

# Tamás Kovács, PhD

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## SENIOR MICROBIOLOGY SCIENTIST

MICROBIOLOGIST | INSTITUTE /LABORATORY LEADER | BUSINESS AND PROJECT LEADER

A visionary, objective, and versatile Senior Microbiology Scientist with demonstrated achievement including both top and bottom line growth. Over 19 years' progressive and diversified executive leadership and in-depth knowledge in next generation DNA sequencing, bacteriophage biology, bioinformatics, metagenomics, gene expression and bacterial fermentation. Equipped with a unique style of developing and implementing innovative solutions to resolve complex and challenging problems. Regarded as a proactive leader with the ability to organise, professionally instruct scientific staff and acquire financial resources for implementation of scientific projects. Acknowledged for excellent reputation in managing change, streamlining difficult scientific projects, and performing above and beyond job expectations, strong influencing and presentation skills, coupled with ability to work effectively at all levels of an academic or private-owned research organization.

### AREAS OF STRENGTH AND EXPERTISE

- Bacteriophage biology
- Genomics
- DNA sequencing
- Bioinformatic analysis
- Biotechnology
- Diagnostics (micro/molecular biology)
- Project/program management
- GMP certification
- Staff Training & Development
- Strategic Planning & Analysis
- Financial source acquisition
- EU-financed projects

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### KEY PUBLICATIONS

- Microorganisms,** **2021 (IF: 4.167; Q1)**
- *B Z Pertics, A Cox, A Nyúl, N Szamek, T Kovács, G Schneider: Isolation and characterization of a novel lytic bacteriophage against the K2 capsule-expressing hypervirulent Klebsiella pneumoniae strain 52145, and identification of its functional depolymerase.*
- BioMed Research International,** **2020 (IF: 2.583; Q2)**
- *B Z Pertics, D Szénágy, D Dunai, Y Born, L Fieseler, T Kovács, G Schneider: Isolation of a novel lytic bacteriophage against a nosocomial methicillin-resistant Staphylococcus aureus belonging to ST45.*
- Frontiers in Microbiology,** **2020 (IF: 4.235; Q1)**
- *K Laczi, A E Kis, A Szilagyi, N Bounedjoum, A Bodor, G E Vincze, T Kovacs, G Rakhely and K Perei: New frontiers of anaerobic hydrocarbon biodegradation in the multi-omics era.*
- Plant Disease,** **2020 (IF: 3.02; Q1)**
- *T Kovacs\*, G Schneider, I K Nagy, S L Ravasz, G Rakhely, K Kovacs and D Bali: First report of Erwinia rhapontici causing bacterial rot on peach, detected in Hungary.*
- PLOS One,** **2020 (IF: 2.776; Q1)**
- *J Molnar, B Magyar, G Schneider, K Laczi, SK Valappil, AL Kovacs, IK Nagy, G Rakhely and T Kovacs\*: Identification of a Novel Archaea Virus, Detected in Hydrocarbon Polluted Hungarian and Canadian Samples.*
- Microorganisms,** **2020 (IF: 4.167)**
- *J Kovacs, A Cox, G Maroti, T Kovacs, H Fenyvesi, L Emody, G Schneider, B Schweitzer: Virulence traits of inpatient Campylobacter jejuni isolates, and a transcriptomic approach to identify potential genes maintaining intracellular survival.*
- Scientific Reports,** **2020 (IF: 4.122, Q1)**
- *M Horváth, T Kovács, SK Valappil, H Ábrahám, G Rákhely and G Schneider: Identification of a newly isolated lytic bacteriophage against K24 capsular type, carbapenem resistant Klebsiella pneumoniae isolates.*
- Reviews in Environmental Science and Bio-Technology,** **2020 (IF: 4.938, Q1)**
- *A Bodor, N Bounedjoum, GE Vincze, KA Erdeine, K Laczi, G Bende, A Szilagyi, T Kovacs, K Perei, G Rakhely: Challenges of unculturable bacteria: environmental perspectives.*
- Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis,** **2019 (Q3)**

