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Curriculum vitae

Positions of trust at external institutions

Board Member, Biocenter Finland

Member of Advisory Committee, worldwide Protein Data Bank (wwPDB)

Member of the Scientific Advisory Committee, Molecular and Cellular Structure cluster, EMBL-EBI

Positions of trust at the University of Helsinki

Viikki Campus Cooperation Committee, deputy member

Member of HiLIFE management team

Member of Thriving Nature (PROFI5) steering group

Member of UHBRAIN (PROFI6) steering group

Qualifications

Title of Associate Professor, University of Oxford
Award Date: 26 Mar 2015

Title of Docent in Molecular Virology, University of Helsinki
Award Date: 13 May 2014

Title of University Research Lecturer, University of Oxford
Award Date: 1 Jan 2014

Genetics, Doctor of Philosophy (PhD), University of Helsinki
Award Date: 25 Jan 2006

Genetics, Master of Science (MSc), University of Helsinki
Award Date: 23 Feb 2001

Employment

Director

Institute of Biotechnology
University of Helsinki
Helsinki, Finland
1 Sept 2020 → present

Professor

Molecular and Integrative Biosciences Research Programme
University of Helsinki

Finland

1 Jun 2021 → present

Honorary Visiting Research Fellow

University of Oxford

United Kingdom

1 Apr 2020 → present

Principal Investigator

University of Oxford

Oxford, United Kingdom

1 Jan 2015 → 31 Mar 2020

Academy of Finland Research Fellow

University of Oxford

Oxford, United Kingdom

1 Jan 2010 → 31 Dec 2014

Research outputs

Structural characterization and epitope mapping of the AAVX affinity purification ligand

Mietzsch, M., Kamat, M., Basso, K., Chipman, P., Huiskonen, J. T. & McKenna, R., 12 Dec 2024, In: *Molecular therapy- Methods & clinical development*. 32, 4, 5 p., 101377.

The Structure of Spiroplasma Virus 4: Exploring the Capsid Diversity of the Microviridae

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Structure and interactions of the endogenous human Commander complex

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Molecular view of ER membrane remodeling by the Sec61/TRAP translocon

Karki, S., Javanainen, M., Rehan, S., Tranter, D., Kellosoalo, J., Huiskonen, J., Happonen, L. J. & Paavilainen, V., 20 Nov 2023, In: *EMBO Reports*. 24, 16 p., e57910.

DNA-origami-directed virus capsid polymorphism

Seitz, I., Saarinen, S., Kumpula, E. P., McNeale, D., Anaya-Plaza, E., Lampinen, V., Hytönen, V. P., Sainsbury, F., Cornelissen, J. J. L. M., Linko, V., Huiskonen, J. T. & Kostianen, M. A., Oct 2023, In: *Nature Nanotechnology*. 18, 10, p. 1205-1212

Global analysis of aging-related protein structural changes uncovers enzyme-polymerization-based control of longevity
Paukštytė, J., López Cabezas, R. M., Feng, Y., Tong, K., Schnyder, D., Elomaa, E., Gregorova, P., Doudin, M., Särkkä, M., Sarameri, J., Lippi, A., Vihinen, H., Juutila, J., Nieminen, A., Törönen, P., Holm, L., Jokitalo, E., Krisko, A., Huiskonen, J. & Sarin, L. P. & 4 others, Hietakangas, V., Picotti, P., Barral, Y. & Saarikangas, J., 21 Sept 2023, In: *Molecular Cell*. 83, 18, p. 3360-3376

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Kejzar, N., Laanto, E., Rissanen, I., Abrishami, V., Selvaraj, M., Moineau, S., Ravantti, J., Sundberg, L. R. & Huiskonen, J. T., Dec 2022, In: *Nature Communications*. 13, 7478.

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The structure of a prokaryotic viral envelope protein expands the landscape of membrane fusion proteins

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Characterization of a potent and highly unusual minimally enhancing antibody directed against dengue virus
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Beyond structures of highly symmetric purified viral capsids by cryo-EM

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Structure of the Lassa virus glycan shield provides a model for immunological resistance

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Towards in cellulo virus crystallography

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Shielding and activation of a viral membrane fusion protein

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Unique architecture of thermophilic archaeal virus APBV1 and its genome packaging

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Double-stranded RNA virus outer shell assembly by bona fide domain-swapping

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Molecular insights into lipid-assisted Ca²⁺ regulation of the TRP channel Polycystin-2

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Structure of the polycystic kidney disease TRP channel Polycystin-2 (PC2)

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Structure of a phleboviral envelope glycoprotein reveals a consolidated model of membrane fusion

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Aalto, A. P., Bitto, D., Ravantti, J., Bamford, D., Huiskonen, J. T. & Oksanen, H., 2012, In: Proceedings of the National Academy of Sciences of the United States of America. 109, 18, p. 7079-7084 6 p.

