

Curriculum vitae: Erik Smedler

Title: Adjunct senior lecturer, Docent, MSc, MD-PhD

E-mail: erik.smedler@gu.se or erik.smedler@vgregion.se

ORCID: 0000-0003-4609-3620

Adress: Blå stråket 15, Sahlgrenska University Hospital, 413 45 Gothenburg

Affiliation: Department of Neuroscience and Physiology (GU), Wallenberg Centre for Molecular and Translational Medicine (GU), Department of Clinical Chemistry (SU).

Independent researcher and group leader of the Molecular psychiatry group at the University of Gothenburg. The group consists of three postdoctoral researchers (Bingqing He, Parvaneh Nikpour and Vika Telle), four doctoral students (Melis Celik, Niklas Bengtsson, Johan Tenghamn, and Lucy Maibach), one associate researchers (Saliha Musovic) and one part time lab manager (Debora Kaminski) as well as multiple undergraduate students.

Employment

- Combination position as resident physician in psychiatry at Sahlgrenska University Hospital at 50% and adjunct senior lecturer at the University of Gothenburg, Department of Neuroscience and Physiology, at 50% since 2020, funded by ALF/Swedish Research Council.
- Research intern physician at Sahlgrenska University Hospital, 2017-2019.
- Postdoctoral researcher at the University of Gothenburg under Professor Mikael Landén, 2017-2019.
- Ph.D. student at Karolinska Institutet under Professor Per Uhlén, 2011-2017.

Education

- Leadership course for research leaders REAL8, University of Gothenburg, 2022-2023.
- Docent in Psychiatry at the University of Gothenburg since 2022.
- Step 1 Cognitive Behavioral Therapy (CBT) Psychotherapy Training, Psykologpartners, 2020-2022
- Medical Degree (MD), Karolinska Institutet, 2009-2017.
- Ph.D. in Medical Science, Karolinska Institutet, 2011-2017, (Ca^{2+} Signaling and Network Activity: Mathematical Analysis and Molecular Mechanisms, supervised by Professor Per Uhlén).
- Master of Science in Engineering Physics (MSc), Royal Institute of Technology, 2005-2009, GPA 4.7 out of 5.

Teaching

- Experience in teaching at various levels at both the University of Gothenburg and Karolinska Institutet, including seminars, laboratory sessions, and lectures. Responsible for one course in *Mood disorders* for resident psychiatrist (2023-, Sahlgrenska University Hospital) and in *Cellular models of the human CNS* for PhD students (2024-, University of Gothenburg).
- Supervisor for thesis projects of medical students (Ali Hattab, Sohaib Hattab, Salma Mohamed, Johanna Gratjova, Aleksi Markkanen, and Johanna Kleppe at the

University of Gothenburg, 2019-2022), thesis projects of pharmacy students (Melina Dukell, Shiva Hadi, and Mårten Johansson at the University of Gothenburg, 2020-2021), and a master's student (Isabella Mårtensson, Chalmers, 2024, Lucy Maibach, Free University of Amsterdam, 2024 and Armita Bayesteh, KTH, 2012), as well as project supervisor for medical students (Emolah Bonbon, University of Gothenburg, 2021). Also, co-supervisor for two doctoral students (Anniella Isgren, defended in 2022 and Andreas Göteson University of Gothenburg).

- Member of the grading committee for PhD (Karin Ademar 2025, Maria Gröndal 2024, Rong Ma 2024, Johan Nyrenius 2023, and Abishek Arora 2023) and half-time (Erika Lucente 2024, Almira Osmanovic Thunström 2023, and Ramana Piussis 2022).
- Examiner for medical students' theses: Martin Roström and Ida Rodmar 2025, Johan Sandberg 2025, Lukas Wikström 2023, Taleb Al Mnajed 2023, and Husain Esehaqzahi 2022.