- *D Tekielska, E Penazova, T Kovács, B Krizan, J Cechova, A Eichmeier: Bacterial contamination of plant in vitro cultures in commercial production detected by high-throughput amplicon sequencing.*

**Microbiology Resource Announcements,****2019**

- *T Kovács\*, J Molnár, I Varga, IK Nagy, SK Valappil, S Papp, CM Vera Cruz, R Oliva, T Vizi, G Schneider, G Rákhely: Complete Genome Sequences of 10 Xanthomonas oryzae pv. oryzae bacteriophages.*

**BioMed Research International****2019 (IF: 2.583, Q2)**

- *J Kovács, P Felső, G Horváth, J Schmidt, Á Dorn, L Mark, L Emody, T Kovacs, A Cox, H Abraham, G Schneider: Stress response of virulence potential modulating effect of peppermint essential oil in Campylobacter jejuni*

**BioMed Research International****2018 (IF: 2.583, Q2)**

- *G Schneider, N Szentes, M Horváth, Á Dorn, A Cox, G Nagy, Z Doffkay, G Maróti, G Rákhely, T Kovács: Kinetics of Targeted Phage Rescue in a Mouse Model of Systemic Escherichia coli K1*

**Microbial Drug Resistance,****2018 (IF: 2.306, Q2)**

- *S Melegh, A Nyúl, K Kovács, T Kovács, Á Ghidán, Z Dombrádi, J Szabó, B Berta, V Lesinszki, J Pásztai, Á Tóth, G Mestyán: Dissemination of VanA-type Enterococcus faecium isolates in Hungary.*

**Frontiers in Microbiology,****2018 (IF: 4.076, Q1)**

- *C Stork, B Kovács, B Rozsai, J Putze, M Kiel, A Dorn, J Kovacs, S Melegh, A Leimbach, T Kovacs, G Schneider, M Kerenyi, L Emödy, U Dobrindt: Characterization of asymptomatic bacteriuria Escherichia coli isolates in search of alternative strains for efficient bacterial interference against uropathogens.*

**Genome Announcements,****2018 (Q3)**

- *C Stork, B Kovács, E Trost, T Kovács, G Schneider, B Rozsai, M Kerenyi, L Emödy, U Dobrindt: Whole-Genome Draft Sequences of Nine Asymptomatic Escherichia coli Bacteriuria Isolates from Diabetic Patients.*

**Acta Microbiologica et Immunologica Hungarica,****2017 (IF: 0.921)**

- *Á Erdeiné Kis, K Laczi, S Zsíros, PB Kós, R Tengölics, N Bounedjoum, T Kovács, G Rákhely, K Perei: Characterization of the Rhodococcus sp. MK1 strain and its pilot application for bioremediation of diesel oil-contaminated soil.*

**LWT-Food Science and Technology****2017 (IF: 2,711, Q1)**

- *T Kovács, K Lootz, Á Dorn, J Andrieu, A Mátyás, G Schneider: Potential of small-scale jar systems to extend the shelf life of raw meats, and hinder the proliferation of Campylobacter jejuni and Enterohemorrhagic Escherichia coli.*

**PLOS ONE****2016 (IF: 3,057, Q1)**

- *M Baranek, J Cechova, T Kovács, A Eichmeier, S Wang, J Raddova, T Necas, X Ye: Use of combined MSAP and NGS techniques to identify differentially methylated regions in somaclones: A case study of two stable somatic wheat mutants.*

**Applied Surface Science****2016 (IF: 2,71, Q1)**

- *L Kőrösi, M Prato, A Scarpellini, J Kovács, D Dömötör, T Kovács, S Papp: H2O2-assisted photocatalysis on flower-like rutile TiO2 nanostructures: Rapid dye degradation and inactivation of bacteria.*

**J. of Chemistry****2016 (IF: 0,77)**

- *L Kőrösi, M Rodio, D Dömötör, T Kovács, S Papp, A Diaspro, R Intartaglia, S Beke: Ultrasmall, ligandfree Ag nanoparticles with high antibacterial activity prepared by pulsed laser ablation in liquid.*

