

Asst. Prof. DENİZ DEMİRHAN

Personal Information

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Education Information

Doctorate, Johns Hopkins University, Mühendislik Fakültesi, Kimya ve Biyomoleküler Mühendisliği, United States Of America 2006 - 2011

Postgraduate, Izmir Institute Of Technology, Faculty Of Engineering, Department Of Chemistry Engineering (English), Turkey 2004 - 2006

Undergraduate, Izmir Institute Of Technology, Faculty Of Engineering, Department Of Chemistry Engineering (English), Turkey 1999 - 2004

Dissertations

Doctorate, APPLYING PROTEOMICS TO INTERPRET PHYSIOLOGICAL PROCESSES IN CHINESE HAMSTER OVARY CELLS, DANIO RERIO AND DROSOPHILA , Johns Hopkins University, Engineering, Chemical and Biomolecular Engineering, 2011

Postgraduate, ADSORPTION OF OLIVE LEAF ANTIOXIDANTS ON SILK FIBROIN, Acibadem Mehmet Ali Aydinlar University, Faculty of Engineering, Basic Sciences, 2006

Research Areas

Life Sciences, Biotechnology, Natural Sciences, Engineering and Technology

Academic Titles / Tasks

Assistant Professor, Acibadem Mehmet Ali Aydinlar University, Faculty of Engineering, Basic Sciences, 2021 - Continues

Courses

Drug discovery, development and production, Doctorate, 2020 - 2021

Drug Discovery, Development and Production, Postgraduate, 2020 - 2021

Drug Discovery, Development and Production, Postgraduate, 2020 - 2021

Advising Theses

Demirhan D., Biyobenzerlerde Alt Akım Proses Geliştirme, Postgraduate, E.Burak(Student), Continues

