



## TUNAHAN ÇAKIR

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Gebze Technical University, Department of Bioengineering  
Gebze, Kocaeli, TURKEY

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### Experience

- Associate Professor 2009-  
Department of Bioengineering, Gebze Technical University, Turkey  
([www.systemsbiology.info.tr](http://www.systemsbiology.info.tr))
- Co-Founder, Bioinformatics Head 2013-  
PHI Tech Bioinformatics R&D Ltd., Gebze, Kocaeli, Turkey  
(<http://www.phitech.com.tr>)
- Post-doctoral Researcher 2007-2008  
Universiteit van Amsterdam & UMC Utrecht, Netherlands  
([www.bdagroup.nl](http://www.bdagroup.nl) & [www.metabolic-diseases.nl](http://www.metabolic-diseases.nl))
- Research/Teaching Assistant 2001-2006  
Department of Chemical Engineering, Boğaziçi University, Turkey  
([www.che.boun.edu.tr](http://www.che.boun.edu.tr))
- Guest PhD Student 2004 / 2005  
Center for Microbial Biotechnology, Technical University of Denmark, Denmark  
(supervised by Prof. Jens Nielsen) ([www.cmb.dtu.dk](http://www.cmb.dtu.dk))

### Education

- Ph.D., Chemical Engineering, Boğaziçi University, Turkey 2002-2006  
(Thesis Title: *Stoichiometric Models in Metabolic Systems Biology of Yeast*)  
(GPA: 4.00/4.00)
- M.Sc., Chemical Engineering, Boğaziçi University, Turkey 2001-2002  
(without thesis)  
(GPA: 3.81/4.00)
- B.Sc., Chemical Engineering, Boğaziçi University, Turkey 1996-2001  
(Biochemical Engineering specialization)  
(GPA: 3.34/4.00, ranked 4<sup>th</sup> within the department in graduation , honour degree)
- High School Diploma, Istanbul Şişli High School, Turkey 1993-1996  
(GPA: 4.84/5.00, ranked 1<sup>st</sup> in graduation)

### Awards

- Research Incentive Award by METU Prof. Mustafa Parlar Foundation 2017
- Young Scientist Outstanding Achievement (GEBİP) Award by TUBA (Turkish Academy of Sciences) 2015
- Best PhD Dissertation Award by Bogaziçi University 2007
- Scholarship through the Integrated PhD Program (BDP) by TUBITAK-BAYG 2002-2006  
(Turkish Science and Technology Research Council- Directorate of Human Resources Development)

## Courses Taught

Systems Biology Fundamentals	Systems Neuroscience
Genome Scale Metabolic Models	BioComputing (MATLAB, R)
Advanced Bioinformatics with R	Fundamentals of Mathematical Modelling in Biology
Catalytic Reaction Engineering	Transport Phenomena
Advanced Bioinformatics with R	Calculus II
Technical English for Computer Engineers	English for Professional Life

## Research Area

### Computational Systems Biology & Systems Medicine & Bioinformatics

- Mapping Transcriptome and Proteome data on Molecular Interaction Networks (Metabolic Networks, Protein-Protein Interaction Networks): Application to Neurodegenerative Disorders (Parkinson's Disease, Alzheimer's Disease), Cancer and Infectious Diseases
- Predicting Molecular Interactions from Omics Data Using Network Inference Approaches

## Refereed Journals (*117 manuscripts refereed so far*)

Bioinformatics (28)	Molecular Biosystems (36)	Molecular Omics (14)
PLOS Computational Biology (10)	PLOS One	Nucleic Acids Research
BMC Systems Biology	BMC Bioinformatics	Scientific Reports
Biotechnology & Bioengineering	Briefings in Bioinformatics	NeuroMolecular Medicine
Frontiers in Physiology	Metabolomics	Theranestics

## Journal Editor

*Advisory Board*, Molecular Biosystems (now Molecular Omics)

*Guest Associate Editor*, Frontiers in Microbiology (Specialty Section: Infectious Diseases)

- For the Special Research Topic: "[Computational Systems Biology of Pathogen-Host Interactions](#)"

*Guest Associate Editor*, Frontiers in Cellular and Infection Microbiology

- For the Special Research Topic: "[Systems Biology of Metabolism in Infections](#)"

## Scientific Projects

1. TÜBİTAK, 'Processing RNA-sequencing data for Alzheimer's Disease to develop personalized molecular interaction network models and to elucidate disease mechanisms', 2021-2024 (Budget: 760.000 TL), (Project Code: 120S824)
2. TÜSEB Systems Biology and Bioinformatics Strategic R&D Project Principal Investigator, 'Molecular characterization of in vivo and in vitro models of Parkinson's disease by mapping transcriptome data on genome scale metabolic networks: Identification of candidate drugs and biomarkers', 2020-2022 (Budget: 350.000 TL), (Project Code: 2019-TA-01-3440)
3. TÜBİTAK Primary Subjects (Neurodegenerative Diseases) Project Principal Investigator, 'Bioinformatic analysis of transcriptome data and cellular networks for Parkinson's Disease: Identification of novel drug targets and drugs', 2017-2020 (Budget: 770.000 TL), (Project Code: 315S302)
4. TÜBİTAK Primary Subjects (Molecular Medicine) Project Researcher, 'Creating Dormancy Models of non-small cell lung cancer and investigation of its pathogenesis via omics approaches', 2017-2020 (Budget: 2.000.000 TL), (Project Code: 216S489), (Project Manager: Devrim Gözüaçık)
5. TÜBİTAK Bilateral Cooperation Project with Pakistan, Principal Investigator, 'Constraint-based and Structure-based Analysis of Metabolic Pathways to Identify Potential Drug Targets against the

**Lethal Infectious Diseases originating from *K. pneumoniae* and *S. enterica*** 2017-2019 (Budget: 200.000 TL), (Project Code: 316S005)

6. TÜBİTAK Principal Investigator, '**Improvement and optimization of a novel computational method for the inference of cellular networks from omics data: Application to Stem Cells**', 2016 (Budget: 29.470 TL) (Project Code: 215M201)
7. TÜBİTAK Career Project, Principal Investigator, '**Investigation of the cellular objective behind the metabolic behaviours of the cell by using bottom-up and top-down approaches of systems biology in an integrative manner: applications to the metabolisms of microorganisms and human**'. 2010-2013 (Budget: 109.000 TL), (Project Code: 110M464)
8. TÜBİTAK Project Advisor, '**Modeling of the formation and differentiation of induced stem cells using systems biology and bioengineering approaches**' 2017-2020 (Budget: 360.000 TL), (Project Code: 116S388), (Project Manager: Pınar Pir)
9. TÜBİTAK Project, Project Advisor, '**Identification of Molecular Mechanisms for Ccdc124 Protein fundamental in cytokinesis**'. 2014-2017 (Budget: 359.000 TL), (Project Code: 114Z349), (Project Manager: Assoc. Prof. Uygur H. Tazebay)
10. Gebze Institute of Technology BAP Project, Principal Investigator, '**Investigation of the effect of neurological Diseases on brain metabolism by using computational systems Biology approaches**'. 2011-2013 (Budget: 7.500 TL), (Project Code: 2011-A-27)
11. TÜBİTAK TEYDEB Entrepreneurship Support Program, Project Team Member, '**PHISTO: A Web Platform for Pathogen-Human Protein Interactions**', 2014 (Budget: 100.000 TL) (Project Manager: Assist. Prof. Saliha Durmuş)
12. TÜBİTAK TEYDEB SME R&D Support Program, Project Team Member, '**Pathogen-Host Interacts Web Platform and Establishment of Relevant Bioinformatic Services**', 2015-2016 (Budget: 463.000 TL) (Project Manager: Assist. Prof. Saliha Durmuş)
13. KOSGEB R&D Innovation Support Program, Project Team Member, '**PHISTO: A Web Platform for Pathogen-Human Protein Interactions**', 2014-2015 (Budget: 150.000 TL) (Project Manager: Assist. Prof. Saliha Durmuş)

