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International Researcher IDs

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Publons / Web Of Science ResearcherID: P-1759-2019

ScopusID: 24759275000

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Education Information

Doctorate, Universiteit Utrecht, Kimya Bölümü, Netherlands 2008 - 2013

Postgraduate, Bogazici University, Institute Of Science, Kimya Mühendisliği (YI) (Tezli), Turkey 2006 - 2008

Undergraduate, Bogazici University, Faculty Of Engineering, Department Of Chemistry Engineering, Turkey 2001 - 2006

Dissertations

Doctorate, Dissecting biomolecular interactions by integrative modeling, Universiteit Utrecht, Kimya Bölümü, 2013

Postgraduate, Dynamic analysis of sumo conjugation cascade by molecular modeling and simulations, Bogazici University, Fen Bilimleri Enstitüsü, Kimya Mühendisliği (YI) (Tezli), 2008

Academic Titles / Tasks

Assistant Professor, Dokuz Eylul University, İzmir Uluslararası Biyotıp ve Genom Enstitüsü, Biyotıp Ve Sağlık Teknolojileri Anabilim Dalı, 2017 - Continues

Research Assistant, The European Molecular Biology Laboratory Heidelberg, Yapısal Ve Hesaplamalı Biyoloji, 2013 - 2016

Research Assistant, Universiteit Utrecht, Kimya, 2008 - 2013

Courses

Philosophy of Science and Ethics, Doctorate, 2023 - 2024

Biomedicine and Health Technologies, Doctorate, 2023 - 2024

Computational Structural Biology Techniques, Doctorate, 2022 - 2023

Machinery of Life, Doctorate, 2022 - 2023

ADVANCED TOPICS IN BIOINFORMATICS, Doctorate, 2019 - 2020, 2018 - 2019, 2017 - 2018

Introduction to Bioinformatics, Postgraduate, 2017 - 2018

Advising Theses

- KARACA EREK E., Baęlanma afinite tahmin algoritmalarının spike: ACE2 derinmutagenez baęlanma verileri üzerinde deęerlendirilmesi, Postgraduate, E.ŞAMİLOęLU(Student), 2022
- KARACA EREK E., ÖZTÜRK M., AXL'in karacięer kanserindeki rolü, Doctorate, T.BATUR(Student), 2022
- KARACA EREK E., Protein-protein arayüzlerini yeni yaklaşım PROT-ON algoritması ile yeniden tasarlanması, Postgraduate, M.KOŞACA(Student), 2022
- KARACA EREK E., EREK E., Alkol dehidrogenaz 2 geni silinmiş Pichia pastoris suşunda rekombinant protein üretimi, Postgraduate, E.ÇITAK(Student), 2022
- KARACA EREK E., Identifying the Working Principles of Human DNA Methyltransferase 3A Enzyme by Computational Methods, Postgraduate, B.SAVAŞ(Student), 2021
- KARACA EREK E., Memelilerde DNA metilasyon mekanizmasını belirleyen moleküler faktörler, Postgraduate, D.DOęAN(Student), 2020
- KARACA EREK E., Tam reseptör tirozin kinaz ailesinin farklı ligandlara karşı seçicilięi, Postgraduate, T.KARAKULAK(Student), 2019

Jury Memberships

Committee Of Expert, Committee Of Expert, French National Research Agency, January, 2024

