

## Curriculum Vitae - William E. Louch, Ph.D.

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**Present position:** Professor of Medicine  
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### LANGUAGES:

Spoken: English (mother tongue), Norwegian  
Understood: Swedish, French

### ACADEMIC DEGREES:

2001: PhD Pharmacology, Dalhousie University, Halifax, Canada  
1997: BSc Chemistry/Neuroscience, Dalhousie University, Halifax, Canada

### EMPLOYMENT HISTORY:

2015-present: **Professor of Medicine**, Institute for Experimental Medical Research, University of Oslo, Oslo, Norway  
2013-present: **Head**, Core Facility for Advanced Light Microscopy, Oslo University Hospital Ullevål  
2018-2022: **Secretary General**, The Scandinavian Physiological Society  
2012-2015: **Research Associate Professor**, Institute for Experimental Medical Research, University of Oslo, Oslo, Norway  
2008-2012: **Research Scientist**, Institute for Experimental Medical Research, University of Oslo, Oslo, Norway  
2004-2008: **Post-doctoral fellow**, Institute for Experimental Medical Research, University of Oslo, Oslo, Norway  
2002-2003: **Post-doctoral fellow**, University of Leuven, Belgium

### THESES:

PhD: **Louch WE** (2001) Cardiac Ischemia and Reperfusion: Cellular Physiology and Pharmacological Intervention.  
BSc: **Louch WE** (1997) Hydrogen Bonding in Neutral Tetrahedral Zinc Complexes.

### PUBLICATIONS:

*Summary: articles published to date: 142, last 5 years: 53, as first or senior author: 55 citations: 5582, h-index: 42 (Google Scholar)*

Perdreau-Dahl H, Lipsett DB, Frisk M, Kermani F, Carlson CR, Brech A, Shen X, Bergan-Dahl A, Hou Y, Tuomainen T, Tavi P, Jones PP, Lunde M, Wasserstrom JA, Laporte J, Ullrich ND, Christensen G, Morth JP, and **Louch WE**. BIN1, myotubularin, and dynamin-2 coordinate t-tubule growth in cardiomyocytes (2023) *Circ Res*, *in press*.

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**Louch WE**, Ullrich ND, Navedo MF, and Macquaide N. Editorial: Nanodomain Regulation of Muscle Physiology and Alterations in Disease (2022) *Front Physiol*, 13:1092304.

Rixon C, Andreassen K, Shen X, Erusappan PM, Almaas VM, Palmero S, Dahl CP, Sjaastad I, **Louch WE**, Stokke MK, Tønnessen T, Christensen G, Lunde IG. Lumican accumulates with fibrillar collagen in fibrosis in hypertrophic cardiomyopathy (2022) *ESC Heart Fail*, 10:858-871.

Zhang X, Smith C, Morotti S, Edwards AG, Sato D, **Louch WE**, Ni H, Grandi E. Mechanisms of spontaneous Ca<sup>2+</sup> release-mediated arrhythmia in a novel 3D human atrial myocyte model: II. Ca<sup>2+</sup>-handling protein variation" (2022) *J Physiol, in press*.

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Ahmad S, Juncos JXM, Ahmad A, Zaky A, Wei CC, Bradley WE, Zafar I, Powell P, Mariappan N, Vetal N, **Louch WE**, Ford DA, Doran SF, Matalon S, and Dell'Italia LJ. Bromine-inhalation mimics ischemia-reperfusion cardiomyocyte injury and calpain 1 activation in rats (2019) *Am J Physiol Heart & Circ Physiol*, 316:H212-H223.

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#### **ORAL PRESENTATIONS:**

*Summary: Total presentations: 101; Invited lectures: 93; Oral conference abstracts: 8*

“Differentiation of cardiomyocyte substructure and calcium handling”  
*Hybrid Technology Hub Centre of Excellence, PI Retreat, Lofoten, Norway, Sept 13<sup>th</sup> 2022*

“Understanding the heartbeat at the nanoscale: new insights into cardiomyocyte”  
*University of Leuven, Belgium, Mar. 3<sup>rd</sup> 2022*

“Making and breaking the heartbeat: new insight at the nanoscale”

*Cedars Sinai Medical Centre, Los Angeles, California, Dec. 7<sup>th</sup> 2021*

“Plasticity of Cardiomyocyte Substructure and Calcium Handling”

*Journal of General Physiology Symposium, Calcium Signaling and Excitation-Contraction Coupling in Cardiac, Skeletal, and Smooth Muscle, Nov. 18<sup>th</sup> 2021*

“Making and breaking the heartbeat: new insight at the nanoscale”

*University of Glasgow, Nov. 18<sup>th</sup> 2021 (virtual)*

“Understanding the Heartbeat at the Nanoscale”,

*University of Copenhagen, Oct 28th 2021*

“Control of calcium release in the healthy and diseased heart”

*Annual Meeting of the Argentinian Physiological Society (virtual), October 20<sup>th</sup> 2021*

“What the clinician should know about cardiomyocytes in HFpEF and HFrEF”,

*Annual Meeting of NORHEART, Oslo, September 24th, 2021*

“Prolonged  $\beta$ -Adrenergic Stimulation Disperses Ryanodine Receptor Clusters in Cardiomyocytes: Implications for Heart Failure”,

*Annual Meeting of the Scandinavian Physiological Society, Stockholm, Sweden, September 2<sup>nd</sup>, 2021*

