CURRICULUM VITAE AND LIST OF PUBLICATIONS

1. PERSONAL DETAILS

Full name:	Robi-Marcel Tacutu
Birth:	February 9th, 1981, Rimnicu Vilcea, Romania
Nationality:	Romanian
Work address:	Systems Biology of Aging Group, Institute of Biochemistry of the Romanian Academy, Splaiul Independentei 296, Bucharest, Romania
Contact:	Tel: +40 722 311 751 E-mail: robi.tacutu@gmail.com
Languages:	English (fluent), Hebrew (expert), Romanian (native)

2. SUMMARY / PROFILE

Thorough, analytical and curiosity-driven scientist, with a multidisciplinary background in biology and computer science, and a long-term commitment and experience in the field of bioinformatics and biology of ageing (since 2005). Experienced group leader, supervising a group of more than 15 people (since 2016), with a demonstrated track record in academic research and increasing entrepreneurial experience. Currently focusing on using bioinformatics and machine learning to integrate large screening age-related datasets and developing novel systems biology methodologies in ageing research. Skilled in Biology of Ageing, Bioinformatics, Systems Biology, Network Biology, and Synthetic Biology. Formal background in Biology of Ageing (PhD), Biochemistry and Molecular Biology (MSc) and Computer Science (BSc).

3. RESEARCH INTERESTS

• Biology/genetics of ageing, longevity and age-related diseases • Prediction of single/multi longevity regulators • Auto-immunity • Biomarker profiling for healthcare • Bioinformatics (OMICS - Genomics, epigenomics, transcriptomics, systems biology, network biology, comparative biology) • Synthetic biology (gene circuit design)

4. EDUCATION

2007 – 2013	**Ph.D.**, The Shraga Segal Department of Microbiology, Immunology and Genetics, Faculty of Health Sciences, Center for Multidisciplinary Research in Aging, Ben-Gurion University of the Negev.
2005 – 2007	**M.Sc.**, Department of Biochemistry and Molecular Biology, Faculty of Biology, University of Bucharest, Bucharest, Romania.
1999 – 2004	**B.Sc.**, Department of Computer Science, Automatic Control and Computers Faculty, University Politehnica of Bucharest, Bucharest, Romania.

5. EMPLOYMENT HISTORY

Sep 2016 – present	**Head** of the Computational Biology of Aging Group, Institute of Biochemistry, Romanian Academy
Sept 2020 – present	**CEO** of CellFabrik SRL (Romanian bio-tech SME)
Jan 2017 – present	**CEO** of Chronos Biosystems SRL (Romanian bio-tech SME)
Nov 2014 – Sep 2015	**Researcher** in the Integrative Genomics of Ageing Group at the Institute of Integrative Biology, University of Liverpool
Nov 2012 – Nov 2014	EU **Postdoctoral fellowship** (FP7 Marie Curie programme) in the Integrative Genomics of Ageing Group at the Institute of Integrative Biology, University of Liverpool
Nov 2011 – Nov 2012	**Researcher** in the Integrative Genomics of Ageing Group at the Institute of Integrative Biology, University of Liverpool
Prior to PhD (<2007)	*Teaching assistant* at University Politehnica of Bucharest, *Research assistant* at the Institute of Biochemistry Bucharest, Computer science *entrepreneur*