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Överby, A. K., Pettersson, R. F., Gruenewald, K. & Huiskonen, J. T., 2008, In: Proceedings of the National Academy of Sciences of the United States of America. 105, 7, p. 2375-2379 5 p.

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Membrane-containing viruses with icosahedrally symmetric capsids

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Structure of a hexameric RNA packaging motor in a viral polymerase complex

Huiskonen, J. T., Jäälinoja, H. T., Briggs, J. A. G., Fuller, S. D. & Butcher, S. J., 2007, In: Journal of Structural Biology. 158, p. 156-164 9 p.

Tale of two spikes in bacteriophage PRD1

Huiskonen, J. T., Manole, V. & Butcher, S. J., 2007, In: Proceedings of the National Academy of Sciences of the United States of America. 104, 16, p. 6666-6671 6 p.

Structure of the bacteriophage phi6 nucleocapsid suggests a mechanism for sequential RNA packaging

Huiskonen, J. T., Haas, F. D., Bubeck, D., Bamford, D. H., Fuller, S. D. & Butcher, S. J., 2006, In: Structure. 14, p. 1039-1048 10 p.

Classification and three-dimensional reconstruction of unevenly distributed or symmetry mismatched features of icosahedral particles

Briggs, J. A. G., Huiskonen, J. T., Fernando, K. V., Gilbert, R. J. C., Scotti, P., Butcher, S. J. & Fuller, S. D., 2005, In: Journal of Structural Biology. 150, p. 332-339 8 p.

Membrane proteins modulate the bilayer curvature in the bacterial virus Bam35

Laurinmäki, P. A., Huiskonen, J. T., Bamford, D. H. & Butcher, S. J., 2005, In: Structure. 13, 12, p. 1819-1828 10 p.

Structure and assembly of membrane-containing dsDNA bacteriophages

Huiskonen, J. T., 2005, Helsinki: University of Helsinki, Institute of Biotechnology etc. 59 p.

The structure of the bacteriophage PRD1 spike sheds light on the evolution of viral capsid architecture

Merckel, M. C., Huiskonen, J. T., Bamford, D. H., Goldman, A. & Tuma, R., 2005, In: Molecular Cell. 18, 2, p. 161-170 10 p.

The PM2 virion has a novel organization with an internal membrane and pentameric receptor binding spikes

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Probing the ability of the coat and vertex protein of the membrane-containing bacteriophage PRD1 to display a meningococcal epitope

Huiskonen, J. T., Laakkonen, L., Toropainen, M., Sarvas, M., Bamford, D. H. & Bamford, J. K. H., 2003, In: Virology. 310, 2, p. 267-279 13 p.

Minor proteins, mobile arms and membrane-capsid interactions in the bacteriophage PRD1 capsid

San Martin, C., Huiskonen, J. T., Bamford, J. K. H., Butcher, S. J., Fuller, S. D., Bamford, D. H. & Burnett, R. M., 2002, In: Nature Structural and Molecular Biology. 9, 10, p. 756-763 8 p.

Activities

Towards structures of endogenous complexes by cryo-EM

Huiskonen, J. (Keynote speaker)
17 Oct 2021

Towards Cryo-EM Structures of Endogenous Complexes

Huiskonen, J. (Speaker)
22 Jan 2020

Advances of Cryo-EM in Understanding Macromolecular Structure and Function

Huiskonen, J. (Speaker)
29 Nov 2019

Exploring the glycoprotein surface of bunyaviruses

Huiskonen, J. (Keynote speaker)
1 Oct 2019

HiLIFE Symposium: Exploring Cellular Complexity by Cryo-EM

Huiskonen, J. (Chair)
28 Feb 2019

Activation of a viral membrane fusion protein

Huiskonen, J. (Invited speaker)
11 Dec 2018

Viral dsRNA genome organisation revealed by cryoEM

Huiskonen, J. (Invited speaker)