**Infections, Genetics and Evolution****2016 (IF: 3,02)**

- *D Dömötör, T Frank, G Rákhely, Z Doffkay, G Schneider, T. Kovács\*: Comparative analysis of two bacteriophages of Xanthomonas arboricola pv. juglandis.*

**Applied Microbiology and Biotechnology****2016 (IF: 3,376, Q1)**

- *G Schneider, T Kovács, G Rákhely, M Czeller: Biosensoric potential of microbial fuel cells.*

**Enzyme and Microbial Technology**

**2015 (IF: 2.966, Q2)**

- *G Schneider, M Czeller, V Rostás, T Kovács: Microbial fuel cell-based diagnostic platform to reveal antibacterial effect of beta-lactam antibiotics.*

**FEMS Microbiology Letters**

**2014 (IF: 2.04, Q2)**

- *K Meczker, D Dömötör, J Vass, G Rákhely, G Schneider, T Kovács\*: The genome of the Erwinia amylovora phage PhiEaH1 reveals greater diversity and broadens the applicability of phages for treatment of fire blight.*

**Acta Microbiologica et Immunologica Hungarica,**

**2013 (IF: 0.921)**

- *J Klem, D Dömötör, G Schneider, T Kovács, A Tóth, G Rákhely: Bacteriophage therapy against Staphylococci. (review)*

**Science of advanced materials,**

**2013 (IF: 3.31, Q2)**

- *L Kőrösi, D Dömötör, S Beke, M Prato, A Scarpellini, K Meczker, G Schneider, T Kovács, ÁL Kovács, S Papp: Antibacterial activity of nanocrystalline TiO<sub>2</sub>(B) on multiresistant Klebsiella pneumoniae strains.*

**Journal of Virology**

**2012 (IF: 5.08, Q1)**

- *D Dömötör, P Becságh, G Rákhely, G Schneider, T Kovács\*: Complete genomic sequence of Erwinia amylovora phage PhiEaH2*

**Acta Microbiologica et Immunologica Hungarica**

**2009 (IF: 0.921)**

- *K Lootz, G Schneider, T Kovács\*: Effect of different gas mixtures on the proliferation of resident flora members of foodstuffs.*

**Acta Microbiologica et Immunologica Hungarica.**

**2007 (IF: 0.921)**

- *T Kovács, M Oldal, G Schneider: Treatment of fire blight by bacteriophages*

**Acta Microbiologica et Immunologica Hungarica**

**2002 (IF: 0.921)**

- *T Kovács, Z Bihari, A Hargitai, I Mécs, KL Kovács: Stress related changes of cell surface hydrophilicity in Bacillus subtilis*

**FEMS Microbiology Letters**

**1998 (IF: 2.04, Q2)**

- *T Kovács\*, A Hargitai, KL Kovács, I Mécs: pH-dependent activation of the alternative transcriptional factor sigmaB in Bacillus subtilis.*

\*: Corresponding author

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**PROFESSIONAL EXPERIENCE**

**Biopesticide Ltd.**

**CEO**

**2018 – Present**

- Head of a start-up company. The goal is to put a biopesticide against the rice leaf blight onto the market.
- Organization of field tests and marketing activity in Asia.

**Enviroinvest Corp.**

**2010 – Present**

**Deputy CEO, Head of Nanophagetherapy Centre (private research institute)**

- Principal strategist and visionary, successfully device company vision, long-range strategic planning, business management, establishing and leading a new research institute.
- Directed all functions associated with management of GMP qualification process. Hold the credit of leading R&D project, development and the production of ERWIPHAGE (bacteriophage-based pesticide).

**Rolfim Ltd.**

**2004 – 2005**

**Profile of company:** Employing 500 handicapped and strongly handicapped employees with governmental support, ensuring their rehabilitation.

**President**

- Formulated, synthesized and implemented policies to mitigate and assess crisis in well-organized manners.
- Reviewed processes and business activities and initiated change to minimize cost, organizing new production sites and introducing new activities.