Grants

Principal investigator for several national and regional grants: the Swedish Research Council (2022, #2021-02637), the Knut and Alice Wallenberg Foundation via the Wallenberg Centre for Molecular and Translational Medicine at the University of Gothenburg, Sweden (2022), Hjärnfonden (2025), ALF (2022, #ALFGBG-978138), PALS collaboration project (2023), Emil och Wera Cornells stiftelse (2024), Åke Wibergs stiftelse (2023, 2022, 2020), Jeanssons stiftelse (2022, 2020), Kurt och Ingrid Dahréns stiftelse (2023, 2022), Svenska Läkaresällskapet (2024, 2021), Göteborgs Läkaresällskap (2022, 2018), Åhlén-stiftelsen (2024, 2022, 2019, 2017), Sahlgrenska Universitetssjukhusets fonder (2022, 2021, 2020, 2018), Stiftelsen Olle Engkvist byggmästare (2022, 2021), Magnus Bergvalls stiftelse (2021, 2019), Stiftelsen Psykiatriska Forskningsfonden (2021), Stiftelsen Söderström-Königska (2023, 2020), Stiftelsen Lars Hiertas minne (2020), Fredrik och Ingrid Thuring's stiftelse (2019, 2017), Stiftelsen Sigurd och Elsa Goljes minne (2020), Wilhelm & Martina Lundgrens Vetenskapsfond (2020, 2018), Längmanska Kulturfonden (2018), and Psykiatrifonden (2015).

Other

- External reviewer ad hoc for journals including Molecular Psychiatry, Translational Psychiatry, Biological Psychiatry, Neuropsychopharmacology, European Neuropsychopharmacology, BMC Psychiatry, as well as national funding agencies Agence Nationale de la Recherche and Biotechnology, Biological Sciences Research Council, the Swedish Research Council, Stiftelsen Professor Bror Gadelius Minnesfond, the local GU grant Bollans stipendium and HMT project funding.
- Board member of Future Faculty at Sahlgrenska Academy, 2019-2024
- Founder of a national network for the use of IPS cells as a model for psychiatric disorders, ShIPS (2023-).
- Founder of regional interdisciplinary network for neuroscience research, BRAINWEST (2024-).
- Member of ECNP iPSCs Platform for Neuropsychiatry Network (2024-).
- Member of PGC Working Group Functional Genomics (2024-).
- Member of the Young Academy of Sweden (2024-2028).
- Member of the council of Swedish Society for Neuroscience (2025-).
- SPF Knowledge Test – The Swedish Psychiatric Association's Knowledge Examination for Psychiatrists (2024).

Publications

In total 32 publications and 1071 citations, h index 16, i10 index 19 (Google Scholar 260310).
Equal contribution *

Primary research articles

1. *Decoding calcium oscillation frequency in transcriptional regulation*
Parvaneh Nikpour, Manuel Varas-Godoy, Per Uhlén and **Erik Smedler**
bioRxiv. October 10, 2025.
2. *Psilocin mediates long-term synaptic depression in the prelimbic cortex through a 5-HT_{2A} receptor-independent mechanism*
Ana Domi, Erika Lucente, Davide Cadeddu, Niklas Bengtsson, **Erik Smedler**, Louise Adermark
Neuropharmacology. 2026 Jan 21;288:110854.
3. *Clonidine prevents radiation-induced cell death in a human forebrain organoid model*
Martin Lundberg, Samudyata, Marja Koskovi, Asimonia Gkogka, Mahnaz Nikpour, Melis Çelik, **Erik Smedler**, Bo Stenerlöw, Per-Arne Lönnqvist, Martin Schalling, Carl M. Sellgren
Sci Rep. 2025 Oct 31;15(1):38113.
4. *Genomics yields biological and phenotypic insights into bipolar disorder*
Kevin S. O'Connell, Maria Koromina, Tracey van der Veen,..., **PGC-FG Single cell working group**,..., Niamh Mullins, Arianna Di Florio, Roel A. Ophoff, Ole A. Andreassen, for the Bipolar Disorder Working Group of the Psychiatric Genomics Consortium
Nature. 2025 Jan 22.
5. *Efficient gene-editing in human pluripotent stem cells by simplified assembly of recombinant adeno-associated viral (AAV-DJ) donor templates*
Berta Marcó de la Cruz*, Sanhita Mitra*, Binqing He, Melis Çelik, Debora Kaminski, **Erik Smedler**, Fredrik H. Sterky
Bio Protoc. 2024 Nov 5;14(21):e5097.
6. *Single-Cell Transcriptomics Reveals the Molecular Logic Underlying Ca²⁺ Signaling Diversity in Human and Mouse Brain*
Ibrahim Al Rayyes, Lauri Louhivuori, Ivar Dehnisch Ellström, **Erik Smedler**, Per Uhlén
bioRxiv. April 28, 2024.
7. *Key subphenotypes of bipolar disorder are differentially associated with polygenic liabilities for bipolar disorder, schizophrenia, and major depressive disorder*
Jie Song, Lina Jonsson, Yi Lu, Sarah E Bergen, Robert Karlsson, **Erik Smedler**, Katherine Gordon-Smith, Ian Jones, Lisa Jones, Nick Craddock, Patrick F Sullivan, Paul Lichtenstein, Arianna Di Florio, Mikael Landén
Mol Psychiatry. 2024 Feb 14.
8. *Association of Occupational Dysfunction and Hospital Admissions With Different Polygenic Profiles in Bipolar Disorder*
Lina Jonsson, Elin Hörbeck, Amedeo Primerano, Jie Song, Robert Karlsson, **Erik Smedler**, Katherine Gordon-Smith, Lisa Jones, Nicholas Craddock, Ian Jones, Patrick F. Sullivan, Erik Pålsson, Arianna Di Florio, Timea Sparding, Mikael Landén
Am J Psychiatry. 2024 Jul 1;181(7):620-629.

