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Molecular Enzymology  
LU Profile Area: Proactive Ageing  
eSSENCE: The e-Science Collaboration  
NanoLund: Centre for Nanoscience  
LTH Profile Area: Nanoscience and Semiconductor Technology



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## Research

My lab is using a combination of microbiological, biochemical, next-generation sequencing and structural (cryo-EM) approaches to tackle two research directions:

- Molecular mechanisms of bacterial defence against phages
- Protein synthesis on the ribosome: antibiotics, antibiotic resistance, stress sensing and signalling, protein quality control

## Qualifications

Molecular biology, PhD  
2002 → 2008

Chemistry, MSci  
1997 → 2002

... → 2015 Docent in Microbiology

## Employment

**Research team manager, Senior lecturer**

Molecular Enzymology  
Lund University  
Lund, Sweden  
2021 May 10 → present

**Profile area member**

LU Profile Area: Proactive Ageing  
Lund University  
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2023 Jan 1 → present

### Researcher

eSENCE: The e-Science Collaboration  
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### Principal investigator

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### group leader at the Laboratory for Molecular Infection Medicine Sweden (MIMS)

Umeå University  
Umeå, Sweden  
2013 Jan 1 → 2021 Jan 1

### Researcher

University of Tartu  
Tartu, Estonia  
2008 Jan 1 → 2010 Jan 1

## Research outputs

### Antibacterial compounds against non-growing and intracellular bacteria

Kaldalu, N., Bērziņš, N., Berglund Fick, S., Sharma, A., Andersson, N. C., Aedla, J., Hinno, M., Puhar, A., Haurlyuk, V. & Tenson, T., 2025 Apr 11, In: npj antimicrobials and resistance. 3, 1, 25.

### Toxic small alarmone synthetase FaRel2 inhibits translation by pyrophosphorylating tRNAGly and tRNAThr

Kurata, T., Takegawa, M., Ohira, T., Syroegin, E. A., Atkinson, G. C., Johansson, M. J. O., Polikanov, Y. S., Garcia-Pino, A., Suzuki, T. & Haurlyuk, V., 2024 Nov 15, In: Science Advances. 10, 46, eadr9624.

### Mechanisms of neutralization of toxSAS from toxin-antitoxin modules

Dominguez-Molina, L., Kurata, T., Cepauskas, A., Echemendia-Blanco, D., Zedek, S., Talavera-Perez, A., Atkinson, G. C., Haurlyuk, V. & Garcia-Pino, A., 2024 Jun 4, (E-pub ahead of print) In: Nature Chemical Biology.

### Chp1 is a dedicated chaperone at the ribosome that safeguards eEF1A biogenesis

Minoia, M., Quintana-Cordero, J., Jetzinger, K., Kotan, I. E., Turnbull, K. J., Ciccarelli, M., Masser, A. E., Liebers, D., Gouarin, E., Czech, M., Haurlyuk, V., Bukau, B., Kramer, G. & Andréasson, C., 2024 Feb 15, In: Nature Communications. 15, 1, 1382.

### A role for the S4-domain containing protein YlmH in ribosome-associated quality control in Bacillus subtilis

Takada, H., Paternoga, H., Fujiwara, K., Nakamoto, J. A., Park, E. N., Dimitrova-Paternoga, L., Beckert, B., Saarma, M., Tenson, T., Buskirk, A. R., Atkinson, G. C., Chiba, S., Wilson, D. N. & Haurlyuk, V., 2024, In: Nucleic Acids Research. 52, 14, gkae399.

### **A virally-encoded tRNA neutralizes the PARIS antiviral defence system**

Burman, N., Belukhina, S., Depardieu, F., Wilkinson, R. A., Skutel, M., Santiago-Frangos, A., Graham, A. B., Livenskyi, A., Chechenina, A., Morozova, N., Zahl, T., Henriques, W. S., Buyukyoruk, M., Rouillon, C., Saudemont, B., Shyrokova, L., Kurata, T., Haurlyiuk, V., Severinov, K. & Groseille, J. & 7 others, Thierry, A., Koszul, R., Tesson, F., Bernheim, A., Bikard, D., Wiedenheft, B. & Isaev, A., 2024, In: *Nature*. 634, 8033, p. 424-431