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Dynamic proximity interaction profiling suggests that YPEL2 is involved in cellular stress surveillance.**
Turan G., Olgun Ç. E., Ayten H., Toker P., Ashyralyyev A., Savaş B., Karaca E., Muyan M.
Protein science : a publication of the Protein Society, 2023 (SCI-Expanded)
- II. **An alternatively spliced PD-L1 isoform PD-L1Δ3, and PD-L2 expression in breast cancers: implications for eligibility scoring and immunotherapy response**
DÖKEN D. N., ÖZGÜL İ., Yilmazbilek I., Yakicier M. C., KARACA EREK E., ERSON BENSAN A. E.
Cancer Immunology, Immunotherapy, vol.72, no.12, pp.4065-4075, 2023 (SCI-Expanded)
- III. **The impact of AI-based modeling on the accuracy of protein assembly prediction: Insights from CASP15**
Ozden B., Kryshtafovych A., KARACA EREK E.
Proteins: Structure, Function and Bioinformatics, vol.91, no.12, pp.1636-1657, 2023 (SCI-Expanded)
- IV. **Breaking the conformational ensemble barrier: Ensemble structure modeling challenges in CASP15**
Kryshtafovych A., Montelione G. T., Rigden D. J., Mesdaghi S., Karaca EreK E., MoulT J.
PROTEINS-STRUCTURE FUNCTION AND BIOINFORMATICS, 2023 (SCI-Expanded)
- V. **Molecular Mechanism of Nucleosome Recognition by the Pioneer Transcription Factor Sox**
Ozden B., Boopathi R., Barlas A. B., Lone I. N., Bednar J., Petosa C., Kale S., Hamiche A., Angelov D., Dimitrov S., et al.
JOURNAL OF CHEMICAL INFORMATION AND MODELING, 2023 (SCI-Expanded)
- VI. **Rapid and efficient ambient temperature X-ray crystal structure determination at Turkish Light Source**
Gul M., Ayan E., Destan E., Johnson J. A., Shafiei A., Kepceoęlu A., Yilmaz M., Ertem F. B., Yapici İ., Tosun B., et al.
Scientific reports, vol.13, no.1, pp.8123, 2023 (SCI-Expanded)
- VII. **Differential Occupancy and Regulatory Interactions of KDM6A in Bladder Cell Lines**
Özden-Yilmaz G., Savas B., Bursalı A., Eray A., Arıbaş A., ŞENTÜRK Ş., Karaca E., Karakülah G., Erkek-Ozhan S.
CELLS, no.6, 2023 (SCI-Expanded)
- VIII. **Benchmarking the accuracy of structure-based binding affinity predictors on Spike-ACE2 deep mutational interaction set**
Ozden B., Şamiloęlu E., Özsan A., Erguven M., Yükrük C., Koşaca M., Oktayoęlu M., Menteş M., Arslan N., KARAKÜLAH G., et al.

Proteins: Structure, Function and Bioinformatics, 2023 (SCI-Expanded)