### Supervised PhD Theses

1. Hatice Büşra Lüleci, '**Metabolic dysfunction in Alzheimer's disease: Computational prediction of metabolic reaction rates in different brain regions by deconvoluting transcriptome and proteome data**', Gebze Technical University, (ongoing)
2. Mohammad Jafar Khatibipour, '**Mathematical modeling of metabolism via top-down and bottom-up approaches**', Gebze Technical University, 2020
3. Emrah Özcan, '**Metabolic Network-based Analysis of Cheese Starter Cultures as a Microbial Community**', Gebze Technical University - Marmara University, 2019, (co-supervisor: Prof. Ebru Toksoy Öner)

### Supervised Master Theses

1. Orhan Bellur, '**Reconstruction and transcriptome-based analysis of rat brain specific genome-scale metabolic network model for Parkinson's disease**', Gebze Technical University, ongoing
2. İsa Yüksel, '**Identification of Novel Drug Targets for Parkinson's Disease by Protein-Protein Interaction Based Drug Repositioning Approaches**', Gebze Technical University, ongoing

3. Beste Bayar, '**Metabolic Network Modeling with Transcriptome Data to Identify Potential Drug Targets against *Salmonella enterica* infections**', Gebze Technical University, *ongoing*
4. Kadir Kocabaş, '**Integrative Analysis of Multi-cellular Genome-scale Metabolic Networks with Cell Type Specific Transcriptome Data Predicted by Deconvolution Algorithms: Application to Parkinson's Disease**', Gebze Technical University, 2021
5. Betül Baz, '**Genome-scale metabolic network reconstruction and constraint-based analysis of selected disease-associated bacteria: *Klebsiella pneumoniae* HS11286 and *Prevotella copri* DSM 18205**', Gebze Technical University, 2020
6. Gamze Yazgeldi, '**Systems biological analysis of protein-protein interactions and the related drug-protein interactions to identify potential drugs for repurposing against infectious diseases**', Gebze Technical University, 2020 (co-supervisor: Assist.Prof. Saliha Durmuş)
7. Dilara Uzuner, '**Integrative Analysis of Transcriptome Data and Cellular Networks To Reveal Molecular Interactions of Metastasis Mechanisms in Cancer**', Gebze Technical University, 2020 (co-supervisor: Assist. Prof. Pınar Pir)
8. Ali Kaynar, '**Integrative Analysis of transcriptome data and genome-scale metabolic networks to identify drug targets and drug candidates for Parkinson's Disease**', Gebze Technical University, 2019
9. Merve Kutay, '**Integrative analysis of bladder cancer transcriptome data and genome-scale metabolic networks to understand dormancy mechanism**', Gebze Technical University, 2019
10. Elif Emanetci, '**Network-based analysis of cognitive impairment and memory deficits from transcriptome data**', Gebze Technical University, 2019
11. Regan Odongo, '**Molecular Effects of Plant-Based Drugs on Breast Cancer by Mapping Transcriptome Data on Protein-Protein Interactions**', 2019 (co-supervisor: Assoc.Prof. Asuman Demiroğlu-Zergeroğlu)
12. Ecehan Abdik, '**Reconstruction of Brain-Specific Genome-scale Metabolic Network Model for *Mus musculus* for the Investigation of Neurodegenerative Diseases**', Gebze Technical University, 2019
13. Müberra Fatma Cesur, '**Reconstruction and Constraint-based Analysis of the Genome-scale Metabolic Network for *Klebsiella pneumoniae* to Identify New Putative Drug Targets**', Gebze Technical University, *ongoing* (co-supervisor: Assist.Prof. Saliha Durmuş)
14. Hamza Umut Karakurt, '**Systems biology approach to investigate the effect of nitrogen and phosphate metabolism on actinorhodin production by *Streptomyces coelicolor* using genome scale metabolic models**', Gebze Technical University, 2016, (co-supervisor: Prof. Sedef Tunca Gedik)
15. Mohammad Mirhakkak, "'A new reconstruction of a genome scale brain metabolic model to identify biomarkers and molecular mechanisms for Multiple Sclerosis (MS) disease'", University of Isfahan & Gebze Institute of Technology, 2016, (co-supervisor: Assist. Prof. Mohammad A. Asadollahi)
16. Mustafa Sertbaş, '**Investigation of the Effect Neurological Diseases on Brain Metabolism by using Computational Systems Biology Techniques**'. Gebze Institute of Technology & Boğaziçi University, 2013 (co-supervisor: Prof. Kutlu Ülgen)
17. Farshad Abdolmaliki, '**Comparative analysis of the capabilities of *Escherichia coli* and *Saccharomyces cerevisiae* for production of some industrially important metabolites**', University of Isfahan & Gebze Institute of Technology, 2013, (co-supervisor: Assist. Prof. Mohammad A. Asadollahi)
18. Melik Öksüz, '**Investigation of the Biological Objective of the Cell by using Network Inference from Metabolome Data**'. Gebze Institute of Technology, 2012 (co-supervisor: Prof. Hasan Sadıkoğlu)
19. Fatih Tarlak, '**Investigation of the Biological Objective of the Cell by using Metabolic Flux Analysis Techniques**', Gebze Institute of Technology, 2012 (co-supervisor: Prof. Hasan Sadıkoğlu)
20. Filipe Gracio, '**From dynamic metabolome data to inference of metabolic networks**', University of Amsterdam, 2008, (co-supervisor: Assist. Prof. Johan Westerhuis)

## Refereed Journal Publications

(30 peer-reviewed journal articles, 5 Book chapters, 1 Editorial article, 9 peer-reviewed abstracts)  
570 citations, h-index: 12 (SCI), 1000 citations, h-index: 16 (Google Scholar)

