MaléneLindholm
PhD

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EDUCATION

2008-2015 **PhD** in Medicine at Karolinska Institutet. Thesis title: "*The search for human skeletal muscle memory: Exercise effects on the transcriptome and epigenome*".

2003-2007 **M.Sc. in Biomedical Sciences** at Karolinska Institutet

2006 Exchange semester at the National University of Singapore

PROFESSIONAL APPOINTMENTS

2024 - present **Senior Research Engineer, Stanford University**

2022 - present **Director Wu Tsai Human Performance Alliance - Human Molecular Athlete Moonshot**

2022 - 2024 **Instructor/junior faculty of Medicine at Stanford University.**

2017 - 2021 **Postdoctoral researcher at Stanford University** in the group of professor Euan Ashley.

HONORS AND AWARDS

2025 Elected Fellow of the American Heart Association (FAHA)

2020 American Heart Association Genomic and Precision Medicine Early Career Investigator Award

2019 Young Investigator Award from the Swedish foundation for promoting exercise (Sveriges Centralförening för Idrottens Främjande, scif.se).

2018 Young Investigator Award from the *Research Group on the Biochemistry of Exercise* for work on endurance-induced human skeletal muscle memory. Invited to IBEC in Beijing to present the work.

PUBLICATIONS

Total number of publications: 33
Total number of citations: 2239 (Google Scholar)
Full list of published citations: My Bibliography
h-index: 21

Selected publications

1. Plaza-Florido A*, **Lindholm ME***, Carrera-Bastos P, Santos-Lozano A, Valenzuela PL, Fiuza-Luces C, Radom-Aizik S, Lucia A. *Exercise pills for cardiometabolic health cannot mimic the exercise milieu*. **Trends in Endocrinology and Metabolism.** August 09, 2025.
   *Shared first author
2. **Lindholm ME**, Abramowitz SA, Waggott DM, Grove ME, Dewey FE, Pan C, Pavlovic A, Shang C, Huang Y, Bensabath L, Goldfeder RL, Cordero SG, Erbilgin A, Priest JR, Chaib H, Roy-Puckelwartz MJ, Day SM, McNally EM, Cappola T, Dorn GW, Ashley EA, Wheeler MT. *Identification of Candidate Cardiomyopathy Modifier Genes through Genome Sequencing and RNA Profiling*. **Front. Cardiovasc. Med**. 27, 12 (2025).
3. Shero J, **Lindholm ME**, Sandri M, Stanford K. *Skeletal Muscle as a Mediator of Interorgan Crosstalk During Exercise: Implications for Aging and Obesity*. **Circulation Research**. 2025 May 23;136(11):1407-1432.
4. Katz DH*, **Lindholm ME***, Ashley EA. *Charting the Molecular Terrain of Exercise: Energetics, Exerkines, and the Future of Multi-Omic Mapping*. **Physiology**. 2025 Mar 1;40(2):0.
   *Shared first author
5. Geiger C, Needhamsen M, Emanuelsson EB, Norrbom J, Steindorf K, Sundberg CJ, Reitzner SM, **Lindholm ME***. *DNA methylation of exercise-responsive genes differs between trained and untrained men*. **BMC Biol**. 22, 147 (2024).
   *Corresponding author
6. Amar D, Gay NR, Jimenez-Morales D, Jean Beltran PM, Ramaker ME, Raja A, Zhao B, Sun Y, Marwaha S, Gaul D, Hershman SG, Xia A, Lanza I, Fernandez FM, Montgomery SB, Hevener AL, Ashley EA, Walsh MJ, Sparks LM, Burant CF, Rector RS, Thyfault J, Wheeler MT, Goodpaster BH, Coen PM, Schenk S, Bodine SC, **Lindholm ME*,** MoTrPAC Study Group. *The mitochondrial multi-omic response to exercise training across rat tissues.* **Cell Metab**. Jun 4;36(6):1411-1429.e10.
   *Corresponding author