“Dyadic Plasticity in Cardiomyocytes”,

*Annual Meeting of the European Heart Rhythm Association, April 24th, 2021*

“Understanding Diastolic Dysfunction”,

*University of Otago, Dunedin, NZ, February 18<sup>th</sup> 2021*

“Understanding the Heartbeat at the Nanoscale”,

*Institute for Basic Medical Sciences, University of Oslo, October 5<sup>th</sup>, 2020*

“Na<sup>+</sup>-Ca<sup>2+</sup> Exchanger and Na<sup>+</sup>-K<sup>+</sup> ATPase: Points of Interest and Controversy”

*UC Davis Cardiovascular Symposium, Davis, California, Feb 20<sup>th</sup> 2020*

“Cardiomyocyte Dyadic Plasticity in Heart Failure”,

*Annual Meeting of the Australian Physiological Society, Canberra, Australia, December 2<sup>nd</sup> 2019*

“Understanding Plasticity of Dyadic Structure and Function”,

*Meeting of the Special Interest Group for Cardiac Physiology, Reykjavik, Iceland, August 8<sup>th</sup> 2019*

“Understanding Plasticity of Dyadic Structure and Function”,

*Cardiac Mechano-Electro Coupling and Arrhythmias Symposium, Freiburg, Germany, September 6<sup>th</sup> 2019*

“Understanding Dyadic Plasticity in Cardiomyocytes”,

*Physiology – The Annual Meeting of the Physiological Society, Aberdeen, UK, July 10<sup>th</sup> 2019*

“Understanding the Heartbeat at the Nanoscale”,

*Institute for Biomedicine, University of Aarhus, Denmark, May 2<sup>nd</sup> 2019.*

“Understanding heart failure at the level of the cardiomyocyte”,

*International Symposium on Medical Information and Communication Technologies, Oslo, May 13<sup>th</sup> 2019.*

“Cellebiologiske forklaringer på hjertesvikt»

*Forum for Kliniske Fysiologi, Den Norske LegeForening, Oslo, January 10<sup>th</sup> 2019.*

*“Making and breaking cardiomyocytes: new insights into nanoscale structure and function”  
Institute of Cardiovascular Sciences, University of Birmingham, UK, November 29<sup>th</sup> 2018.*

*“EU-søknader: Hva gjorde jeg riktig?”  
Research Seminar for Oslo Univ Hospital Medical Clinic, Stromstad, Sweden, November 23<sup>rd</sup> 2018.*

*“Myocardial calcium handling in diastolic dysfunction”  
Progress meeting for the Jebsen Center for Cardiac Research, Oslo, September 18<sup>th</sup> 2018.*

*“Understanding cardiomyocyte structure/function at the nanoscale – implications for heart failure”,  
Inflammation in Heart Failure Symposium, Centre for Heart Failure Research, Oslo, June 18<sup>th</sup> 2018.*

*“Myocardial Calcium Handling in Diastolic Dysfunction”,  
Annual Meeting of the International Society of Heart Research, Halifax, Canada, June 1<sup>st</sup> 2018.*

*“Understanding the Heartbeat at the Nanoscale”,  
Signature Speaker, 150<sup>th</sup> Anniversary of the Medical Faculty, Dalhousie University, Halifax, Canada, May 28<sup>th</sup> 2018.*

*“Subcellular RyR2 (dys)organization in heart failure – implications for arrhythmogenesis”,  
Heart Rhythm Scientific Sessions, Annual Meeting of the Heart Rhythm Society, Boston, USA, May 12<sup>th</sup> 2018.*

*“Understanding the role of phospholamban in cardiomyocyte Ca<sup>2+</sup> homeostasis”,  
“Phospholamban Day”, Astra-Zeneca / Karolinska Institute, April 25<sup>th</sup>*

*“Understanding cardiomyocyte calcium handling at the nanoscale”  
Norwegian Physiological Society Annual Meeting, Noreffjell, Norway, February 8<sup>th</sup> 2018.  
Atrial Fibrillation Training Network, Simula Research Centre, February 8<sup>th</sup> 2018.*

*“Cardiomyocyte structure and function in health and disease: role of Ca<sup>2+</sup> homeostasis”,  
Astra-Zeneca, Gothenburg, Sweden, January 11<sup>th</sup> 2018.*

*“Applying for an ERC grant”,  
Training session of ERC applicants, University of Oslo, November 14<sup>th</sup> 2017.*

*“Cardiomyocyte dyadic structure and function in health and disease”,  
European Muscle Society Annual Meeting, Potsdam, Germany, September 20<sup>th</sup>, 2017.*

*“T-tubules in physiological and pathological intracellular Ca<sup>2+</sup> dynamics”,  
Federation of European Physiological Societies Annual Meeting, Vienna, Austria, September 14<sup>th</sup>, 2017.*

*“Controlling Dyadic Structure and Function in Cardiomyocytes”,  
Integrated Cardio Metabolic Centre, Karolinska Institute, Stockholm, Sweden, August 9<sup>th</sup> 2017.*

*“New Insight into Control of Dyadic Structure in Cardiomyocytes”,  
Meeting of the International Union of Physiological Sciences (IUPS), Rio de Janeiro, Brazil, August 2<sup>nd</sup> 2017.*

*“Understanding heart failure at the level of the cardiomyocytes,”  
Workshop: “Wireless In-body Sensor and Actuator Networks for Cardiac”, Rikshospitalet, Oslo, Norway, July 3<sup>rd</sup> 2017.*

“Granin proteins as biomarkers and Ca<sup>2+</sup> regulators”,  
*NORHEART Symposium: “Cardiac function from a calcium perspective”, Oslo, Norway, June 7<sup>th</sup> 2017.*