1. V.R. Varma, H.B. Lüleci, A.M. Oommen, S. Varma, C.T. Blackshear, M.S. Griswold, Y. An, J.A. Roberts, R. O'Brien, O. Pletnikova, J.C. Troncoso, D.A. Bennett, [T. Çakır](#), C. Legido-Quigley, M. Thambisetty, 'Abnormal brain cholesterol homeostasis in Alzheimer's Disease—a targeted metabolomic and transcriptomic study', *npj Aging and Mechanisms of Disease* (kabul edildi)
2. E. Emanetçi, [T. Çakır](#), 'Network-Based Analysis of Cognitive Impairment and Memory Deficits from Transcriptome Data', *Journal of Molecular Neuroscience*, (kabul edildi)
3. E. Özcan, M. Seven, B. Şirin, [T. Çakır](#), E. Nikerel, B. Teusink, E. Toksoy Öner, '[Dynamic co-culture metabolic models reveal the fermentation dynamics, metabolic capacities and interplays of cheese starter cultures](#)', *Biotechnology & Bioengineering*, 118:223-237, 2021.
4. [T. Çakır](#), G. Panagiotou, R. Uddin, S. Durmuş, '[Novel Approaches for Systems Biology of Metabolism-Oriented Pathogen-Human Interactions: A Mini-Review](#)', 2020, *Frontiers in Cellular and Infection Microbiology*, 10:52, 2020.
5. H. Ermiş, Ü. Güven Gülhan, [T. Çakır](#), M. Altınbaş, '[Effect of iron and magnesium addition on population dynamics and high value product of microalgae grown in anaerobic liquid digestate](#)', 2020, *Scientific Reports*, 10:3510.
6. M.F. Cesur, B. Shiraj, R. Uddin, S. Durmuş, [T. Çakır](#), '[Network-based metabolism-centered screening of potential drug targets in \*Klebsiella pneumoniae\* at genome scale](#)', *Frontiers in Cellular and Infection Microbiology*, 9:447, 2020.
7. E. Özcan, S.S. Selvi, E. Nikerel, B. Teusink, E. Toksoy Öner, [T. Çakır](#), '[A genome-scale metabolic network of aroma bacterium \*Leuconostoc mesenteroides\* subsp. \*cremoris\*](#)', *Applied Microbiology and Biotechnology*, 103:3153-3165, 2019.
8. S. Demir, M.H. Müslümanoğlu, M. Müslümanoğlu, S. Başaran, Z.Z. Çalay, A. Aydın, U. Vogt, [T. Çakır](#), H. Kadioğlu, S. Artan, '[TWIST1 Gene expression as a biomarker for predicting primary doxorubicin resistance in breast cancer](#)'. *Balkan Journal of Medical Genetics: BJMG*, 22(2), 25, 2019.
9. M.J. Khatibipour, F. Kurtoğlu, [T. Çakır](#), '[JacLy: a Jacobian-based method for the inference of metabolic interactions from the covariance of steady-state metabolome data](#)', *PeerJ*, 6:e6034, 2018.
10. R. Guthke, S. Gerber, T. Conrad, S. Vlaic, S. Durmuş, [T. Çakır](#), E. Sevilgen, E. Shelest, J. Linde, '[Data-based reconstruction of gene regulatory networks of fungal pathogens](#)', *Frontiers in Microbiology*, 7:570, 2016.
11. E. Özcan, [T. Çakır](#), '[Reconstructed metabolic network models predict flux-level metabolic reprogramming of glioblastoma](#)', *Frontiers in Neuroscience* 10:156, 2016.
12. S. Durmuş, [T. Çakır](#), R. Guthke, '[Editorial: Computational Systems Biology of Pathogen-Host Interactions](#)', *Frontiers in Microbiology*, 7:21, 2016.
13. [T. Çakır](#), '[Reporter pathway analysis from transcriptome data: Metabolite-centric versus Reaction-centric approach](#)', *Scientific Reports*, 5:14563, 2015.
14. S. Durmuş, [T. Çakır](#), A. Özgür, R. Guthke, '[A Review on Computational Systems Biology of Pathogen-Host Interactions](#)', *Frontiers in Microbiology*, 6:235, 2015.
15. [T. Çakır](#), M.J. Khatibipour, '[Metabolic network discovery by top-down and bottom-up approaches and paths for reconciliation](#)', *Frontiers in Bioengineering and Biotechnology*, 2:62, 2014.
16. F. Tarlak, H. Sadıkoğlu, [T. Çakır](#), '[The role of flexibility and optimality in the prediction of Intracellular Fluxes of microbial cell metabolism](#)', *Molecular Biosystems*, 10, 2459-2465, 2014.
17. M. Sertbaş, K. Ö. Ülgen, [T. Çakır](#), '[Systematic Analysis of Transcription-Level Effects of Neurodegenerative Diseases on Human Brain Metabolism by a Newly Reconstructed Brain-Specific Metabolic Network](#)' *FEBS Open Bio*, 4, 542-553, 2014.

- 18.M. Öksüz, H. Sadıkoğlu, T. Çakır, '[Sparsity as cellular objective to infer directed metabolic networks from steady-state metabolome data: A theoretical analysis](#)', *PLoS ONE*, 8 (12), e84505, 2013.
- 19.S. Durmuş-Tekir, T. Çakır, E. Ardiç, A.S. Sayılırbaş et al. '[PHISTO: Pathogen-Host Interaction Search Tool](#)', *Bioinformatics*, 29, 1357-1358, 2013.
- 20.S. Durmuş-Tekir, T. Çakır, K.Ö. Ülgen, '[Infection strategies of bacterial and viral pathogens through pathogen-host protein-protein interactions](#)', *Frontiers in Microbiology*, 3:46, 2012.  
**Highlighted in a commentary by Schleker and Trilling in *Frontiers in Microbiology* (2013)**
21. T. Çakır, M. Hendriks, J. Westerhuis, A. Smilde, '[Metabolic network discovery through reverse engineering of metabolome data](#)', *Metabolomics*, 5, 318-329, 2009.
22. T. Çakır, S. Alsan, H. Saybaşılı, A. Akın, K.Ö. Ülgen, '[Reconstruction and flux analysis of coupling between metabolic pathways of astrocytes and neurons: application to cerebral hypoxia](#)', *Theoretical Biology and Medical Modelling*, 4:48, 2007.  
**Highly Accessed**
23. T. Çakır, Z. İ. Önsan, B. Kırdar, K.Ö. Ülgen, J. Nielsen, '[Effect of carbon source perturbations on transcriptional regulation of metabolic fluxes in \*Saccharomyces cerevisiae\*](#)', *BMC Systems Biology*, 1:18, 2007.
24. T. Çakır, Ç. Efe, D. Dikicioğlu, A. Hortaçsu, B. Kırdar, S.G. Oliver, '[Flux balance analysis of a genome-scale yeast model constrained by exometabolomic data allows metabolic system identification of genetically different strains](#)', *Biotechnology Progress*, 23, 320-326, 2007.
25. T. Çakır, K.R. Patil, Z.İ. Önsan, K.Ö. Ülgen, B. Kırdar, J. Nielsen, '[Integration of metabolome data with metabolic networks reveals reporter reactions](#)', *Molecular Systems Biology*, 2:50, 2006.
26. S. Durmuş, T. Çakır, K.Ö. Ülgen, '[Analysis of enzymopathies in the human red blood cells by constraint based stoichiometric modeling approaches](#)', *Computational Biology and Chemistry*, 30, 327-338, 2006.
27. S. Tiveci, A. Akın, T. Çakır, H. Saybaşılı, K.Ö. Ülgen, '[Modelling of calcium dynamics in brain energy metabolism and Alzheimer's disease](#)', *Computational Biology and Chemistry*, 29, 151-162, 2005.
28. T. Çakır, C.S. Tacer, K.Ö. Ülgen, '[Metabolic pathway analysis of enzyme-deficient human red blood cells](#)', *Biosystems* 78, 49-67, 2004.
29. T. Çakır, B.Kırdar, K.Ö. Ülgen, '[Metabolic pathway analysis of yeast strengthens the bridge between transcriptomics and metabolic networks](#)', *Biotechnology & Bioengineering*, 86, 251-260. 2004.
30. T. Çakır, K.Y. Arga, M.M. Altıntaş, K.Ö. Ülgen, '[Flux analysis of the recombinant \*Saccharomyces cerevisiae\* YPB-G utilizing starch for optimum ethanol production](#)', *Process Biochemistry*, 39, 2097-2108, 2004.
31. K.Y. Arga, T. Çakır, P. Pir, N. Özer, M.M. Altıntaş, K.Ö. Ülgen, '[Transfer function approach in structured modeling of recombinant yeast utilizing starch](#)', *Process Biochemistry*, 39, 1237-1248. 2004.