6. GRANTS, AWARDS, FELLOWSHIPS

- Pre-seed funding obtained to CellFabrik: **600k EUR**; Aims: 1. Develop auto-immunity therapies; 2. Develop methods for cellular agriculture;
- ANS-ND: **125k EUR (**2020-2022); Aim: develop an integrated and automated solution for screening drugs and genetic interventions for neurodegenerative diseases;
- GeT-SHARP: **100k EUR** (2020-2022); Aim: analysis of age-related signatures during aging and age-related diseases;
- EMBED: **200k EUR** (total per consortium 900k), ERA-NET Neuron, 2019-2022
- Member in the LysoMod Consortium (RISE H2020 staff exchange grant)
- Microsoft Azure Research Sponsorship: **20k USD** – Cloud computing, 2017-2018
- Pilot Research Sponsorship (industry) granted to Chronos Biosystems: **~90k EUR**; Aim: development of human artificial chromosomes storing genetic circuits
- EU grant (Competitiveness operational programme) for the GERONTOMICS project, "Multi-omics prediction system for prioritization of gerontological interventions". **Funding awarded: ~1,9M EUR** (2016-2020).
- EU grant - FP7 Intra-European Fellowships (Marie Curie Actions) for the INTEGRAGEING project, "Modelling human ageing: developing and interrogating an integrated model of ageing to identify causal relationships between hormonal changes and gene expression changes". **Funding awarded: 200,000 EUR** (2012-2014).
- The **Amir Abramovich Research Prize 2011** for the study on “The systems biology of aging and cellular senescence”: awarded by the Faculty of Health

Sciences, Ben-Gurion University of the Negev.

- The **Dean Prize for Excellence 2011** for outstanding academic achievements during doctoral studies: awarded by the Dean of the Faculty of Health Sciences, Ben-Gurion University of the Negev.
- **The Bergman Prize 2010:** Biennial Award from the Israel Gerontological Society for the Study on the Biology of Aging: Determinants of Aging, Longevity and Age-related Diseases.
- Several best poster and travel awards/fellowships: **Best Student Poster** (Israel Gerontological Society 2010)**, Aharon Katzir Student Travel Fellowship** (Cold Spring Harbor, USA, 2010), **Travel award** (Bucharest, Romania, 2010), **Travel award** (Rostock, Germany, 2010), **Travel award** (Brussels, Belgium, 2009).

7. ACADEMIC SOCIETY MEMBERSHIPS AND EDITORIAL ACTIVITY

Reviewing Aging Cell (since 2019); PLOS One (since 2019); G3: Genes| Genomes| Genetics (since 2019); Aging-US (since 2019); Ageing Research Reviews (since 2018); Frontiers Aging Neuroscience (since 2018); Life Sciences (since 2017); Biology letters (since 2015); Biogerontology (since 2013; on **editorial board** since 2018)

Member of Romanian Society for Bioinformatics (since 2019, **co-founder**), Romanian Society of Biochemistry and Molecular Biology (since 2006)

Former member of Israeli Society for Bioinformatics and Computational Biology, The Israel Gerontological Society, British Society for Research on Ageing

8. AREAS OF RESEARCH EXPERTISE

- **Biology/Genetics of ageing and longevity**
- **Bioinformatics**, including: OMICS data analysis (genomics, transcriptomics, methylomics), network biology and system biology, comparative biology, gene expression analysis, phylogenetics and evolutionary biology, biostatistics, etc
- **Computer science**, including: algorithms, databases, artificial intelligence, network and internet applications, distributed applications and cloud computing
- **Genomics**, **epigenomics**, **transcriptomics**
- **Cell and molecular biology**; **Synthetic biology**

9. MANAGERIAL AND LEADERSHIP EXPERIENCE

Leadership experience:

- **Leading a team of >15 people**
- **Scientific management experience**, both in academia and industry (start-ups)
- **Experience in writing grants**; **Awarded** and carried out several research grants as project leader: **1.9M EUR grant** to lead a multi-disciplinary team of researcher in the field of biogerontology; **200k EUR grant** in an ERA-NET collaborative EU consortium; **125k EUR grant** for ANS-ND (PED grant); **100k EUR grant** for GeT-SHARP (TE project); **Member of** RISE H2020 staff exchange: LysoMod;
- **Awarded and co-managed** a 200,000 EUR **FP7 fellowship** together with supervisor Dr. Joao Pedro de Magalhaes (Marie Curie fellowship). This has included planning research, dissemination and expenditures, as well as project reporting.
- **Organizing international conferences and workshops:** 8th European Congress of Biogerontology, Israel, 2013; 2nd RSBI workshop - EMBL-EBI bioinformatics training course, Romania, 2018; SRBBM Conference, Romania, 2018; 4th RSBI workshop - NGS technologies, Romania, 2019
- **Member of scientific committee:** NETTAB/BBCC Joint Meeting, Italy 2019;
- **Co-supervision** of MSc/Diploma students in fields of biology, computer science and bioinformatics (for a list of students and topics, please ask)