“Na<sup>+</sup>: friend or foe?”,  
*Symposium in celebration of OM Sejersted retirement: “NKA and Na<sup>+</sup>: A story still evolving”; Voksenåsen Kultur- og Konferansehotell, Oslo, Norway, June 6<sup>th</sup> 2017*

“Elevated Wall Stress Disrupts Cardiomyocyte T-tubule Structure and Calcium Homeostasis”,  
*Annual Meeting of the Heart Rhythm Society, Chicago, USA, May 12<sup>th</sup> 2017*

“Dyadic structure and function in cardiomyocytes: implications for heart failure”,  
*Department of Physiology and Pharmacology, Karolinska Institute, Stockholm, Sweden, May 4<sup>th</sup> 2017.*

“Mechanisms for arrhythmia in heart failure – High transmural wall stress”,  
*Heart Failure 2017, Annual Meeting, Paris, France, May 1<sup>st</sup> 2017.*

“Improving diastolic function by repairing t-tubules”  
*Meeting of the Jebsen Centre for Cardiac Research, Oslo, Norway, April 17<sup>th</sup> 2017.*

“Dyadic Structure and Function: Implications for Heart Failure”,  
*Institute of Cybernetics, Tallinn University of Technology, Tallinn, Estonia, Dec 14<sup>th</sup> 2016.*

“Structure:Function Relationships in Cardiomyocytes”,  
*Department of Cell and Molecular Biology, Karolinska Institute, Stockholm, Sweden, Oct 25<sup>th</sup> 2016.*

“Cardiomyocyte Ca<sup>2+</sup> Handling During Heart Failure”,  
*International Conference of Physiological Sciences, Beijing, China, Sept 28<sup>th</sup> 2016.*

“Dyadic Structure and Function in Cardiomyocytes: Implications for Heart Failure”,  
*Department of Pharmacology, University of Davis, California, Apr. 1<sup>st</sup> 2016.*

“Disease Mechanisms of Heart Failure”,  
*Inauguration Symposium, Bioimaging Core Unit, Ludwig Maximilians University, Munich, Feb 17<sup>th</sup> 2016.*

“Structure:Function Relationships in Cardiomyocytes: Implications for Development and Disease”,  
*Department of Cardiology, Charité Hospital, Berlin, Jan 13<sup>th</sup> 2016.*

“Diastolic ion homeostasis during heart failure”,  
*European Society of Cardiology Congress, London, August 31 2015.*

“Transverse tubules and cardiac Ca handling”,  
*Federation of European Physiological Sciences (FEPS) meeting, Kaunas, Lithuania, Aug 27<sup>th</sup> 2015.*

“Structure:Function Relationships in Cardiomyocytes: Implications for Heart Failure”,  
*Centro Hospitalar São João, University of Porto, Portugal, April 23 2015.*  
*Imperial College, National Heart & Lung Institute, London, UK, April 30 2015.*

“Structure:Function Relationships in Cardiomyocytes”,  
*Institute of Basic Medical Sciences, Domus Medica, Oslo, Feb 23 2015.*

“Structure:Function Relationships in Cardiomyocytes: Implications for Heart Failure”,  
*Department of Cell and Molecular Physiology, Loyola University, Chicago, USA, Feb 16 2015.*

“Secretoneurin, a Novel Endogenous CaMKII $\delta$  Inhibitor, Augments Cardiomyocyte Ca<sup>2+</sup> Cycling and Inhibits Arrhythmogenic Ca<sup>2+</sup> Release”,  
*Annual Meeting of the American Biophysical Society, Baltimore, USA, Feb 10 2015.*

“Active and Passive Mechanisms of Diastolic Dysfunction”,  
*Annual Meeting of the MEDIA consortium, Leiden, Netherlands, Jan 27 2015.*

“Structure:Function Relationships in Cardiomyocytes: Implications for Heart Failure”  
*Department of Physiology, University of Bern, Switzerland, Jan 16 2015.*

“Cardiomyocyte dyadic structure / function in health and disease”,  
*Cardiac Modeling Workshop, Simula Research Centre, Oslo, Nov 6, 2014.*

“Calcium signaling in heart failure”,  
*Copenhagen Arrhythmia Meeting, Copenhagen, Denmark, May 20, 2014.*

“EAD generation in mouse ventricular cardiomyocytes”,  
*Mechanisms of Cardiac Arrhythmia Workshop, Centre for Heart Failure Research, Oslo, Apr 4, 2014.*

“Cardiomyocyte calcium homeostasis in the normal and failing heart”  
*Institute of Basic Medical Sciences, Oslo University Hospital Rikshospitalet, Jan 29 2014.*

“Calcium in the failing heart”,  
*Presentation for clinicians at rounds, Oslo University Hospital Rikshospitalet, Oct 4 2013.*

“Slow Ca<sup>2+</sup> sparks de-synchronize Ca<sup>2+</sup> release in failing cardiomyocytes”  
*Meeting of the International Union of Physiological Science, Birmingham, UK, July 24 2013.*

“Mechanisms of diastolic dysfunction following aortic stenosis”,  
*Annual meeting of the European Working Group for Cardiac Cellular Electrophysiology, Athens, June 23 2013.*

“Disrupted cardiomyocyte Ca<sup>2+</sup> homeostasis in heart failure”,  
*University of Tromsø, Tromsø, Norway, Feb 22 2013.*

“Diastolic heart failure – what is the contribution of cardiomyocyte Ca<sup>2+</sup> homeostasis?”,  
*Annual Meeting of the MEDIA consortium, Leiden, Netherlands, Jan 15 2013.*

