



TUNAHAN ÇAKIR

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

Experience

- Assistant Professor 2009-
Department of Bioengineering, Gebze Technical University, Turkey
(www.systemsbiology.info.tr)
- Co-Founder, Research Specialist 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 & www.metabolic-diseases.nl)
- Research/Teaching Assistant 2001-2006
Department of Chemical Engineering, Boğaziçi University, Turkey
(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)

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 4th within the department in graduation , honour degree)
- High School Diploma, Istanbul Şişli High School, Turkey 1993-1996
(GPA: 4.84/5.00, ranked 1st in graduation)

Awards

- 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	Systems Neuroscience
Catalytic Reaction Engineering	Transport Phenomena
BioComputing: MATLAB	Calculus II
Technical English for Computer Engineers	English for Professional Life

Research Area

Computational Systems Biology & Systems Medicine & Bioinformatics

- Systems Medicine Approaches for Neurological Diseases and Brain Metabolism
- Reverse Engineering of Metabolome Data by Statistical Data Mining Techniques
- Integration of 'omics' Data and Metabolic Networks by Stoichiometric Modeling Techniques
- Development of an online platform for infection mechanisms based on pathogen-host protein interactions

Refereed Journals (74 manuscripts refereed so far)

Bioinformatics (25)	Molecular Biosystems (31)	Metabolomics
BMC Systems Biology	PLOS Computational Biology	Nucleic Acid Research
Biotechnology & Bioengineering	Neuromolecular Medicine	J. Royal Society Interface
Frontiers in Microbiology	Scientific Reports	

Journal Editor

Advisory Board, Molecular Biosystems

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

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

Scientific Projects

1. TÜBİTAK Career Project, Project Manager, '**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: 157.000 TL), (Project Code: 110M464)
2. TÜBİTAK Project Manager, '**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)
3. TÜBİTAK Öncelikli Alanlar (Neurodegenerative Diseases) Project Manager, '**Bioinformatic analysis of transcriptome data and cellular networks for Parkinson's Disease: Identification of novel drug targets and drugs**', 2016-2019 (Bütçe: 770.000 TL), (Project Code: 315S302)
4. Gebze Institute of Technology BAP Project, Project Manager, '**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)
5. Gebze Technical University BAP Project, Project Manager, '**Reconstruction of a new genome-scale brain metabolic model and application for the elucidation of the mechanisms of brain tumors**', 2015-2017 (Budget: 4.800 TL) (Project Code: 2015-A-43)
6. 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)

7. TÜBİTAK TEYDEB SME R&D Support Program, Project Team Member, **“Pathogen-Host Interactions Web Platform and Establishment of Relevant Bioinformatic Services”**, 2015-2016 (Budget: 463.000 TL) (Project Manager: Assist. Prof. Saliha Durmuş)
8. 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)
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. Turkish Ministry of Development, Infrastructure Support Project, Project Researcher, **‘Establishment of Central Research Laboratory for Gebze Institute of Technology’**, 2013-2016, (Budget: 10.000.000 TL), (Project Manager: Assoc. Prof. Uygur H. Tazebay)

Supervised PhD Theses

1. Emrah Özcan, **‘Metabolic Network-based Analysis of Cheese Starter Cultures as a Microbial Community’**, Gebze Technical University - Marmara University, *ongoing*, (co-supervisor: Prof. Dr. Ebru Toksoy Öner)
2. Mohammad Jafar Khatibipour, **‘Systems Biology of Glioblastoma: Multidirectional Investigation of the Active Cellular Networks in Glioblastoma Cells’**, Gebze Technical University, *ongoing*, (co-supervisor: Prof. Dr. Hasan Sadıkoğlu)

Supervised Master Theses

1. 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, *ongoing*
2. 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)
3. 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)
4. 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)
5. 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)
6. Melik Öksüz, **‘Investigation of the Biological Objective of the Cell by using Network Inference from Metabolome Data’**. Gebze Institute of Technology, 2012 (co-supervisor: Assoc. Prof. Hasan Sadıkoğlu)
7. Fatih Tarlak, **‘Investigation of the Biological Objective of the Cell by using Metabolic Flux Analysis Techniques’**, Gebze Institute of Technology, 2012 (co-supervisor: Assoc. Prof. Hasan Sadıkoğlu)
8. Filipe Gracio, **‘From dynamic metabolome data to inference of metabolic networks’**, University of Amsterdam, 2008, (co-supervisor: Assist. Prof. Johan Westerhuis)

Refereed Journal Publications

(21 peer-reviewed journal articles, 1 Editorial article, 9 peer-reviewed abstracts)

373 citations, h-index: 12 (SCI), 607 citations, h-index: 13 (Google Scholar)