#### Published Peer-Reviewed Abstracts

32. E.N. Yiğit, E. Sönmez, M. Savaşan-Söğüt, T. Çakır, Işıl Aksan-Kurnaz, '[Validation of an In-Vitro Parkinson's Disease Model for the Study of Neuroprotection](#)', *Proceedings*, 2, 25, 2018.
33. E. Özcan, T. Çakır, '[Metabolic network-based analysis of probiotic cheese starter cultures](#)', *FEBS Journal*, 283, 138, 2016.
34. H.U. Karakurt, S. Tunca Gedik, T. Çakır, '[Genome scale comparison of perturbations in the nitrogen and phosphate metabolism of \*Streptomyces coelicolor\* by integrating transcriptome data with a curated metabolic network](#)', *FEBS Journal*, 283, 143, 2016.
35. M. Öksüz, H. Sadıkoğlu, T. Çakır, '[Optimization Based Inference of Metabolic Networks from Metabolome Data](#)', *Computational Methods in Systems Biology, Series: Lecture Notes in Computer Science*, 8130, 266-267, 2013.
36. S. Durmuş-Tekir, T. Çakır, E. Ardiç, İ. Karadeniz, A. Özgür F.E. Sevilgen, K.Ö. Ülgen '[PHISTO: A New Web Platform for Pathogen-Human Interactions](#)', *Computational Methods in Systems Biology, Series: Lecture Notes in Computer Science*, 8130, 268-269, 2013.

37. M. Sertbaş, K.Ö. Ülgen, T. Çakır, ‘Investigation of The Effects of Neurological Diseases on Human Brain Metabolism by A Computational Systems Biology Approach’, *New Biotechnology*, 29, S150, 2012.
38. M. Öksüz, H. Sadıkoğlu, T. Çakır, ‘Network Inference via Computational Analysis of Metabolome Data’, *New Biotechnology*, 29, S148, 2012.
39. S. Durmuş-Tekir, T. Çakır, A. Sayılırbaş, E. Çelik, S. Özcan, İ. Çevik, A. Özgür, F.E. Sevilgen, K.Ö. Ülgen, ‘PHISTO: Pathogen-Host Interaction Search Tool’, *New Biotechnology*, 29, S151, 2012.
40. F. Tarlak, H. Sadıkoğlu, T. Çakır, ‘Role of Flexibility and Minimal Enzyme Production in the Prediction of Intracellular Fluxes of Microorganisms’, *New Biotechnology*, 29, S146, 2012.
41. S. Durmuş-Tekir, T. Çakır, K.Ö. Ülgen, ‘Comparison of infection strategies of bacteria and viruses’, *FEBS Journal*, 279, 518, 2012.
42. S. Durmuş-Tekir, T. Çakır, K.Ö. Ülgen, ‘Stoichiometric modeling of the human red blood cells’, *Journal of Biotechnology*, 118, S11-12, 2005.
43. T. Çakır, K.R. Patil, B. Kırdar, Z.İ. Önsan, K.Ö. Ülgen, J. Nielsen, ‘Use of metabolome data and metabolic network structure to identify reaction significances’, *Journal of Biotechnology*, 118, S16, 2005.

### Book Chapters

1. T. Çakır, E. Kökrek, G. Avşar, E. Abdik, P. Pir, ‘**Next-generation genome-scale models incorporating multilevel ‘omics data: From yeast to human**’, *Yeast Systems Biology: Methods and Protocols*, Editors: S.G. Oliver, J.I. Castrillo, 347-363, Springer International Publishing, 2019 (invited)
2. T. Çakır, ‘**Constraint-based modeling of metabolic interactions in and between astrocytes and neurons**’, *Computational Glioscience, Springer Series in Computational Neuroscience*, Editors: M. De Pitta, H. Berry, 393-420, Springer International Publishing, 2019 (invited)
3. E. Özcan, T. Çakır, ‘**Genome-scale brain metabolic networks as scaffolds for the systems biology of neurodegenerative diseases: mapping metabolic alterations**’ *Systems Neuroscience, Advances in Neurobiology: 21*, Editors: A.C. Yu, L. Li, 195-217, Springer International Publishing, 2018 (invited)
4. M.F. Cesur, Ü. Güven Gülhan, E. Abdik, S. Durmuş, T. Çakır, ‘**Computational system biology for metabolism in infection**’, *Metabolic Interaction in Infection, Experientia Supplementum 109*, Editors: R. Silvestre, E. Torrado, 235-282, Springer International Publishing, 2018 (invited)
5. T. Çakır, E. Nikerel ‘**Biyolojik Ağların Modellenmesi**’, *Biyomedikal Mühendisliğin Temelleri*, Editors: M.H. Asyalı, S. Kara, B. Yılmaz, Nobel Kitap, Ankara, 2014. (invited)

### Book Editor

1. ‘**Computational systems biology of pathogen-host interactions**, Editors: S. Durmuş, T. Çakır, R. Guthke, Lausanne: Frontiers Media, 2016 (e-book)

### Invited Talks

1. T. Çakır, ‘Next-generation Genome Sequencing’, *BioExpo OpenLab*, TURKEY (September 16-18, 2020)
2. T. Çakır, ‘Novel Approaches for Parkinson’s Disease: Mapping transcriptome data on molecular interaction networks’, *BIO Türkiye 2020*, İstanbul- TURKEY (March 5-7, 2020)
3. T. Çakır, ‘Network-based metabolism-centered screening of potential drug targets in *Klebsiella pneumoniae* at genome scale’, *7th International BAU Drug Design Congress*, İstanbul- TURKEY (December 19-21, 2019)
4. T. Çakır, ‘Network-based analysis of transcriptome data to unravel molecular mechanisms behind cellular impairments’, *The International Symposium on Health Informatics and Bioinformatics (HIBIT 2019)*, İzmir- TURKEY (October 17-18, 2019)
5. T. Çakır, ‘Elucidation of Parkinson’s Disease Mechanisms by Mapping Transcriptome Data on Molecular Interaction Networks’, *FENS Regional Meeting 2019*, Belgrade-SERBIA (July 10-13, 2019)
6. T. Çakır, ‘Genome-scale brain metabolic networks as scaffolds for mapping disease-related alterations’, *International Conference on Applied Mathematics, Modeling and Life Sciences (ICAMLS’18)*, İstanbul- TURKEY (October 3-5, 2018)

7. T. Çakır, 'Next generation solutions for Parkinson's Disease: Mapping transcriptome data on molecular interaction networks', *Neurodegeneration / Neuroregeneration Workshop*, İstanbul, TURKEY (May 4-5, 2018)
8. T. Çakır, 'Genome-scale brain metabolic networks as scaffolds for mapping disease-related alterations', *3rd Iranian Conference on Systems Biology*, Tehran, IRAN (February 27-28, 2018)
9. T. Çakır, 'Genome-scale brain metabolism models', *21th National Biomedical Engineering Meeting – BIYOMUT 2017*, Acıbadem University, İstanbul, TURKEY (November, 24-26, 2017)
10. T. Çakır, 'Next-generation sequencing', *Symposium on Algorithms in Medical Genetics*, Ankara, TURKEY (June 3-4, 2017)
11. T. Çakır, 'Systems biology approaches in cell death: the analysis of genome-scale (omic) data', *New Techniques on Cell Death and Project Proposals on Health Science Workshop*, Gebze, TURKEY (February 9-11, 2017)
12. T. Çakır, 'A novel metabolite-centric computational approach for the identification of perturbed metabolic pathways from transcriptome data', *Boğaziçi University, Department of Molecular Biology and Genetics*, İstanbul-TURKEY (May 13, 2016)
13. T. Çakır, 'High-throughput Biological Data Analysis I: Microarray Data Analysis', *İstanbul University, Aziz Sançar Institute of Experimental Medicine*, İstanbul-TURKEY (May 2, 2016)
14. T. Çakır, 'Microarrays, Clustering and Classification: Normalization and Differential Expression Gene Detection', *Workshop on Bioinformatics and Applications in Genetics*, İstanbul-TURKEY, (November 21, 2015)
15. T. Çakır, 'How Cellular Networks Meet Genome Scale Data: Systems Biology Examples', *Yeditepe University, Department of Genetics and Bioengineering*, İstanbul-TURKEY, (October 26, 2015)
16. T. Çakır, 'A Bioinformatic Approach to the Effect of Brain Tumors on Metabolic Pathways', *Workshop on Cancer and Cancer Stem Cells Control*, Manisa-TURKEY, (October 8-10, 2015)
17. T. Çakır, 'From Transcriptome data to Protein Interaction Networks: A Systems Biology Example for *Arabidopsis thaliana*', *Green Biotechnology Workshop*, Kocaeli-TURKEY (September 21-23, 2015)
18. T. Çakır, 'Mining biological data: Analysis and interpretation of large-scale 'omics' datasets', *Bioinformatics Methods for Cancer Biology: Theoretical and Practical Workshop*, İzmir-TURKEY (September 9-10, 2015)
19. T. Çakır, 'Bioinformatic Analysis of Apoptotic Pathways via Transcriptome Data', *Bioinformatic Course on Apoptotic Cell Death*, İzmir-TURKEY (February 12-13, 2015)
20. T. Çakır, 'From Systems Biology to Systems Medicine: Foundations and Examples', *International ITU Molecular Biology and Genetics Student Congress '14*, İstanbul-TURKEY (August 15-17, 2014)
21. T. Çakır, 'Systems Medicine: A systems-approach for Personalized Medicine', *HIMSS Turkey*, İstanbul-TURKEY (June 4-5, 2014)
22. T. Çakır, 'Systems Biology: A Science of Networks', *7<sup>th</sup> National Biotechnology Congress of Iran*, Tehran-IRAN (September 12-13, 2011)
23. T. Çakır, 'Systems Biology: An Emerging Trend in Biotechnology', *University of İsfahan*, İsfahan-IRAN (September 14, 2011)

