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Employment

Department of Biochemistry and Molecular Biology

SDU

Odense M

1. Jun 2021 → 30. Jan 2023

Professor

Functional Genomics & Metabolism

SDU

1. Jun 2021 → 30. Jan 2023

Research interests

The impact of non-protein coding RNAs like microRNAs and, more recently, long noncoding RNAs on eukaryotic gene regulation just started to be understood. The Kornfeld lab would like to take part in this 'Noncoding revolution' by identifying disease-associated noncoding RNAs and investigating their role in signaling circuits regulating cellular and organismal energy homeostasis in health and metabolic disease. We apply state-of-the-art techniques, for instance next-generation sequencing, transgenic mouse models and in vivo RNA inhibition approaches to understand the intricate biology of disease-associated noncoding RNAs. Our ultimate goal is to define novel RNA targets for correction of metabolic diseases.

Education and professional experience

2018 - DDA Professor for Molecular Biology of Metabolism Diseases (SDU, Denmark)
2014 - 2018 Group Leader at Max Planck Institute for Metabolism Research (Germany)
2013 - 2018 Adjunct Group Leader at Cologne Cluster of Excellence (CECAD, Germany)
2008 PhD in Cell Biology, University of Kiel (Germany)
2003 Diploma in Biochemistry, Medical University of Hanover (Germany)

Awards and Honours

2010 - 2012 Long Term Fellowship of the European Molecular Biology Organisation (EMBO)
2010 - 2012 Senior Postdoctoral Career Grant (CECAD Cluster of Excellence)

Projects

DFF - FSS - The role of proto-adipokine AOC3 during adipose tissue dysfunction in metabolic diseases

Kornfeld, J.
01/01/2022 → 30/06/2024

EU - Horizon 2020 - Excellent Science - ERC - Transgenerational regulation of glucose metabolism by noncoding RNAs - TransGen RNA' ('action')

Kornfeld, J.
01/01/2018 → 30/04/2021

Gm15441: Investigating the function of obesity-associated lncRNA Gm15441 in liver metabolism

Oliveira, B. M. S. & Kornfeld, J.
12/11/2018 → 30/04/2021

Novo Nordisk Challenge Programme - ADIPOSIGN - Center for Adipocyte Signaling

Mandrup, S., Kornfeld, J., Quesada-Lopez, T. P., Mikkelsen, V. A., Josephraj, A., Malmros, R. V., Gerhart-Hines, Z., Babu, M. M., Elmelund-Præstekær, L. C. B., Wishoff, M., Nielsen, R. & Marcher, A.
01/01/2019 → 31/12/2024

Novo Nordisk Fonden - Biovidenskab og Basal Biomedicin - Dissecting the in vivo contribution of cold-inducible Adenylyl cyclase 3 protein truncations to brown adipose tissue homeostasis and glucose metabolism

Kornfeld, J.
01/04/2018 → 31/03/2020

Novo Nordisk Fonden - Challenge Programme 2018 - ADIPOSIGN - Center for Adipocyte Signaling JK

Kornfeld, J.
01/05/2019 → 31/12/2024

Novo Nordisk Fonden - Nutrient-chromatin crosstalk in adipose tissue health and metabolic disease (HISTONE HEALTH)

Kornfeld, J.
01/01/2022 → 31/12/2024

Sygeforsikringen "Danmark" - Novel approaches to intergenerational epigenetic inheritance of Metabolic

Kornfeld, J.
01/05/2021 → 30/04/2025

TransGen RNA: Transgenerational regulation of glucose metabolism by noncoding RNAs

Kornfeld, J.
01/05/2016 → 30/04/2021

Uddannelses- og Forskningsministeriet - FSS - BACE1 cell surface proteostasis as endocrine nexus connecting metabolic disease

Kornfeld, J.
01/12/2018 → 31/01/2021

Teaching and supervision

BMB508 - Advanced Molecular Biology

Jan-Wilhelm Kornfeld
01/01/2018 → ...

BMB822 - Modern Developments and Technologies in Molecular Cell Biology

Jan-Wilhelm Kornfeld &
01/01/2018 → ...

NAT501 - First year project - Responsible supervisor

Jan-Wilhelm Kornfeld &
01/01/2018 → ...

Supervision

2018 - 2 ISA Students
2014 - 5 BSc and MSc Students
2014 - 6 PhD Students
2014 - 10 Postdoctoral Fellows

Research outputs

Comprehensive transcriptional profiling and mouse phenotyping reveals dispensable role for adipose tissue selective long noncoding RNA Gm15551

Engelhard, C. A., Huang, C., Khani, S., Kasperek, P., Prochazka, J., Rozman, J., Reguera, D. P., Sedlacek, R. & Kornfeld, J. W., Jun 2022, In: *Non-coding RNA*. 8, 3, 32.