### **Mechanism of phage sensing and restriction by toxin-antitoxin-chaperone systems**

Mets, T., Kurata, T., Ernits, K., Johansson, M. J. O., Craig, S. Z., Evora, G. M., Buttress, J. A., Odai, R., Wallant, K. C., Nakamoto, J. A., Shyrokova, L., Egorov, A. A., Doering, C. R., Brodiazhenko, T., Laub, M. T., Tenson, T., Strahl, H., Martens, C., Harms, A. & Garcia-Pino, A. & 2 others, Atkinson, G. C. & Haurlyiuk, V., 2024, In: *Cell Host and Microbe*. 32, 7, p. 1059-1073.e8

### **Resolution of ribosomal stalling by EF-P and ABCF ATPases YfmR and YkpA/YbiT**

Takada, H., Fujiwara, K., Atkinson, G. C., Chiba, S. & Haurlyiuk, V., 2024, In: *Nucleic Acids Research*. 52, 16, p. 9854-9866

### **The ABCF ATPase New1 resolves translation termination defects associated with specific tRNA<sup>Arg</sup> and tRNA<sup>Lys</sup> isoacceptors in the P site**

Turnbull, K., Paternoga, H., von der Weth, E., Egorov, A. A., Pochopien, A. A., Zhang, Y., Nersisyan, L., Margus, T., Johansson, M. J. O., Pelechano, V., Wilson, D. N. & Haurlyiuk, V., 2024, In: *Nucleic Acids Research*. 52, 19, p. 12005-12020

### **The structural basis of hyperpromiscuity in a core combinatorial network of type II toxin-antitoxin and related phage defense systems**

Ernits, K., Saha, C. K., Brodiazhenko, T., Chouhan, B., Shenoy, A., Buttress, J. A., Duque-Pedraza, J. J., Bojar, V., Nakamoto, J. A., Kurata, T., Egorov, A. A., Shyrokova, L., Johansson, M. J. O., Mets, T., Rustamova, A., Džigurski, J., Tenson, T., Garcia-Pino, A., Strahl, H. & Elofsson, A. & 2 others, Haurlyiuk, V. & Atkinson, G. C., 2023 Aug 15, In: *Proceedings of the National Academy of Sciences of the United States of America*. 120, 33, p. 1-12 e2305393120.

### **The structure of DarB in complex with RelNTD reveals nonribosomal activation of Rel stringent factors**

Ainelo, A., Caballero-Montes, J., Bulvas, O., Ernits, K., Coppieters 't Wallant, K., Takada, H., Craig, S. Z., Mazzucchelli, G., Zedek, S., Pichová, I., Atkinson, G. C., Talavera, A., Martens, C., Haurlyiuk, V. & Garcia-Pino, A., 2023 Jan 18, In: *Science Advances*. 9, 3, p. 1-14 eade4077.

### **Biochemical and X-ray analyses of the players involved in the faRel2/aTfaRel2 toxin-antitoxin operon**

Dominguez-Molina, L., Talavera, A., Cepauskas, A., Kurata, T., Echemendia-Blanco, D., Haurlyiuk, V. & Garcia-Pino, A., 2023, In: *Acta crystallographica. Section F, Structural biology communications*. 79, 10

### **Escherichia coli CspA stimulates translation in the cold of its own mRNA by promoting ribosome progression**

Giuliodori, A. M., Belardinelli, R., Duval, M., Garofalo, R., Schenckbecher, E., Haurlyiuk, V., Ennifar, E. & Marzi, S., 2023, In: *Frontiers in Microbiology*. 14, p. 1-16 1118329.

### **Genome-encoded ABCF factors implicated in intrinsic antibiotic resistance in Gram-positive bacteria: VmIR2, Ard1 and CplR**

Obana, N., Takada, H., Crowe-McAuliffe, C., Iwamoto, M., Egorov, A. A., Wu, K. J. Y., Chiba, S., Murina, V., Paternoga, H., Tresco, B. I. C., Nomura, N., Myers, A. G., Atkinson, G. C., Wilson, D. N. & Haurlyiuk, V., 2023, In: *Nucleic Acids Research*. 51, 9, p. 4536-4554

### **Prediction of COVID-19 positive cases, a nation-wide SARS-CoV-2 wastewater-based epidemiology study**

Kisand, V., Laas, P., Palmik-Das, K., Panksep, K., Tammert, H., Albrecht, L., Allemann, H., Liepkalns, L., Voooro, K., Ritz, C., Haurlyiuk, V. & Tenson, T., 2023, In: *Water Research*. 231, 119617.