## **Participations/Presentations in Conferences (46 international, 22 national)**

### ***International***

1. E. Abdik, T. Çakır, 'Clustering-based metabolism-oriented analysis of mouse models of Parkinson's Disease', *International Symposium on Health Informatics and Bioinformatics (HIBIT 2019)*, İzmir-TURKEY (October 17-18, 2019)
2. D. Uzuner, P. Pir, D. Gözüaçık, T. Çakır, 'Integrative Analysis of Transcriptome Data and Cellular Networks Identifies Molecular Interactions of Metastasis Mechanisms in Cancer', *International Symposium on Health Informatics and Bioinformatics (HIBIT 2019)*, İzmir-TURKEY (October 17-18, 2019)
3. B. Baz, T. Çakır, 'Genome-scale Metabolic Network Reconstruction of *Klebsiella pneumoniae* HS11286', *International Symposium on Health Informatics and Bioinformatics (HIBIT 2019)*, İzmir-TURKEY (October 17-18, 2019) – oral presentation: B. Baz-



4. M. Yaşar, M.F. Cesur, S. Durmuş, T. Çakır, ‘Topological Analysis of Genome-scale Metabolic Network of *Klebsiella pneumoniae* for Drug Target Discovery’, *International Symposium on Health Informatics and Bioinformatics (HIBIT 2019)*, İzmir-TURKEY (October 17-18, 2019)
5. K. Kocabaş, T. Çakır, ‘Integrative Analysis of Pathogen-Host Metabolic Network of *Salmonella enterica* with dual RNA-seq data’, *International Symposium on Health Informatics and Bioinformatics (HIBIT 2019)*, İzmir-TURKEY (October 17-18, 2019)
6. E. Abdik, T. Çakır, ‘Comparative Analysis of Mouse Models of Parkinson’s Disease by Mapping Transcriptome Data on Brain Metabolic Network’, *FENS Regional Meeting 2019*, Belgrade-SERBIA (July 10-13, 2019)
7. E. Sönmez, E.N. Yiğit, İ. Yüksel, T. Çakır, I. Aksan Kurnaz, ‘Dopamine Metabolism Related Gene Expression Changes in 6-OHDA Induced Model of Parkinson’s Disease’, *FENS Regional Meeting 2019*, Belgrade-SERBIA (July 10-13, 2019)
8. A. Kaynar, I. Aksan Kurnaz, T. Çakır, ‘Integrative Analysis of Transcriptome Data and Genome-Scale Metabolic Networks to Identify Candidate Drug Targets and Drugs for Parkinson’s Disease’, *6th International BAU Drug Design Congress*, İstanbul-TURKEY (December 13-15, 2018) – oral presentation: A. Kaynar-
9. M.F. Cesur, S. Durmuş, T. Çakır, ‘*In silico* Analysis of the Genome-scale Metabolic Network of *K. pneumoniae* to Reveal Drug-Target Candidates’, *11th International Symposium on Health Informatics and Bioinformatics (HIBIT 2018)*, Antalya-TURKEY (October 25-27, 2018) – oral presentation: M.F. Cesur-
10. A. Kaynar, I. Aksan Kurnaz, T. Çakır, ‘A Genome-Scale Metabolic Network Integrated with Transcriptome Data Predicts Major Fluxes in Parkinson’s Disease’, *4th International Parkinson’s Disease Symposium*, LUXEMBOURG (October 11-12, 2018)
11. M.F. Cesur, S. Durmuş, T. Çakır, ‘Comparative analysis of *Klebsiella pneumoniae* genome-scale metabolic networks’, *International Conference on Applied Mathematics, Modeling and Life Sciences (ICAMLS’18)*, İstanbul-TURKEY (October 3-5, 2018)
12. A. Kaynar, İ. Yüksel, M. Savaşan Söğüt, I. Aksan Kurnaz, T. Çakır, ‘Towards mining Parkinson’s Disease biomarkers by mapping transcriptome data on brain-specific molecular interaction networks’, *20 years of Alpha-synuclein in Parkinson’s Disease and Related Synucleinopathies*, Athens- GREECE (September 8-10, 2017)
13. A. Kaynar, I. Aksan Kurnaz, T. Çakır, ‘Model-Based Analysis of Parkinson’s Disease By Incorporating Alpha-Synuclein Production into A Genome-Scale Brain Specific Metabolic Network’, *5th International Congress of the Molecular Biology Association of Turkey (MolBioKon2017)*, İstanbul - TURKEY (September 7-10, 2017)
14. E. Özcan, E. Nikerel, T. Çakır, E. Toksoy-Öner, ‘Metabolic Capacities of Lactic Acid Bacteria in Cheese Starter Cultures Grown in Pure And Co-cultures’, *12th International Symposium on Lactic Acid Bacteria (LAB12)*, Egmond an Zee- NETHERLANDS (August 27-31, 2017)
15. T. Çakır, ‘A novel metabolite-centric approach for the identification of perturbed metabolic pathways from genome-wide data’, *European Conference of Computational Biology -ECCB/ISMB 2017*, Prague- CZECH REPUBLIC (July 21-24, 2017)
16. E. Kırdök, İ. Yüksel, E. Özcan, T. Çakır, ‘Reconstruction of Cold Stress Specific Genome-scale Metabolic Models for *Arabidopsis thaliana*’, *Green Biotechnology Workshop*, Kocaeli-TURKEY (September 21-23, 2015)
17. E. Özcan, T. Çakır, ‘Investigation of the Effects of Glioblastoma Tumors on Brain Metabolism Using Computational Systems Medicine Approaches’, *International Symposium on Advances in Predictive & Personalized Medicine’ (APPM-2015)*, İstanbul-TURKEY (April 2-3, 2015)
18. E. Özcan, T. Çakır, ‘Understanding Brain Metabolic Network Changes in case of Glioblastoma Using Computational Systems Biology Approaches’, *International Conference on Applied Informatics for Health and Life Sciences (AIHLS-2014)*, Kuşadası-TURKEY (October 19-22, 2014) – oral presentation: E. Özcan-
19. Z.O. Çalışkaner, A. Abdul Waheed, E. Özcan, T. Çakır, ‘Bioinformatic Analysis of Parkinson’s Disease, Huntington’s Disease and Multiple Sclerosis to Reveal Disease-Specific Metabolic Patterns’, *3rd International Congress of the Molecular Biology Association of Turkey (MolBiyoKon2014)*, İzmir-TURKEY (September 10-12, 2014)

