

## **Assoc. Prof. MEHMET SOMEL**

### **Personal Information**

**Email:** msomel@metu.edu.tr

### **Education Information**

Doctorate, Universitaet Leipzig, Faculty Of Biosciences Pharmacy And Psychology, Germany 2004 - 2008

Post Graduate, Middle East Technical University, Graduate School of Natural and Applied Sciences, Biyoteknoloji (YI) (Tezli), Turkey 2001 - 2003

Under Graduate, Middle East Technical University, Faculty of Arts and Sciences, Department of Biology, Turkey 1996 - 2001

### **Dissertations**

Doctorate, Exploring Phenotypic Variation with the Transcriptome: Applications in Human Evolution and Ageing, Universitaet Leipzig, Faculty Of Biosciences Pharmacy And Psychology, 2008

Post Graduate, Characterisation of DNA from archaeological wheat (*Triticum L.*) seeds from anatolia, Middle East Technical University, Graduate School of Natural and Applied Sciences, Biyoteknoloji (YI) (Tezli), 2003

### **Research Areas**

Evolution, Population Genetics

### **Academic Titles / Tasks**

Associate Professor, Middle East Technical University, Faculty of Arts and Sciences, Department of Biology, 2014 - Continues

Assistant Professor, Middle East Technical University, Faculty of Arts and Sciences, Department of Biology, 2013 - 2014

Research Assistant, University Of California, Berkeley, Letters And Science, Integrative Biology, 2011 - 2013

Research Assistant, Chinese Academy Of Sciences, Cas-Mpg Partner Institute For Computational Biology, 2008 - 2011

Research Assistant, Middle East Technical University, Faculty of Arts and Sciences, Department of Biology, 2001 - 2004

### **Advising Theses**

Acar A. C., Somel M., De novo SNP calling and demographic inference using trio genome data, Post Graduate, E.BOZLAK(Student), 2019

Somel M., Exploring the evolutionary history of anatolian neolithic sheep using modern and ancient genomics, Post Graduate, E.YURTMAN(Student), 2019

Somel M., Testing natural selection on polygenic trait-associated alleles in anatolia using neolithic and present-day human genomes, Post Graduate, E.FER(Student), 2019

SOMEL M., Differences in learning performance and related behaviors across three honey bee subspecies from Turkey, Post Graduate, B.ERDEM(Student), 2018

SOMEL M., Testis transcriptome evolution among hominids, Post Graduate, E.SAĞLICAN(Student), 2018

Somel M., Özer A. N. , Kuzey iskanavyalı insan örneklerinde hesaplamalı antik DNA çalışmaları, Post Graduate, N.DUHA(Student), 2018

SOMEL M., Context dependent mutation biases in the human genome, Post Graduate, A.YETKİN(Student), 2017

SOMEL M., Genetic relatedness estimation using ancient genomic data, Post Graduate, A.GHALİCHI(Student), 2017

SOMEL M., Understanding domestication process of sheep across Central and Western Anatolia by using ancient DNA, Post Graduate, O.ÖZER(Student), 2017

SOMEL M., Meta analysis of Alzheimer's disease at the gene expression level, Post Graduate, H.İZGİ(Student), 2017

SOMEL M., TUNÇBAĞ N., Transcriptomic network analysis of brain aging and Alzheimer's disease, Post Graduate, P.PARVIZI(Student), 2017

SOMEL M., Notable decrease in transcriptome conservation during mammalian aging, Post Graduate, Z.GÖZDE(Student), 2016

SOMEL M., Meta-analysis of gene expression reversals in ageing brain, Post Graduate, H.MELİKE(Student), 2016

SOMEL M., Evolution of bladder cancer investigated using exome sequencing, Post Graduate, E.ÖZKURT(Student), 2015

### Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

- **Temporal changes in the gene expression heterogeneity during brain development and aging**  
Isildak U., SOMEL M., Thornton J. M. , Donertas H. M.  
SCIENTIFIC REPORTS, vol.10, 2020 (Journal Indexed in SCI)
- **Molecular footprint of Medawar's mutation accumulation process in mammalian aging**  
Turan Z. G. , Parvizi P., Donertas H. M. , Tung J., Khaitovich P., SOMEL M.  
AGING CELL, vol.18, 2019 (Journal Indexed in SCI)
- **Ancient Mitochondrial Genomes Reveal the Absence of Maternal Kinship in the Burials of catalhoyuk People and Their Genetic Affinities**  
Chylenski M., Ehler E., SOMEL M., Yaka R., Krzewinska M., Dabert M., Juras A., Marciniak A.  
GENES, vol.10, 2019 (Journal Indexed in SCI)
- **Genomic and Strontium Isotope Variation Reveal Immigration Patterns in a Viking Age Town**  
Krzewinska M., Kjellstrom A., Guenther T., Hedenstierna-Jonson C., Zachrisson T., Omrak A., Yaka R., Kilinc G. M. , SOMEL M., Sobrado V., et al.  
CURRENT BIOLOGY, vol.28, pp.2730-2748, 2018 (Journal Indexed in SCI)
- **Investigating Holocene human population history in North Asia using ancient mitogenomes**  
Kilinc G. M. , Kashuba N., Yaka R., Sumer A. P. , Yuncu E., Shergin D., Ivanov G. L. , Kichigin D., Pestereva K., Volkov D., et al.  
SCIENTIFIC REPORTS, vol.8, 2018 (Journal Indexed in SCI)
- **Archaeogenetics of Late Iron Age Cemialo Srt, Batman: Investigating maternal genetic continuity in north Mesopotamia since the Neolithic**  
Yaka R., Birand A., Yilmaz Y., Caner C., Acan S. C. , Gunduzalp S., Parvizi P., Ozdogan A. E. , Togan I., SOMEL M.  
AMERICAN JOURNAL OF PHYSICAL ANTHROPOLOGY, vol.166, pp.196-207, 2018 (Journal Indexed in SCI)
- **Variation and Functional Impact of Neanderthal Ancestry in Western Asia**  
Taskent R. O. , Alioglu N. D. , Fer E., Donertas H. M. , SOMEL M., Gokcumen O.  
GENOME BIOLOGY AND EVOLUTION, vol.9, pp.3516-3524, 2017 (Journal Indexed in SCI)
- **Archaeogenomic analysis of the first steps of Neolithization in Anatolia and the Aegean**  
Kilinc G. M. , KOPTKIN D., ATAKUMAN Ç., SUMER A. P. , DONERTAS H. M. , YAKA R., BİLGİN C. C. , BÜYÜKKARAKAYA A. M. , Baird D., ALTINISIK E., et al.  
PROCEEDINGS OF THE ROYAL SOCIETY B-BIOLOGICAL SCIENCES, vol.284, 2017 (Journal Indexed in SCI)
- **Gene expression reversal toward pre-adult levels in the aging human brain and age-related loss of cellular identity**  
Donertas H. M. , İZGİ H., Kamacioglu A., He Z., Khaitovich P., SOMEL M.  
SCIENTIFIC REPORTS, vol.7, 2017 (Journal Indexed in SCI)
- **The Demographic Development of the First Farmers in Anatolia**

Kilinc G. M., Omrak A., Ozer F., Gunther T., BÜYÜKKARAKAYA A. M., Bicakci E., Baird D., Donertas H. M., Ghalichi A., Yaka R., et al.

CURRENT BIOLOGY, vol.26, pp.2659-2666, 2016 (Journal Indexed in SCI)

● **Disruption of an Evolutionarily Novel Synaptic Expression Pattern in Autism**

Liu X., Han D., Somel M., Jiang X., Hui H., Guijarro P., Zhang N., Mitchell A., Halene T., Ely J. J., et al.