The function of proto-adipokine AOC3 during adipose tissue dysfunction in metabolic diseases

Topel Batarlar, H., Davidsen, L. I., Egedal, N. M., Park, J. H., Larsen, B. D. M. & Kornfeld, J-W., 30. May 2022.

ExomiRs at the crossroads—divergent role of exosomal miRNAs in early and chronic obesity

Park, J. H. & Kornfeld, J. W., Sep 2021, In: *Nature Metabolism*. 3, 9, p. 1137–1138

Dynamic changes in DICER levels in adipose tissue control metabolic adaptations to exercise

Brandão, B. B., Madsen, S., Rabiee, A., Oliverio, M., Ruiz, G. P., Ferrucci, D. L., Branquinho, J. L., Razolli, D., Pinto, S., Nielsen, T. S., Festuccia, W. T., Martins, A. S., Guerra, B. A., Knittel, T. L., Søgaard, D., Larsen, S., Helge, J. W., Brandauer, J., Velloso, L. A., Emanuelli, B., & 6 others Kornfeld, J. W., Kahn, C. R., Vienberg, S. G., Zierath, J. R., Treebak, J. T. & Mori, M. A., 22. Sep 2020, In: *Proceedings of the National Academy of Sciences of the United States of America*. 117, 38, p. 23932-23941

Obesity-associated long noncoding RNA LincIRS2 governs transcriptional plasticity of hepatic fasting responses

Davidsen, L. I., Pradas-Juni, M., Hansmeier, N. R., Meola, N. & Kornfeld, J-W., 24. Aug 2020.

Senescence-Associated Metabolomic Phenotype in Primary and iPSC-Derived Mesenchymal Stromal Cells

Fernandez-Rebollo, E., Franzen, J., Goetzke, R., Hollmann, J., Ostrowska, A., Oliverio, M., Sieben, T., Rath, B., Kornfeld, J-W. & Wagner, W., 11. Feb 2020, In: *Stem Cell Reports*. 14, 2, p. 201-209

A MAFG-lncRNA axis links systemic nutrient abundance to hepatic glucose metabolism

Pradas-Juni, M., Hansmeier, N. R., Link, J. C., Schmidt, E., Larsen, B. D., Klemm, P., Meola, N., Topel, H., Loureiro, R., Dhaouadi, I., Kiefer, C. A., Schwarzer, R., Khani, S., Oliverio, M., Awazawa, M., Frommolt, P., Heeren, J., Scheja, L., Heine, M., Dieterich, C., & 15 others Büning, H., Yang, L., Cao, H., Jesus, D. F. D., Kulkarni, R. N., Zevnik, B., Tröder, S. E., Knippschild, U., Edwards, P. A., Lee, R. G., Yamamoto, M., Ulitsky, I., Fernandez-Rebollo, E., Vallim, T. Q. D. A. & Kornfeld, J-W., 2020, In: *Nature Communications*. 11, 1, 644.

s ·nr: a visual analytics framework for contextual analyses of private and public RNA-seq data

Klemm, P., Frommolt, P. & Kornfeld, J. W., 24. Jan 2019, In: *BMC Genomics*. 20, 12 p., 85.

Rapid Generation of Long Noncoding RNA Knockout Mice Using CRISPR/Cas9 Technology

Hansmeier, N. R., Widdershooven, P. J. M., Khani, S. & Kornfeld, J-W., 23. Jan 2019, In: *Non-Coding RNA*. 5, 1, p. 1-12 12.

LincRNA H19 protects from dietary obesity by constraining expression of monoallelic genes in brown fat

Schmidt, E., Dhaouadi, I., Gaziano, I., Oliverio, M., Klemm, P., Awazawa, M., Mitterer, G., Fernandez-Rebollo, E., Pradas-Juni, M., Wagner, W., Hammerschmidt, P., Loureiro, R., Kiefer, C., Hansmeier, N. R., Khani, S., Bergami, M., Heine, M., Ntini, E., Frommolt, P., Zentis, P., & 5 others Ørom, U. A., Heeren, J., Blüher, M., Bilban, M. & Kornfeld, J. W., 6. Sep 2018, In: *Nature Communications*. 9, 1, 16 p., 3622.