20. E. Kırdök, Y. Ö. Çiftçi, T. Çakır, "Identifying the Cold Stress Specific Protein-Protein Interaction Network for *Arabidopsis thaliana*", *3rd International Congress of the Molecular Biology Association of Turkey (MolBiyKon2014)*, Izmir- TURKEY (September 10-12, 2014)
21. E. Ardiç, S. Karakoç, İ. Karadeniz, A. Özgür, K. Ö. Ülgen, E. Nikerel, F. E. Sevilgen, T. Çakır, S. Durmuş Tekir 'PHISTO: A Web-based Platform For Studying Infection Mechanisms through Pathogen-Human Interactions', *3rd International Congress of the Molecular Biology Association of Turkey (MolBiyKon2014)*, Izmir- TURKEY (September 10-12, 2014) – oral presentation: S. Durmuş-
22. Ü. Alkaya, E. Özcan, T. Çakır, 'The Flux Balance Analysis of Human Brain Metabolic Network Affected by Alzheimer's Disease', *International ITU Molecular Biology and Genetics Student Congress '14* (August 15-17, 2014)
23. T. Çakır, E. Ardiç, S. Karakoç, İ. Karadeniz, E. Nikerel, A. Özgür, F. E. Sevilgen, S. Durmuş Tekir "PHISTO: A Web Platform For Studying Infection Mechanisms through Pathogen-Human Interactions", *3rd International Conference of Molecular Biology and Biotechnology*, Sarajevo- BOSNIA and HERZEGOVINA (June 2-6, 2014)
24. E. Kırdök, T. Çakır, 'A Systems Approach to Investigate the Effect of Autism on Metabolism', *2nd International Congress of the Molecular Biology Association of Turkey (MolBioKon2013)*, Istanbul-TURKEY (November 22-23, 2013)
25. S. Durmuş-Tekir, T. Çakır, E. Ardiç, İ. Karadeniz, A. Özgür, F.E. Sevilgen, K.Ö. Ülgen, ' PHISTO: A New Web Platform for Pathogen-Human Interactions', *Computational Methods in Systems Biology (CMSB13)*, Klosterneuburg- AUSTRIA, (September 23-26, 2013)
26. M. Öksüz, H. Sadıkoğlu, T. Çakır, ' Optimization Based Inference of Metabolic Networks from Metabolome Data', *Computational Methods in Systems Biology (CMSB13)*, Klosterneuburg- AUSTRIA, (September 23-26, 2013)
27. M. Sertbaş, K.Ö. Ülgen, T. Çakır, 'Metabolic Analysis of Parkinson's and Huntington's Diseases: A Computational Systems Biology Approach, *9<sup>th</sup> European Congress on Chemical Engineering(ECC-9)*, The Hague-NETHERLANDS (April 21-25, 2013) – oral presentation: M. Sertbaş-
28. M. Öksüz, H. Sadıkoğlu, T. Çakır, 'Investigation of Alternative Network Inference Methods for Reverse Engineering of Metabolome Data', *2<sup>nd</sup> Conference on Constraint-based Reconstruction and Analysis (COBRA 2012)*, Helsingor- DENMARK (October 7-9, 2012)
29. F. Tarlak, H. Sadıkoğlu, T. Çakır, 'Predicting Intracellular Flux Distributions of Microorganisms', *2<sup>nd</sup> Conference on Constraint-based Reconstruction and Analysis (COBRA 2012)*, Helsingor- DENMARK (October 7-9, 2012)
30. M. Öksüz, H. Sadıkoğlu, T. Çakır, 'Network Inference via Computational Analysis of Metabolome Data', *15<sup>th</sup> European Conference on Biotechnology (ECB-15)*, Istanbul-TÜRKİYE (22-26 Eylül, 2012) Istanbul-TURKEY (September 22-26, 2012)
31. F. Tarlak, H. Sadıkoğlu, T. Çakır, 'Role of Flexibility and Minimal Enzyme Production in the Prediction of Intracellular Fluxes of Microorganisms', *15<sup>th</sup> European Conference on Biotechnology (ECB-15)*, Istanbul-TURKEY (September 22-26, 2012)
32. M. Sertbaş, K.Ö. Ülgen, T. Çakır, 'Investigation Of The Effects Of Neurological Diseases On Human Brain Metabolism By A Computational Systems Biology Approach', *15<sup>th</sup> European Conference on Biotechnology (ECB-15)*, Istanbul-TURKEY (September 22-26, 2012)
33. S. Durmuş, T. Çakır, A.S. Sayılırbaş, E. Çelik, S. Özcan, İ. Çevik, A.S. Özçelik, A. Özgür, F.E. Sevilgen, K.Ö. Ülgen, 'PHISTO: Pathogen-Host Interactions Search Tool', *15<sup>th</sup> European Conference on Biotechnology (ECB-15)*, Istanbul-TURKEY (September 22-26, 2012)
34. S. Durmuş, A.S. Sayılırbaş, T. Çakır, K.Ö. Ülgen, 'A Comparison of Infection Strategies of Bacteria and Viruses', *37<sup>th</sup> FEBS Congress*, Sevilla-SPAIN (September 4-9, 2012)
35. S. Durmuş, A.S. Sayılırbaş, T. Çakır, K.Ö. Ülgen, 'PHISTO: Pathogen-Host Interaction Search Tool', *12th International Conference on Systems Biology (ICSB-11)*, Heidelberg & Mannheim- GERMANY (August 28- September 1, 2011)
36. T. Çakır, J. Westerhuis, M. Hendriks, A. Smilde, 'Metabolic network discovery through reverse-engineering of metabolome data', *Metabolomics Society 4th Annual Conference*, Boston-USA (September 2-6, 2008) -oral presentation by M. Hendriks -