**Enviroinvest – Waste Ltd**

**2002 – 2010**

*Profile of company: Recycling of WEEE with the involvement of handicapped employees*

**Head of CO**

- Demonstrated sound scientific research abilities and fundamental knowledge to lead the company operations until it was merged into Enviroinvest Corp.
- Efficiently and effectively steered efforts towards organizing and authorizing new production sites.

**Enviroinvest Ltd**

**2002 – 2010**

*Profile of the company: Environmental consulting, CO<sub>2</sub> quote trade, biotechnology research*

**R&D director, Head of R&D laboratory**

- Exhibited the versatility and -expertise needed to methodically assist Managing the CO<sub>2</sub> quote trading.
- Between 2006-2010: Organized the establishment of a research laboratory (in a rented building), starting our bacteriophage therapy researches.

**Enviroinvest Ltd**

**2000 – 2002**

*Profile of the company: Environmental consulting*

**Area Manager (Budapest – Szeged)**

- Managed the orders and clients on the geographic area between Budapest and Szeged (Hungary).

**Linde Gas Hungary Ltd**

**1999 – 2000**

*Profile of the company: Production of gas-cylinders and gas cartridges*

**Gas Cartridge Appliance Microbiologist**

- Instigated adequate systems and internal controls in order to streamline the development of new applications (especially on the field of microbiology) for gas cartridges.

**Ekofutur Ltd**

**1997 – 2002**

*Profile of the company: Marketing of a newly developed antiviral product*

**Head of Co**

- Established the company with the assistance of other two biologists. Managed and executed all aspect of the work including the administration of the company.

**Tisza Natura Consulting**

**1995 – 1997**

*Profile of the company: Provide environmental consulting services*

**Office manager**

- Founder and leader of a small (micro) company established by me and another PhD student. The company produced a small amount of revenue which could support us during our PhD study period.
- Tactfully competed technical challenges related to the several environmental consulting projects.

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**SOCIAL RESPONSIBILITY ACTIVITIES**

**Local Government of Páty**

**2006 – 2010**

**Environmental, Public Health and Security Committee, expert (consultant)**

- An active external member (not local politician) of the committee
- Delivered technical support and professional advice to other members especially on fields of environmental protection and public health.
- Established and worked with cross-functional team in order to handle the operations of local order concerning noise protection.

**Eszköz Ltd.****2006 – Present**

**Profile of the company:** Public sanitation services of Esztergom town (approx. 30.000 inhabitants)  
**(Public Sanitary Services), Member Of Supervisory Board**

- Orchestrated all bottom-line factors, including the supervision of the legal operation of the company
- Decision on the acceptance of the yearly financial balance of the company.

**EuroXanth: Integrating science on Xanthomonadaceae on integrated plant disease management in Europe - COST action**

**2017 - Present**

- Representing Hungary.
- Member of the Scientific committee.
- Vice leader of the 4<sup>th</sup> work group.

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**RESEACH & DEVELOPMENT PROJECTS EXPERIENCE**

**Project leader**

- Detection of soil pollutants with molecular biological method, 2000-2004, Biotechnology 2000 program.

**Project leader**

- The cleaning of TCE-polluted ground-water with immobilized enzymes, 2001-2005, Biotechnology 2000 program.

**Project leader**

- PCB-selective bioelectrode., 2003-2005, Biotechnology 2002 program.

**Project leader**

- The creation and maintenance of structure gasatmosphere, GVOP KKV 2004, 2004-2005

**Project leader**

- The prevention and treatment of fireblight with bacteriophages, GVOP KKV 2005, 2006-2008

**Project leader**

- Developing a method for the production of a phage-based product against *Listeria monocytogenes*, INNOCSEK project, 2005-2008

**Project leader**

- Developing a method for the production of a virus-based product against *Campylobacter jejuni*, Baross Gábor project, 2005-2008

**Project leader**

- Developing a method for the production of a phage-based pesticide against fireblight, GOP 1.1.1, 2008-2011

**Consortium & Project Leader**

- The establishment of a Centre for Phagetherapy, National Technology Program, 2009-2012