7. MoTrPAC Study Group., **Lead Analysts**. & MoTrPAC Study Group. *Temporal dynamics of the multi-omic response to endurance exercise training*. **Nature**. 629, 174–183 (2024).
8. Emanuelsson EB, Arif M, Reitzner SM, Perez S, **Lindholm ME**, Mardinoglu A, Daub C, Sundberg CJ, Chapman MA. *Remodeling of the human skeletal muscle proteome found after long-term endurance training but not after strength training*. **iScience**. 2024 Jan 19;27(1).
9. **Lindholm ME**, Jimenez-Morales D, Zhu H, Seo K, Amar D, Zhao C, Raja A, Madhvani R, Abramowitz S, Espenel C, Sutton S, Caleshu C, Berry GJ, Motonaga K, Dunn K, Platt J, Ashley EA, Wheeler MT. *Mono- and biallelic protein truncating variants in alpha-actinin 2 cause cardiomyopathy through distinct mechanisms*. **Circ Genom Precis Med.** 2021 Nov 22:CIRCGEN121003419
10. Amar D*, **Lindholm ME***, Norrbom J, Wheeler MT, Rivas MA, Ashley EA. *Time trajectories in the transcriptomic response to exercise - a meta-analysis.* **Nat Commun.** 2021 Jun 9;12(1):3471
*Shared first author

FUNDING

I. Current funding

2024 NIH U24 grant 9U24OD036598 (as Co-I): $4 500 000
2023 Stanford Sarafan ChEM-H seed grant (as Co-PI): $50 000
2022 Wu Tsai Human Performance Alliance (as Co-I): $10,000,000
2022 Karolinska Institutet Research Foundation Grants (as PI) 223 000 SEK

II. Past funding

2022 NIH K99 (as PI): approximately $250 000
2021 The Swedish Research Center for Sport Science Project Award (as PI) 273 000 SEK
2018 Project grant from the Swedish Research Council (as co-investigator): 2 400 000 SEK over 3 years.
2016 Postdoctoral fellowship from the Knut and Alice Wallenberg Foundation. Approx. $140 000
2013 The Swedish Research Center for Sport Science Project Award (as co-investigator) 400 000 SEK
2011 The Swedish Research Center for Sport Science Project Award (as co-investigator) 400 000 SEK
2010- Six different travel grants from the Swedish Society of Medicine, 10 000 - 12 000 SEK/each
2009 Boehringer Ingelheim Fonds 1500 € travel grant.
2009 Swedish Society of Medicine 50 000 SEK travel grant.
2008 Karolinska Institutet Doctoral student funding (KID).

EDITORIAL SERVICE

2023- Editorial board member: Circulation: Genomic and Precision Medicine
Peer-reviewer for e.g. Cell Metabolism, Nature Communications, Aging Cell, Nature Aging, Circulation Research, Journal of Physiology, Journal of Applied Physiology, Epigenetics, Circulation: Genomic and Precision Medicine and Journal of Cachexia, Sarcopenia and Muscle. Number of verified peer reviews in Web of Science: 55.

PRESENTATIONS

Selected invited presentations

2025 American Physiology Summit, Apr 24-27, Baltimore, MA. *Temporal dynamics of the multi-comic response to endurance exercise training.*
2024 Integrative Physiology of Exercise conference, Nov 20-22, Penn State, PA. *Temporal dynamics of the multi-omic response to exercise training.*
2024 NIH Alzheimer's Research Summit, Sep 23-25, Bethesda, MD: *The power of exercise for precision therapies - leveraging the MoTrPAC data resource.*
2024 European College of Sports Science, Jul 2-5, Glasgow, UK: *The mitochondrial multi-omic response to exercise training across tissues.*
2023 Wu Tsai Human Performance Alliance Research Symposium, May 9, San Diego, USA: *Sex differences in endurance training adaptation.*
2022 Europhysiology Conference, Sep 16-18, Copenhagen, Denmark: *Do muscles have memory? Molecular effects of training, detraining and retraining*