9. *Association of premorbid intelligence with level of functioning and illness severity in bipolar disorder*
Erik Smedler, Lina Johnsson, Elin Hörbeck, Timea Sparding and Mikael Landén
J Affect Disord. 2023 Jan 4;324:449-454.
10. *Effect of CYP2C19 polymorphisms on antidepressant prescription patterns and treatment emergent mania in bipolar disorder.*
Erik Joas, Lina Jonsson, Alexander Viktorin, **Erik Smedler**, Erik Pålsson, Guy M. Goodwin and Mikael Landén
Pharmacogenomics J. 2022 Nov 4.
11. *Metabolomics analysis of cerebrospinal fluid suggests citric acid cycle aberrations in bipolar disorder*
Erik Smedler*, Alireza M. Salehi*, Auris Pelanis, Erik Pålsson, Ana Andreatza and Mikael Landén
Neurosci Appl. 2022 1, 100108
12. *Cerebrospinal fluid proteomic study of two bipolar disorder cohorts*
Anniella Isgren, Andreas Göteson, Jessica Holmén-Larsson, Aurimantas Pelanis, Carl Sellgren, Erik Joas, Timea Sparding, Henrik Zetterberg, **Erik Smedler**, Joel Jakobsson and Mikael Landén
Mol Psychiatry. 2022 Nov;27(11):4568-4574.
13. *Disrupted Cacna1c Gene Expression Perturbs Spontaneous Ca²⁺ Activity Causing Abnormal Brain Development and Increased Anxiety*
Erik Smedler, Lauri Louhivuori, Roman A. Romanov, Débora Masini, Ivar Dehnisch Ellström, Chunliang Wang, Martino Caramia, Zoe West, Songbai Zhang, Paola Rebellato, Seth Malmersjö, Irene Brusini, Shigeaki Kanatani, Gilberto Fisone, Tibor Harkany and Per Uhlén
Proc Natl Acad Sci U S A. 2022 Feb 15;119(7):e2108768119
14. *Cerebrospinal fluid proteomics targeted for central nervous system processes in bipolar disorder*
Andreas Göteson, Anniella Isgren, **Erik Smedler**, Auris Pelanis, Timea Sparding, Jessica Holmén-Larsson, Joel Jakobsson, Erik Pålsson and Mikael Landén
Mol Psychiatry. 2021 Dec;26(12):7446-7453.
15. *Cerebrospinal fluid and serum protein markers in autism: a co-twin study*
Erik Smedler, Johanna Kleppe, Janina Neufeld, Karl Lundin, Sven Bölte and Mikael Landén
J Neurochem. 2021 Mar 6. doi: 10.1111/jnc.15338.
16. *Reporting trigger factors for (hypo)manic episodes in bipolar disorder: association with personality and prognosis*
Erik Smedler, Timea Sparding, Ali Hattab, Carl M Sellgren and Mikael Landén
Acta Psychiatr Scand. 2020 Jun;141(6):534-540.
17. *CACNA1C polymorphism and brain cortical structure in bipolar disorder*
Erik Smedler, Christoph Abé, Erik Pålsson, Martin Ingvar and Mikael Landén
J Psychiatry Neurosci. 2019 Dec 12;45(1):190029.
18. *Genes, biomarkers, and clinical features associated with the course of bipolar disorder*
Erik Smedler, Sarah Bergen, Jie Song and Mikael Landén
Eur Neuropsychopharmacol. 2019 Oct;29(10):1152-1160.