### **Structure of SpoT reveals evolutionary tuning of catalysis via conformational constraint**

Tamman, H., Ernits, K., Roghanian, M., Ainelo, A., Julius, C., Perrier, A., Talavera, A., Ainelo, H., Dugauquier, R., Zedek, S., Thureau, A., Pérez, J., Lima-Mendez, G., Hallez, R., Atkinson, G. C., Haurlyiuk, V. & Garcia-Pino, A., 2023, In: *Nature Chemical Biology*. 19, 3, p. 334-345

### **Uncovering new families and folds in the natural protein universe**

Durairaj, J., Waterhouse, A. M., Mets, T., Brodiazhenko, T., Abdullah, M., Studer, G., Tauriello, G., Akdel, M., Andreeva, A., Bateman, A., Tenson, T., Hauryliuk, V., Schwede, T. & Pereira, J., 2023, In: *Nature*. 622, 7983, p. 646-653

### **Direct activation of a bacterial innate immune system by a viral capsid protein**

Zhang, T., Tamman, H., Coppieters 't Wallant, K., Kurata, T., LeRoux, M., Srikant, S., Brodiazhenko, T., Cepauskas, A., Talavera, A., Martens, C., Atkinson, G. C., Hauryliuk, V., Garcia-Pino, A. & Laub, M. T., 2022 Dec 1, In: *Nature*. 612, 7938, p. 132-140 9 p.

### **Synthetic oxepanoprolinamide iboxamycin is active against *Listeria monocytogenes* despite the intrinsic resistance mediated by VgaL/Lmo0919 ABCF ATPase**

Brodiazhenko, T., Turnbull, K. J., Wu, K. J. Y., Hiraku, T., Tresco, B. I. C., Tenson, T., Myers, A. G. & Hauryliuk, V., 2022 Jun, In: *JAC - Antimicrobial Resistance*. 4, 3, p. 1-8 dlac061.

### **A hyperpromiscuous antitoxin protein domain for the neutralization of diverse toxin domains**

Kurata, T., Saha, C. K., Buttress, J. A., Mets, T., Brodiazhenko, T., Turnbull, K. J., Awoyomi, O. F., Oliveira, S. R. A., Jimmy, S., Ernits, K., Delannoy, M., Persson, K., Tenson, T., Strahl, H., Hauryliuk, V. & Atkinson, G. C., 2022, In: *Proceedings of the National Academy of Sciences of the United States of America*. 119, 6, p. 1-12 e2102212119.

### **Clinically observed deletions in SARS-CoV-2 Nsp1 affect its stability and ability to inhibit translation**

Kumar, P., Schexnaydre, E., Rafie, K., Kurata, T., Terenin, I., Hauryliuk, V. & Carlson, L.-A., 2022, In: *FEBS Letters*. 596, 9, p. 1203-1213

### **Expression of *Bacillus subtilis* ABCF antibiotic resistance factor VmIR is regulated by RNA polymerase pausing, transcription attenuation, translation attenuation and (p)ppGpp**

Hiraku, T., Mandell, Z. F., Yakhnin, H., Glazyrina, A., Chiba, S., Kurata, T., Wu, K. J. Y., Tresco, B. I. C., Myers, A. G., Atkinson, G., Babitzke, P. & Hauryliuk, V., 2022, In: *Nucleic Acids Research*. 50, 11, p. 6174-6189 gkac497.

### **Sal-type ABC-F proteins: Intrinsic and common mediators of pleuromutilin resistance by target protection in staphylococci**

Mohamad, M., Nicholson, D., Saha, C. K., Hauryliuk, V., Edwards, T. A., Atkinson, G. C., Ranson, N. A. & O'Neill, A. J., 2022, In: *Nucleic Acids Research*. 50, 4, p. 2128-2142 gkac058.

