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gruppleddare, Handledare för doktorandprogram, universitetslektor
Forskningsprogrammet för molekylära och integrativa biovetenskaper
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Doctoral Programme in Integrative Life Science
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!!Qualifications

Molecular Biology, Title of Docent (Adjunct Professor), Bio- och miljövetenskapliga fakulteten
Tilldelningsdatum: 18 juni 2014

Molecular Virology, Doctor of Philosophy, Molecular mechanisms of bacteriophage phi6 RNA dependent RNA polymerase and its utilization in biotechnology., Bio- och miljövetenskapliga fakulteten
1 nov. 2005 → 31 dec. 2010
Tilldelningsdatum: 18 jan. 2011

General Microbiology, Master of Science, Expression and purification of RNA-dependent RNA polymerases from novel RNA viruses, Bio- och miljövetenskapliga fakulteten
1 feb. 2005 → 31 okt. 2005
Tilldelningsdatum: 19 okt. 2005

Forskningsledare (Principal Investigator)

Tidsperiod : 01.09.2016 - * i Forskningsprogrammet för molekylära och integrativa biovetenskaper

!!Employments

universitetslektor

Forskningsprogrammet för molekylära och integrativa biovetenskaper
Helsingfors universitet
Finland
15 okt. 2019 → present

gruppleddare

RNAcious laboratory
Helsingfors universitet
1 sep. 2016 → present

Handledare för doktorandprogram

Doctoral Programme in Microbiology and Biotechnology
Helsingfors universitet
Finland
1 jan. 2020 → present

Handledare för doktorandprogram

Doctoral Programme in Integrative Life Science
Helsingfors universitet
Finland

1 aug. 2017 → present

Visiting Scientist

Max Planck Institute for Molecular Biomedicine
Tyskland

1 jan. 2016 → 31 aug. 2016

Postdoctoral Research Fellow

Max Planck Institute for Molecular Biomedicine
Tyskland

1 mars 2012 → 31 dec. 2015

Publikationer

Purification of micrococcal nuclease for use in ribosomal profiling of high-salinity extremophiles

Gregorova, P., Isada, M., DiRuggiero, J. & Sarin, P., jan. 2025, I: *Journal of Biological Chemistry*. 301, 1, 11 s., 108020.

Long noncoding RNA EPCART regulates translation through PI3K/AKT/mTOR pathway and PDCD4 in prostate cancer

Kohvakka, A., Sattari, M., Nättinen, J., Aapola, U., Gregorova, P., Tammela, T. L. J., Uusitalo, H., Sarin, P., Visakorpi, T. & Latonen, L., 15 aug. 2024, I: *Cancer Gene Therapy*. 31, 10, s. 1536-1546 11 s.

Deciphering the RNA Modification Landscape in Arabidopsis Chloroplast tRNAs and rRNAs Reveals a Blend of Ancestral and Acquired Characteristics

Golebiewska, K., Gregorova, P., Sarin, P. & Gawronski, P., 15 juni 2024, (Insänt).

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. och 4 andra, Hietakangas, V., Picotti, P., Barral, Y. & Saarikangas, J., 21 sep. 2023, I: *Molecular Cell*. 83, 18, s. 3360-3376

Novel Insights into the Mechanisms of Microbial Transcription and Translation

Sarin, P., 30 juni 2023, I: *Microorganisms*. 11, 7, 3 s., 1720.

Bacteriophage Infection of the Marine Bacterium *Shewanella glacialimarina* Induces Dynamic Changes in tRNA Modifications

Lampi, M., Gregorova, P., Qasim, M. S., Ahlblad, N. C. V. & Sarin, P., feb. 2023, I: *Microorganisms*. 11, 2, 16 s., 355.

Proteiniinien rakennemuutosten kartoittaminen paljastaa, miten solut ikääntyvät

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. och 4 andra, Hietakangas, V., Picotti, P., Barral, Y. & Saarikangas, J., 2023, I: *Duodecim*. 139, 19, s. 1575 1 s.

Learning from the Invaders: What Viruses Teach Us about RNA-Based Regulation in Microbes

Sarin, P., 25 okt. 2022, I: *Microorganisms*. 10, 11, 7 s., 2106.

An improved RT-qPCR method for direct quantification of enveloped RNA viruses

Gregorova, P., Heinonen, M.-M. K. & Sarin, P., 1 juni 2022, I: *MethodsX*. 9, 9 s., 101737.

Cold-active *Shewanella glacialimarina* TZS-4T nov. features a temperature-dependent fatty acid profile and putative sialic acid metabolism

Qasim, M. S., Lampi, M., Heinonen, M.-M. K., Garrido-Zabala, B., Bamford, D., Käkelä, R., Roine, E. & Sarin, P., 1 okt. 2021, I: *Frontiers in Microbiology*. 12, 13 s., 737641.

Developmental tissue differentiation of tRNA modification dynamics in European dewberry (*Rubus caesius* L.) callus formation and growth

Hotti, H., Qasim, M. S., Kalaniemi, S. M. & Sarin, P., 21 juli 2021.