“Slow Ca<sup>2+</sup> sparks de-synchronize Ca<sup>2+</sup> release in failing cardiomyocytes: evidence for altered ryanodine receptor distribution?”,  
*American Heart Association Scientific Sessions, Los Angeles, USA, Nov 5 2012*

“Compensation and Decompensation of Cardiomyocyte Ca<sup>2+</sup> Homeostasis During Heart Failure Progression”,  
*Cardiac Physiome Workshop, San Diego, USA, Oct 31 2012*

“Disrupted Cardiomyocyte Ca<sup>2+</sup> Homeostasis in Heart Failure”,  
*Queenstown Research Week, Queenstown, NZ, Aug 29 2012*

“Cardiomyocyte mechanisms of heart failure”,  
*Dalhousie University, Halifax, Canada, June 19 2012.*

“Ca<sup>2+</sup> dynamics following SERCA2 knockout”,  
*Cardiac Regulatory Mechanisms - Gordon Research Conference, New London, NH, USA, June 13 2012.*

“Does cardiomyocyte Ca<sup>2+</sup> homeostasis underlie heart failure progression?”,  
*University of Maastricht, Netherlands, Mar 13 2012.*

“Cardiomyocyte  $\text{Ca}^{2+}$  homeostasis during diastolic heart failure”,  
*Annual Meeting of the MEDIA consortium, Leiden, Netherlands, Jan 24 2012.*

“Compensation and decompensation in cardiomyocyte  $\text{Ca}^{2+}$  homeostasis”,  
*SIMULA Cardiac Modeling Workshop, Oslo, Norway, Dec 13 2011.*

“Causes and consequences of cardiomyocyte  $\text{Na}^+$  loading following SERCA2 KO”,  
*Annual meeting of the European Working Group for Cardiac Cellular Electrophysiology, Sept 18 2011.*

“Heart failure progression: cardiomyocyte mechanisms and therapeutic intervention”,  
*University of Auckland, Auckland, New Zealand, July 6 2011.*  
*University of Otago, Dunedin, New Zealand, Apr. 20 2011.*

“There goes the neighbourhood: Subcellular mechanisms of heart failure”,  
*Norwegian Physiology Society Winter Meeting, Voss, Norway, Jan. 27, 2011.*

“Heartbreakers – Cardiomyocyte mechanisms of heart failure”,  
*Harefield Hospital, Imperial College, Harefield, UK, Jan. 24, 2011.*  
*St. Thomas’ Hospital, King’s College, London, UK, Jan. 25, 2011.*

“Cardiomyocyte mechanisms of heart failure: role of altered  $\text{Ca}^{2+}$  homeostasis”, *CHFR Workshop: Mechanisms of Diastolic Myocardial Dysfunction, Oslo University Hospital Ullevål, Oct. 28, 2010.*

“Cardiomyocyte mechanisms of heart failure: insights from single-cell experiments and mathematical modeling”, *SIMULA Cardiac Modeling Workshop, Oslo, Norway, June 30, 2010.*

“Contractile remodeling during development of heart failure”,  
*Danish Cardiovascular Research Academy summer meeting, Sønderborg, Denmark, June 9, 2010.*

“Do cardiomyocyte alterations underlie the heart failure phenotype?”,  
*Oslo University Hospital – Rikshospitalet, Oslo, Norway, Oct 8, 2009.*

“Cellular mechanisms of heart failure progression”,  
*Medical University of Graz, Austria, Sept 19 2009.*

“Cardiomyocyte mechanisms of heart failure”,  
*University of Goettingen, Germany, Apr 14, 2009.*  
*Charles University, Prague, Czech Republic, Apr 17, 2009.*

“Cardiomyocyte Sodium Accumulation Promotes Diastolic Dysfunction in Serca2 Knockout Mice”,  
*American Heart Association Scientific Sessions, New Orleans, USA, Nov 12 2008.*

“Calcium release synchrony in normal and failing cardiomyocytes”,  
*Annual meeting of the Centre for Heart Failure Research, Oslo, Norway, Sept 19 2008.*

“Cardiomyocyte  $\text{Ca}^{2+}$  homeostasis in heart disease: pathophysiology and treatment”,  
*University of British Columbia, Vancouver, Canada, Mar 28 2008.*  
*University of Alberta, Edmonton, Canada, Mar 31 2008.*

“ $\text{Ca}^{2+}$  homeostasis and the failing heart”,  
*Université de Sherbrooke, Sherbrooke, Canada, Dec 18 2007.*

“Calcium release synchrony in normal and failing cardiomyocytes”,  
*Montreal Heart Institute, Montreal, Canada, May 22 2007.*



“Mechanisms underlying calcium release synchrony in normal and failing myocytes”, *Annual meeting of the Centre for Heart Failure Research, Oslo, Norway, Apr 17 2006.*

“Ca<sup>2+</sup> channels and heart failure”,  
Annual meeting of the Scandinavian Physiological Society, Sigtuna, Sweden, June 20, 2005.

