

# CURRICULUM VITAE

## Kjetil Hodne (PhD)

Date of birth: 21.07.1974  
Nationality: Norwegian

Position: Postdoctoral fellow at Faculty of Veterinary Medicine, Norwegian University of Life Sciences (NMBU)

Address: Faculty of Veterinary Medicine  
Campus Adamstuen  
Ullevålsveien 72  
0454 Oslo

Phone: +47 99277731  
E-mail: Kjetil.hodne@nmbu.no

### Education

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| 02.08 – 03.13 | <b>PhD in Neuroendocrinology</b><br>Title of thesis: <i>Electrophysiological characterization of fshb- and lhb expressing cells in the Atlantic cod (Gadus morhua)</i>  | Norwegian School of Veterinary Science (NVH/NMBU) |
| 08.05 - 10.07 | <b>MSc in Physiology</b><br>Title of thesis: <i>Electrophysiological properties of presumed gonadotropes from Atlantic cod (Gadus morhua), and development of a single-cell RT-PCR assay for characterization of cultured pituitary cells</i> | University of Oslo (UiO)                          |
| 08.01 - 05.05 | <b>BSc in Molecular Biology</b>   | UiO   |

### Current and previous work

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| 05.15 - 05.19 | <b>Postdoctoral fellow</b> NFR/NMBU<br>Research focusing on understanding molecular mechanisms behind Fsh and Lh synthesis and release using patch clamp techniques, calcium imaging, gene manipulation and single-cell qPCR/seq | NMBU                        |
| 05.13 - 05.15 | <b>Postdoctoral fellow</b> IEMR/heart failure<br>Research focusing on ion channel regulation using patch clamp techniques, gene manipulation and calcium imaging   | Ullevål University Hospital |
| 08.12 - 12.12 | <b>Researcher on “SAK” project</b><br>Develop method for <i>in vivo</i> brain imaging using two-photon microscopy  | UiO/NVH/NMBU                |
| 10.07 - 02.08 | <b>Research assistant in professor Olav Sand’s group</b><br>Developing primary cell culture techniques   | UiO                         |

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## Mobility

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08.09 08.10	<b>Guest researcher</b> A total of 10 months investigating Kisspeptin during embryonic development in professor Kataaki Okubo's lab.	University of Tokyo, Japan
11.15-12.15	<b>Guest researcher</b> 1.5 months developing new transgenic medaka lines in professor Kyosihi Naruse's lab	NIBB, Okazaki, Japan
07.16-09.16	<b>Guest researcher</b> 2 months developing CRISPR/cas9 knockout in medaka in professor Kyosihi Naruse's lab	NIBB, Okazaki, Japan

## Work experience (non-academic) in leadership and management

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2002-2003	Platoon commander. His Majesty the Kings Guard.
1999-2000	NATO service in Bosnia and Kosovo. Leading officer.
1994-1998	Military service, military officer education, army instructor, second in command, and platoon commander. His Majesty the Kings Guard.

## Lectures & Supervision

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10.07 -	<b>Lecturing in physiology for veterinary students and students at the University of Oslo</b> Physiology course (NMBU) Physiology course (UiO) MBV 1020 Human Physiology (UiO) MBV 3050 Advanced Physiology and Cell Biology (UiO) MBV9320 The Norwegian Research School in Neuroscience (NRSN)	NMBU/UiO
07.08-	<b>Supervisor in methods for master and PhD students</b> Introducing the techniques developed within our group	NMBU/UiO
07.09-07.11	<b>Co-supervisor for master student</b> Stine Berg Vaule	NMBU/UiO
08.15-	<b>Co-supervisor for PhD student</b> Elia Ciani	NMBU

## Collaborating partners

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Finn-Arne Weltzien. Fish neuroendocrinology  
Faculty of Veterinary Medicine, Norwegian University of Life Sciences, Oslo, Norway.

Ian Myer. Fish neuroendocrinology and behavior  
Faculty of Veterinary Medicine, Norwegian University of Life Sciences, Oslo, Norway,

Christiaan Henkel. Single cell transcriptomics and fish genomics  
Faculty of Veterinary Medicine, Norwegian University of Life Sciences, Oslo, Norway.

Trude M Haug. Ion channel regulation and modeling  
Faculty of Dentistry. University of Oslo, Oslo, Norway

Gaute Einevoll. Calcium dynamics and mathematical modeling  
Department of Mathematical Sciences and Technology, Norwegian University of Life Sciences, Ås, Norway.