19. *Association of CACNA1C polymorphisms with BDNF levels in bipolar disorder*
Erik Smedler, Erik Pålsson, Kenji Hashimoto and Mikael Landén
Br J Psychiatry. 2019 Jul 18;1-3.
20. *Mapping genes for calcium signaling and their associated human genetic disorders*
Matthias Hörtenhuber, Enrique M. Toledo, **Erik Smedler**, Ernest Arenas, Seth Malmersjö, Lauri Louhivuori and Per Uhlén
Bioinformatics. 2017 Aug 15;33(16):2547-2554.
21. *CO₂-evoked release of PGE₂ modulates sighs and inspiration as demonstrated in brainstem organotypic culture*
David Forsberg, Zachi Horn*, Evangelia Tserga*, **Erik Smedler**, Gilad Silberberg, Yuri Shvarev, Kaila K, Per Uhlén and Eric Herlenius
Elife. 2016 Jul 5;5. pii: e14170.
22. *The 1p36 Tumor Suppressor KIF1B Is Required for Calcineurin Activation, Controlling Mitochondrial Fission and Apoptosis*
Shujie Li, Stuart M. Fell, Olga Surova, **Erik Smedler**, Karin Wallis, Zhi Xiong Chen, Ulf Hellman, John Inge Johnsen, Tommy Martinsson, Rajappa S. Kenchappa, Per Uhlén, Per Kogner and Susanne Schlisio
Dev Cell. 2016 Jan 25;36(2):164-78.
23. *Network Analysis of Time-Lapse Microscopy Recordings*
Erik Smedler*, Seth Malmersjö* and Per Uhlén
Front Neural Circuits. 2014 Sep 17;8:111.
24. *Antimicrobial peptide LL-37 regulates the production of eicosanoids by human macrophages via temporally and mechanistically separate pathways*
Min Wan, Oliver Söhnlein, Xiao Tang, Anne M. van der Does, **Erik Smedler**, Per Uhlén, Lennart Lindbom, Birgitta Agerberth, Jesper Z. Haeggström
FASEB J. 2014 Aug;28(8):3456-67.
25. *Neural Progenitors Organize in Small-World Networks to Promote Cell Proliferation*
Seth Malmersjö*, Paola Rebellato*, **Erik Smedler***, Henrike Planert, Shigeaki Kanatani, Isabel Liste, Evanthia Nanou, Hampus Sunner, Shaimaa Abdelhady, Songbai Zhang, Michael Andäng, Abdeljabbar El Manira, Gilad Silberberg, Ernest Arenas and Per Uhlén
Proc Natl Acad Sci U S A. 2013 Apr 16;110(16):E1524-32.
26. *Small Molecule Screening Platform for Assessment of Cardiovascular Toxicity on Adult Zebrafish Heart*
Satish Srinivas Kitambi*, **Erik S Nilsson***, Gilbert Nyah Tekeoh, Cristian Ibarra, Patrik Ernfors and Per Uhlén
BMC Physiol. 2012 Mar 26;12:3.

Review articles

27. *Old enough to be a model? On the role of maturity in stem cell-based models for neuropsychiatric disorders*
Bingqing He and **Erik Smedler**
Neurosci Appl. 2026. Accepted
28. *Calcium Signaling in Neocortical Development*
Per Uhlén, Nicolas Fritz, **Erik Smedler**, Seth Malmersjö and Shigeaki Kanatani
Dev Neurobiol. 2015 Apr;75(4):360-8.

29. *Frequency decoding of calcium oscillations*

Erik Smedler and Per Uhlén

Biochim Biophys Acta. 2014 Mar;1840(3):964-9.

Comments etc.

30. *Correspondence to "Bipolar disorder-iPSC derived neural progenitor cells exhibit dysregulation of store-operated Ca²⁺ entry and accelerated differentiation" by Hewitt et al. (PMID: 37402854)*

Cristine Marie, Yde Ohki, Rhiannon V McNeill, Anthony C Vernon, **Erik Smedler**, Tanja Maria Michel, Michael Peitz, Marie-Claude Potier, Sarah Kittel-Schneider, Edna Grünblatt; members of the iPSC Platform for Neuropsychiatry ECNP Network
Mol Psychiatry. 2024 May 24.

31. *Small-World Networks of Spontaneous Ca²⁺ Activity*

Seth Malmersjö*, Paola Rebellato*, **Erik Smedler*** and Per Uhlén
Commun Integr Biol. 2013 Jul 1;6(4):e24788.

Book chapters

32. Polymorphism in bipolar disorder

Parvaneh Nikpour and **Erik Smedler**

Handbook of the Biology and Pathology of Mental Disorders
Springer Nature, 2025.