1. R. Guthke, S. Gerber, T. Conrad, S. Vlais, 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.
2. E. Özcan, [T. Çakır](#), '[Reconstructed metabolic network models predict flux-level metabolic reprogramming of glioblastoma](#)', *Frontiers in Neuroscience* 10:156, 2016.
3. S. Durmuş, [T. Çakır](#), R. Guthke, '[Editorial: Computational Systems Biology of Pathogen-Host Interactions](#)', *Frontiers in Microbiology*, 7:21, 2016.
4. [T. Çakır](#), '[Reporter pathway analysis from transcriptome data: Metabolite-centric versus Reaction-centric approach](#)', *Scientific Reports*, 5:14563, 2015.
5. S. Durmuş, [T. Çakır](#), A. Özgür, R. Guthke, '[A Review on Computational Systems Biology of Pathogen-Host Interactions](#)', *Frontiers in Microbiology*, 6:235, 2015. *Cited: 23*
6. [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.
7. 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.
8. 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. *Cited: 12*
9. 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.
10. S. Durmuş-Tekir, [T. Çakır](#), E. Ardiç, A.S. Sayılırbaş et al. '[PHISTO: Pathogen-Host Interaction Search Tool](#)', *Bioinformatics*, 29, 1357-1358, 2013. *Cited: 24*
11. 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. *Cited: 27*
Highlighted in a commentary by Schleker and Trilling in Frontiers in Microbiology (2013)
12. [T. Çakır](#), M. Hendriks, J. Westerhuis, A. Smilde, '[Metabolic network discovery through reverse engineering of metabolome data](#)', *Metabolomics*, 5, 318-329, 2009. *Cited: 23*
13. [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. *Cited: 28*
Highly Accessed
14. [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. *Cited: 26*
15. [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. *Cited: 17*
16. [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. *Cited: 93*
17. 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.
18. 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.

19. T. Çakır, C.S. Tacer, K.Ö. Ülgen, '[Metabolic pathway analysis of enzyme-deficient human red blood cells](#)', *Biosystems* 78, 49-67, 2004. *Cited: 24*
20. 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. *Cited: 43*
21. 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. *Cited: 14*
22. 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

23. E. Özcan, T. Çakır, '[Metabolic network-based analysis of probiotic cheese starter cultures](#)', *FEBS Journal*, 283, 138, 2016.
24. 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.
25. 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.
26. S. Durmuş-Tekir, T. Çakır, E. Ardıç, 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.
27. 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.
28. M. Öksüz, H. Sadıkoğlu, T. Çakır, '[Network Inference via Computational Analysis of Metabolome Data](#)', *New Biotechnology*, 29, S148, 2012.
29. 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.
30. 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.
31. S. Durmuş-Tekir, T. Çakır, K.Ö. Ülgen, '[Comparison of infection strategies of bacteria and viruses](#)', *FEBS Journal*, 279, 518, 2012.
32. S. Durmuş-Tekir, T. Çakır, K.Ö. Ülgen, '[Stoichiometric modeling of the human red blood cells](#)', *Journal of Biotechnology*, 118, S11-12, 2005.
33. 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. E. Özcan, T. Çakır, '**Genome-scale brain metabolic networks as scaffolds for the systems biology of neurodegenerative diseases: mapping metabolic alterations**' *Systems Neuroscience*, Editor: Albert Yu, Springer International Publishing, 2016 (invited) (submitted)
2. T. Çakır, '**Constraint-based modeling of metabolic interactions in and between astrocytes and neurons**', *Computational Glioscience*, Editors: M. De Pitta, H. Berry, Springer International Publishing, 2016 (invited) (accepted)
3. T. Çakır, E. Nikerel '**Biyolojik Ağların Modellenmesi**', *Biyomedikal Mühendisliğin Temelleri*, Editors: M.H. Asyalı, S. Kara, B. Yılmaz, Nobel Kitap, Ankara, 2014. (invited)