Geir Halmes. Calcium dynamics and mathematical modeling

Department of Mathematical Sciences and Technology, Norwegian University of Life Sciences, Ås, Norway

Kiyoshi Naruse. Fish genomics and transcriptomics

National Institute for basic biology, Okazaki, Japan

Satoshi Ansai. Fish genomics and development of inducible systems for gene knockouts

Division of Applied Bioscience, Graduate School of Agriculture, Kyoto University, Kyoto, Japan

## Projects and Funding

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Current projects:

1. Cell-cell communication within the pituitary.
2. Calcium dynamics and excitability of pituitary cells.
3. Regulation of gonadotrope cells by environmental (melatonin and temperature) changes.
4. Establishing novel heat shock inducible systems for knockout using CRISPR/cas9.

Funding:

Personal postdoc. NFR 244461 - Melatonin - Direct effects on gonadotrope cells in the fish pituitary?

Personal postdoc. NMBU. Cell-Cell communication and how seasonal changes regulates the pituitary.

Digibrain 48 mil. NOK, under the strategic initiative Digital Life. Helped in design and co-responsible for two work packages. 1. Generating inducible CRISPR/Cas9 knockout 2. Modeling of Ca<sup>2+</sup> dynamics in pituitary cells as a model for neurons.

NMBU Talent Program 800K NOK. NMBU's strategic initiative to increase the number of international leading researchers within university's disciplines.

## Publications

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**2006**

T.M. Haug, **K. Hodne**, F-A. Weltzien and O. Sand. (2006). Electrophysiological properties of pituitary cells in primary culture from Atlantic cod (*Gadus morhua*). **Acta Physiol Scand**. 187.

**2007**

T.M. Haug, **K. Hodne**, F-A. Weltzien and O. Sand. (2007). Signaling properties of teleost gonadotropes with a first study from Atlantic cod. **Acta Physiol**. 190.

Haug T.M., **Hodne K.**, Weltzien F-A., Sand O. (2007). Electrophysiological properties of pituitary cells in primary culture from Atlantic cod (*Gadus morhua*). **Neuroendocrinology**. 86.

**2010**

**Hodne K.**, Haug T.M., Weltzien F-A. (2010). Single-cell qPCR on dispersed primary pituitary cells -an optimized protocol **BMC Molecular Biology**. 11.

**2012**

Hildahl J., Sandvik G., Lifjeld R., **Hodne K.**, Nagahama Y., Haug T.M., Okubo K., Weltzien F-A. (2012). Developmental tracing of luteinizing hormone  $\beta$ -subunit gene expression using green fluorescent protein transgenic medaka (*Oryzias latipes*) reveals a putative novel developmental function. **Developmental Dynamics**. 241.

**Hodne K.**, Krogh K., Weltzien F-A., Sand O., Haug T.M. (2012). Optimized conditions for primary culture of pituitary cells from the Atlantic cod (*Gadus morhua*). The importance of osmolality, pCO<sub>2</sub>, and pH. **General and Comparative Endocrinology**. 178.

**2013**

**Hodne K.**, Weltzien F-A., Oka Y., Okubo K. (2013). Expression and Putative Function of Kisspeptins and Their Receptors During Early Development in Medaka. **Endocrinology**. 154.

**Hodne K.**, Strandabø R.A.U., Weltzien F-A., Haug T.M. (2013). Electrophysiological Differences Between fshb- and lhb-Expressing Gonadotropes in Primary Culture. **Endocrinology**. 154.

Strandabø R.A.U., **Hodne K.**, Weltzien F-A. and Haug T.M. (2013). Signal transduction involved in GnRH2-stimulation of identified LH-producing gonadotropes from lhb-GFP transgenic medaka (*Oryzias latipes*). **Molecular and cellular endocrinology**. 372.

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## 2014

Weltzien, F-A., J. Hildahl, **K. Hodne**, K. Okubo and T. M. Haug (2014). Embryonic development of gonadotrope cells and gonadotropic hormones - Lessons from model fish. **Molecular and Cellular Endocrinology**. 385.

**Hodne, K.**, P. Wanichawan, T. L. Hafver, J. M. Aronsen, I. G. Lunde, M. Lunde, H. Kvaloy, T. Tonnessen, I. Sjaastad, W. E. Louch, O. M. Sejersted and C. R. Carlson (2014). Identification and Functional Role of Calpain Cleavage Site in Na<sup>+</sup>-Ca<sup>2+</sup> Exchanger 1 (NCX1). **Biophysical Journal**. 106.