### **Structural basis for HflXr-mediated antibiotic resistance in *Listeria monocytogenes***

Koller, T. O., Turnbull, K. J., Vaitkevicius, K., Crowe-McAuliffe, C., Roghanian, M., Bulvas, O., Nakamoto, J. A., Kurata, T., Julius, C., Atkinson, G. C., Johansson, J., Hauryliuk, V. & Wilson, D. N., 2022, In: *Nucleic Acids Research*. 50, 19, p. 11285-11300

### **Structural basis for PoxA-mediated resistance to phenicol and oxazolidinone antibiotics**

Crowe-McAuliffe, C., Murina, V., Turnbull, K. J., Huch, S., Kasari, M., Takada, H., Nersisyan, L., Sundsfjord, A., Hegstad, K., Atkinson, G. C., Pelechano, V., Wilson, D. N. & Hauryliuk, V., 2022, In: *Nature Communications*. 13, 1860.

### **Structural basis of ABCF-mediated resistance to pleuromutilin, lincosamide, and streptogramin A antibiotics in Gram-positive pathogens**

Crowe-McAuliffe, C., Murina, V., Turnbull, K. J., Kasari, M., Mohamad, M., Polte, C., Takada, H., Vaitkevicius, K., Johansson, J., Ignatova, Z., Atkinson, G. C., O'Neill, A. J., Hauryliuk, V. & Wilson, D. N., 2021 Dec, In: *Nature Communications*. 12, 1, 3577.

### **RelA-SpoT Homolog toxins pyrophosphorylate the CCA end of tRNA to inhibit protein synthesis**

Kurata, T., Brodiazhenko, T., Alves Oliveira, S. R., Roghanian, M., Sakaguchi, Y., Turnbull, K. J., Bulvas, O., Takada, H., Tamman, H., Ainelo, A., Pohl, R., Rejman, D., Tenson, T., Suzuki, T., Garcia-Pino, A., Atkinson, G. C. & Hauryliuk, V., 2021 Aug 5, In: *Molecular Cell*. 81, 15, p. 3160-3170. e1-e9

### **Nonhydrolysable Analogues of (p)ppGpp and (p)ppApp Alarmone Nucleotides as Novel Molecular Tools**

Mojr, V., Roghanian, M., Tamman, H., Do Pham, D. D., Petrová, M., Pohl, R., Takada, H., Van Nerom, K., Ainelo, H., Caballero-Montes, J., Jimmy, S., Garcia-Pino, A., Hauryliuk, V. & Rejman, D., 2021, In: *ACS Chemical Biology*. 16, 9, p. 1680-1691

**Photorhabdus antibacterial Rhs polymorphic toxin inhibits translation through ADP-ribosylation of 23S ribosomal RNA**

Jurénas, D., Payelleville, A., Roghanian, M., Turnbull, K. J., Givaudan, A., Brillard, J., Haurlyuk, V. & Cascales, E., 2021, In: *Nucleic Acids Research*. 49, 14, p. 8384-8395

**(p)ppGpp controls stringent factors by exploiting antagonistic allosteric coupling between catalytic domains**

Roghanian, M., Van Nerom, K., Takada, H., Caballero-Montes, J., Tamman, H., Kudrin, P., Talavera, A., Dzhygyr, I., Ekström, S., Atkinson, G. C., Garcia-Pino, A. & Haurlyuk, V., 2021, In: *Molecular Cell*. 81, 16, p. 3310-3322.e6

Ribosome association primes the stringent factor Rel for tRNA-dependent locking in the A-site and activation of (p)ppGpp synthesis

Takada, H., Roghanian, M., Caballero-Montes, J., Van Nerom, K., Jimmy, S., Kudrin, P., Trebini, F., Murayama, R., Akanuma, G., Garcia-Pino, A. & Haurlyuk, V., 2021, In: *Nucleic Acids Research*. 49, 1, p. 444-457

**RqcH and RqcP catalyze processive poly-alanine synthesis in a reconstituted ribosome-associated quality control system**

Takada, H., Crowe-McAuliffe, C., Polte, C., Sidorova, Z. Y., Murina, V., Atkinson, G. C., Konevega, A. L., Ignatova, Z., Wilson, D. N. & Haurlyuk, V., 2021, In: *Nucleic Acids Research*. 49, 14, p. 8355-8369 gkab589.

