

## Curriculum Vitae



### **Matkarimov Bakhyt Turganbayevich**

Doctor of Technical Sciences, Professor of Artificial Intelligence Technologies Department  
Leading Researcher, National Laboratory Astana,  
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### **Scientific degree, title, scientific school: H index 12**

- 2020 Professor, specialty Informatics, Computer Engineering and Management, Committee for Quality Assurance in Education and Science of the Ministry of Education and Science of the Republic of Kazakhstan, diploma PR # 0000037 of November 27, 2020 (Order #482)
- 2010 Doctor of Technical Sciences, Committee for Control in the Field of Education and Science of the Ministry of Education and Science of the Republic of Kazakhstan, diploma of State Department of Education No. 0001571 dated December 13, 2011 (Protocol No. 7). Specialty 05.13.15 Computing machines and systems, Institute of Mathematics, Almaty, Kazakhstan.
- 1999 Candidate of Physical and Mathematical Sciences, Higher Attestation Commission of the Ministry of Science and Higher Education of the Republic of Kazakhstan, GK diploma FK No. 0007298 dated December 28, 1999 (Protocol No. 8). Specialty 05.13.16 Application of computer technology, mathematical modeling and mathematical methods in scientific research, Institute of Mathematics, Almaty, Kazakhstan.
- 1989 Physicist, Novosibirskiy State University, Novosibirsk, Russia. Diploma HB No. 583965 of June 13, 1989, registration number 7

### **Professional experience:**

- from 2011: Leading Researcher, National Laboratory Astana, Nazarbayev University, Nur-Sultan, Kazakhstan.
- 2004–2011: Senior Researcher, Institute of Mathematics and Mathematical Modeling, Almaty, Kazakhstan.
- 2000–20–2008: Head of the Department of Informatics, Suleiman Demirel University, Almaty, Kazakhstan.
- 1998–2011: Project manager, Kazakhstanelecom, Almaty, Kazakhstan.
- 1997–1998: Engineer, ABB Network Partner, Turgi, Switzerland.
- 1992–2000: Research Associate, Institute of Mathematics, Almaty, Kazakhstan.
- 1989–1992: Junior research assistant, Institute of Nuclear Physics, Novosibirsk, Russia.

### **Publications (selected):**

1. P Prorok, IR Grin, BT Matkarimov, AA Ishchenko, J Laval, DO Zharkov and M Saparbaev. Evolutionary Origins of DNA Repair Pathways: Role of Oxygen Catastrophe in the Emergence of DNA Glycosylases. *Cells*, 2021, 10, 1591.
2. BT Matkarimov, MK Saparbaev. DNA Repair and Mutagenesis in Vertebrate Mitochondria: Evidence for Asymmetric DNA Strand Inheritance. *Advances in Experimental Medicine and Biology*, 2020, 1241, 77-100.
3. BT Matkarimov, DO Zharkov, MK Saparbaev. Mechanistic insight into the role of Poly (ADP-ribosyl) ation in DNA topology modulation and response to DNA damage. *Mutagenesis*, 2020, 35 (1), 107-118.
4. AA Yurchenko, I Padioleau, BT Matkarimov, J Soulier, A Sarasin, S Nikolaev. XPC deficiency increases risk of hematologic malignancies through mutator phenotype and characteristic mutational signature. *Nature Communications*, 2020, 11(1), 1-11.
5. E Matta, A Kiribayeva, B Khassenov, BT Matkarimov, AA Ishchenko. Insight into DNA substrate specificity of PARP1-catalysed DNA poly (ADP-ribosyl) ation. *Scientific reports*, 2020, 10, 1-11.

### Active research projects

1. Head of the project "Genome-wide analysis, modeling and simulation of cluster mutational traits in cancer cells", grant AP09260233, 2021-2023, Committee of Science Ministry of Education and Science of the Republic of Kazakhstan.
2. Head of the project "New alternative ways of complex DNA damage repair. Applications to mechanisms of resistance to cancer therapy" Grant 091019CRP2111, 2020-2022, funded by: Nazarbayev University, Nur-Sultan, Kazakhstan +14 completed projects, including grants from the Ministry of Education and Science of the Republic of Kazakhstan.