A microRNA screen reveals that elevated hepatic ectodysplasin A expression contributes to obesity-induced insulin resistance in skeletal muscle

Awazawa, M., Gabel, P., Tsaousidou, E., Nolte, H., Krüger, M., Schmitz, J., Ackermann, P. J., Brandt, C., Altmüller, J., Motameny, S., Wunderlich, F. T., Kornfeld, J-W., Blüher, M. & Brüning, J. C., Dec 2017, In: *Nature Medicine*. 23, 12, p. 1466-1473

Lsd1 ablation triggers metabolic reprogramming of brown adipose tissue

Duteil, D., Tomic, M., Lausecker, F., Nenseth, H. Z., Müller, J. M., Urban, S., Willmann, D., Petroll, K., Messaddeq, N., Arrigoni, L., Manke, T., Kornfeld, J-W., Brüning, J. C., Zagoriy, V., Meret, M., Dengjel, J., Kanouni, T. & Schüle, R., 18. Oct 2016, In: *Cell Reports*. 17, 4, p. 1008-1021

Decoding Lamarck-transgenerational control of metabolism by noncoding RNAs

Schmidt, E. & Kornfeld, J-W., Jun 2016, In: Pflügers Archiv - European Journal of Physiology. 468, 6, p. 959-969

Dicer1-miR-328-Bace1 signalling controls brown adipose tissue differentiation and function

Oliverio, M., Schmidt, E., Mauer, J., Baitzel, C., Hansmeier, N., Khani, S., Konieczka, S., Pradas-Juni, M., Brodesser, S., Van, T-M., Bartsch, D., Brönneke, H. S., Heine, M., Hilpert, H., Tarcitano, E., Garinis, G. A., Frommolt, P., Heeren, J., Mori, M. A., Brüning, J. C., & 1 others Kornfeld, J-W., Mar 2016, In: Nature Cell Biology. 18, 3, p. 328-336

Obesity-induced CerS6-dependent C16:0 ceramide production promotes weight gain and glucose intolerance

Turpin, S. M., Nicholls, H. T., Willmes, D. M., Mourier, A., Brodesser, S., Wunderlich, C. M., Mauer, J., Xu, E., Hammerschmidt, P., Brönneke, H. S., Trifunovic, A., LoSasso, G., Wunderlich, F. T., Kornfeld, J-W., Blüher, M., Krönke, M. & Brüning, J. C., 7. Oct 2014, In: Cell Metabolism. 20, 4, p. 678-686

Regulation of metabolism by long, non-coding RNAs

Kornfeld, J-W. & Brüning, J. C., 2014, In: Frontiers in Genetics. 5, 57.

Obesity-induced overexpression of miR-802 impairs glucose metabolism through silencing of *Hnf1b*

Kornfeld, J. W., Baitzel, C., Könnner, A. C., Nicholls, H. T., Vogt, M. C., Herrmanns, K., Scheja, L., Haumaitre, C., Wolf, A. M., Knippschild, U., Seibler, J., Cereghini, S., Heeren, J., Stoffel, M. & Brüning, J. C., 7. Feb 2013, In: Nature. 494, 7435, p. 111-115

MyomiRs-133a/b turn off the heat

Kornfeld, J-W. & Brüning, J. C., Dec 2012, In: Nature Cell Biology. 14, 12, p. 1248-9 2 p.

Hepatic growth hormone and glucocorticoid receptor signaling in body growth, steatosis and metabolic liver cancer development

Mueller, K. M., Themanns, M., Friedbichler, K., Kornfeld, J-W., Esterbauer, H., Tuckermann, J. P. & Moriggl, R., 25. Sep 2012, In: Molecular and Cellular Endocrinology. 361, 1-2, p. 1-11

Growth-hormone-induced signal transducer and activator of transcription 5 signaling causes gigantism, inflammation, and premature death but protects mice from aggressive liver cancer

Friedbichler, K., Themanns, M., Mueller, K. M., Schleder, M., Kornfeld, J. W., Terracciano, L. M., Kozlov, A. V., Haindl, S., Kenner, L., Kolbe, T., Mueller, M., Snibson, K. J., Heim, M. H. & Moriggl, R., Mar 2012, In: Hepatology (Baltimore, Md.). 55, 3, p. 941-952

Impairment of hepatic growth hormone and glucocorticoid receptor signaling causes steatosis and hepatocellular carcinoma in mice

Mueller, K. M., Kornfeld, J-W., Friedbichler, K., Blaas, L., Egger, G., Esterbauer, H., Hasselblatt, P., Schleder, M., Haindl, S., Wagner, K-U., Engblom, D., Haemmerle, G., Kratky, D., Sexl, V., Kenner, L., Kozlov, A. V., Terracciano, L., Zechner, R., Schuetz, G., Casanova, E., & 3 others Pospisilik, J. A., Heim, M. H. & Moriggl, R., Oct 2011, In: Hepatology (Baltimore, Md.). 54, 4, p. 1398-409