PLOS BIOLOGY, vol.14, 2016 (Journal Indexed in SCI)

● **Determining the origin of synchronous multifocal bladder cancer by exome sequencing**

Acar O., Ozkurt E., Demir G., Sarac H., ALKAN C., Esen T., SOMEL M., LACK N.

BMC CANCER, vol.15, 2015 (Journal Indexed in SCI)

● **Transcriptomic insights into human brain evolution: acceleration, neutrality, heterochrony**

SOMEL M., Rohlf S., Liu X.

CURRENT OPINION IN GENETICS & DEVELOPMENT, vol.29, pp.110-119, 2014 (Journal Indexed in SCI)

● **Whole genome sequencing of Turkish genomes reveals functional private alleles and impact of genetic interactions with Europe, Asia and Africa**

Alkan C., Kavak P., Somel M., Gokcumen O., Ugurlu S., Saygi C., Dal E., Bugra K., GÜNGÖR T., Sahinalp S. C., et al.

BMC GENOMICS, vol.15, 2014 (Journal Indexed in SCI)

● **Shared signatures of social stress and aging in peripheral blood mononuclear cell gene expression profiles**

Snyder-Mackler N., SOMEL M., Tung J.

AGING CELL, vol.13, pp.954-957, 2014 (Journal Indexed in SCI)

● **Altitude adaptation in Tibetans caused by introgression of Denisovan-like DNA**

Huerta-Sanchez E., Jin X., Asan A., Bianba Z., Peter B. M., Vinckenbosch N., Liang Y., Yi X., He M., Somel M., et al.

NATURE, vol.512, pp.194-210, 2014 (Journal Indexed in SCI)

● **Population Genomics Reveal Recent Speciation and Rapid Evolutionary Adaptation in Polar Bears**

Liu S., Lorenzen E. D., Fumagalli M., Li B., Harris K., Xiong Z., Zhou L., Korneliussen T. S., Somel M., Babbitt C., et al.

CELL, vol.157, pp.785-794, 2014 (Journal Indexed in SCI)

● **Classic Selective Sweeps Revealed by Massive Sequencing in Cattle**

Qanbari S., Pausch H., Jansen S., Somel M., Strom T. M., Fries R., Nielsen R., Simianer H.

PLOS GENETICS, vol.10, 2014 (Journal Indexed in SCI)

● **Evolution of Human Longevity Uncoupled from Caloric Restriction Mechanisms**

Zhao G., Guo S., Somel M., Khaitovich P.

PLOS ONE, vol.9, 2014 (Journal Indexed in SCI)

● **A Scan for Human-Specific Relaxation of Negative Selection Reveals Unexpected Polymorphism in Proteasome Genes**

Somel M., Sayres M. A. W., Jordan G., Huerta-Sanchez E., Fumagalli M., Ferrer-Admetlla A., Nielsen R.

MOLECULAR BIOLOGY AND EVOLUTION, vol.30, pp.1808-1815, 2013 (Journal Indexed in SCI)

● **Early gene expression divergence between allopatric populations of the house mouse (*Mus musculus domesticus*)**

Bryk J., Somel M., Lorenc A., Teschke M.

ECOLOGY AND EVOLUTION, vol.3, pp.558-568, 2013 (Journal Indexed in SCI)

● **Human brain evolution: transcripts, metabolites and their regulators**

Somel M., Liu X., Khaitovich P.

NATURE REVIEWS NEUROSCIENCE, vol.14, pp.112-127, 2013 (Journal Indexed in SCI)

● **Widespread splicing changes in human brain development and aging**

Mazin P., Xiong J., Liu X., Yan Z., Zhang X., Li M., He L., Somel M., Yuan Y., Chen Y. P., et al.

MOLECULAR SYSTEMS BIOLOGY, vol.9, 2013 (Journal Indexed in SCI)

● **Accelerated aging-related transcriptome changes in the female prefrontal cortex**

Yuan Y., Chen Y. P., Boyd-Kirkup J., Khaitovich P., Somel M.