- IX. **Cryogenic X-ray crystallographic studies of biomacromolecules at Turkish Light Source “Turkish DeLight”**
Atalay N., Akcan E. K., Gül M., Ayan E., Destan E., Ertem F. B., Tokay N., Çakilkaya B., Nergiz Z., Karakadioğlu G., et al.
Turkish Journal of Biology, vol.47, no.1, 2023 (SCI-Expanded)
- X. **PROT-ON: A structure-based detection of designer PROTEin interface MutatiONs**
Koşaca M., Yilmazbilek İ., Karaca E.
Frontiers in Molecular Biosciences, vol.10, 2023 (SCI-Expanded)
- XI. **VARs1 mutations associated with neurodevelopmental disorder are located on a short amino acid stretch of the anticodon-binding domain**
Hız A. S., Kılıç S., Bademci G., Karakulak T., Erdogan A., Ozden B., Eresen Yazıcıoğlu Ç., Erdal E., Yiş U., Tekin M., et al.
TURKISH JOURNAL OF BIOLOGY, vol.46, no.6, pp.458-464, 2022 (SCI-Expanded)
- XII. **Enzymatic Generation of Double-Modified AdoMet Analogues and Their Application in Cascade Reactions with Different Methyltransferases**
Erguven M., Cornelissen N. V., Peters A., KARACA EREK E., Rentmeister A.
CHEMBIOCHEM, 2022 (SCI-Expanded)
- XIII. **Genetic complementation screening and molecular docking give new insight on phosphorylation-dependent Mastl kinase activation.**
Erguven M., Kilic S., Karaca E., Diril M. K.
Journal of biomolecular structure & dynamics, pp.1-13, 2022 (SCI-Expanded)
- XIV. **Novel biallelic variants affecting the OTU domain of the gene OTUD6B associate with severe intellectual disability syndrome and molecular dynamics simulations.**
Cingöz S., Soydemir D., Öner T. Ö., Karaca E., Özden B., Kurul S. H., Bayram E., Coe B. P., Nickerson D. A., Eichler E. E.
European journal of medical genetics, vol.65, no.6, pp.104497, 2022 (SCI-Expanded)
- XV. **Modeling the Dynamics of Protein-Protein Interfaces, How and Why?**
Karaca E., Prevost C., Sacquin-Mora S.
MOLECULES, vol.27, no.6, 2022 (SCI-Expanded)
- XVI. **A C-term truncated EIF2B gamma protein encoded by an intronically polyadenylated isoform introduces unfavorable EIF2B gamma-EIF2 gamma interactions**
ÇIRÇIR HATIL A., KÖKSAL BIÇAKCI G., Savas B., DÖKEN D. N., Henden S. O., CAN T., Karaca E., ERSON BENSAN A. E.
PROTEINS-STRUCTURE FUNCTION AND BIOINFORMATICS, vol.90, no.3, pp.889-897, 2022 (SCI-Expanded)
- XVII. **Assessment of the CASP14 assembly predictions**
Ozden B., Kryshtafovych A., KARACA EREK E.
PROTEINS-STRUCTURE FUNCTION AND BIOINFORMATICS, vol.89, no.12, pp.1787-1799, 2021 (SCI-Expanded)
- XVIII. **How Far Are We from the Rapid Prediction of Drug Resistance Arising Due to Kinase Mutations?**
Erguven M., Karakulak T., Diril M. K., KARACA EREK E.
ACS OMEGA, vol.6, no.2, pp.1254-1265, 2021 (SCI-Expanded)
- XIX. **More Favorable Palmitic Acid Over Palmitoleic Acid Modification of Wnt3 Ensures Its Localization and Activity in Plasma Membrane Domains**
Azbazdar Y., Ozalp O., Sezgin E., Veerapathiran S., Duncan A. L., Sansom M. S. P., Eggeling C., Wohland T., KARACA EREK E., ÖZHAN H. G.
FRONTIERS IN CELL AND DEVELOPMENTAL BIOLOGY, vol.7, 2019 (SCI-Expanded)
- XX. **Novel mutations in KMT2B offer pathophysiological insights into childhood-onset progressive dystonia**
Dafsari H. S., Sprute R., Wunderlich G., Daimagueler H., KARACA EREK E., Contreras A., Becker K., Schulze-Rhonhof M., Kiening K., Karakulak T., et al.
JOURNAL OF HUMAN GENETICS, vol.64, no.8, pp.803-813, 2019 (SCI-Expanded)
- XXI. **In Silico Phylogenetic and Structural Analyses of Plant Endogenous Danger Signaling Molecules upon Stress.**
Pavlopoulou A., KARACA EREK E., Balestrazzi A., Georgakilas A. G.
Oxidative medicine and cellular longevity, vol.2019, pp.8683054, 2019 (SCI-Expanded)