Variants in STAT5B associate with serum TC and LDL-C levels

Kornfeld, J-W., Isaacs, A., Vitart, V., Pospisilik, J. A., Meitinger, T., Gyllensten, U., Wilson, J. F., Rudan, I., Campbell, H., Penninger, J. M., Sexl, V., Moriggl, R., van Duijn, C., Pramstaller, P. P. & Hicks, A. A., Sep 2011, In: The Journal of clinical endocrinology and metabolism. 96, 9, p. E1496-E1501

Overexpression of TACE and TIMP3 mRNA in head and neck cancer: association with tumour development and progression

Kornfeld, J-W., Meder, S., Wohlberg, M., Friedrich, R. E., Rau, T., Riethdorf, L., Löning, T., Pantel, K. & Riethdorf, S., 4. Jan 2011, In: British Journal of Cancer. 104, 1, p. 138-45

Signal transducer and activator of transcription 3 protects from liver injury and fibrosis in a mouse model of sclerosing cholangitis

Mair, M., Zollner, G., Schneller, D., Musteanu, M., Fickert, P., Gumhold, J., Schuster, C., Fuchsichler, A., Bilban, M., Tauber, S., Esterbauer, H., Kenner, L., Poli, V., Blaas, L., Kornfeld, J. W., Casanova, E., Mikulits, W., Trauner, M. & Eferl, R., 2011, In: Hepatology (Baltimore, Md.). 53, 4, p. 1185-1195

R., Jun 2010, In: Gastroenterology. 138, 7, p. 2499-508

Disruption of the growth hormone–signal transducer and activator of transcription 5–insulinlike growth factor 1 axis severely aggravates liver fibrosis in a mouse model of cholestasis

Blaas, L., Kornfeld, J-W., Schramek, D., Musteanu, M., Zollner, G., Gumhold, J., van Zijl, F., Schneller, D., Esterbauer, H., Egger, G., Mair, M., Kenner, L., Mikulits, W., Eferl, R., Moriggl, R., Penninger, J., Trauner, M. & Casanova, E., Apr 2010, In: Hepatology (Baltimore, Md.). 51, 4, p. 1319-1326

Expression of activated STAT5 in neoplastic mast cells in systemic mastocytosis: subcellular distribution and role of the transforming oncoprotein KIT D816V

Baumgartner, C., Cerny-Reiterer, S., Sonneck, K., Mayerhofer, M., Gleixner, K. V., Fritz, R., Kerenyi, M., Boudot, C., Gouilleux, F., Kornfeld, J-W., Sillaber, C., Moriggl, R. & Valent, P., Dec 2009, In: The American Journal of Pathology. 175, 6, p. 2416-2429

The different functions of Stat5 and chromatin alteration through Stat5 proteins

Kornfeld, J-W., Grebien, F., Kerenyi, M. A., Friedbichler, K., Kovacic, B., Zankl, B., Hoelbl, A., Nivarti, H., Beug, H., Sexl, V., Muller, M., Kenner, L., Mullner, E. W., Gouilleux, F. & Moriggl, R., 1. May 2008, In: Frontiers in Bioscience-Landmark. 13, 16, p. 6237-6254

Direct glucocorticoid receptor-Stat5 interaction in hepatocytes controls body size and maturation-related gene expression

Engblom, D., Kornfeld, J-W., Schwake, L., Tronche, F., Reimann, A., Beug, H., Hennighausen, L., Moriggl, R. & Schütz, G., 15. May 2007, In: Genes & Development. 21, 10, p. 1157-1162

High incidence of EMMPRIN expression in human tumors

Riethdorf, S., Reimers, N., Assmann, V., Kornfeld, J-W., Terracciano, L., Sauter, G. & Pantel, K., 15. Oct 2006, In: International Journal of Cancer. 119, 8, p. 1800-1810

Commissions of trust

Research institutions and scientific foundations:

Reviewer for German Research Foundation (DFG), German Leibniz Society, Austrian Science Fund (FWF), French National Center for Scientific Research (CNRS), French National Institute of Health and Medical Research (INSERM), Medical Research Council (UK), European Research Council, French National Research Agency.

Scientific journals:

Ad-hoc reviewer for NatCommun, Nat Cell Biol, Front Genet, J Clin Invest, Mol Metab, FEBS, Sci Rep, Nucl Acids Res, Cell Cycle.

Editorial boards:

Molecular biology section editorial board member Sci Rep.