Physiology lab at Karolinska Institutet.

Isabel Cordero (2016 intake) ended her fellowship in August 2019.

Upcoming conferences

Noah Moruzzi – will be attending the *European Association for the Study of Diabetes*, Barcelona (September 2019).

Sanna Hellberg – will be attending the *Atheroma Club Meeting*, Ystad, Sweden (September 2019)

Kelvin Kwok – will be attending the *Keystone Symposia - Noncoding RNAs: Mechanisms, Function and Therapies*, Whistler, Canada (January 2020)

The newsletter was compiled by:

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Current Fellows

| | Current Fellows | Supervisors | Mentor |
|-------------|--|---|------------------|
| 2016 intake | Alastair Kerr - Impact of fat cells expressed long non-coding RNAs on human insulin resistance. | Ingrid Dahlman | Johan Paulsson |
| 2017 intake | Sanna Hellberg - The molecular and cellular consequences of acute hypercholesterolemia. | Stephen Malin, Göran K Hansson | Günaj Rakipovski |
| | Kelvin Kwok - Elucidating the molecular mechanisms behind impaired insulin-induced transcriptional regulation in human adipose tissue. | Carsten Daub, Mikael Rydén, Peter Arner | Sara Vienberg |
| | Noah Moruzzi - The role of insulin receptor isoforms in selective insulin signaling in pancreatic beta cell physiology/pathology. | Ingo Leibiger | Tine Glendorf |
| | Daniel Svensson - A novel concept for origin and treatment of diabetic nephropathy. | Hjalmar Brismar, Anita Aperia | Anil Karihaloo |
| 2018 intake | Vladimir Shavva - Neural regulation of inflammation in atherosclerosis. | Peder Olofsson | Michael Nyberg |
| | Lars Paeger - The central control of growth hormone release – electrophysiology and functional role of neuroendocrine somatostatin neurons. | Christian Broberger | Dorte Holst |
| | Thomas Ebert - Chronic kidney disease – exploration of novel diagnostic, preventive and therapeutic targets for an emerging public health priority. | Peter Stenvinkel, Annika Wernerson | Thomas Idorn |

Please visit our webpage for more information about the current fellows and the Fellowship Programme:

<http://ki.se/en/srp-diabetes/novo-nordisk-fellowships>