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

- I. **Expanded Chinese hamster organ and cell line proteomics profiling reveals tissue-specific functionalities**
Heffner K, Hizal D, Majewska N, Kumar S, Dhara V. G. , Zhu J, Bowen M, Hatton D, Yerganian G, Yerganian A., et al.
SCIENTIFIC REPORTS, vol.10, no.1, 2020 (Journal Indexed in SCI)
- II. **Genome-scale reconstructions of the mammalian secretory pathway predict metabolic costs and limitations of protein secretion**
Gutierrez J. M. , Feizi A, Li S, Kallehauge T. B. , Hefzi H, Grav L. M. , Ley D, Hizal D, Betenbaugh M. J. , Voldborg B, et al.
NATURE COMMUNICATIONS, vol.11, no.1, 2020 (Journal Indexed in SCI)
- III. **Proteogenomic Annotation of Chinese Hamsters Reveals Extensive Novel Translation Events and Endogenous Retroviral Elements**
Li S, Cha S. W. , Heffner K, Hizal D, Bowen M. A. , Chaerkady R., Cole R. N. , Tejwani V, Kaushik P., Henry M., et al.
JOURNAL OF PROTEOME RESEARCH, vol.18, no.6, pp.2433-2445, 2019 (Journal Indexed in SCI)
- IV. **Meningiomas Display a Specific Immunoexpression Pattern in a Rostrocaudal Gradient: An Analysis of 366 Patients.**
Ülgen E., Bektaşoğlu P., Sav M., Can Ö., Danyeli A., Hizal D., Pamir M. N. , Özdoğan K.
World neurosurgery, vol.123, 2019 (Journal Indexed in SCI Expanded)
- V. **Glycoengineering of Mammalian Expression Systems on a Cellular Level.**
Heffner K. M. , Wang Q, Hizal D, Can Ö., Betenbaugh M. J.
Advances in biochemical engineering/biotechnology, 2018 (Journal Indexed in SCI Expanded)
- VI. **Lessons from the Hamster: Cricetulus griseus Tissue and CHO Cell Line Proteome Comparison.**
Heffner K. M. , Hizal D, Yerganian G. S. , Kumar A, CAN Ö., O'Meally R, Cole R, Chaerkady R, Wu H, Bowen M. A. , et al.
Journal of proteome research, vol.16, no.10, pp.3672-3687, 2017 (Journal Indexed in SCI Expanded)
- VII. **Statistical Models for the Analysis of Isobaric Tags Multiplexed Quantitative Proteomics**
D'Angelo G., Chaerkady R., Yu W., Hizal D., Hess S., Zhao W., Lekstrom K., Guo X., White W. I. , Roskos L., et al.
JOURNAL OF PROTEOME RESEARCH, vol.16, no.9, pp.3124-3136, 2017 (Journal Indexed in SCI)
- VIII. **High-Throughput Lipidomic and Transcriptomic Analysis To Compare SP2/0, CHO, and HEK-293 Mammalian Cell Lines**
Zhang Y., Baycin-Hizal D., Kumar A., Priola J., Bahri M., Heffner K. M. , Wang M., Han X., Bowen M. A. , Betenbaugh M. J.
ANALYTICAL CHEMISTRY, vol.89, no.3, pp.1477-1485, 2017 (Journal Indexed in SCI)
- IX. **A Consensus Genome-scale Reconstruction of Chinese Hamster Ovary Cell Metabolism.**
Hefzi H., Ang K. S. , Hanscho M., Bordbar A., Ruckerbauer D., Lakshmanan M., Orellana C. A. , Baycin-Hizal D., Huang Y., Ley D., et al.
Cell systems, vol.3, 2016 (Journal Indexed in SCI)
- X. **Interconversion of Peptide Mass Spectral Libraries Derivatized with iTRAQ or TMT Labels**
Zhang Z., Yang X., Mirokhin Y. A. , Tchekhovskoi D. V. , Ji W., Markey S. P. , Roth J., Neta P., Hizal D., Bowen M. A. , et al.
JOURNAL OF PROTEOME RESEARCH, vol.15, no.9, pp.3180-3187, 2016 (Journal Indexed in SCI)
- XI. **Systems Glycobiology: Integrating Glycogenomics, Glycoproteomics, Glycomics, and Other 'Omics Data Sets to Characterize Cellular Glycosylation Processes.**
Bennun S. V. , Hizal D., Heffner K, CAN Ö., Zhang H., Betenbaugh M. J.
Journal of molecular biology, vol.428, no.16, pp.3337-3352, 2016 (Journal Indexed in SCI Expanded)
- XII. **Cellular traffic cops: the interplay between lipids and proteins regulates vesicular formation, trafficking, and signaling in mammalian cells**
Kumar A., Baycin-Hizal D., Zhang Y., Bowen M. A. , Betenbaugh M. J.
CURRENT OPINION IN BIOTECHNOLOGY, vol.36, pp.215-221, 2015 (Journal Indexed in SCI)
- XIII. **Elucidation of the CHO Super-Ome (CHO-SO) by Proteoinformatics**
Kumar A., Baycin-Hizal D., Wolozny D., Pedersen L. E. , Lewis N. E. , Heffner K., Chaerkady R., Cole R. N. , Shiloach J.,

Zhang H., et al.

JOURNAL OF PROTEOME RESEARCH, vol.14, no.11, pp.4687-4703, 2015 (Journal Indexed in SCI)