Invited Talks

1. T. Çakır, ‘Hücre ölümünde sistem biyolojisi yaklaşımları: genom ölçekli (omik) verilerin analizi’, *New Techniques on Cell Death and Project Proposals on Health Science Workshop*, Gebze, TURKEY (February 9-11, 2017)
2. 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)
3. T. Çakır, ‘High-throughput Biological Data Analysis I: Microarray Data Analysis’, *İstanbul University, Aziz Sancar Institute of Experimental Medicine*, İstanbul-TURKEY (May 2, 2016)
4. T. Çakır, ‘Microarrays, Clustering and Classification: Normalization and Differential Expression Gene Detection’, *Workshop on Bioinformatics and Applications in Genetics*, İstanbul-TURKEY, (November 21, 2015)
5. T. Çakır, ‘How Cellular Networks Meet Genome Scale Data: Systems Biology Examples’, *Yeditepe University, Department of Genetics and Bioengineering*, İstanbul-TURKEY, (October 26, 2015)
6. 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)
7. 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)
8. 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)
9. T. Çakır, ‘Bioinformatic Analysis of Apoptotic Pathways via Transcriptome Data’, *Bioinformatic Course on Apoptotic Cell Death*, İzmir-TURKEY (February 12-13, 2015)
10. 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)
11. T. Çakır, ‘Systems Medicine: A systems-approach for Personalized Medicine’, *HIMSS Turkey*, İstanbul-TURKEY (June 4-5, 2014)
12. T. Çakır, ‘Systems Biology: A Science of Networks’, *7th National Biotechnology Congress of Iran*, Tehran-IRAN (September 12-13, 2011)
13. T. Çakır, ‘Systems Biology: An Emerging Trend in Biotechnology’, *University of İsfahan*, İsfahan-IRAN (September 14, 2011)

Participations/Presentations in Conferences (38 international, 18 national)

International

1. 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)
2. 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)
3. 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-
4. 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 (MolBioKon2014)*, İzmir-TURKEY (September 10-12, 2014)
5. 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 (MolBioKon2014)*, İzmir- TURKEY (September 10-12, 2014)

6. 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 (MolBioKon2014)*, Izmir- TURKEY (September 10-12, 2014) – oral presentation: S. Durmuş-
7. 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)
8. 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)
9. 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)
10. 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)
11. 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)
12. M. Sertbaş, K.Ö. Ülgen, T. Çakır, 'Metabolic Analysis of Parkinson's and Huntington's Diseases: A Computational Systems Biology Approach, *9th European Congress on Chemical Engineering(ECC-9)*, The Hague-NETHERLANDS (April 21-25, 2013) – oral presentation: M. Sertbaş-
13. M. Öksüz, H. Sadıkoğlu, T. Çakır, 'Investigation of Alternative Network Inference Methods for Reverse Engineering of Metabolome Data', *2nd Conference on Constraint-based Reconstruction and Analysis (COBRA 2012)*, Helsingor- DENMARK (October 7-9, 2012)
14. F. Tarlak, H. Sadıkoğlu, T. Çakır, 'Predicting Intracellular Flux Distributions of Microorganisms', *2nd Conference on Constraint-based Reconstruction and Analysis (COBRA 2012)*, Helsingor- DENMARK (October 7-9, 2012)
15. M. Öksüz, H. Sadıkoğlu, T. Çakır, 'Network Inference via Computational Analysis of Metabolome Data', *15th European Conference on Biotechnology (ECB-15)*, Istanbul-TÜRKİYE (22-26 Eylül, 2012) Istanbul-TURKEY (September 22-26, 2012)
16. F. Tarlak, H. Sadıkoğlu, T. Çakır, 'Role of Flexibility and Minimal Enzyme Production in the Prediction of Intracellular Fluxes of Microorganisms', *15th European Conference on Biotechnology (ECB-15)*, Istanbul-TURKEY (September 22-26, 2012)
17. M. Sertbaş, K.Ö. Ülgen, T. Çakır, 'Investigation Of The Effects Of Neurological Diseases On Human Brain Metabolism By A Computational Systems Biology Approach', *15th European Conference on Biotechnology (ECB-15)*, Istanbul-TURKEY (September 22-26, 2012)
18. 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', *15th European Conference on Biotechnology (ECB-15)*, Istanbul-TURKEY (September 22-26, 2012)
19. S. Durmuş, A.S. Sayılırbaş, T. Çakır, K.Ö. Ülgen, 'A Comparison of Infection Strategies of Bacteria and Viruses', *37th FEBS Congress*, Sevilla-SPAIN (September 4-9, 2012)
20. 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)
21. 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 -
22. 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)

