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## Areas of Expertise

Professor Edvinsson is leading expert in the field of cerebral circulation. He is world-recognized for his work on vascular innervation and receptor regulation. His extensive research has been a major contributor to what is known about the roles of the cerebral vasculature in health and diseases such as stroke and primary headaches. He has been a pioneer in elucidating the function of neuropeptides in the vascular system and a key player in the research and development of CGRP blockers for treatment of migraine. Professor Edvinsson also has a strong clinical background as a clinical pharmacologist and an MD in internal medicine.

**Method Expertise:** Immunohistochemistry, qPCR, Western blot, molecular biology of cell signaling, mRNA arrays, proteomics, cell and organ cultures, animal models for acute stroke and acute myocardial infarcts, pharmacology and treatment methods, string myography and perfusion myography for receptor and functional studies of isolated blood vessels.

## Education/Training

University of Lund, Sweden  
1975DMSci  
1980M.D.  
1985Specialist in Clinical Pharmacology  
1988Specialist in Internal Medicine

## Positions and Employment

University of Copenhagen, Denmark  
2007-ongoingDirector and founder, Glostrup Research Institute, Copenhagen University Hospital  
1997-ongoingChairman, Dept. Experimental Clinical Research, Glostrup Research Institute  
2011-2016Director, Center of Excellence in Stroke Research (supported by Lundbeck Foundation), Copenhagen University, Glostrup Research Institute  
2008-ongoingProfessor in Receptor Regulation in Cerebrovascular and Cardiovascular Diseases, Faculty of Health and Medical Sciences  
University of Lund, Sweden  
2002-ongoingProfessor in Internal Medicine, Faculty of Medicine  
1985-Director, Experimental Vascular Research Laboratory, Biomedical Center  
1988-Specialist in Internal Medicine, Lund University Hospital  
2009-ongoingMember, Human Ethics Committee  
1996-2002Associate Professor in Internal Medicine  
1988-1996Lecturer, University of Lund  
1983-2003Vice-Chair, Member, Animal Ethics Committee, Lund University  
Adjunct Positions  
2004-Adjunct Professor, Basic and Translational Research Institute, Xian University, Xian, China  
1990-Adjunct Professor in Pharmacology, Southern Illinois University, Illinois, USA  
1990-1995Professor II in Neuroscience (20%), Trondheim University, Norway

## Honors and Awards

2022 Honorary doctorate in France (Paris), Hungary (Szeged) and China (Xian).  
2021Winner of the Brain Prize, largest neuroscience award globally.  
2014-2016 Elected Trustee and Director, International Headache Society  
2013-Member, Steering Board, European Headache Federation  
2012 Lifetime Achievement Award, American Headache Society  
2012 Honorary Doctorate, University of Szeged, Hungary  
2008-2011Bland Lane International Distinguished Professor Award, FAMRI, USA  
2002-Honorary Fellow, British Pharmacology Society  
1985-Honorary Fellow, Stroke Council, American Heart Association

## **Professional Recognition**

Over the last 3 decades, Dr. Edvinsson has been invited yearly to international congresses and meetings as well as to universities worldwide to give lectures and keynote presentations. Most recently, he was recognized by American headache leaders with a Lifetime Achievement Award for Research (Boston, 2012).

Received an Honorary Doctorate from Szeged University, Hungary (2012) and at Xi'an University, China (2013).

- Over 1095 peer-reviewed research publications.
- 128 book chapters.
- Over 100 international scientific lectures as invited/key-note speaker.
- Member scientific society boards and organizer of symposia and meetings throughout career.

## **Research Management and Team Leader Experience**

I started as a team leader in 1976 with my first PhD students. In 1980 I got my first laboratory at the University Hospital in Lund which was supported by the Swedish Research Council and the Heart and Lung Foundation. This was expanded in 1985 to several laboratories and offices located at the Experimental Department, Lund University. In 1988 the laboratory relocated to Lund University Hospital and then it moved to the Biomedical Center when it opened in 2000; this is my current laboratory in Lund. In parallel I was responsible for organizing and building the Glostrup Research Park in Copenhagen which opened under my leadership in 2007.

## **Student Mentoring**

1978-Supervisor for 52 PhD and 20 Masters Students (graduated) and 8 PhD and 4 Masters Students (in progress) at University of Copenhagen and University of Lund.

Evaluator of over 20 Masters, PhD and DMSci theses in Denmark and internationally

Supervisor for over 25 postdoctoral students from Denmark and recruited internationally (Sweden, England, Scotland, France, Hungary, USA, Canada, Mexico, Chile, Japan, China, Pakistan, India)

## **Grant Awards**

Research projects and student support have been continuously funded since 1975.