“Ablation of phospholamban in SERCA2b/b mice reverses impairment of Ca<sup>2+</sup> uptake into the sarcoplasmic reticulum despite reduction in SERCA levels”, *Annual meeting of the European Society of Cardiology, Munich, Germany, Aug 27 2004.*

“Partial loss of T-tubules reduces the synchrony of Ca<sup>2+</sup> release: possible implications for heart failure”, *Annual meeting of the Norwegian Society of Cardiology, Lillehammer, Norway, January 16 2004.*

“Reduced synchrony of Ca<sup>2+</sup> release with loss of T-tubules—a comparison to Ca<sup>2+</sup> release in human failing cardiomyocytes”, *Annual meeting of the Belgian Society of Physiology, Liege, Belgium, October 2003.*

“Altered morphology and excitation-contraction coupling following short-term culture of pig ventricular myocytes”, *Annual meeting of the Heart Failure Working Group of the European Society of Cardiology, Strasbourg, France, June 2003.*

#### **ADMINISTRATIVE EXPERIENCE:**

##### **Research networks, symposia, and grant review:**

- Reviewer for UK Research and Innovation, Biotechnology and Biological Sciences Research Council grants, 2022.
- Head of Organizing Committee – “Europhysiology” meeting in Copenhagen, Denmark, Sept. 16<sup>th</sup> – 18<sup>th</sup>, 2022.
- Reviewer for ERC H2020 FET-OPEN grants, 2017, 2022
- Guest Editor, *Frontiers in Physiology*, Special issue: “Nanodomain Regulation of Muscle Physiology and Alterations in Disease”, 2021.
- Member of Organizing Committee, European Physiology Day, FEPS Virtual Meeting, Oct. 12<sup>th</sup>, 2021.
- Partner in Hybrid Technology Hub, Centre of Excellence, University of Oslo – 2021 – present.
- Organizer, Cardiac Physiology Satellite Meeting, Annual Meeting of the Scandinavian Physiological Society, Stockholm, Sweden, Sept. 2<sup>nd</sup> 2021.
- Panelist, *Na<sup>+</sup> Channels and Transporters*, 6<sup>th</sup> UC Davis Cardiovascular Symposium, Feb. 20<sup>th</sup>, 2020.
- Organizer, Meeting of the Special Interest Group for Cardiac Physiology, Annual Meeting of the Scandinavian Physiological Society, Reykjavik, Iceland, Aug 8th, 2019.
- Member of Organizing Committee – “Europhysiology” meeting in London, UK, Sept 14<sup>th</sup>-16<sup>th</sup> 2018, representative of Scandinavian Physiological Society.
- Organizer, “Nanodomain signaling in cardiomyocytes” symposium at Europhysiology, London, UK, Sept 14th 2018.
- Organizer, Cardiac Physiology Satellite Meeting, Europhysiology, London, UK, Sept. 13th 2018.
- Partner, KG Jebsen Center for Cardiac Research, 2017-present.
- Symposium organizer/chair – “Heart failure and atrial fibrillation: imbalance of calcium homostasis”, Meeting of the International Union of Physiological Sciences (IUPS), Rio de Janeiro, Brazil, August 2<sup>nd</sup> 2017.
- Organizer – “Super-resolution imaging: tools and applications” symposium, in conjunction with Norheart, Oslo, Apr 21 2017.
- Organizer – “New ideas in myocardial plasticity” symposium, in conjunction with the Center For Heart Failure Research, Oslo, Nov 4 2016.
- Committee Member – Scandinavian Physiological Society International Committee – Oct 2016 – 2019.
- Organizer – Meeting of the Special Interest Group for Cardiac Physiology, Oslo, Aug 2016.

- Organizing committee member – Scandinavian Physiological Society Annual Meeting, Oslo, Aug 2016.
- Treasurer, Federation of European Physiological Sciences (FEPS), since July 2015
- Chair for platform session “Excitation-Contraction Coupling”, Annual meeting of the American Biophysical Society, February 11 2015.
- Symposium organizer/chair – “Ventricular Arrhythmias and Sudden Cardiac Death”, Cardiac Arrhythmia Meeting, Copenhagen, May 22 2014.
- Symposium panelist – “Disrupted Na<sup>+</sup> Homeostasis”, UC Davis Cardiovascular Symposium, Feb 20 2014.
- Symposium organizer/chairman - “Transverse tubules in the heart: normal physiology and involvement in disease”, International Union of Physiological Sciences meeting, Birmingham, UK, July 2013.
- Organizing committee - the 4th Biennial MyoNaK meeting, Beitostølen, Norway, Sept 22-26 2012.
- Symposium chairman – “Mechanisms of heart failure and cardiac resynchronization”, Annual meeting of the Centre for Heart Failure Research, Oslo, Norway, Sept 21 2012.
- Symposium organizer/chairman – “Control of cardiac repolarization in health and disease”, Scandinavian Physiological Society annual meeting, Helsinki, Finland, Aug 25 2012.
- Referee for Grant Evaluations – New Zealand Heart Foundation, 2012-present.
- Board member of the Scandinavian Physiological Society, Representative for Norway, 2012-present.
- Founder - Special Interest Group for Cardiovascular Physiology, a collaborative network within the Scandinavian Physiological Society, 2011-present.
- Board member - KG Jebsen Cardiac Research Center, 2011-2015.
- Symposium organizer/chairman – “Calcium homeostasis in contractile cells”, Scandinavian Physiological Society annual meeting, Aug 12 2011.
- Member – Centre for Heart Failure Research, 2005-present