AGING CELL, vol.11, pp.894-901, 2012 (Journal Indexed in SCI)

● **A Comparison of Brain Gene Expression Levels in Domesticated and Wild Animals**

Albert F. W., Somel M., Carneiro M., Aximu-Petri A., Halbwax M., Thalmann O., Blanco-Aguilar J. A., Plyusnina I. Z.,

Trut L., Villafuerte R., et al.

PLOS GENETICS, vol.8, 2012 (Journal Indexed in SCI)

● **Mechanisms of Dietary Response in Mice and Primates: A Role for EGR1 in Regulating the Reaction to Human-Specific Nutritional Content**

Weng K., Hu H., Xu A. G. , Khaitovich P., Somel M.

PLOS ONE, vol.7, 2012 (Journal Indexed in SCI)

● **Extension of cortical synaptic development distinguishes humans from chimpanzees and macaques**

Liu X., Somel M., Tang L., Yan Z., Jiang X., Guo S., Yuan Y., He L., Oleksiak A., Zhang Y., et al.

GENOME RESEARCH, vol.22, pp.611-622, 2012 (Journal Indexed in SCI)

● **MicroRNA-Driven Developmental Remodeling in the Brain Distinguishes Humans from Other Primates**

Somel M., Liu X., Tang L., Yan Z., Hu H., Guo S., Jiang X., Zhang X., Xu G., Xie G., et al.

PLOS BIOLOGY, vol.9, 2011 (Journal Indexed in SCI)

● **Development and application of a modified dynamic time warping algorithm (DTW-S) to analyses of primate brain expression time series**

Yuan Y., Chen Y. P. , Ni S., Xu A. G. , Tang L., Vingron M., Somel M., Khaitovich P.

BMC BIOINFORMATICS, vol.12, 2011 (Journal Indexed in SCI)

● **Rapid metabolic evolution in human prefrontal cortex**

Fu X., Giavalisco P., Liu X., Catchpole G., Fu N., Ning Z., Guo S., Yan Z., Somel M., Paeaebo S., et al.

PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, vol.108, pp.6181-6186, 2011 (Journal Indexed in SCI)

● **MicroRNA, mRNA, and protein expression link development and aging in human and macaque brain**

Somel M., Guo S., Fu N., Yan Z., Hu H. Y. , Xu Y., Yuan Y., Ning Z., Hu Y., Menzel C., et al.

GENOME RESEARCH, vol.20, pp.1207-1218, 2010 (Journal Indexed in SCI)

● **Intergenic and Repeat Transcription in Human, Chimpanzee and Macaque Brains Measured by RNA-Seq**

Xu A. G. , He L., Li Z., Xu Y., Li M., Fu X., Yan Z., Yuan Y., Menzel C., Li N., et al.

PLOS COMPUTATIONAL BIOLOGY, vol.6, 2010 (Journal Indexed in SCI)

● **Evolution of Neuronal and Endothelial Transcriptomes in Primates**

Giger T., Khaitovich P., Somel M., Lorenc A., Lizano E., Harris L. W. , Ryan M. M. , Lan M., Wayland M. T. , Bahn S., et al.

GENOME BIOLOGY AND EVOLUTION, vol.2, pp.284-292, 2010 (Journal Indexed in SCI)

● **A Humanized Version of Foxp2 Affects Cortico-Basal Ganglia Circuits in Mice**

Enard W., Gehre S., Hammerschmidt K., Hoelter S. M. , Blass T., Somel M., Brueckner M. K. , Schreiwies C., Winter C., Sohr R., et al.

CELL, vol.137, pp.961-971, 2009 (Journal Indexed in SCI)

● **Transcriptional neoteny in the human brain**

Somel M., Franz H., Yan Z., Lorenc A., Guo S., Giger T., Kelso J., Nickel B., Dannemann M., Bahn S., et al.

PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, vol.106, pp.5743-5748, 2009 (Journal Indexed in SCI)

● **Evolution of Primate Gene Expression: Drift and Corrective Sweeps?**

Chaix R., Somel M., Kreil D. P. , Khaitovich P., Lunter G. A.

GENETICS, vol.180, pp.1379-1389, 2008 (Journal Indexed in SCI)

● **Human and Chimpanzee Gene Expression Differences Replicated in Mice Fed Different Diets**

Somel M., Creely H., Franz H., Mueller U., Lachmann M., Khaitovich P., Paeaebo S.

PLOS ONE, vol.3, 2008 (Journal Indexed in SCI)

● **Metabolic changes in schizophrenia and human brain evolution**

Khaitovich P., Lockstone H. E. , Wayland M. T. , Tsang T. M. , Jayatilaka S. D. , Guo A. J. , Zhou J., Somel M., Harris L. W. , Holmes E., et al.

GENOME BIOLOGY, vol.9, 2008 (Journal Indexed in SCI)

● **Identification and analysis of genomic regions with large between-population differentiation in**

## humans

Myles S., Tang K., Somel M., Green R. E., Kelso J., Stoneking M.

ANNALS OF HUMAN GENETICS, vol.72, pp.99-110, 2008 (Journal Indexed in SCI)

### ● **Turks fighting back against anti-evolution forces**

Somel M., Somel R. N. O., Kence A.

NATURE, vol.445, pp.147, 2007 (Journal Indexed in SCI)

### ● **Identifying genes underlying skin pigmentation differences among human populations**

Myles S., Somel M., Tang K., Kelso J., Stoneking M.

HUMAN GENETICS, vol.120, pp.613-621, 2007 (Journal Indexed in SCI)

### ● **Gene expression becomes heterogeneous with age**

Somel M., Khaitovich P., Bahn S., Paabo S., Lachmann M.

CURRENT BIOLOGY, vol.16, 2006 (Journal Indexed in SCI)

## Refereed Congress / Symposium Publications in Proceedings

### ● **An Archaeogenomic Investigation of Consanguinity During the Neolithic Transition**

Taskent R. O., Sumer A. P., Koptekin D., Ozkan M., Ceballos F. C., Gokcumen O., SOMEL M.

88th Annual Meeting of the American-Association-of-Physical-Anthropologists (AAPA), Ohio, United States Of America, 27 - 30 March 2019, vol.168, pp.244

### ● **Archaeogenomic Insights into Anatolian Demographic History During the Holocene**

ATAKUMAN Ç., BİRAND ÖZSOY A. C., BİLGİN C. C., ERDAL Y. S., BÜYÜKKARAKAYA A. M., Götherström A., GMKÇÜMEN Ö., GÜNDÜZALP S., Kılınç G. M., KOKTEKİN D., et al.

5 International Congress of the Molecular Biology Association of Turkey, 8 - 10 September 2017

### ● **Diverse Patterns of Neanderthal Introgression in Western Asia**

Taskent R. O., Alioglu D., Fer E., Donertas H. M., SOMEL M., Gokcumen O.

86th Annual Meeting of the American-Association-of-Physical-Anthropologists (AAPA), Louisiana, United States Of America, 19 - 22 April 2017, vol.162, pp.377

### ● **Genome-wide cytosine methylation differences between ancient hunter-gatherers and farmers**

Koptekin D., Kilinc G. M., Sumer A. P., Donertas M., SOMEL M.

86th Annual Meeting of the American-Association-of-Physical-Anthropologists (AAPA), Louisiana, United States Of America, 19 - 22 April 2017, vol.162, pp.250-251

### ● **Mechanisms of convergent testis transcriptome evolution in primates**

Saglican E., Donertas M., Rohlf S., Ozkurt E., Hu H., Neme R., Erdem B., Khaitovich P., SOMEL M.