Current research and student support at Glostrup Research Institute funded by grants from the Danish Medical Research Council; Danish Agency for Science, Technology and Innovation; The Lundbeck Foundation with two major grants (the LUCENS group 2005-2014; Center of Excellence in Stroke 2011-2016), EU, and the Novo Nordisk Foundation.

## **Bibliometry**

H-index in Web of Science = 94

Citations in total = 43.068 (2025)

Citations latest 10 years per year = 1000/year

Articles in total = 1119

## **Publications**

**Switching Off Vascular MAPK Signaling: A Novel Strategy to Prevent Delayed Cerebral Ischemia Following Subarachnoid Hemorrhage**

Edvinsson, L. & Krause, D. N., jun. 2025, I: Translational Stroke Research. 16, 3, s. 952-961 10 s.

Revisiting substance P in migraine: a methodological approach inspired by anti-CGRP and anti-PACAP success  
Pellesi, L. & Edvinsson, L., 31 jan. 2025, I: The Journal of Headache and Pain Online. 26, 1, s. 22 22.

Male-female comparison of vasomotor effects of circulating hormones in human intracranial arteries

Edvinsson, J. C. A., Grubor, I., Maddahi, A. & Edvinsson, L., 11 dec. 2024, I: The Journal of Headache and Pain Online. 25, 1, s. 216 216.

Rimegeptant for the acute and preventive treatment of migraine: a narrative review of the evidence  
Edvinsson, L., dec. 2024, I: Expert Review of Neurotherapeutics. 24, 12, s. 1141-1155 15 s.

Sex differences in expression of CGRP family of receptors and ligands in the rat trigeminal system

Maddahi, A., Edvinsson, J. C. A. & Edvinsson, L., 8 nov. 2024, I: The Journal of Headache and Pain Online. 25, 1, s. 193 193.

Pituitary cyclase-activating polypeptide targeted treatments for the treatment of primary headache disorders  
Karsan, N., Edvinsson, L., Vecsei, L. & Goadsby, P. J., jul. 2024, I: Annals of Clinical and Translational Neurology. 11, 7, s. 1654-1668 15 s.

**The impact of the migraine treatment onabotulinumtoxinA on inflammatory and pain responses: Insights from an animal model**

Reducha, P. V., Bömers, J. P., Edvinsson, L. & Haanes, K. A., jun. 2024, I: Headache Online. 64, 6, s. 652-662 11 s.

MERTK in the rat trigeminal system: a potential novel target for cluster headache?

Edvinsson, J. C. A., Ran, C., Olofsgård, F. J., Steinberg, A., Edvinsson, L. & Belin, A. C., 23 maj 2024, I: The Journal of Headache and Pain Online. 25, 1, s. 85-85.

How Sex Hormones Affect Migraine: An Interdisciplinary Preclinical Research Panel Review

Godley, F., Meitzen, J., Nahman-Averbuch, H., O'Neal, M. A., Yeomans, D., Santoro, N., Riggins, N. & Edvinsson, L., 7 feb. 2024, I: Journal of Personalized Medicine. 14, 2, 184.

**Protein kinase C-inhibition reduces critical weight loss and improves functional outcome after experimental subarachnoid haemorrhage**

Bömers, J. P., Holm, A., Kazantzi, S., Edvinsson, L., Mathiesen, P. T. I. & Haanes, K. A., 2024, I: Journal of stroke and cerebrovascular diseases : the official journal of National Stroke Association. 33, 7, 107728.

The history and rationale of the development of new drugs for migraine treatment

Kowacs, P. A., Sampaio Rocha-Filho, P. A., Peres, M. F. P. & Edvinsson, L., dec. 2023, I: Arquivos de neuro-psiquiatria. 81, 12, s. 1084-1097 14 s.

**Progesterone distribution in the trigeminal system and its role to modulate sensory neurotransmission: influence of sex**

Maddahi, A., Warfvinge, K., Holm, A., Edvinsson, J. C. A., Reducha, P. V., Kazantzi, S., Haanes, K. A. & Edvinsson, L., 14 nov. 2023, I: Journal of Headache and Pain. 24, 1, s. 154-154.

Preliminary evidence that blocking the uptake of placenta-derived preeclamptic extracellular vesicles protects the vascular endothelium and prevents vasoconstriction

Erlandsson, L., Ohlsson, L., Masoumi, Z., Rehnström, M., Cronqvist, T., Edvinsson, L. & Hansson, S. R., 27 okt. 2023, I: Scientific Reports. 13, 1, s. 18425 18425.