#### **PhD defense committees:**

- Examiner for PhD Candidate Patrick Schonleitner, Dec 21<sup>st</sup> 2020, University of Maastricht, Netherlands.
- Dean’s representative for PhD candidate Roji Khezri, Sept 25<sup>th</sup> 2020, University of Oslo, Norway.
- Examiner for PhD Candidate Karl Olsson, Sept 18<sup>th</sup> 2020, Karolinska Institutet, Stockholm, Sweden.
- Examiner for PhD Candidate Marie Cosson, Sept 17<sup>th</sup> 2020, University of Oslo, Norway
- Examiner for PhD Candidate Aljona Sitsel, May 12<sup>th</sup> 2020, Aarhus, Denmark
- Examiner for PhD candidate Simona Salerno, May 7<sup>th</sup> 2020, Trondheim, Norway
- Examiner for PhD candidate Jess Caldwell, Dec. 19<sup>th</sup> 2019, Manchester, UK
- Examination Committee Chair for PhD candidate Mariia Bogdanova, Sept 9<sup>th</sup> 2019, Oslo, Norway
- Dean’s representative for PhD candidate Marte Sneegen, Nov. 8<sup>th</sup> 2019, Oslo, Norway
- Examiner for BSc student Lucas Hinton Honours Thesis, Nov. 5<sup>th</sup> 2019, University of Otago, NZ
- Examiner for PhD candidate Joaquim Blanch i Salvador, Aug. 24<sup>th</sup> 2018, University of Bern, Switzerland
- Examiner for PhD candidate Ivan Winje, June 15<sup>th</sup> 2018, Oslo Norway
- Dean’s representative for PhD candidate Bertrand Simon, Mar 14 2017, Oslo, Norway
- Examiner for PhD candidate Martin Laasmaa, Dec 14 2016, Tallinn, Estonia
- Examiner for PhD candidate Lei Yuan, Mar 3 2015, Copenhagen, Denmark
- Examiner for PhD candidate Einar Eftestøl, Feb 4 2015, Oslo, Norway
- Examiner for PhD candidate Søren Grubb, Apr 10 2014, Copenhagen, Denmark
- Examiner for PhD candidate Rønnaug Strandabø, Nov 27 2013, Oslo, Norway
- Examiner for PhD candidate Thomas Stølen, May 28 2010, Trondheim, Norway

#### **Grants/Fellowships:**

##### Present Funding:

- Qualification Project to support commercialization, Norwegian Research Council, “A neural network-based image denoising software”, 2023.
- Postdoctoral fellowship, South-Eastern Norway Regional Health Authority, “New Hope for HFpEF”, 2023-2026.

- PhD fellowship, South-Eastern Norway Regional Health Authority, “Targeting Titin to Restore Cardiomyocyte Function in Heart Failure”, 2022-2025, applicant postdoc Jia Li.
- Partner, Grieg-1 Poland National Science Centre, “Theranostic nanocarriers for drug delivery in central nervous system disorders”, 2022-2024.
- University of Oslo Innovation Grant, “Artificial intelligence-based approaches for de-noising”, 2022-present.
- Postdoctoral fellowship for Harmonie Perdreau-Dahl, Jepsen Centre for Cardiac Research, “Safeguarding t-tubules in the failing heart”, 2022-2023.
- NIH RO1 grant, “Quantifying the role of myocyte ultrastructure in atrial health and disease”, partner. Lead applicant: Ele Grandi, UC Davis, 2021-2025.
- Postdoctoral Fellowship, Scientia Fellows, “Investigation of InsP3R-RyR crosstalk mechanism in healthy and diseased cardiomyocytes” 2022-2023.
- PhD fellowship, South-Eastern Norway Regional Health Authority, “Spreading of Dysfunction During Heart Failure”, 2020-2023.
- PhD fellowship, South-Eastern Norway Regional Health Authority, “Reversing Ryanodine Receptor Dispersion in Diseased Hearts”, 2020-2023, applicant postdoc Xin Shen.
- Core facility coordination funding, HSØ Core Facility for Advanced Light Microscopy and NORMIC, University of Oslo, 2020-2022, NOK 275,000.
- Researcher Grant from the Research Council of Norway, “Understanding the heartbeat at the nanoscale”, 2019-2023, 10 mill NOK.
- Postdoctoral Fellowship for Ornella Manfra, Research Council of Norway Mobility Grant, “Nanoscale parallels in the developing and failing heart”, 2019-2023.
- Postdoctoral Fellowship for Michael Frisk, National Association for Public Health, “Targeting t-tubules in the failing heart”, 2019-2023.

#### Past Funding:

- University of Oslo equipment grant, “2-colour dSTORM microscopy”, 2019, NOK 100,000.
- Running costs grant, Jepsen Centre for Cardiac Research, 2018-2022.
- Postdoctoral Fellowship for Jia Li, National Association for Public Health, “Sarcomeric contractile dyssynchrony: a novel mechanism of heart failure”, 2018-2021.
- European Research Council Consolidator Grant, “Controlling Cardiomyocyte Dyadic Structure (CARDYADS)”, 2015-2020, 2 million Euros.
- Core Facility for Advanced Light Microscopy grant, South-Eastern Norway Regional Health Authority, 2014-2022.
- Postdoctoral fellowship for Andrew Edwards/Xin Shen, South-Eastern Norway Regional Health Authority, “*Relaxing a Rigid Heart*”, 2013-2017.
- Research Fellow Stipend for William E. Louch, Norwegian Regional South-East Health Authority, “Cellular Mechanisms of Diastolic Heart Failure”, 2012-2020.
- PhD fellowship for Kiarash Tazmini, partner applicant with Erik Øie (Diakonhjemmet), South-Eastern Norway Regional Health Authority, “*Linking hypokalemia and atrial fibrillation: cellular mechanisms and clinical intervention*”, 2013-2016.
- Operating grant, partner, Centre for Cardiological Innovation, Research Council of Norway, 2011-2018.
- Operating grant, partner, KG Jepsen Center for Exercise in Medicine, 2011-2014.
- Operating grant, partner, KG Jepsen Cardiac Research Center, 2011-2014.
- PhD Stipend for David Lipsett, Centre for Heart Failure Research, “*Molecular mechanisms controlling T-tubule structure in healthy and failing cardiomyocytes*”, 2015.
- Research Project Stipend, the Research Council of Norway, “Multilevel cardiac remodelling in diastolic heart failure”, 2012-2015.
- PhD student fellowship for Michael Frisk, European Union Collaborative Project, “*MEDIA (The Metabolic Road to Diastolic Heart Failure)*”, 2011-2015.