### Scientific and educational activity

1. Since 2020, Member of the National Science Council of the Republic of Kazakhstan on Information and Communication Technologies. <https://adilet.zan.kz/rus/docs/P1100000785>
2. Since 2020, Member of the Dissertation Council of the L. N. Gumilyov Eurasian National University in the scientific direction "Informatics and Information Systems" (6D060200-Informatics, 6D070300-Information Systems (by industry), 6D070400-Computer Engineering and Software). <https://www.enu.kz/web20/sostav-ibt.docx>
3. 2019-2021-2021, Chairman of the Expert Council on Information and Communication Technologies of the Committee for Quality Assurance in Education and Science of the Ministry of Education and Science of the Republic of Kazakhstan.
4. since 2017, Ambassador Novosibirsk State University, Novosibirsk, Россия, Nur-Sultan, Russia Kazakhstan. [http://alumninsu.ru/nsu\\_ambassadors/](http://alumninsu.ru/nsu_ambassadors/)
5. since 2016, Chairman of the Computer Science Jury, International Olympiad of Metropolises, Moscow, Russia. <http://megapolis.educom.ru/en>
6. 2015, Chairman, 27th International Olympiad in Informatics, July 26 – August 2, 2015, Almaty, Kazakhstan. <http://ioi2015.kz/>; <http://stats.ioinformatics.org/olympiads/2015>
7. 2012-2016, member International Committee, International Olympiad in Informatics (IOI) <https://ioinformatics.org/page/history-of-the-ic/48>
8. since 2009, Chairman of the Computer Science Jury, International Zhautikov Olympiad in Mathematics, Physics and Computer Science. <http://izho.kz/>
9. 2011-2016-2016, member Программного комитета, Special Session on Machine Learning in Energy Applications of the International Conference on Machine Learning and Applications (ICMLA). <https://www.icmla-conference.org/icmla18/energyapplication.pdf>
10. 2005–2018, Scientific director of the Olympic Reserve School of the Russian National Research Center Daryn. <http://daryn.kz/index?lang=en>
11. Since 2003, Director of the Kazakhstan region, International Programming World Team Championship, Northeastern European Regional Contest, International Collegiate Programming Contest (ICPC) <https://icpc.baylor.edu/>; <https://neerc.ifmo.ru/subregions/Казakhstan.html>

6. AV Popov, IR Grin, AP Dvornikova, BT Matkarimov, R Groisman, M Saparbaev, DO Zharkov. Reading targeted DNA damage in the active demethylation pathway: role of accessory domains of eukaryotic AP endonucleases and thymine-DNA glycosylases. *Journal of Molecular Biology*, 2020, 432(6), 1747-1768.
7. M Bazlekowa-Karaban, P Prorok, S Bacconnais, S Taipakova, Z Akishev, D Zembrzuska, AV Popov, AV Endutkin, R Groisman, AA Ishchenko, BT Matkarimov, A Bissenbaev, E Le Cam, DO Zharkov, B Tudek, M Saparbaev. Mechanism of stimulation of DNA binding of the transcription factors by human apurinic/aprimidinic endonuclease 1, APE1. *DNA repair*, 2019, 82, 102698.
8. G Zarkovic, EA Belousova, I Talhaoui, C Saint-Pierre, MM Kutuzov, Bakhyt T Matkarimov, Denis Biard, Didier Gasparutto, Olga I Lavrik, Alexander A Ishchenko. Characterization of DNA ADP-ribosyltransferase activities of PARP2 and PARP3: new insights into DNA ADP-ribosylation. *Nucleic Acids Research*, 2018, 46(5), 2417–2431.
9. PR Martin, S Couvé, C Zutterling, MS Albelazi, R Groisman, BT Matkarimov, JL Parsons, RH Elder and MK Saparbaev. The Human DNA glycosylases NEIL1 and NEIL3 Excise Psoralen-Induced DNA-DNA Cross-Links in a Four-Stranded DNA Structure. *Scientific Reports*, 2017, 7, 17438.
10. I. Talhaoui, B.T. Matkarimov, T. Tchenio, D.O. Zharkov, M.K. Saparbaev, Aberrant base excision repair pathway of oxidatively damaged DNA: Implications for degenerative diseases. *Free Radical Biology and Medicine*, 107, pp.266-277, 2017.
11. B. Matkarimov, G. Lee, M. Phillipps, E. Schrijvers. IOI Host Guidelines: General Aspects. *Olympiads in Informatics*, 2017, 11, 175-192.
12. I. Talhaoui, N.A. Lebedeva, G. Zarkovic, C. Saint-Pierre, M.M. Kutuzov, M.V. Sukhanova, B.T. Matkarimov, D. Gasparutto, M.K. Saparbaev, O.I. Lavrik, and A.A. Ishchenko. Poly(ADP-ribose) polymerases covalently modify strand break termini in DNA fragments in vitro. *Nucleic Acids Research*, 2016, 44(19), 9279–9295.
13. M. Redrejo-Rodríguez, A. Vigouroux, A. Mursalimov, I. Grin, D. Alili, Z. Koshenov, Z. Akishev, A. Maksimenko, A.K. Bissenbaev, B.T. Matkarimov, M. Saparbaev, A.A. Ishchenko, S. Moréra. Structural comparison of AP endonucleases from the exonuclease III family reveals new amino acid residues in human AP endonuclease 1 that are involved in incision of damaged DNA. *Biochimie*, 2016, 128-129, 20-33.
14. A Iglukov, M Kutubayev, B Matkarimov. IOI 2015 Report. *Olympiads in Informatics*, 2016, 10, 263–278.
15. I Talhaoui, V Shafirovich, Z Liu, C Saint-Pierre, Z Akishev, BT Matkarimov, D Gasparutto, NE Geacintov and M Saparbaev. Oxidatively Generated Guanine(C8)-Thymine(N3) Intrastrand Cross-links in Double-stranded DNA Are Repaired by Base Excision Repair Pathways. *The Journal Of Biological Chemistry*, 2015, 290(23), 14610 –14617.