**Atogepant, the first oral preventive treatment for chronic migraine**

Haanes, K. A. & Edvinsson, L., 2 sep. 2023, I: Lancet. 402, 10404, s. 748-749 2 s.

**Heterogeneous vasomotor responses in segments from Göttingen Minipigs coronary, cerebral, and mesenteric artery: A comparative study**

Sams, A., Haanes, K. A., Holm, A., Kazantzi, S., Mikkelsen, L. F., Edvinsson, L., Brain, S. & Sheykhzade, M., 2023, I: Vascular Pharmacology. 153, 11 s., 107231.

**Rodent behavior following a dural inflammation model with anti-CGRP migraine medication treatment**

Reducha, P. V., Bömers, J. P., Edvinsson, L. & Haanes, K. A., 2023, I: Frontiers in Neurology. 14, 1082176.

**Expression of vasopressin and its receptors in migraine-related regions in CNS and the trigeminal system: influence of sex**

Maddahi, A., Edvinsson, L. & Warfvinge, K., 1 dec. 2022, I: The Journal of Headache and Pain Online. 23, 1, 152.

**The MEK Inhibitor Trametinib Improves Outcomes following Subarachnoid Haemorrhage in Female Rats**

Bömers, J. P., Grell, A.-S., Edvinsson, L., Johansson, S. E. & Haanes, K. A., 22 nov. 2022, I: Pharmaceuticals (Basel, Switzerland). 15, 12, 1446.

**Calcitonin gene-related peptide (CGRP) is a key molecule released in acute migraine attacks- successful translation of basic science to clinical practice**

Edvinsson, L., okt. 2022, I: Journal of Internal Medicine. 292, 4, s. 575-586 12 s.

**Myocardial perfusion recovery induced by an  $\alpha$ -calcitonin gene-related peptide analogue**

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**Could Experimental Inflammation Provide Better Understanding of Migraines?**

Reducha, P. V., Edvinsson, L. & Haanes, K. A., 6 aug. 2022, I: Cells. 11, 15, 17 s., 2444.

**Identifying molecular targets in trigeminal nociception**

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Repair-related molecular changes during recovery phase of ischemic stroke in female rats

Mostajeran, M., Edvinsson, L., Ahnstedt, H., Arkelius, K. & Ansar, S., 12 apr. 2022, I: BMC Neuroscience. 23, 1, s. 23 23.

**Changes in P2Y6 receptor-mediated vasoreactivity following focal and global ischemia**

Erdling, A., Johansson, S. E., Radziwon-Balicka, A., Ansar, S. & Edvinsson, L., apr. 2022, I: Physiological Reports. 10, 8, e15283.

**Dual action of the cannabinoid receptor 1 ligand arachidonyl-2'-chloroethylamide on calcitonin gene-related peptide release**

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**Lasmiditan and 5-Hydroxytryptamine in the rat trigeminal system; expression, release and interactions with 5-HT1 receptors**

Edvinsson, J. C. A., Maddahi, A., Christiansen, I. M., Reducha, P. V., Warfvinge, K., Sheykhzade, M., Edvinsson, L. & Haanes, K. A., 17 feb. 2022, I: The Journal of Headache and Pain Online. 23, 1, s. 26 19 s., 26.

Advances in migraine and headache therapy (BJP 75th anniversary)

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**Biological and small molecule strategies in migraine therapy with relation to the calcitonin gene-related peptide family of peptides**

Edvinsson, L., Edvinsson, J. C. A. & Haanes, K. A., feb. 2022, I: British Journal of Pharmacology. 179, 3, s. 371-380 10 s.

**Ovariectomy reduces vasocontractile responses of rat middle cerebral arteries after focal cerebral ischemia**

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**Molecular and Cellular Mechanisms of CGRP Antagonists**

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**Neuropeptides and the Nodes of Ranvier in Cranial Headaches**

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**Update on Old and Current Targets for Antimigraine Therapies**

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**Neurokinins and their receptors in the rat trigeminal system: Differential localization and release with implications for migraine pain**

Edvinsson, J. C., Reducha, P. V., Sheykhzade, M., Warfvinge, K., Haanes, K. A. & Edvinsson, L., 14 dec. 2021, I: Molecular Pain. 17, s. 17448069211059400 11 s.

**Burden and attitude to resistant and refractory migraine: a survey from the European Headache Federation with the endorsement of the European Migraine & Headache Alliance**

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**Hormonal influences in migraine - interactions of oestrogen, oxytocin and CGRP**

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CGRP and migraine; from bench to bedside

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**Pre-Chiasmatic, Single Injection of Autologous Blood to Induce Experimental Subarachnoid Hemorrhage in a Rat Model**

Bömers, J. P., Johansson, S. E., Edvinsson, L., Mathiesen, T. I. & Haanes, K. A., 18 jun. 2021, I: Journal of visualized experiments : JoVE. 2021, 172, e62567.