- XXII. **Transposase-DNA Complex Structures Reveal Mechanisms for Conjugative Transposition of Antibiotic Resistance**
Rubio-Cosials A., Schulz E. C., Lambertsen L., Smyshlyaev G., Rojas-Cordova C., Forslund K., KARACA EREK E., Bebel A., Bork P., Barabas O.
CELL, vol.173, no.1, pp.208-240, 2018 (SCI-Expanded)
- XXIII. **M3: an integrative framework for structure determination of molecular machines**
KARACA EREK E., Rodrigues J. P. G. L. M., Graziadei A., Bonvin A. M. J. J., Carlomagno T.
NATURE METHODS, vol.14, no.9, pp.897-905, 2017 (SCI-Expanded)
- XXIV. **Sense and simplicity in HADDOCK scoring: Lessons from CASP-CAPRI round 1**
Vangone A., Rodrigues J. P. G. L. M., Xue L. C., van Zundert G. C. P., Geng C., Kurkcuglu Z., Nellen M., Narasimhan S., KARACA EREK E., van Dijk M., et al.
PROTEINS-STRUCTURE FUNCTION AND BIOINFORMATICS, vol.85, no.3, pp.417-423, 2017 (SCI-Expanded)
- XXV. **Structural snapshots of Xer recombination reveal activation by synaptic complex remodeling and DNA bending**
Bebel A., KARACA EREK E., Kumar B., Stark W. M., Barabas O.
ELIFE, vol.5, 2016 (SCI-Expanded)
- XXVI. **Prediction of homoprotein and heteroprotein complexes by protein docking and template-based modeling: A CASP-CAPRI experiment**
Lensink M. F., Velankar S., Kryshchuk A., Huang S., Schneidman-Duhovny D., Sali A., Segura J., Fernandez-Fuentes N., Viswanath S., Elber R., et al.
PROTEINS-STRUCTURE FUNCTION AND BIOINFORMATICS, vol.84, pp.323-348, 2016 (SCI-Expanded)
- XXVII. **The HADDOCK2.2 Web Server: User-Friendly Integrative Modeling of Biomolecular Complexes**
van Zundert G. C. P., Rodrigues J. P. G. L. M., Trellet M., Schmitz C., Kastiris P. L., KARACA EREK E., Melquiond A. S. J., van Dijk M., de Vries S. J., Bonvin A. M. J. J.
JOURNAL OF MOLECULAR BIOLOGY, vol.428, no.4, pp.720-725, 2016 (SCI-Expanded)
- XXVIII. **Blind prediction of interfacial water positions in CAPRI**
Lensink M. F., Moal I. H., Bates P. A., Kastiris P. L., Melquiond A. S. J., KARACA EREK E., Schmitz C., van Dijk M., Bonvin A. M. J. J., Eisenstein M., et al.
PROTEINS-STRUCTURE FUNCTION AND BIOINFORMATICS, vol.82, no.4, pp.620-632, 2014 (SCI-Expanded)
- XXIX. **Defining the limits of homology modeling in information-driven protein docking**
Rodrigues J. P. G. L. M., Melquiond A. S. J., KARACA EREK E., Trellet M., van Dijk M., van Zundert G. C. P., Schmitz C., de Vries S. J., Bordogna A., Bonati L., et al.
PROTEINS-STRUCTURE FUNCTION AND BIOINFORMATICS, vol.81, no.12, pp.2119-2128, 2013 (SCI-Expanded)
- XXX. **Advances in integrative modeling of biomolecular complexes**
KARACA EREK E., Bonvin A. M. J. J.
METHODS, vol.59, no.3, pp.372-381, 2013 (SCI-Expanded)
- XXXI. **Clustering biomolecular complexes by residue contacts similarity**
Rodrigues J. P. G. L. M., Trellet M., Schmitz C., Kastiris P., KARACA EREK E., Melquiond A. S. J., Bonvin A. M. J. J.
PROTEINS-STRUCTURE FUNCTION AND BIOINFORMATICS, vol.80, no.7, pp.1810-1817, 2012 (SCI-Expanded)
- XXXII. **Next challenges in protein-protein docking: from proteome to interactome and beyond**
Melquiond A. S. J., KARACA EREK E., Kastiris P. L., Bonvin A. M. J. J.
WILEY INTERDISCIPLINARY REVIEWS-COMPUTATIONAL MOLECULAR SCIENCE, vol.2, no.4, pp.642-651, 2012 (SCI-Expanded)
- XXXIII. **A Multidomain Flexible Docking Approach to Deal with Large Conformational Changes in the Modeling of Biomolecular Complexes**
KARACA EREK E., Bonvin A. M. J. J.
STRUCTURE, vol.19, no.4, pp.555-565, 2011 (SCI-Expanded)
- XXXIV. **Alternative Allosteric Mechanisms Can Regulate the Substrate and E2 in SUMO Conjugation**
KARACA EREK E., Tozluoglu M., Nussinov R., HALILOĞLU T.
JOURNAL OF MOLECULAR BIOLOGY, vol.406, no.4, pp.620-630, 2011 (SCI-Expanded)
- XXXV. **Strengths and weaknesses of data-driven docking in critical assessment of prediction of interactions**

de Vries S. J., Melquiond A. S. J., Kastiris P. L., KARACA EREK E., Bordogna A., van Dijk M., Rodrigues J. P. G. L. M., Bonvin A. M. J. J.