Management skills:

- Experience in creating research plans, managing finances and budgets, disseminating results
- Experience in co-coordinating graduate and undergraduate students
    - Able to provide guidance and feedback to help students strengthen their skills and knowledge base
    - Capable in devising future plans to keep students focused
- Organized and capable of evaluating, prioritizing, and delegating tasks
- Possessing initiative and being able to motivate others
- Excellent time management skills to ensure targets are met and plans completed efficiently.

Social and communication skills:

- Good language and interpersonal communication skills
- Capable of teamwork and collaboration with colleagues
- Ability to work as part of multicultural and multidisciplinary teams
- Able to establish contacts with the academic community.

10. LIST OF PUBLICATIONS AND TALKS

A. Refereed papers in scientific journals

Ghenea S, Chiritoiu M, **Tacutu R**, Miranda-Vizuete A, Petrescu SM. Targeting EDEM protects against ER stress and improves development and survival in C. elegans. *PLoS Genet* 2022; 18:e1010069. PMID: 35192599

Knyazer A, Bunu G, Toren D, Mracica TB, Segev Y, Wolfson M, Muradian KK, **Tacutu R**, Fraifeld VE. Small molecules for cell reprogramming: a systems biology analysis. *Aging (Albany NY)* 2021; 13:25739-25762. PMID: 34919532 **(corresponding author)**

Toren D, Yanai H, Abu Taha R, Bunu G, Ursu E, Ziesche R, **Tacutu R**, Fraifeld VE. Systems biology analysis of lung fibrosis-related genes in the bleomycin mouse model. *Sci Rep* 2021; 11:19269. PMID: 34588506 **(corresponding author)**

Matei IV, Samukange VNC, Bunu G, Toren D, Ghenea S, **Tacutu R**. Knock-down of odr-3 and ife-2 additively extends lifespan and healthspan in C. elegans. *Aging (Albany NY)* 2021; 13:21040-21065. PMID: 34506301 **(corresponding author)**

Constantinescu V, Chiru C, Boloni T, Florea A, **Tacutu R**. Learning flat representations with artificial neural networks. *Applied Intelligence* 2021; 51:2456-2470 **(corresponding author)**

Kulaga AY, Ursu E, Toren D, Tyshchenko V, Guinea R, Pushkova M, Fraifeld VE, **Tacutu R**. Machine Learning Analysis of Longevity-Associated Gene Expression Landscapes in Mammals. *Int J Mol Sci* 2021; 22:1073. PMID: 33499037 **(corresponding author)**

Bunu G, Toren D, Ion CF, Barardo D, Sârghie L, Grigore LG, de Magalhães JP, Fraifeld VE, **Tacutu R**. SynergyAge, a curated database for synergistic and antagonistic interactions of longevity-associated genes. *Sci Data* 2020; 7:366. PMID: 33106474 **(corresponding author)**

Bucaciuc Mracica T, Anghel A, Ion CF, Moraru CV, **Tacutu R**, Lazar GA. MetaboAge DB: a repository of known ageing-related changes in the human metabolome. *Biogerontology* 2020; 21:763-771. PMID: 32785805 **(corresponding author)**

Toren D, Kulaga A, Jethva M, Rubin E, Snezhkina AV, Kudryavtseva AV, Nowicki D, **Tacutu R**, Moskalev AA, Fraifeld VE. Gray whale transcriptome reveals longevity adaptations associated with DNA repair and ubiquitination. *Aging Cell* 2020; 19:e13158. PMID: 32515539

Avelar RA, Ortega JG, **Tacutu R**, Tyler EJ, Bennett D, Binetti P, Budovsky A, Chatsirisupachai K, Johnson E, Murray A, Shields S, Tejada-Martinez D, Thornton D, Fraifeld VE, Bishop CL, de Magalhães JP. A multidimensional systems biology analysis of cellular senescence in aging and disease. *Genome Biol* 2020; 21:91. PMID: 32264951 **(co-first author)**