Ager-Wick E., Henkel C.V., **Hodne K.**, Haug T.M., Weltzien F-A. (2014). Plasticity of luteinizing hormone beta-expressing gonadotropes show that hormone production in teleost pituitary is unexpectedly complex In Eirill Ager-Wick *Transcriptome profiling of teleost pituitaries*, PhD (ISBN 978-82-575-1926-1).

Sandvik G., **Hodne K.**, Haug T.M., Okubo K., Weltzien F-A. (2014). RFamide Peptides in Early Vertebrate Development (2014). **Frontiers in Endocrinology**. 5.

P. Wanichawan, T. L. Lubelwana, **K. Hodne**, J. M. Aronsen, I. G. Lunde, B. Dalhus, M. Lunde, H. Kvaløy, W. E. Louch, T. Tonnesen, I. Sjaastad, O. M. Sejersted and C. R. Carlson (2014) Molecular Basis of Calpain Cleavage and Inactivation of the Sodium-Calcium Exchanger 1 in Heart Failure **Journal of Biological Chemistry**. 289.

## 2015

**K. Hodne**, P. Wanichawan, T. L. Hafver, W. E. Louch, M. Lunde, M. Martinsen, O. M. Sejersted, C. R. Carlson (2015) Liberation of Pser68-Plm Inhibition of NCX1 by an Optimized Anchoring Disruptor Peptide **Biophysical Journal**. 108.

Hafver T.L., Wanichawan P., **Hodne K.**, Aronsen J.M., Dalhus B., Lunde M., Mathisen M., Sjaastad I., Sejersted O.M. and Carlson C.R. (2015). PP1 Anchoring onto NCX1 Facilitates Dephosphorylation of P-SER68-PLM **Biophysical Journal**. 108.

**K. Hodne** and F-A Weltzien (2015) Single-Cell Isolation and Gene Analysis: Pitfalls and Possibilities **International Journal of Molecular Science**. 16.

## 2016

P. Wanichawan, **K. Hodne**, T. L. Hafver, M. Lunde, M. Martinsen, W. E. Louch, O. M. Sejersted and C. R. Carlson (2015) Development of a High Affinity Peptide that Prevents Phospholemman Inhibition of the Sodium-Calcium Exchanger 1. **Biochemical Journal**. 473.

T. L. Hafver, **K. Hodne**, P. Wanichawan, J. M. Aronsen, B. Dalhus, M. Lunde, M. Martinsen, U. H. Enger, W. Fuller, I. Sjaastad, W. E. Louch, O. M. Sejersted and C. R. Carlson (2015) Protein Phosphatase 1c Associated with the Cardiac Sodium Calcium Exchanger1 Regulates its Activity by Dephosphorylating Serine 68 Phosphorylated Phospholemman. **Journal of Biological Chemistry**. 291.

## 2017

**Kjetil Hodne** Lipsett D.B., and William E. Louch. Gene Transfer in isolated cardiomyocytes. For an edition on Cardiac Gene Therapy, **Cardiac Gene Therapy: Methods and Protocols**, 169-182.

Kristine von Krogh, Gunnveig Toft Bjørndal, **Kjetil Hodne**, Michelle Lu Sætersmoen, Rasoul Nourizadeh-Lillabadi, Erik Ropstad, Trude M. Haug and Finn-Arne Weltzien. Sex steroids differentially regulate *fshb*, *lhb* and *gnrhr* expression in Atlantic cod (*Gadus morhua*). **Reproduction**. 154.

## 2018

Fontaine, R\*, **Hodne, K\***, Weltzien, F. A. Healthy Brain-pituitary Slices for Electrophysiological Investigations of Pituitary Cells in Teleost Fish. **Journal of Visual Experiments**. 138. \*Authors contributed equally

Ager-Wick, E., **Hodne, K.**, Fontaine, R., von Krogh, K., Haug, T. M and Weltzien, F. A. Preparation of a High-quality Primary Cell Culture from Fish Pituitaries. **Journal of Visual Experiments**. 138.

Halnes G., Haug T.M., Tennøe S., Weltzien F. A., Einevoll G and **Hodne K.** Sodium versus calcium mediated action potentials in endocrine pituitary cells: A computational study. Submitted to **PLOS Computational Biology**

Fontaine R., Ager-Wick E., **Hodne K** and Weltzien F. A. Plasticity of Lh cells caused by cell proliferation and recruitment of existing cells. **Journal of Endocrinology**, under second review.

Grønlien H. K., **Hodne K.\***, Fontaine R\*, Tysseng I., Ager-Wick E., Weltzien F. A. and Haug T. M. Gonadotropes display extensions with multiple functions in the teleost fish medaka (*Oryzias latipes*) \*Authors contributed equally