PROTEINS-STRUCTURE FUNCTION AND BIOINFORMATICS, vol.78, no.15, pp.3242-3249, 2010 (SCI-Expanded)

XXXVI. Understanding the Role of the Josephin Domain in the PolyUb Binding and Cleavage Properties of Ataxin-3

Nicastro G., Todi S. V., KARACA EREK E., Bonvin A. M. J. J., Paulson H. L., Pastore A.

PLOS ONE, vol.5, no.8, 2010 (SCI-Expanded)

XXXVII. Building Macromolecular Assemblies by Information-driven Docking

KARACA EREK E., Melquiond A. S. J., de Vries S. J., Kastiris P. L., Bonvin A. M. J. J.

MOLECULAR & CELLULAR PROTEOMICS, vol.9, no.8, pp.1784-1794, 2010 (SCI-Expanded)

XXXVIII. A Mechanistic View of the Role of E3 in Sumoylation

Tozluoglu M., KARACA EREK E., Nussinov R., Haliloglu T.

PLOS COMPUTATIONAL BIOLOGY, vol.6, no.8, 2010 (SCI-Expanded)

XXXIX. Cataloging and organizing p73 interactions in cell cycle arrest and apoptosis

Tozluoglu M., KARACA EREK E., HALILOĞLU T., Nussinov R.

NUCLEIC ACIDS RESEARCH, vol.36, no.15, pp.5033-5049, 2008 (SCI-Expanded)

Articles Published in Other Journals

I. Arayüz Mutasyonlarının Protein Etkileşimlerine Tesirini Tahmin Eden Algoritmalarla HADDOCK'un Performansının Karşılaştırılması

Koşaca M., Şamiloğlu E., KARACA EREK E.

International Journal of Advances in Engineering and Pure Sciences, 2021 (Peer-Reviewed Journal)

II. Türk Ulusal Bilim e-Altyapısı TRUBA'da Moleküler Dinamik Paketi GROMACS'in Performans Optimizasyonu

SAVAŞ B., KARACA EREK E.

International Journal of Advances in Engineering and Pure Sciences, 2021 (Peer-Reviewed Journal)

Books & Book Chapters

I. Protein Etkileşimlerinin Deneysel ve Hesaplamalı Yaklaşımlarla Bütüncül Olarak Modellenmesi

ACUNER S. E., İmat N. B., İlter M., Şamiloğlu E., KARACA EREK E., ŞENSOY Ö.

in: PROTEİN: Yapısı, mühendisliği, etkileşimleri, dinamiği ve ilaç tasarımındaki yeri, Dr. Öğretim Üyesi Saliha Ece

ACUNER, Editor, Ankara Nobel Tıp Kitabevleri, Ankara, pp.223-237, 2022

II. Peptide derivatives of erythropoietin in the treatment of neuroinflammation and neurodegeneration

ERCAN İ., TÜFEKÇİ K. U., KARACA EREK E., GENÇ Ş., GENÇ K. K.

in: Therapeutic Proteins and Peptides (Advances in protein chemistry and structural biology, Volume 112),

ROSSEN DONEV, Editor, Academic Press , pp.309-357, 2018

Refereed Congress / Symposium Publications in Proceedings

I. Integrative modelling with HADDOCK - <https://meetings.embo.org/event/19-integrative-structural-biology>

Bonvin A. M., KARACA EREK E.

Practical integrative structural biology, Hamburg, Germany, 3 - 09 October 2019

II. TAM FAMILY PROTEIN AXL's LIGAND SELECTIVITY IS REGULATED BY THREE CHARGED AMINO ACIDS

Karakulak T., Batur T., Rodrigues J. P., Öztürk M., KARACA EREK E.