- Research stipends for PhD students Terje Kolstad and Marianne Ruud, Norwegian Research School in Medical Imaging (MedIM), 50 000 NOK each, 2014.
- PhD Stipend for Michael Frisk, Raagholtstiftelsen, “*Spreading of dysfunction during heart failure*”, 2014.
- Operating grant, partner, “*Heart failure mechanisms: a multilevel approach*”, Norwegian Regional South-East Health Authority, 2011-2013.
- PhD student fellowship for Guro Five Jølle, National Association for Health, “*Spatial Homogeneity of Cardiomyocyte Ca<sup>2+</sup> Handling and Sarcomeric Function*”, 2010-2014.
- Infrastructure grant for Incubator-Based Live Cell Imaging, University of Oslo, 123 000 NOK, 2013.
- Infrastructure grant for Confocal Core Facility Renovation, Oslo University Hospital Ullevål, 500 000 NOK, 2013.
- Research stipends for PhD students Michael Frisk and David Lipsett, Norwegian Research School in Medical Imaging (MedIM), 50 000 NOK each, 2013.
- Equipment grant for *CellTester* system, University of Oslo, 1 000 000 NOK, 2013.
- Medical student research fellowship for Åsmund T. Røe, University of Oslo, “*Cellular mechanisms of diastolic heart failure*”, 2012-2013.
- Travel grant for Michael Frisk, exchange with laboratory of J.A.Wasserstrom (Chicago, USA), Centre for Heart Failure Research, Oslo, 2012.
- Medical student research fellowship for Kristian Loose, University of Oslo, “*Heartbreakers: Can changes in cell structure cause heart failure?*”, 2010-2012.
- Research Fellow Stipend for William E. Louch, Research Council of Norway, “*Molecular basis for control of the heartbeat by Na<sup>+</sup>*”, 2008-2011.
- Summer student fellowship for medical student Kristian Loose, University of Oslo, 2010.
- Equipment grant, “*Na<sup>+</sup>-Dependent Control of the Heartbeat*”, University of Oslo, 2009.
- Fellowship for scientific assistant Guro Five Jølle, Centre for Heart Failure Research, Oslo, 2009.
- Equipment grant, VIRUUS – Oslo University Hospital Ullevål, 2006.
- PhD fellowship for Halvor K. Mørk, Norwegian Research Council, 2005-2008.
- VIRUUS Post-doctoral fellowship, Ullevål Hospital, Oslo, Norway, 2005.
- Canadian Institute of Health Research Doctoral Fellowship, 1997-2001.

#### Scientific journal duties:

- *Acta Physiologica*
  - Associate Editor, 2014-present
- *Frontiers in Physiology*
  - Co-editor for Special Issue “*Nanodomain Regulation of Muscle Physiology and Alterations in Disease*”, 2022.
  - Review Editor, 2017-present
- *Cardiovascular Research*
  - Review Editor, 2018-present
- Journal of Cardiovascular Pharmacology
  - Editorial board member, 2018-present
- *Progress in Biophysics & Molecular Biology*, Co-editor for Special Issue “*Cardiac Mechano-Electric Coupling and Arrhythmias*”, 2017.
- Referee duties:
  - Acta Physiologica, American Journal of Physiology, Biophysical Journal, Cardiovascular Research, Cellular Physiology and Biochemistry, Circulation, Circulation Research, eLife, European Heart Journal, Experimental Biology and Medicine, Experimental Physiology, Frontiers in Cardiac Electrophysiology, Frontiers in Cardiovascular Medicine, Frontiers in Pharmacology, Frontiers in Physiology, In Vitro Cellular & Developmental Biology – Animal, Journal of Cellular Physiology, Journal of Molecular and Cellular Cardiology, Journal of Clinical Investigation, Journal of Pharmacology and Experimental Therapeutics, Journal of Physiology, Life Sciences, Nature

Communications, Nature Methods, Nanotoxicology, PLoSone, Proceedings of the National Academy of Sciences, Progress in Biophysics & Molecular Biology, Scandinavian Cardiovascular Journal

#### AWARDS:

- Award for Research Excellence, Oslo University Hospital, for publication of Tazmini *et al.*, *Circ Res*, 2020.
- Paul Dudley White Award, presented to Anett Ottesen (presenting author) as the top-ranked submission from Norway to the American Heart Association Annual Meeting, Oct 2017.
- Digitalis Pupurea Award for Research Excellence, University of Oslo Medical Faculty, Mar 2015.
- Award for Research Excellence, Oslo University Hospital, for publication of Swift *et al.*, *PNAS*, 2012.
- Best Presentation, Centre for Heart Failure Research Annual Meeting, Oslo, Norway, 2011
- Poster Prize, Annual meeting of the European Working Group for Cardiac & Cellular Electrophysiology, Cologne, Germany, 2009
- Best Presentation, Centre for Heart Failure Research Annual Meeting, Oslo, Norway, 2008
- Best Presentation, Centre for Heart Failure Research Annual Meeting, Oslo, Norway, 2007
- Direktørens Belønning for Fremragende Forskning (Director's Award for Excellent Research), Ullevaal Hospital, 2006
- Best Presentation, Centre for Heart Failure Research Annual Meeting, Oslo, Norway, 2006
- Servier Best Communication Award, Annual meeting of the European Working Group for Cardiac & Cellular Electrophysiology, Antwerp, Belgium, 2005
- Young Investigator Award, Annual meeting of the European Society of Cardiology, Munich, Germany, 2005