Structural Basis for Bacterial Ribosome-Associated Quality Control by RqcH and RqcP

Crowe-McAuliffe, C., Takada, H., Murina, V., Polte, C., Kasvandik, S., Tenson, T., Ignatova, Z., Atkinson, G. C., Wilson, D. N. & Haurlyuk, V., 2021, In: *Molecular Cell*. 81, 1, p. 115-126

A nucleotide-switch mechanism mediates opposing catalytic activities of Rel enzymes

Tamman, H., Van Nerom, K., Takada, H., Vandenberg, N., Scholl, D., Polikanov, Y., Hofkens, J., Talavera, A., Haurlyuk, V., Hendrix, J. & Garcia-Pino, A., 2020, In: *Nature Chemical Biology*. 16, p. 834-840

A widespread toxin-antitoxin system exploiting growth control via alarmone signaling

Jimmy, S., Saha, C. K., Kurata, T., Stavropoulos, C., Oliveira, S. R. A., Koh, A., Cepauskas, A., Takada, H., Rejman, D., Tenson, T., Strahl, H., Garcia-Pino, A., Haurlyuk, V. & Atkinson, G. C., 2020, In: *Proceedings of the National Academy of Sciences of the United States of America*. 117, 19, p. 10500-10510

Hfq-Assisted RsmA Regulation Is Central to *Pseudomonas aeruginosa* Biofilm Polysaccharide PEL Expression

Irie, Y., La Mensa, A., Murina, V., Haurlyuk, V., Tenson, T. & Shingler, V., 2020, In: *Frontiers in Microbiology*. 11, p. 1-15 482585.

In Vitro Studies of Persister Cells

Kaldalu, N., Haurlyuk, V., Turnbull, K. J., Mensa, A. L., Putrinš, M. & Tenson, T., 2020, In: *Microbiology and Molecular Biology Reviews*. 84, 4, 00070-20.

Target protection as a key antibiotic resistance mechanism

Wilson, D. N., Haurlyuk, V., Atkinson, G. C. & O'Neill, A. J., 2020, In: *Nature Reviews Microbiology*. 18, 11, p. 637-648

The C-Terminal RRM/ACT Domain Is Crucial for Fine-Tuning the Activation of 'Long' RelA-SpoT Homolog Enzymes by Ribosomal Complexes

Takada, H., Roghanian, M., Murina, V., Dzhygyr, I., Murayama, R., Akanuma, G., Atkinson, G. C., Garcia-Pino, A. & Haurlyuk, V., 2020, In: *Frontiers in Microbiology*. 11, p. 1-16 277.

ABC ATPases Involved in Protein Synthesis, Ribosome Assembly and Antibiotic Resistance: Structural and Functional Diversification across the Tree of Life

Murina, V., Kasari, M., Takada, H., Hinu, M., Saha, C. K., Grimshaw, J. W., Seki, T., Reith, M., Putrinš, M., Tenson, T., Strahl, H., Haurlyuk, V. & Atkinson, G. C., 2019, In: *Journal of Molecular Biology*. 431, 18, p. 3568-3590

Analysis of nucleotide pools in bacteria using HPLC-MS in HILIC mode

Zborníková, E., Knejzlik, Z., Haurlyuk, V., Krásný, L. & Rejman, D., 2019, In: *Talanta*. 205, p. 1-10 120161.

A role for the *Saccharomyces cerevisiae* ABCF protein New1 in translation termination/recycling

Kasari, V., Pochopien, A. A., Margus, T., Murina, V., Turnbull, K., Zhou, Y., Nissan, T., Graf, M., Nováček, J., Atkinson, G. C., Johansson, M. J. O., Wilson, D. N. & Haurlyiuk, V., 2019, In: *Nucleic Acids Research*. 47, 16, p. 8807-8820

Intramolecular interactions dominate the autoregulation of *Escherichia coli* stringent factor RelA

Turnbull, K. J., Dzhygyr, I., Lindemose, S., Haurlyiuk, V. & Roghanian, M., 2019, In: *Frontiers in Microbiology*. 10, 1966.

Reanalysis of proteomics results fails to detect mazF-mediated stress proteins

Kaldalu, N., Maiväli, Ü., Haurlyiuk, V. & Tenson, T., 2019, In: *mBio*. 10, 3, e00949-19.

Ribosome profiling analysis of eEF3-depleted *Saccharomyces cerevisiae*

Kasari, V., Margus, T., Atkinson, G. C., Johansson, M. J. O. & Haurlyiuk, V., 2019, In: *Scientific Reports*. 9, p. 1-10 3037.