11 Dec 2018

Shielding and Activation of a Viral Membrane Fusion Protein

Huiskonen, J. (Invited speaker)

25 Jun 2018

EMBO Workshop Membrane Fusion in Health and Disease

Huiskonen, J. (Scientific Committee Member)

24 Jun 2018

Shielding and activation of viral membrane fusion proteins

Huiskonen, J. (Invited speaker)

27 Feb 2018

Shielding and Activation of a Viral Membrane Fusion Protein

Huiskonen, J. (Invited speaker)

19 Feb 2018

Insight into viral class II membrane fusion activation by a combined structural biology approach

Huiskonen, J. (Invited speaker)

20 Nov 2017

Insight into Rift Valley fever virus membrane fusion activation by a combined structural biology approach

Huiskonen, J. (Invited speaker)

8 Sept 2017

Cryo-EM Structure of the TRP channel PC2 involved in Polycystic Kidney Disease

Huiskonen, J. (Keynote speaker)

7 Jun 2017

Current opinion in virology (Journal)

Huiskonen, J. (Editor) & Zlotnick, A. (Editor)

Jun 2016

Projects

A plasmid goes viral: Understanding the origin and evolution of viruses by studying a newly discovered virus-like element

Huiskonen, J. (Project manager), Castro, B. (Participant), Eshriev, E. K. (Participant), Jayachandran, R. B. (Participant) & Song, X. (Participant)

VolkswagenStiftung

01/01/2021 → 31/12/2023

EndoGap: Architecture of Endogenous Gap Junctions

Huiskonen, J. (Project manager) & Eshriev, E. K. (Participant)

Sigrid Juséliuksen Säätiö @003701165704@

01/05/2019 → 31/12/2023

BIZEB: Bio-Imaging of Zoonotic and Emerging Bunyaviruses

Huiskonen, J. (Project manager)

European Commission / Horizon 2020

01/04/2015 → 31/03/2020

Center of Excellence in Virus Research (CoE_VIRRES)

Bamford, D. H. (Principal Investigator), Bamford, J. (Participant), Butcher, S. (Principal Investigator), Oksanen, H. M. (Principal Investigator), Poranen, M. (Principal Investigator), Roine, E. (Principal Investigator), Kainov, D. (Principal Investigator), Tuma, R. (Participant), Ravantti, J. (Participant), Huiskonen, J. (Participant), Jääliñoja, H. (Participant), Ora, A. (Participant), Hattula, K. (Participant), Ziedaite, G. (Participant), Romanovskaya, A. (Participant), Lisal, J. (Participant), Buivydas, A. (Participant), Redder, P. (Participant), Domanska, A. (Participant), Vilen, S. (Participant), Manole, V. (Participant), Happonen, L. (Participant), Seitsonen, J. (Participant), Liljeroos, L. (Participant), Suchanova, B. (Participant), Falck, S. (Participant), Daugelavicius, R. (Participant), Golubtsov, A. (Participant), Yuan, P. (Participant), Anastasina, M. (Participant), Karhu, N. J. (Participant), Koivunen, M. (Participant), Laurinavicius, S. (Participant), Wallin, A. (Participant), Aalto, A. P. (Participant), Sarin, P. (Participant), Atanasova, N. (Participant), Sun, X. (Participant), Pietilä, M. (Participant), Krupovic, M. (Participant), Cvirkaite-Krupovic, V. (Participant), Kukkaro, P. (Participant) & Pirttimaa, M. (Participant)
25/02/2011 → 31/12/2016

ResponseHD: Chaperonin response to protein misfolding in neurodegenerative disease

Huiskonen, J. (Project manager), Castro, B. (Participant), Ghanem, M. (Participant) & Kumpula, E.-P. T. (Participant)
Academy of Finland
01/09/2022 → 31/08/2026

ConnexinCode: Cracking the Connexin code – rules of engagement between Gap junction forming proteins

Huiskonen, J. (Project manager), Eshriew, E. K. (Participant), Green, M. (Participant) & Saavalainen, A. (Participant)
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01/05/2022 → 30/04/2025

Huiskonen BF 25-26

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Business Finland Oy
01/01/2025 → 31/12/2026

Huiskonen Erkko 2024-2027

Huiskonen, J. (Project manager), Poranen, M. (Project manager), Song, X. (Participant) & Sun, X. (Participant)
Jane ja Aatos Erkon säätiö
01/11/2024 → 31/10/2027