Post-transcriptional transfer RNA modifications as modulators of heterologous protein production

Hotti, H. & Sarin, P., 3 juli 2021.

Broad-range RNA modification analysis of complex biological samples using rapid C18-UPLC-MS

Gregorova, P., Sipari, N. & Sarin, P., 2021, I: *RNA Biology*. 18, 10, s. 1382-1389 8 s.

Nano LC-MS using capillary columns enables accurate quantification of modified ribonucleosides at low femtomol levels. Sarin, L. P., Kienast, S. D., Leufken, J., Ross, R. L., Dziergowska, A., Debiec, K., Sochacka, E., Limbach, P. A., Fufezan, C., Drexler, H. C. & Leidel, S. A., okt. 2018, I: *RNA*. 24, 10, s. 1403-1417 15 s.

Transfer RNA modification and infection – implications for pathogenicity and host responses

Koh, C. S. & Sarin, L. P., apr. 2018, I: *Biochimica et Biophysica Acta. Gene Regulatory Mechanisms*. 1861, 4, s. 419-432 14 s.

tRNA modification as a virulence factor in pathogenic *Candida* species

Böttcher, B., Morgner, B., Sarin, L. P., Allert, S., Jacobsen, I. D., Drexler, H. C., Leidel, S. A. & Brunke, S., aug. 2017, I: *Mycoses*. 60, SI, s. 13-14 1 s.

pyQms enables universal and accurate quantification of mass spectrometry data

Leufken, J., Niehues, A., Sarin, L. P., Wessel, F., Hippler, M., Leidel, S. A. & Fufezan, C., 20 juli 2017, I: *Molecular & Cellular Proteomics*. 16, 10, s. 1736-1745 10 s.

An evolutionary approach uncovers a diverse response of tRNA 2-thiolation to elevated temperatures in yeast.

Alings, F., Sarin, L. P., Fufezan, C., Drexler, H. C. & Leidel, S. A., 21 feb. 2015, I: *RNA*. 21, 2, s. 202-212 10 s.

Efficient double-stranded RNA production methods for utilization in plant virus control

Voloudakis, A. E., Holeva, M. C., Sarin, L. P., Bamford, D., Vargas, M., Poranen, M. & Tenllado, F., 2015, *Plant Virology Protocols: New Approaches to Detect Viruses and Host Responses*. Uyeda, I. & Masuta, C. (red.). USA: Humana press, Vol. 1236. s. 255-274 20 s. (Methods in Molecular Biology).

Modify or die?--RNA modification defects in metazoans.

Sarin, L. P. & Leidel, S. A., 2014, I: *RNA Biology*. 11, 12, s. 1555-1567 12 s.

High-throughput purification of double-stranded RNA molecules using convective interaction media monolithic anion exchange columns

Romanovskaya, A., Sarin, L. P., Bamford, D. & Poranen, M., 31 jan. 2013, I: *Journal of Chromatography. A*. 1278, s. 54-60 7 s.

Structure of a VP1-VP3 complex suggests how birnaviruses package the VP1 polymerase

Bahar, M. W., Sarin, L. P., Graham, S. C., Pang, J., Bamford, D. H., Stuart, D. I. & Grimes, J. M., 2013, I: *Journal of Virology*. 87, 6, s. 3229-3236 8 s.

The C-terminal priming domain is strongly associated with the main body of bacteriophage phi6 RNA-dependent RNA polymerase

Sarin, L. P., Wright, S., Chen, Q., Degerth, L. H., Stuart, D. I., Grimes, J. M., Bamford, D. H. & Poranen, M. M., 10 okt. 2012, I: *Virology*. 432, 1, s. 184-193 10 s.

Incoming influenza A virus evades early host recognition, while influenza B virus induces interferon expression directly upon entry

Österlund, P., Strengell, M., Sarin, L. P., Poranen, M. M., Fagerlund, R., Melen, K. & Julkunen, I., okt. 2012, I: Journal of Virology. 86, 20, s. 11183-11193 11 s.

Bacteriophage phi6 nucleocapsid surface protein 8 interacts with virus-specific membrane vesicles containing major envelope protein 9

Sarin, L. P., Hirvonen, J. J., Laurinmaki, P., Butcher, S. J., Bamford, D. H. & Poranen, M. M., 2012, I: Journal of Virology. 86, 9, s. 5376-5379 4 s.

Innate Immune Responses in Human Monocyte-Derived Dendritic Cells Are Highly Dependent on the Size and the 5' Phosphorylation of RNA Molecules

Jiang, M., Osterlund, P., Sarin, L. P., Poranen, M. M., Bamford, D. H., Guo, D. & Julkunen, I., 2011, I: Online Journal of Immunology. 187, 4, s. 1713-1721 9 s.