37. T. Çakır, J. Westerhuis, M. Hendriks, A. Smilde, 'Similarity measures to infer metabolic networks from metabolome data', *Benelux Bioinformatics Conference (BBC07)*, Leuven-BELGIUM. (November 12-13, 2007)
38. T. Çakır, B. Kırdar, Z.İ. Önsan, K.Ö. Ülgen, J. Nielsen, 'Effect of Carbon Source Perturbations on Transcriptional Regulation of Metabolic Fluxes in *S. cerevisiae*', *1<sup>st</sup> International Symposium on Systems Biology*, Murcia- SPAIN, (June 1-2, 2006) - oral presentation by T. Çakır -
39. T. Çakır, B. Kırdar, Z.İ. Önsan, K.Ö. Ülgen, J. Nielsen, 'Transcriptional Regulation of Metabolic Fluxes in Response to Carbon Shifts', *Genomes to Systems 2006*, Manchester- UK, (March 21-24, 2006)
40. T. Çakır, K.R. Patil, Z.İ. Önsan, K.Ö. Ülgen, B. Kırdar, J. Nielsen, 'Use of Metabolome Data and Metabolic Network Structure to Identify Reaction Significances', *12<sup>th</sup> European Congress on Biotechnology (ECB-12)*, Lyngby- DENMARK, (August 21-24, 2005)
41. S. Durmuş, T. Çakır, K.Ö. Ülgen, 'Analysis of Enzymopathies in Human Red Blood Cells by Stoichiometric Modeling Methods', *12<sup>th</sup> European Congress on Biotechnology (ECB-12)*, Lyngby- DENMARK, (August 21-24, 2005)
42. T. Çakır, B. Kırdar, K.Ö. Ülgen, 'Minimal Cut Sets of *S. cerevisiae* and *E. coli* Metabolic Networks and Their Structural Robustness', *5<sup>th</sup> International Conference on Systems Biology (ICSB 2004)*, Heidelberg- GERMANY, (October 9-13, 2004)
43. T. Çakır, K.Ö. Ülgen, B. Kırdar, 'Investigation of the Effect of Gene Addition in *S. cerevisiae* by Metabolic Pathway Analysis', *5<sup>th</sup> International Conference on Systems Biology (ICSB 2004)*, Heidelberg- GERMANY, (October 9-13, 2004)
44. T. Çakır, S. Tacer, K.Ö. Ülgen, 'Control-effective Flux Profiles of Enzyme-Deficient Human Red Blood Cells', *5<sup>th</sup> European Symposium on Biochemical Engineering Science (ESBES-5)*, Stuttgart- GERMANY, (September 8-11, 2004)
45. S. Alsan, T. Çakır, H. Saybaşılı, A. Akın, K.Ö. Ülgen, 'Modeling of Neuron-Astrocyte Coupling via Stoichiometric Modeling Techniques', *5<sup>th</sup> European Symposium on Biochemical Engineering Science (ESBES-5)*, Stuttgart- GERMANY, (September 8-11, 2004)
46. S. Tiveci, T. Çakır, H. Saybaşılı, A. Akın, K.Ö. Ülgen, 'Calcium Dynamics in Brain Energy Metabolism and Alzheimer's Disease', *29<sup>th</sup> FEBS Congress*, Warsaw-POLAND (June 26- July 1, 2004)
47. S. Alsan, T. Çakır, H. Saybaşılı, A. Akın, K.Ö. Ülgen, 'Modeling of Neurotransmitter Glutamate via Metabolic Flux Analysis', *Agora Meeting on Modeling Mental Processes and Disorders*, Kuşadası- TURKEY, (May 24-29, 2004)
48. S. Tiveci, T. Çakır, H. Saybaşılı, A. Akın, K.Ö. Ülgen, 'The Role of Calcium Dynamics in Brain Energy Metabolism', *Agora Meeting on Modeling Mental Processes and Disorders*, Kuşadası- TURKEY, (May 24-29, 2004) - oral presentation by S. Tiveci-
49. T. Çakır, B. Kırdar, K.Ö. Ülgen, "Stoichiometric Structure of *Saccharomyces cerevisiae* is Influential in Expression Level Ratios of Metabolic Genes", *11<sup>th</sup> European Congress on Biotechnology (ECB-11)*, Basel- SWITZERLAND, (August 24-29, 2003)
50. S. Tacer, T. Çakır, K.Ö. Ülgen, "Investigation of Erythrocyte Enzymopathies by Metabolic Pathway Analysis Techniques", *11<sup>th</sup> European Congress on Biotechnology (ECB-11)*, Basel- SWITZERLAND, (August 24-29, 2003)
51. K.Y. Arga, T. Çakır, P. Pir, N. Özer, M.M. Altintas, K.Ö. Ülgen, "Structured Modeling of Recombinant Yeast Utilizing Starch", *3<sup>rd</sup> Chemical Engineering Conference for Collaborative Research in Eastern Mediterranean (EMCC-3)*, Thessaloniki- GREECE (May 13-15, 2003)
52. M.M. Altintas, K.Y. Arga, T. Çakır, K.Ö. Ülgen, "Metabolic Flux Analysis of Recombinant Yeast Utilizing Starch", *4<sup>th</sup> European Symposium on Biochemical Engineering Science (ESBES-4)*, Delft- NETHERLANDS (August 28-31, 2002)
53. M.M. Altintas, K.Y. Arga, T. Çakır, K.Ö. Ülgen, 'Metabolic Flux Distributions in *Saccharomyces cerevisiae* Utilizing Starch', *24<sup>th</sup> Symposium on Biotechnology for Fuels and Chemicals*, Gatlinburg- TENNESSEE (March 31- April 02, 2002)

## **National**

54. İ Yüksel, E.N. Yiğit, E. Sönmez, I. Aksan-Kurnaz, T. Çakır, ‘Parkinson Hastalığı Hücre Hattı Modelinden elde edilen Transkriptom Verilerinin Protein Etkileşim Ağlarına Haritalanarak Aday İlaçların Belirlenmesi’, *VI. Turkish Medical World Congress*, İstanbul-TURKEY (Ocotober 29-31, 2019)
55. M.F. Cesur, T. Çakır, ‘Patojenlere Ait Genom Ölçekli Metabolik Ağlardan Hayati Genlerin Tahmini ve İlaç Hedeflerinin Belirlenmesi’, *VI. Turkish Medical World Congress*, İstanbul-TURKEY (Ocotober 29-31, 2019)
56. H.B. Konuk, V.R. Varma, A.O. Oommen, M. Thambisetty, T. Çakır, ‘Alzheimer Hastalığında Farklı Beyin Bölgelerindeki Metabolik Tepkime Hızlarının Hesaplamalı Yöntemlerle Tahmini’, *VI. Turkish Medical World Congress*, İstanbul-TURKEY (Ocotober 29-31, 2019)
57. E. Emanetci, T. Çakır, ‘Hafıza ve öğrenme mekanizmalarının belirlenmesinde transkriptom verilerinin moleküler etkileşim ağlarına dayalı analizinin rolü’, *VI. Turkish Medical World Congress*, İstanbul-TURKEY (Ocotober 29-31, 2019)
58. K. Kocabaş, T. Çakır, ‘Genom Ölçekli Patojen-İnsan Bütünleşik Metabolik Ağ Modellemesi Kullanılarak Salmonella enterica Enfeksiyonları İçin İlaç Hedefi Tespiti’, *VI. Turkish Medical World Congress*, İstanbul-TURKEY (Ocotober 29-31, 2019)
59. E. Abdik, T. Çakır, ‘Parkinson Hastalığı için Genom Ölçekli Metabolik Ağ Modellemesi Kullanılarak Biyobelirteç Tahmini’, *VI. Turkish Medical World Congress*, İstanbul-TURKEY (Ocotober 29-31, 2019)
60. E. Emanetci, T. Çakır, ‘Transkriptom verileri kullanılarak bilişsel bozulma ve hafıza zayıflıklarının hücresele ağlara dayalı analizi’, *17. National Neuroscience Congress*, Trabzon – TURKEY (April 4-7, 2019)
61. H.B. Konuk, T. Çakır, ‘Alzheimer hastalığında farklı beyin bölgelerine göre metabolik tepkime hızlarındaki değişikliklerin hesaplamalı tahmini’, *17. National Neuroscience Congress*, Trabzon – TURKEY (April 4-7, 2019)
62. A. Kaynar, I. Aksan-Kurnaz, T. Çakır, ‘Transkriptom verilerinin genom ölçekli metabolik ağlara haritalanması ile Parkinson hastalığı için ilaç hedeflerinin belirlenmesi’, *17. National Neuroscience Congress*, Trabzon – TURKEY (April 4-7, 2019) – oral presentation: A. Kaynar -
63. İ. Yüksel, T. Çakır, ‘Parkinson hastalığında cinsiyetin miRNA ve transkripsiyon faktörlerinin aktivitesine etkisi’, *17. National Neuroscience Congress*, Trabzon – TURKEY (April 4-7, 2019)
64. E. Abdik, T. Çakır, ‘Parkinson hastalığının insan ve fare metabolizmasındaki etkilerinin genom ölçekli ve karşılaştırılmalı incelenmesi’, *17. National Neuroscience Congress*, Trabzon – TURKEY (April 4-7, 2019) – third best poster award-
65. İ. Yüksel, T. Çakır, ‘Parkinson Hastalığı için Protein Etkileşim Ağları Temelli İlaç Hedefi Adaylarının Tespiti’, *16th National Neuroscience Congress*, İstanbul - TURKEY (May 20-23, 2018)
66. A. Kaynar, Işıl Aksan-Kurnaz, T. Çakır, ‘Moleküler kalabalığın Parkinson Hastalığına etkisinin genom-ölçekli metabolik ağ modeli ile analizi’, *16th National Neuroscience Congress*, İstanbul - TURKEY (May 20-23, 2018)
67. İ. Yüksel, T. Çakır, ‘Parkinson Hastalığı için Protein Etkileşim ve Regülasyon Ağları Temelli İlaç Hedefi Adaylarının Tespiti’, *Neurodegeneration / Neuroregeneration Workshop*, İstanbul – TURKEY (May 4-5, 2018)
68. A. Kaynar, Işıl Aksan-Kurnaz, T. Çakır, ‘Parkinson Hastalığında Genom-Ölçekli Metabolik Ağ Modeli İle İlaç Hedefi Belirleme’, *Neurodegeneration / Neuroregeneration Workshop*, İstanbul – TURKEY (May 4-5, 2018) – 2nd best poster award-
69. T. Çakır, ‘Transkriptom verilerinin biyoinformatik analizi ile Alzheimer ve Parkinson hastalıklarından etkilenen metabolik yolların tespiti’, *15th National Neuroscience Congress*, Sakarya- TURKEY (May 7-10, 2017) – oral presentation: T. Çakır-
70. A. Kaynar, T. Çakır, ‘Parkinson hastalığında anlamlı değişen genlerin beyin bölgelerine göre karşılaştırılması ve işlevsel analizi’, *15th National Neuroscience Congress*, Sakarya- TURKEY (May 7-10, 2017)
71. İ. Yüksel, M.H. Ramdhani, T. Çakır, ‘Parkinson hastalığına ait transkriptom ve proteom verilerinin metabolit merkezli haberci yolak analizi yöntemiyle incelenmesi’, *15th National Neuroscience Congress*, Sakarya- TURKEY (May 7-10, 2017)