The Rel stringent factor from *Thermus thermophilus*: Crystallization and X-ray analysis

Van Nerom, K., Tamman, H., Takada, H., Haurlyiuk, V. & Garcia-Pino, A., 2019, In: *Acta Crystallographica Section F: Structural Biology Communications*. p. 561-569

Structural basis for antibiotic resistance mediated by the *Bacillus subtilis* ABCF ATPase VmlR

Crowe-McAuliffe, C., Graf, M., Huter, P., Takada, H., Abdelshahid, M., Nováček, J., Murina, V., Atkinson, G. C., Гаврилюк, В. & Wilson, D. N., 2018 Sept 4, In: *Proceedings of the National Academy of Sciences of the United States of America*. 115, 36, p. 8978-8983 6 p.

Reply to Holden and Errington, "Type II toxin-antitoxin systems and persister cells"

Goormaghtigh, F., Fraikin, N., Putrinš, M., Haurlyiuk, V., Garcia-Pino, A., Udekwa, K., Tenson, T., Kaldalu, N. & Van Melderen, L., 2018 Sept 1, In: *mBio*. 9, 5, 2 p., e01838-18.

Reassessing the role of type II toxin-antitoxin systems in formation of *Escherichia coli* type II persister cells

Goormaghtigh, F., Fraikin, N., Putrinš, M., Hallaert, T., Haurlyiuk, V., Garcia-Pino, A., Sjödin, A., Kasvandik, S., Udekwa, K., Tenson, T., Kaldalu, N. & Van Melderen, L., 2018 May 1, In: *mBio*. 9, 3, 14 p., e00640-18.

Antibiotic resistance ABCF proteins reset the peptidyl transferase centre of the ribosome to counter translational arrest

Murina, V., Kasari, M., Haurlyiuk, V. & Atkinson, G. C., 2018 Apr 20, In: *Nucleic Acids Research*. 46, 7, p. 3753-3763 11 p.

Structural basis for (p)ppGpp synthesis by the *Staphylococcus aureus* small alarmone synthetase RelP

Manav, M. C., Beljantseva, J., Bojer, M. S., Tenson, T., Ingmer, H., Haurlyiuk, V. & Brodersen, D. E., 2018 Mar 2, In: *Journal of Biological Chemistry*. 293, 9, p. 3254-3264 11 p.

The ribosomal A-site finger is crucial for binding and activation of the stringent factor RelA

Kudrin, P., Dzhygyr, I., Ishiguro, K., Beljantseva, J., Maksimova, E., Oliveira, S. R. A., Varik, V., Payoe, R., Konevega, A. L., Tenson, T., Suzuki, T. & Haurlyiuk, V., 2018 Feb 28, In: *Nucleic Acids Research*. 46, 4, p. 1973-1983

Elimination of Ribosome Inactivating Factors Improves the Efficiency of *Bacillus subtilis* and *Saccharomyces cerevisiae* Cell-Free Translation Systems

Brodiazhenko, T., Johansson, M. J. O., Takada, H., Nissan, T., Haurlyiuk, V. & Murina, V., 2018, In: *Frontiers in Microbiology*. 9, 3041.

Small Alarmone Synthetases as novel bacterial RNA-binding proteins

Haurlyiuk, V. & Atkinson, G. C., 2017 Dec 2, In: *RNA Biology*. 14, 12, p. 1695-1699 5 p.

HPLC-based quantification of bacterial housekeeping nucleotides and alarmone messengers ppGpp and pppGpp

Varik, V., Oliveira, S. R. A., Haurlyiuk, V. & Tenson, T., 2017 Dec 1, In: *Scientific Reports*. 7, 1, 11022.

Subinhibitory concentrations of bacteriostatic antibiotics induce relA-dependent and relA-independent tolerance to  $\beta$ -lactams

Kudrin, P., Varik, V., Oliveira, S. R. A., Beljantseva, J., Del Peso Santos, T., Dzhygyr, I., Rejman, D., Cava, F., Tenson, T. & Haurlyuk, V., 2017 Apr, In: *Antimicrobial Agents and Chemotherapy*. 61, 4, e02173-16.

Molecular mutagenesis of ppGpp: Turning a RelA activator into an inhibitor

Beljantseva, J., Kudrin, P., Jimmy, S., Ehn, M., Pohl, R., Varik, V., Tozawa, Y., Shingler, V., Tenson, T., Rejman, D. & Haurlyuk, V., 2017, In: *Scientific Reports*. 7, p. 1-10 41839.