**PROJECT-PART LEADER - representing the consortium member**

- The development of an MFC-based diagnostic instrument, National Technology Program, 2009-2013

**Project leader**

- The establishment of the Nanophagetherapy Research Institute, GOP-1.3.2 Program, 2011-2013

**Project-Part Leader, representing the consortium member**

- BIOMOS, New Biotechnological Applications in Mosquito Control (ERANET project), 2011-2014

**Project leader**

- Development of bacteriophage-based pesticides, GOP-1.1.1 Program, 2014-2016

**Project leader**

- Establishment of a high throughput molecular biology laboratory supporting of bioremediation. Norway Grant project, 2014-2017

**Project leader**

- New generation, environmental friendly plant protection. Norway Grant project, 2016-, in progress

**Project leader**

- Establishment of a service centre for supporting the second and third generation DNA sequencing. Corporate R&D\_16 project, 2016-, in progress

**NOTABLE INVENTIONS & ACHIEVEMENTS**

**Inventor**

- Ládi Zs, Kovács, T, Moórun M: Schutzgasverpackung für Haushalte. DPMA (Német Szabadalmi Hivatal), European patent), Reg.#: DE 19949190A1.
- Ládi Zs, Kovács, T, Moórun M: Gerät für Einatmung flüssige und pulverförmige Medikamente. DPMA European patent), Reg.#: DE 19949188A1.
- Ládi Zs, Kovács T, Moórun M: The creation and maintenance of structure gas atmosphere. Hungarian Patent Office, Reg.#: P0003976.
- Schneider Gy, Kovács T: Microbial fuel cell based diagnostic method and instrument for the evaluation of antibiotic resistance. HPO (Hungarian Patent Office), Reg.#: P0800494.
- Kovács T, Schneider Gy, Kovács Á, Kovács ÁL, Kovács Zs: Method of production for Fire blight preventative and treating pesticide HPO (Hungarian Patent Office), Reg.#: P0700600.
- Schneider Gy, Kovács T: Highway guardrail windmills with special aerodynamic design. HPO (Hungarian Patent Office), Reg.#: P0700483.
- Kovács T, Schneider Gy, Kovács ÁL, Kovács Á, Kovács Zs: Method for the prevention and treatment of fireblight. HPO (Hungarian Patent Office), Reg.#: P0700600.
- Polyák B, Kovács T: Method for the production of bandage and its application HPO (Hungarian Patent Office), Reg.#: P0900175.
- Kovács ÁL, Kovács T, Rákhely G, Schneider Gy: Bacteriophages against MRSA bacteria, their mutant integrase gene and their application. Hungarian Intellectual Property Office, Reg.#: P1300416.
- Kovács T, Schneider Gy, Kovács ÁL, Kovács Zs: Pesticide for the prevention and treatment of fireblight, method for its production and application. Hungarian Intellectual Property Office, Reg.#: P1300407.
- Kovács T, Rákhely G, Kovács ÁL: Concentrate and product for prophylaxis and treatment of rice blight and method for prophylaxis and treatment of rice blight. HPO (Hungarian Patent Office), Reg.#: P1700178.

**MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS**

Hungarian Microbiological Association 2002  
 American Society for Microbiology 2002  
 Hungarian Biotechnology Association 2003  
 Hungarian Biogas Association 2004  
 American Phytopathological Society 2015

**EDUCATION AND TRAINING**

**PhD grade • 2002**

**Dissertation:** General stress reaction of Bacillus subtilis Discipline: Environmental studies. Grade: summa cum laude

**Writing Thesis • Ernst – Moritz – Arndt University, Institute für Mikro & Molekularbiologie Greifswald, Germany 1994**

**Biologist molecular biology & biotechnology (4.71) • József Attila University, Szeged, • 1990 – 1995**

**Klára Leówey Grammar School, Pécs, • Hungarian – German two language school • 1985 – 1989**



A handwritten signature in blue ink, consisting of several fluid, connected strokes.

*Tamás Kovács*