Huiskonen Syöpäsäätiö 2025

Huiskonen, J. (Project manager)
Syöpäsäätiö sr Cancerstiftelsen sr
01/01/2025 → 31/12/2026

iCoin: Inhibitors of SARS-CoV-2 infection

Huiskonen, J. (Project manager), Castro, B. (Participant), Hannula, L. (Participant), Kant, R. (Participant), Kumpula, E.-P. T. (Participant) & Rissanen, I. (Participant)
SUOMEN AKATEMIA Vähäkylä Leena
01/01/2020 → 31/12/2022

Mechanism of antagonist

Huiskonen, J. (Project manager) & Castro, B. (Participant)
Syöpäsäätiö sr Cancerstiftelsen sr
01/01/2024 → 31/12/2025

CellCargo: Molecular mechanisms in cellular cargo trafficking complexes

Huiskonen, J. (Project manager), Green, M. (Participant), Lu, X. (Participant), Nordlin, K. P. (Participant), Sah Teli, S. K. (Participant) & Song, X. (Participant)
Jane ja Aatos Erkon säätiö
01/09/2021 → 31/08/2024

SEMMA: Structures of Endogenous Macromolecular Complexes

Huiskonen, J. (Project manager), Eshriew, E. K. (Participant) & Kumpula, E.-P. T. (Participant)
Suomen Akatemia Projektilaskutus

01/09/2018 → 31/08/2022

University profiling funding 7 InterEarth RESET

Airavaara, M. (Project manager), Heiskanen, J. (Project manager), Huiskonen, J. (Project manager), Hyvärinen, M. (Project manager), Kulmala, M. (Project manager), Kulmala, M. (Project manager), Mervaala, E. (Project manager), Mäkelä, J. (Project manager), Primmer, C. (Project manager), Räsänen, A. (Project manager), Sironen, T. (Project manager), Toivonen, R. (Project manager), Aalto, P. (Participant), Ahonen, L. (Participant), Alakukku, L. (Participant), Auvinen, P. (Participant), Betz-Heinemann, A. (Participant), Citterico, M. (Participant), Ecke, F. (Participant), El Wali, M. (Participant), Eronen, J. T. (Participant), Fuentenebro Alonso, P. (Participant), Gammal, J. (Participant), Green, S. (Participant), Haaranen, D. A. P. (Participant), Heikinheimo, A. (Participant), Heinonen, M. (Participant), Heinonen, S. (Participant), Hohti, R. (Participant), Holopainen, M. (Participant), Hyytiäinen, K. (Participant), Jokiranta, J. (Participant), Kaartinen, T. (Participant), Karhu, K. (Participant), Kaukonen, M. (Participant), Kemppinen, J. (Participant), Kerminen, V.-M. (Participant), Kiljunen, S. (Participant), Kolari, P. (Participant), Korpela, K. (Participant), Lajunen, A. (Participant), Lampilahti, J. (Participant), Lehto, K.-M. (Participant), Lewandowska, A. (Participant), Lindholm, T. M. (Participant), Lindroos, M. (Participant), Lintunen, A. (Participant), Luomanen, P. (Participant), Mietola, R. (Participant), Mühleip, A. W. (Participant), Nordström, M. C. (Participant), Norkko, J. (Participant), Omija Korpela, J. A. (Participant), Paasonen, P. (Participant), Pietikäinen, J. (Participant), Pihlatie, M. (Participant), Poupert, T. A. (Participant), Raivonen, M. (Participant), Rasmus, L. S. (Participant), Ruohomäki, A. I. (Participant), Ryhti-Laine, K. (Participant), Sadeghibagherabadi, A. (Participant), Sandström, V. (Participant), Sikanen, T. (Participant), Siven, M. (Participant), Spisak, S. M. (Participant), Su, X. (Participant), Syrjä, P. (Participant), Taira, T. (Participant), Tani, S. (Participant), Tanskanen, T. T. (Participant), Tatti, N. (Participant), Thomas, D. N. (Participant), Tiira, T. (Participant), Toppinen, A. (Participant), Uimari, P. (Participant), Uusitalo, J. A. (Participant), Vainio, A. (Participant), Varjosalo, M. (Participant), Vartiainen, M. (Participant), Veikkolainen, T. (Participant) & Zaidan, M. A. (Participant)

Academy of Finland, Suomen Akatemia Projektilaskutus

01/01/2023 → 31/12/2028