ISMB/ECCB 2019, Basel, Switzerland, 21 - 25 July 2019

- III. **Towards characterizing the factors tuning the specificity of biomolecular complexes**
KARACA EREK E.
6th International BAU Drug Design Congress, İstanbul, Turkey, 13 - 15 December 2018
- IV. **A Structural Insight into DNA Methylation**
Doğan D., KARACA EREK E.
11th International Symposium on Health Informatics and Bioinformatics, Antalya, Turkey, 25 - 27 October 2018
- V. **Molecular specificity of TAM family receptors towards different ligands**
Karakulak T., KARACA EREK E.
11th International Symposium on Health Informatics and Bioinformatics, Antalya, Turkey, 25 - 27 October 2018
- VI. **Investigating Sequence Specificity in Mammalian De novo DNA Methyltransferases through Structural Insight**
Doğan D., KARACA EREK E.
6th International Congress of the Molecular Biology Association of Turkey, İzmir, Turkey, 5 - 08 September 2018
- VII. **Analysis of Mitotic Functions of Mastl Kinase**
erguven m., Karakulak T., KARACA EREK E., Diril M. K.
6th International Congress of the Molecular Biology Association of Turkey, İzmir, Turkey, 5 - 08 September 2018
- VIII. **Integrative Modeling of Biomolecular Interactions**
KARACA EREK E.
6th International Congress of the Molecular Biology Association of Turkey, İzmir, Turkey, 5 - 08 September 2018
- IX. **Structure Determination of Molecular Machines**
KARACA EREK E.
Workshop in Applied Structural Bioinformatics, Bergen, Norway, 16 - 20 October 2017
- X. **Regulation of c-Met signaling by Neddylation in HCC cells**
Yılmaz Y., güloğlu b., Topel H., KARACA EREK E., ATABEY S. N.
42. FEBS Congress from molecules to cell and back, 7 - 10 September 2017, vol.284, pp.262
- XI. **Upgrading HADDOCK for the Structure Calculation of Molecular Machines**
KARACA EREK E.
Haddock Developer's Meeting, Utrecht, Netherlands, 22 - 23 August 2017
- XII. **An Integrative Framework for Structure Determination of Molecular Machines**
KARACA EREK E., Rodrigues J. P., Andrea G., Bonvin A. M., Carlomagno T.
10th International Symposium on Health Informatics and Bioinformatics, Girne, Cyprus (Kktc), 28 - 30 June 2017

Metrics

Publication: 57

Citation (WoS): 1618

Citation (Scopus): 2479

H-Index (WoS): 17

H-Index (Scopus): 17

Congress and Symposium Activities

8th CAPRI evaluation meeting, Invited Speaker, Grenoble, France, 2024

EMBO Lecture Course: Structural Biophysics of Biomolecular Complexes, Invited Speaker, İstanbul, Turkey, 2023

Tübitak Türkiye-Fransa İkili İşbirliği Programı Çerçevesinde Araştırma Ziyareti, Invited Speaker, Paris, France, 2023

EMBO YIN Annual Meeting, Attendee, Milan, Italy, 2023

HUMBOLDT KOLLEG, Invited Speaker, Ankara, Turkey, 2023

EMBO Practical Integrative Structural Biology Workshop, Invited Speaker, Hamburg, Germany, 2022

CASP Hakem Toplantısına Katılım, Invited Speaker, Basel, Switzerland, 2022

EMBO YIP Retreat 2022, Attendee, Berlin, Germany, 2022

Embo Yapısal Biyoloji Toplantısına Katılım, Invited Speaker, Krakow, Poland, 2022

EMBL EBI Webinar: Impact of AlphaFold on teaching and training in life sciences, Panelists, Cambridge, England, 2022

EMBO Laboratory Leadership for Group Leaders, Attendee, Heidelberg, Germany, 2022

Research Visit to TU Berlin (Prof. Juri Rappsilber's Lab), Invited Speaker, Berlin, Germany, 2022

Research visit under Tubitak-Minciencias Bilateral Research Program, Invited Speaker, Medellin, Colombia, 2022

Ufuk Avrupa Genel Bilgi Günü Etkinliğine Katılım, Audience, İzmir, Turkey, 2022