86th Annual Meeting of the American-Association-of-Physical-Anthropologists (AAPA), Louisiana, United States Of America, 19 - 22 April 2017, vol.162, pp.364

### ● **Mobility in Neolithic Central Anatolia: A Comparison of Dental Morphometrics and aDNA**

Pilloud M. A., SOMEL M., Haddow S. D., Knusel C. J., Larsen C. S., Ozbasaran M., ERDAL Ö. D., Baird D., Pearson J., Götherstrom A., et al.

86th Annual Meeting of the American-Association-of-Physical-Anthropologists (AAPA), Louisiana, United States Of America, 19 - 22 April 2017, vol.162, pp.316

### ● **Neanderthal Introgression to Western Asian Human Populations**

Taskent R. O., Xu D., Alioglu D., Donertas H. M., Fer E., SOMEL M., Gokcumen O.

85th Annual Meeting of the American-Association-of-Physical-Anthropologists, Georgia, United States Of America, 13 - 16 April 2016, vol.159, pp.310-311

### ● **Archaeogenomic analysis of ancient Anatolians: first genetic indication for Neolithic cultural diffusion in the Near East**

SOMEL M., Kilinc G. M., Ozer F., Omrak A., Yaka R., Donertas M., Dagtas N. D., Yuncu E., Koptekin D., BÜYÜKKARAKAYA A. M., et al.

85th Annual Meeting of the American-Association-of-Physical-Anthropologists, Georgia, United States Of America, 13 - 16 April 2016, vol.159, pp.297-298

● **Whole genome sequencing of Turkish genomes reveals functional private alleles and impact of genetic interactions with Europe, Asia and Africa**

Gokcumen O., Alkan C., Kavak P., SOMEL M., Ugurlu S., Dal E., Bugra-Bilge K., Gungor T., Sahinalp C., Ozeren N., et al. 83rd Annual Meeting of the American-Association-of-Physical-Anthropologists, Calgary, Canada, 8 - 12 April 2014, vol.153, pp.126-127

● **Bringing the understanding of evolution to Turkish public: A volunteer organization model for developing countries**

Ozpolat B. D. , Akcay A., Somel N., Somel M.

69th Annual Meeting of the Society-for-Developmental-Biology/Japanese-Society-of-Developmental-Biologists, New-Mexico, United States Of America, 5 - 09 August 2010, vol.344, pp.439

## Supported Projects

Somel M., TÜBİTAK International Multi-Cooperation Project, Single cell genomics of the brain in healthy controls and disease, 2015 - 2019

SOMEL M., PARVIZI P., SAĞLICAN E., BALOĞLU O., TURAN Z. G. , ALICI A. Y. , GHALICHI A., DÖNERTAŞ H. M. , İZGİ H., ÖZKURT E., Project Supported by Higher Education Institutions, Yeni nesil moleküler veri analizi yoluyla genom ve transkriptom evriminin incelenmesi, 2015 - 2016

SOMEL M., GHALICHI A., KOPTEKİN D., TURAN Z. G. , Project Supported by Higher Education Institutions, Determining the role of mutation load in mammalian senescence, 2014 - 2016

SOMEL M., Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2014

SOMEL M., Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2014

GÖZEN A. G. , ÖKTEM H. A. , FILİZ N., BUCAK T., COPPENS J. E. P. , KALVENAS J. E. , İZGÜ K. F. , BEKLİOĞLU M., BİRAND ÖZSOY A. C. , GÜNDÜZ U., et al, Project Supported by Higher Education Institutions, Sucul biofilm bakterilerinin arsenik, nikel ve kadmiyum dirençlerinin belirlenmesi ve moleküler karakterizasyonu, 2013 - 2014

## Citations

Total Citations (WOS):2510

h-index (WOS):21

## Awards

Somel M., Üstün Başarılı Genç Bilim İnsanlarını Ödüllendirme Programı, Türkiye Bilimler Akademisi, November 2015