72. N. S. Karakoç, T. Çakır, K. Ülgen, F. E. Sevilgen, S. Durmuş, 'Enfeksiyon mekanizmalarının patojen-konak etkileşimleri seviyesinde hesaplamalı sistem biyolojisi yaklaşımı ile incelenmesi', *14<sup>th</sup> National Medical Biology and Genetics Kongress*, Fethiye-TURKEY (October 27-30, 2015)
73. E. Özcan, Ebru Toksoy Öner, T. Çakır, 'Metabolic Network based Analysis of Microbial Communities', *3<sup>rd</sup> National Bioengineering Student Congress*, İstanbul-TURKEY (March 12-13, 2015)
74. E. Kırdök, Y. Ö. Çiftçi, T. Çakır, "Elucidation of the Cold Stress Specific Gene Regulatory Network for *Arabidopsis thaliana*", *Genome Variations: Symposium of Applications and Data Analysis*, İstanbul-TURKEY (September 15-16, 2014)
75. M. Jafar Khatibipour, T. Çakır, 'Optimizasyon Tabanlı Yeni Bir Metabolik Ağyapı Çıkarımı Tekniği', *11th National Chemical Engineering Congress (UKMK-11)*, Eskişehir-TURKEY (September 2-5, 2014) – oral presentation: M. Jafar Khatibipour-
76. E. Özcan, T. Çakır, 'Glioblastoma Tümörlerinin Hücre Metabolizmasına Etkisinin Biyoinformatik Analizi', *11th National Chemical Engineering Congress (UKMK-11)*, Eskişehir-TURKEY (September 2-5, 2014) – oral presentation: E. Özcan-
77. M. Sertbaş, K.Ö. Ülgen, T. Çakır 'Nörodejeneratif hastalıkların metabolik yollara etkisinin biyoinformatik analizi', *12th National Neuroscience Congress (USK-12)*, İstanbul-TURKEY (28-31 Mayıs 2014) – oral presentation: T. Çakır-
78. E. Özcan, T. Çakır, 'Hesaplamalı Sistem Biyolojisi Yaklaşımları ile Glioblastoma Tümörlerinin Hücre Metabolizmasına Etkisinin İncelenmesi', *12th National Neuroscience Congress (USK-12)*, İstanbul-TURKEY (28-31 Mayıs 2014)
79. M. Öksüz, H. Sadıkoğlu, T. Çakır, 'Metabolom Verilerinin Hesaplamalı Analizi ile Metabolik Ağyapı Çıkarımı', *10th National Chemical Engineering Congress (UKMK-10)*, İstanbul-TURKEY (September 3-6, 2012) – oral presentation: M. Öksüz-
80. F. Tarlak, H. Sadıkoğlu, T. Çakır, 'Metabolik Akı Analizi Tekniklerini Kullanarak Hücrenin Biyolojik Amacının İncelenmesi', *10th National Chemical Engineering Congress (UKMK-10)*, İstanbul-TURKEY (September 3-6, 2012) – oral presentation: F. Tarlak-
81. M. Sertbaş, K.Ö. Ülgen, T. Çakır, 'Nörolojik Hastalıkların Beyin Metabolizmasına Etkisinin Hesaplamalı Sistem Biyolojisi Yaklaşımıyla İncelenmesi', *10th National Chemical Engineering Congress (UKMK-10)*, İstanbul-TURKEY (September 3-6, 2012)
82. S. Durmuş, T. Çakır, A.S. Sayılırbaş, E. Çelik, S. Özcan, İ. Çevik, A.S. Özçelik, A. Özgür, F.E. Sevilgen, K.Ö. Ülgen, 'PHISTO: Patojen-İnsan Protein Etkileşimleri Veritabanı', *10th National Chemical Engineering Congress (UKMK-10)*, İstanbul-TURKEY (September 3-6, 2012) – oral presentation: T. Çakır-
83. S. Durmuş, T. Çakır, K.Ö. Ülgen, 'Constraint-based stoichiometric modeling of enzymopathies in the human erythrocytes', *Mediterranean Pharmacy Congress (MEDPHAC-2006)*, Mersin- TURKEY (October 13-16, 2006) -oral presentation by S. Durmuş-
84. T. Çakır, K.R. Patil, Z.İ. Önsan, K.Ö. Ülgen, B. Kırdar, J. Nielsen , 'Integration of High-throughput Metabolome Data with Metabolic Networks Reveals Perturbation-specific Reporter Reactions', *13<sup>th</sup> İstanbul Statistical Physics Days*, İstanbul- TURKEY (July 6-8, 2006) – oral presentation: T. Çakır –
85. S. Durmuş, T. Çakır, K.Ö. Ülgen, 'Investigation of the effect of enzyme deficiencies on erythrocyte metabolism by flux balance analysis method', *12<sup>th</sup> National Biotechnology Congress* , Eskişehir - TURKEY, (August 31- September 2, 2005) -oral presentation by S. Durmuş-
86. K.Y. Arga, T. Çakır, M.M. Altintas, K.Ö. Ülgen, 'Optimization of ethanol production in starch utilizing yeast cells by metabolic flux analysis techniques', *5<sup>th</sup> National Chemical Engineering Congress (UKMK-5)*, Ankara- TURKEY (September 2-5, 2002) - oral presentation by T. Çakır-

### **Courses/Conferences attended without Contribution**

- ChemoMetrics Day, Utrecht- NETHERLANDS, March 2008.
- 1<sup>st</sup> Annual BioSys Conference on Industrial Applications of Bioinformatics and Systems Biology, Copenhagen-DENMARK. November 15, 2005.
- PhD Course on Metabolic Engineering and Functional Genomics, Lyngby-DENMARK. May 22-28, 2004.