23. 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*’, *1st International Symposium on Systems Biology*, Murcia- SPAIN, (June 1-2, 2006) - oral presentation by T. Çakır -
24. 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)
25. 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', *12th European Congress on Biotechnology (ECB-12)*, Lyngby- DENMARK, (August 21-24, 2005)
26. S. Durmuş, T. Çakır, K.Ö. Ülgen, 'Analysis of Enzymopathies in Human Red Blood Cells by Stoichiometric Modeling Methods' , *12th European Congress on Biotechnology (ECB-12)*, Lyngby- DENMARK, (August 21-24, 2005)
27. T. Çakır, B. Kırdar, K.Ö. Ülgen, 'Minimal Cut Sets of *S. cerevisiae* and *E. coli* Metabolic Networks and Their Structural Robustness', *5th International Conference on Systems Biology (ICSB 2004)* , Heidelberg- GERMANY, (October 9-13, 2004)
28. T. Çakır, K.Ö. Ülgen, B. Kırdar, 'Investigation of the Effect of Gene Addition in *S. cerevisiae* by Metabolic Pathway Analysis', *5th International Conference on Systems Biology (ICSB 2004)* , Heidelberg- GERMANY, (October 9-13, 2004)
29. T. Çakır, S. Tacer, K.Ö. Ülgen, 'Control-effective Flux Profiles of Enzyme-Deficient Human Red Blood Cells', *5th European Symposium on Biochemical Engineering Science (ESBES-5)*, Stuttgart- GERMANY, (September 8-11, 2004)
30. S. Alsan, T. Çakır, H. Saybaşılı, A. Akın, K.Ö. Ülgen, 'Modeling of Neuron-Astrocyte Coupling via Stoichiometric Modeling Techniques', *5th European Symposium on Biochemical Engineering Science (ESBES-5)* , Stuttgart- GERMANY, (September 8-11, 2004)
31. S. Tiveci, T. Çakır, H. Saybaşılı, A. Akın, K.Ö. Ülgen, 'Calcium Dynamics in Brain Energy Metabolism and Alzheimer's Disease', *29th FEBS Congress*, Warsaw-POLAND (June 26- July 1, 2004)
32. 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)
33. 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-
34. T. Çakır, B. Kırdar, K.Ö. Ülgen, “Stoichiometric Structure of *Saccharomyces cerevisiae* is Influential in Expression Level Ratios of Metabolic Genes”, *11th European Congress on Biotechnology (ECB-11)*, Basel- SWITZERLAND, (August 24-29, 2003)
35. S. Tacer, T. Çakır, K.Ö. Ülgen, “Investigation of Erythrocyte Enzymopathies by Metabolic Pathway Analysis Techniques”, *11th European Congress on Biotechnology (ECB-11)*, Basel- SWITZERLAND, (August 24-29, 2003)
36. K.Y. Arga, T. Çakır, P. Pir, N. Özer, M.M. Altintas, K.Ö. Ülgen, “Structured Modeling of Recombinant Yeast Utilizing Starch”, *3rd Chemical Engineering Conference for Collaborative Research in Eastern Mediterranean (EMCC-3)*, Thessaloniki- GREECE (May 13-15, 2003)
37. M.M. Altintas, K.Y. Arga, T. Çakır, K.Ö. Ülgen, “Metabolic Flux Analysis of Recombinant Yeast Utilizing Starch”, *4th European Symposium on Biochemical Engineering Science (ESBES-4)*, Delft- NETHERLANDS (August 28-31, 2002)
38. M.M. Altintas, K.Y. Arga, T. Çakır, K.Ö. Ülgen, 'Metabolic Flux Distributions in *Saccharomyces cerevisiae* Utilizing Starch', *24th Symposium on Biotechnology for Fuels and Chemicals*, Gatlinburg- TENNESSEE (March 31- April 02, 2002)

National

39. 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-
40. 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)
41. 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)
42. N. S. Karakoç, T. Çakır, K. Ülgen, F. E. Sevilgen, S. Durmuş, ‘Enfeksiyon mekanizmalarının patojen-konak etkileşimleri seviyesinde hesaplamalı sistem biyolojisi yaklaşımı ile incelenmesi’, *14th National Medical Biology and Genetics Kongress*, Fethiye-TURKEY (October 27-30, 2015)
43. E. Özcan, Ebru Toksoy Öner, T. Çakır, ‘Metabolic Network based Analysis of Microbial Communities’, *3rd National Bioengineering Student Congress*, İstanbul-TURKEY (March 12-13, 2015)
44. 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)
45. 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-
46. 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-
47. 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-
48. 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)
49. 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-
50. 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-
51. M. Sertbaş, K.Ö. Ülgen, T. Çakır, ‘Nörolojik Hastalıkların Beyin Metabolizmasına Etkisinin Hesaplanmalı Sistem Biyolojisi Yaklaşımıyla İncelenmesi’, *10th National Chemical Engineering Congress (UKMK-10)*, İstanbul-TURKEY (September 3-6, 2012)
52. 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-
53. 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-
54. 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’, *13th İstanbul Statistical Physics Days*, İstanbul- TURKEY (July 6-8, 2006) – oral presentation: T. Çakır –
55. S. Durmuş, T. Çakır, K.Ö. Ülgen, ‘Investigation of the effect of enzyme deficiencies on erythrocyte metabolism by flux balance analysis method’, *12th National Biotechnology Congress* , Eskişehir - TURKEY, (August 31- September 2, 2005) -oral presentation by S. Durmuş-

56. 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', *5th 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.
- 1st 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.