Martin EC, Sukarta OCA, Spiridon L, Grigore LG, Constantinescu V, **Tacutu R**, Goverse A, Petrescu AJ. LRRpredictor-A New LRR Motif Detection Method for Irregular Motifs of Plant NLR Proteins Using an Ensemble of Classifiers. *Genes (Basel)* 2020; 11:286. PMID: 32182725

Tacutu R, Thornton D, Johnson E, Budovsky A, Barardo D, Craig T, Diana E, Lehmann G, Toren D, Wang J, Fraifeld VE, de Magalhães JP. Human Ageing Genomic Resources: new and updated databases. *Nucleic Acids Res* 2018; 46:D1083-D1090. PMID: 29121237 **(first author)**

Yanai H, Budovsky A, Barzilay T, **Tacutu R**, Fraifeld VE. Wide-scale comparative analysis of longevity genes and interventions. *Aging Cell* 2017; 16:1267-1275. PMID: 28836369

Fernandes M, Wan C, **Tacutu R**, Barardo D, Rajput A, Wang J, Thoppil H, Thornton D, Yang C, Freitas A, de Magalhães JP. Systematic analysis of the gerontome reveals links between aging and age-related diseases. *Hum Mol Genet* 2016; pii:ddw307. PMID: 28175300

Yanai H, Budovsky A, **Tacutu R**, Barzilay T, Abramovich A, Ziesche R, Fraifeld VE. Tissue repair genes: the TiRe database and its implication for skin wound healing. *Oncotarget* 2016; 7:21145-21155. PMID: 27049721 **(co-first author)**

Calvert S, **Tacutu R**, Sharifi S, Teixeira R, Ghosh P, de Magalhães JP, A Network Pharmacology Approach Reveals New Caloric Restriction Mimetic Drugs. *Ageing Cell* 2016; 15:256-266. PMID: 26676933

Wood S, van Dam S, Craig T, **Tacutu R**, Merry B, de Magalhães JP. Diet-induced effects on longevity and neuroprotection elicit transcriptional changes in the oxidative stress-response and in epigenetic regulators. *Genome Biology* 2015; 16:285. PMID: 26694192

Toren D, Barzilay T, **Tacutu R**, Lehmann G, Muradian KK, Fraifeld VE, MitoAge: a database for comparative analysis of mitochondrial DNA, with a special focus on animal longevity. *Nucleic Acids Res* 2016; 44 (Database issue): D1262-1265. PMID: 26590258 **(co-first author)**

Craig T, Smelick C, **Tacutu R**, Wuttke D, Wood SH, Stanley H, Janssens G, Savitskaya E, Moskalev A, Arking R, de Magalhães JP. The Digital Ageing Atlas: integrating the diversity of age-related changes into a unified resource. *Nucleic Acids Res* 2015; 43 (Database issue): D873-878. PMID: 25232097 **(co-first author)**

Budovsky A, Craig T, Wang J, **Tacutu R**, Csordas A, Lourenço J, Fraifeld VE, de Magalhães JP. LongevityMap: a database of human genetic variants associated with longevity. *Trends Genet* 2013; 29:559-560. PMID: 23998809

Tacutu R, Craig T, Budovsky A, Wuttke D, Lehmann G, Taranukha D, Costa J, Fraifeld VE, de Magalhães JP. Human Ageing Genomic Resources: integrated databases and tools for the biology and genetics of ageing. *Nucleic Acids Res* 2013; 41(Database issue): D1027-1033. PMID: 23193293

Tacutu R, Shore DE, Budovsky A, de Magalhães JP, Ruvkun G, Fraifeld VE, Curran SP. Prediction of C. elegans longevity genes by human and worm longevity networks. *PLoS One* 2012; 7:e48282. PMID: 23144747