#### SUPERVISORY EXPERIENCE:

- PhD student Christopher Le, University of Oslo, starting March 2023 (supervisor)
- PhD student Adelle Basson, University of Oslo, June 2022-present (supervisor)
- Postdoc Katia Demydenko, University of Oslo, January-September 2021 (supervisor)
- PhD student Thea Parsberg Støle, University of Oslo, February 2021-present (co-supervisor)
- PhD student Maria Hernandez Mesa, University of Oslo, November 2020-present (co-supervisor)
- PhD student Victoria Becker, University of Oslo, October 2020-present (co-supervisor)
- PhD student Anna Bergan Dahl, University of Oslo, September 2020-present (co-supervisor)
- PhD student Hamid Khoshfekar Rudhari, University of Oslo, July 2020-present (co-supervisor)
- PhD student Christopher Le, University of Oslo, September 2020-present
- Postdoc Martin Laasmaa, June 2019-2021
- PhD student Farrokh Hejri, Norwegian University of Science and Technology (NTNU), Trondheim, Feb 2019-present (co-supervisor)
- PhD student Eduarde Rohner, Karolinska Institute, Jan 2018-2022 (co-supervisor)
- Postdoc Yufeng Hou, Jan 2017-2022
- Postdoc Ornella Manfra, Sept 2016-present
- PhD student Jonas van den Brink, Sept 2016-2021 (co-supervisor)
- Medical research student Ingunn Elise Setterberg, Sept 2016-2019
- Medical research student Christopher Le, Sept 2016-2019
- PhD student Åsmund Røe, Aug 2016-2020
- Postdoc Xin Shen, Jan 2016 - present
- Medical student Olav Sjøvik Eken, Nov 2015 - 2018
- Postdoc Jia Li, Nov 2015 - present
- Postdoc Michael Frisk, Sept 2015-present
- PhD student Marianne Ruud, Jan 2014-2020
- Postdoc Andrew Edwards, 2013-2014
- PhD student Terje Kolstad, Aug 2013-2022
- PhD student David Lipsett, Nov 2012-2017
- Medical research student, Åsmund Røe, 2012-2015

- PhD student Kiarash Tazmini, January 2012-2019
- PhD Michael Frisk, May 2011-2015
- Medical research student, Kristian Loose, July 2010-2015
- PhD student Guro Five Jølle, 2009-2012
- PhD student Halvor Mørk, 2005-2009

## **INNOVATION**

Disclosures of Invention (DOFIs) filed:

- “Optimizing Secretoneurin for the Treatment of Cardiac Disease (SN-db-short)”, 2023
- “Self-supervised wavelet-based denoising neural network”, 2021
- “Optimizing Secretoneurin for the Treatment of Cardiac Disease”, 2018
- “Secretoneurin therapy to improve myocardial function”, 2011

Innovation Grants:

- Qualification Project to support commercialization, Norwegian Research Council, “A neural network-based image denoising software”, 2023.
- University of Oslo Innovation Grant, “Artificial intelligence-based approaches for de-noising”, 2022-present.

## **TEACHING EXPERIENCE**

- lecturer in MED3060 “Medisinsk, kirurgisk og psykiatrisk forskning”, University of Oslo, 2019-present
- lecturer in MED3006 “Methods in Experimental and Clinical Research”, University of Oslo, 2017-present
- lecturer in MF9125 “Introduction to cardiovascular research and methods”, Univ. of Oslo, 2017-present
- lecturer in MF9120 “Molecular Medicine Research”, University of Oslo, 2011-present
- lecturer in MF9250 “Methods in Cardiac Research”, University of Oslo, 2004-present
- lecturer in MF9180 “Mechanisms of Cellular Signal Transduction”, University of Oslo, 2011-2015
- lecturer in IMB9270 “Quantitative Biology”, University of Oslo, 2009-2014
- lecturer in course “Methods in Molecular Biology”, Ullevål Hospital, Sept 2009
- lecturer in MBV4320 “Advanced Physiology and Cell Biology”, University of Oslo, 2008-2016
- lecturer in 1<sup>st</sup> year pharmacy, Dalhousie University, “Cardiovascular Drugs”, 2001
- lab demonstrator, Dalhousie University, “Introduction to Pharmacology” course, 1999-2001

## **TECHNICAL EXPERTISE:**

- super-resolution microscopy, dSTORM and AiryScan techniques
- conventional electrophysiology
- voltage-clamp techniques using high-resistance and patch electrodes
- confocal microscopy and image analysis
- whole-cell photometry for examination of cytosolic Ca<sup>2+</sup>, Na<sup>+</sup>, and pH
- high-pressure liquid chromatography
- electron microscopy
- flash photolysis of caged compounds
- cardiac myocyte isolation from human, pig, guinea pig, and murine myocardium

## **PROFESSIONAL AFFILIATIONS:**

- Federation of European Physiological Societies, 2015-present
- International Union of Physiological Sciences, 2009-present
- American Heart Association, 2007-present
- International Society for Heart Research, 2005-present
- Scandinavian Physiological Society, 2004-present
- European Society of Cardiology, 2002-present

- American Biophysical Society, 1998-present

**PERSONAL REFERENCES:****Professor Susan E. Howlett**

Relation: Ph.D. supervisor

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Relation: Institute Head (retired)

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