The N-Terminus of the RNA Polymerase from Infectious Pancreatic Necrosis Virus Is the Determinant of Genome Attachment

Graham, S. C., Sarin, L. P., Bahar, M. W., Myers, R. A., Stuart, D. I., Bamford, D. H. & Grimes, J. M., 2011, I: PLoS Pathogens. 7, 6, s. e1002085 11 s.

Molecular mechanisms of bacteriophage phi6 RNA-dependent RNA polymerase and its utilization in biotechnology

Sarin, L. P., 2010, Helsinki: University of Helsinki. 62 s.

Insights into the pre-initiation events of bacteriophage phi6 RNA-dependent RNA polymerase: towards the assembly of a productive binary complex

Sarin, L. P., Poranen, M. M., Lehti, N. M., Ravantti, J. J., Koivunen, M. R. L., Aalto, A. P., Van Dijk, A. A., Stuart, D. I., Grimes, J. M. & Bamford, D. H., 2009, I: Nucleic Acids Research. 37, 4, s. 1182-1192 11 s.

Structure-function insights into the RNA-dependent RNA polymerase of the dsRNA bacteriophage 6

Koivunen, M. R. L., Sarin, L. P. & Bamford, D. H., 2008, *Segmented double-stranded RNA viruses: edited by John T. Patton*. Norfolk, UK: Caister Academic Press, s. 239-257 19 s.

Large-scale production of dsRNA and siRNA pools for RNA interference utilizing bacteriophage phi6 RNA-dependent RNA polymerase

Aalto, A., Sarin, L. P., Van Dijk, A. A., Saarma, M., Poranen, M. M., Arumäe, U. & Bamford, D. H., 2007, I: RNA. 13, 3, s. 422-429 8 s.

Identification of mutations causing temperature-sensitive defects in Semliki forest virus RNA synthesis

Lulla, V., Merits, A., Sarin, P., Kääriäinen, L., Keränen, S. & Ahola, T., 2006, I: Journal of Virology. 80, 6, s. 3108-3111 4 s.

!!Projects

Center of Excellence in Virus Research (CoE_VIRRES)

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

ProteRNA: Enhanced Production of Heterologous Proteins Following Translational Fine-Tuning by Optimized Post-Transcriptional RNA Modification

Sarin, P. (Principal Investigator), Qasim, M. S. (Deltagare), Abendroth, U. (Deltagare), Pedor, J. K. (Deltagare), Kalaniemi, S. M. (Deltagare) & Heinonen, M.-M. K. (Deltagare)

01/09/2019 → 31/08/2025

CHEMODI: Modulation of post-transcriptional transfer RNA modification as an enhancer of chemotherapeutic agents

Sarin, P. (Projektledare), Gregorova, P. (deltagare), Heinonen, M.-M. K. (deltagare), Nordman, E. M. (deltagare), Gregorova, P. (Deltagare) & Laarne, M. M. (Deltagare)

Sigrid Juséliuksen Säätiö @003701165704@

01/05/2022 → 30/04/2025

PROMOTE: Post-transcriptional RNA modifications as modulators of translation and infection.

Sarin, P. (Projektledare), Gregorova, P. (deltagare), Heinonen, M.-M. K. (deltagare), Hodge, Y. (deltagare), Kirkinen, T. A. (deltagare), Mikhailava, N. (deltagare), Nordman, E. M. (deltagare), Radešić, M. (deltagare), Rajaveräjä, A.-E. (deltagare) & Willman, A. (deltagare)

Finlands Akademi

01/09/2023 → 31/08/2027

TUPA: Solutions for increased societal safety and individual health during pandemics

Gregorova, P. (Deltagare), Heinonen, M.-M. K. (Deltagare) & Sarin, P. (Principal Investigator)

Business Finland

01/10/2020 → 31/03/2021

The role of translational misregulation in tumorigenesis

Sarin, P. (Principal Investigator), Gregorova, P. (Deltagare) & Rayamajhi Thapa, R. (Deltagare)

01/05/2017 → 30/04/2020

Transfer RNA modifications as modulators of translation.

Sarin, P. (Principal Investigator), Koh, C. S. (Deltagare), Gregorova, P. (Deltagare), Hotti, H. (Deltagare), Rayamajhi Thapa, R. (Deltagare), Abendroth, U. (Deltagare) & Lampi, M. (Deltagare)

SUOMEN AKATEMIA, Academy of Finland

01/09/2016 → 31/08/2021

Translational adaptation to directed evolution by post-transcriptional RNA modifications

Hotti, H. (Projektledare) & Sarin, P. (Principal Investigator)

01/09/2018 → 31/08/2021

Translation and neoplasia – the multifaceted role of post-transcriptional transfer RNA modification

Sarin, P. (Projektledare), Gregorova, P. (deltagare), Gregorova, P. (Deltagare), Heinonen, M.-M. K. (Deltagare) & Laarne, M. M. (Deltagare)

Sigrid Juséliuksen Säätiö, Sigrid Juselius Foundation, Sigrid Juséliuksen Säätiö @003701165704@

01/05/2020 → 31/12/2022