Moskalev AA, Smit-McBride Z, Shaposhnikov MV, Plyusnina EN, Zhavoronkov A, Budovsky A, **Tacutu R**, Fraifeld VE. GADD45 proteins: Relevance to aging, longevity and age-related pathologies. *Aging Res Rev* 2012; 11:51-66. PMID: 21986581

Tacutu R, Budovsky A, Yanai H, Fraifeld VE. Molecular links between cellular senescence, longevity and age-related diseases - a systems biology perspective. *Aging (Albany NY)* 2011; 3:1178-1191. PMID: 22184282

Yanai H, Budovsky A, **Tacutu R**, Fraifeld VE. Is rate of skin wound healing associated with aging or longevity phenotype? *Biogerontology* 2011; 12:591-597. PMID: 21667230

Tacutu R, Budovsky A, Yanai H, Fraifeld VE. Immunoregulatory network and cancer-associated genes: molecular links and relevance to aging. *Network Biology* 2011; 1:112-120.

Tacutu R, Budovsky A, Fraifeld VE. The NetAge database: a compendium of networks for longevity, age-related diseases and associated processes. *Biogerontology* 2010; 11:513-522. PMID: 20186480

Tacutu R, Budovsky A, Wolfson M, and Fraifeld VE. MicroRNA-regulated protein-protein interaction networks: how could they help in searching for pro-longevity targets? *Rejuvenation Res* 2010; 13:373-377. PMID: 20367577

Wolfson M, Budovsky A, **Tacutu R**, and Fraifeld V. The signaling hubs at the crossroad of longevity and age-related disease networks. *Int J Biochem Cell Biol* 2009; 41:516-520. PMID: 18793745

Budovsky A, **Tacutu R**, Yanai H, Abramovich A, Wolfson M, and Fraifeld V. Common gene signature of cancer and longevity. *Mech Ageing Dev* 2009; 130:33-39. PMID: 18486187

Hanganu A, Micluta MA, Popa BA, Spiridon LN and **Tacutu R**. "SLIDE": An interactive threading refinement tool for homology modeling. *Rom J Biochem* 2009; 46:123-127.

Wolfson M, **Tacutu R**, Budovsky A, Aizenberg N, and Fraifeld V. Common epigenetic mechanisms of aging and age-related diseases: the role for microRNAs. *Probl Aging Longevity* 2008; 17:184–201.

Lehmann G, Segal E, **Tacutu R**, Muradian K, and Fraifeld V. Mitochondrial determinants of mammalian longevity. *Probl Aging Longevity* 2008; 17:211-229.

Wolfson M, **Tacutu R**, Budovsky A, Aizenberg N, and Fraifeld V. MicroRNAs: Relevance to Aging and Age-Related Diseases. *Open Longevity Science* 2008; 10, 66-75 doi:10.2174/1876326X00802010066.

B. Book chapters

de Magalhães JP, Lagger C, **Tacutu R**. Book chapter: "Integrative Genomics of Aging" in: Musi N, Hornsby P (eds.), *Handbook of the Biology of Aging*, 9th edition, *Academic Press*, *Elsevier*, **2021**, ISBN: 978-0-12-815962-0

Tacutu R, Toren D, Ursu E, Bunu G, Bucaciuc Mracica T. Book chapter: "Healthy Biological Systems" in *Explaining Health Across the Sciences*, *Healthy Ageing and Longevity*, vol 12. Springer, **2020**, ISBN: 978-3-030-52663-4

de Magalhães JP, **Tacutu R**. Book chapter: "Integrative Genomics of Aging" in: Musi N, Hornsby P (eds.), *Handbook of the Biology of Aging,* 8th edition, *Academic Press*, *Elsevier*, **2016**, ISBN: 978-0124115965

Surleac MD, Spiridon LN, **Tacutu R**, Milac AL, Petrescu SM and Petrescu A-J. Book chapter: "The Structural Assessment of Glycosylation Sites Database - SAGS – An Overall View on N-Glycosylation", in *Glycosylation, InTech Publisher*, **2012**. ISBN: 978-953-51-0771-2

C. *A full list of lectures/talks presented at international scientific conferences/meetings and workshops is available upon request*