Negative allosteric regulation of *Enterococcus faecalis* small alarmone synthetase RelQ by single-stranded RNA

Beljantsev, J., Kudrin, P., Andresen, L., Shingler, V., Atkinson, G. C., Tenson, T. & Haurlyuk, V., 2017, In: *Proceedings of the National Academy of Sciences of the United States of America*. 114, 14, p. 3726-3731

Antibacterial activity of the nitrovinylfuran G1 (Furvina) and its conversion products

Allas, Ü., Toom, L., Selyutina, A., Mäeorg, U., Medina, R., Merits, A., Rincken, A., Haurlyuk, V., Kaldalu, N. & Tenson, T., 2016 Nov 10, In: *Scientific Reports*. 6, 36844.

Cationic bactericidal peptide 1018 does not specifically target the stringent response alarmone (p)ppGpp

Andresen, L., Tenson, T. & Haurlyuk, V., 2016 Nov 7, In: *Scientific Reports*. 6, 36549.

Auxotrophy-based High Throughput Screening assay for the identification of *Bacillus subtilis* stringent response inhibitors

Andresen, L., Varik, V., Tozawa, Y., Jimmy, S., Lindberg, S., Tenson, T. & Haurlyuk, V., 2016 Oct 24, In: *Scientific Reports*. 6, 35824.

Persisters—as elusive as ever

Kaldalu, N., Haurlyuk, V. & Tenson, T., 2016 Aug 1, In: *Applied Microbiology and Biotechnology*. 100, 15, p. 6545-6553 9 p.

Aim-less translation: Loss of *Saccharomyces cerevisiae* mitochondrial translation initiation factor mIF3/Aim23 leads to unbalanced protein synthesis

Kuzmenko, A., Derbikova, K., Salvatori, R., Tankov, S., Atkinson, G. C., Tenson, T., Ott, M., Kamenski, P. & Haurlyuk, V., 2016 Jan 5, In: *Scientific Reports*. 6, 18749.

Composition of the outgrowth medium modulates wake-up kinetics and ampicillin sensitivity of stringent and relaxed *Escherichia coli*

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## Prizes and Distinctions

**Göran Gustafssonprisen i molekylär biologi / Göran Gustafsson prize in molecular biology**

Haurlyuk, V. (Recipient), 2024 Mar 1

**Ragnar Söderberg Fellow in Medicine**  
Hauryliuk, V. (Recipient), 2014

**Science Award of the Estonian Republic**  
Hauryliuk, V. (Recipient), 2018

**The Swedish Fernström Prize**  
Hauryliuk, V. (Recipient), 2019

## Awards

**A double tap: ribosomal protection through rRNA methylation and antibiotic displacement**  
Hauryliuk, V. (PI)  
Swedish Research Council: SEK3,600,000.00  
2024/12/01 → 2028/12/31

## Projects

**A double tap: ribosomal protection through rRNA methylation and antibiotic displacement**  
Hauryliuk, V. (PI)  
Swedish Research Council  
2024/12/01 → 2028/12/31

**Decoding bacterial toxin-antitoxin systems: from high-throughput discovery to molecular mechanism and biotechnology**  
Atkinson, G. (PI), Hauryliuk, V. (Researcher) & Schüller, H. (Researcher)  
Knut and Alice Wallenberg Foundation  
2021/07/01 → 2026/06/30

**eSSENCE@LU 10:2 - "New sequence- and structure-based computational methods to find functional domains of proteins**  
Atkinson, G. (PI), Egorov, A. (Research student), Hauryliuk, V. (Researcher), Bernheim, A. (Researcher), Schwede, T. (Researcher) & Pereira, J. (Researcher)  
2024/01/01 → 2025/12/31

**Experimental exploration of bacterial toxin-antitoxin systems**  
Shyrokova, O. (Researcher), Hauryliuk, V. (Supervisor) & Giske, C. (Assistant supervisor)  
2022/06/01 → ...

**För banbrytande studier av hur proteinsyntes regleras i bakterier**  
Hauryliuk, V. (PI)  
Göran Gustafssons stiftelse för naturvetenskaplig och medicinsk forskning  
2024/04/01 → 2028/12/31