**Subacute phase of subarachnoid haemorrhage in female rats: Increased intracranial pressure, vascular changes and impaired sensorimotor function**

Spray, S., Haanes, K. A., Edvinsson, L. & Johansson, S. E., maj 2021, I: Microvascular Research. 135, s. 104127 12 s., 104127.

**Identifying New Antimigraine Targets: Lessons from Molecular Biology**

Edvinsson, L. & Haanes, K. A., apr. 2021, I: Trends in Pharmacological Sciences. 42, 4, s. 217-225 9 s.

Secondhand cigarette smoke induces increased expression of contractile endothelin receptors in rat coronary arteries via a MEK1/2 sensitive mechanism

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Oral rimegeptant for migraine prevention

Edvinsson, L., 2 jan. 2021, I: Lancet. 397, 10268, s. 4-5 2 s.

**Native CGRP Neuropeptide and Its Stable Analogue SAX, But Not CGRP Peptide Fragments, Inhibit Mucosal HIV-1 Transmission**

Mariotton, J., Sams, A., Cohen, E., Sennepin, A., Siracusano, G., Sanvito, F., Edvinsson, L., Delongchamps, N. B., Zerbib, M., Lopalco, L., Bomsel, M. & Ganor, Y., 2021, I: Frontiers in Immunology. 12, s. 785072 785072.

Transcriptome profiling revealed early vascular smooth muscle cell gene activation following focal ischemic stroke in female rats - comparisons with males

Rehnström, M., Frederiksen, S. D., Ansar, S. & Edvinsson, L., 9 dec. 2020, I: BMC Genomics. 21, 1, s. 883

**Estrogen receptors α, β and GPER in the CNS and trigeminal system - molecular and functional aspects**

Warfvinge, K., Krause, D. N., Maddahi, A., Edvinsson, J. C. A., Edvinsson, L. & Haanes, K. A., dec. 2020, I: Journal of Headache and Pain. 21, 1, s. 131 131.

**Differences in pituitary adenylate cyclase-activating peptide and calcitonin gene-related peptide release in the trigeminovascular system**

Edvinsson, J. C. A., Grell, A.-S., Warfvinge, K., Sheykhzade, M., Edvinsson, L. & Haanes, K. A., okt. 2020, I: Cephalgia : an international journal of headache. 40, 12, s. 1296-1309 14 s.

**Oxytocin as a regulatory neuropeptide in the trigeminovascular system: Localization, expression and function of oxytocin and oxytocin receptors**

Warfvinge, K., Krause, D. N., Maddahi, A., Grell, A.-S., Edvinsson, J. C., Haanes, K. A. & Edvinsson, L., okt. 2020, I: Cephalalgia : an international journal of headache. 40, 12, s. 1283-1295 13 s.

**Vancouver Declaration II on Global Headache Patient Advocacy 2019**

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**The effects of CGRP in vascular tissue - Classical vasodilation, shadowed effects and systemic dilemmas**

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**Expression of the CGRP Family of Neuropeptides and their Receptors in the Trigeminal Ganglion**

Edvinsson, L., Grell, A.-S. & Warfvinge, K., jun. 2020, I: Journal of Molecular Neuroscience. 70, 6, s. 930-944 15 s.

**Serotonin and Neuropeptides in Blood From Episodic and Chronic Migraine and Cluster Headache Patients in Case-Control and Case-Crossover Settings: A Systematic Review and Meta-Analysis**

Frederiksen, S. D., Bekker-Nielsen Dunbar, M., Snoer, A. H., Deen, M. & Edvinsson, L., jun. 2020, I: Headache. 60, 6, s. 1132-1164 33 s.

**CGRP in rat mesenteric artery and vein - receptor expression, CGRP presence and potential roles**

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**Cellular distribution of PACAP-38 and PACAP receptors in the rat brain: Relation to migraine activated regions**

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**Understanding side-effects of anti-CGRP and anti-CGRP receptor antibodies**

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**Hyperpolarization through ATP-sensitive potassium channels; relevance to migraine pathology**

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**Calcitonin Gene-Related Peptide (CGRP) and Cluster Headache**

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**Fluorescent Analogues of Human  $\alpha$ -Calcitonin Gene-Related Peptide with Potent Vasodilator Activity**

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Increased mortality in elderly heart failure patients receiving infusion of furosemide compared to elderly heart failure patients receiving bolus injection

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CGRP receptor antagonist MK-8825 attenuates cortical spreading depression induced pain behavior

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