- XIV. **A multi-pronged investigation into the effect of glucose starvation and culture duration on fed-batch CHO cell culture**
Fan Y., Del Val I. J., Muller C., Lund A. M., Sen J. W., Rasmussen S. K., Kontoravdi C., Baycin-Hizal D., Betenbaugh M. J., Weilguny D., et al.
BIOTECHNOLOGY AND BIOENGINEERING, vol.112, no.10, pp.2172-2184, 2015 (Journal Indexed in SCI)
- XV. **Coupling enrichment methods with proteomics for understanding and treating disease**
Kumar A., Baycin-Hizal D., Shiloach J., Bowen M. A., Betenbaugh M. J.
PROTEOMICS CLINICAL APPLICATIONS, vol.9, pp.33-47, 2015 (Journal Indexed in SCI)
- XVI. **Proteomics in Cell Culture: From Genomics to Combined 'Omics for Cell Line Engineering and Bioprocess Development**
Heffner K., Kaas C. S., Kumar A., Baycin-Hizal D., Betenbaugh M.
ANIMAL CELL CULTURE, vol.9, pp.591-614, 2015 (Journal Indexed in SCI)
- XVII. **Exploiting the proteomics revolution in biotechnology: from disease and antibody targets to optimizing bioprocess development**
Heffner K. M., Hizal D., Kumar A., Shiloach J., Zhu J., Bowen M. A., Betenbaugh M. J.
CURRENT OPINION IN BIOTECHNOLOGY, vol.30, pp.80-86, 2014 (Journal Indexed in SCI)
- XVIII. **Physiologic and pathophysiologic consequences of altered sialylation and glycosylation on ion channel function**
Baycin-Hizal D., Gottschalk A., Jacobson E., Mai S., Wolozny D., Zhang H., Krag S. S., Betenbaugh M. J.
BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, vol.453, no.2, pp.243-253, 2014 (Journal Indexed in SCI)
- XIX. **Integrative '-omic' approach to explore molecular mechanism of miRNA engineered Chinese hamster ovary cell**
Jadhav V., Hackl M., Baycin-Hizal D., Klanert G., Betenbaugh M., Grillari J., Borth N.
NEW BIOTECHNOLOGY, vol.31, 2014 (Journal Indexed in SCI)
- XX. **Glycoproteomic and glycomic databases**
Hizal D., Wolozny D., Colao J., Jacobson E., Tian Y., Krag S. S., Betenbaugh M. J., Zhang H.
CLINICAL PROTEOMICS, vol.11, 2014 (Journal Indexed in SCI)
- XXI. **The emerging CHO systems biology era: harnessing the 'omics revolution for biotechnology**
Kildegaard H. F., Baycin-Hizal D., Lewis N. E., Betenbaugh M. J.
CURRENT OPINION IN BIOTECHNOLOGY, vol.24, no.6, pp.1102-1107, 2013 (Journal Indexed in SCI)
- XXII. **Genomic landscapes of Chinese hamster ovary cell lines as revealed by the Cricetulus griseus draft genome**
Lewis N. E., Liu X., Li Y., Nagarajan H., Yerganian G., O'Brien E., Bordbar A., Roth A. M., Rosenbloom J., Bian C., et al.
NATURE BIOTECHNOLOGY, vol.31, no.8, pp.759-767, 2013 (Journal Indexed in SCI)
- XXIII. **Proteomic Analysis of Chinese Hamster Ovary Cells**
Baycin-Hizal D., Tabb D. L., Chaerkady R., Chen L., Lewis N. E., Nagarajan H., Sarkaria V., Kumar A., Wolozny D., Colao J., et al.
JOURNAL OF PROTEOME RESEARCH, vol.11, no.11, pp.5265-5276, 2012 (Journal Indexed in SCI)
- XXIV. **Increased expression of the integral membrane proteins EGFR and FGFR3 in anti-apoptotic Chinese hamster ovary cell lines**
Ohsfeldt E., Huang S., Baycin-Hizal D., Kristoffersen L., Le T. T., Li E., Hristova K., Betenbaugh M. J.
BIOTECHNOLOGY AND APPLIED BIOCHEMISTRY, vol.59, no.3, pp.155-162, 2012 (Journal Indexed in SCI)
- XXV. **GlycoFish: A Database of Zebrafish N-linked Glycoproteins Identified Using SPEG Method Coupled with LC/MS**
Baycin-Hizal D., Tian Y., Akan I., Jacobson E., Clark D., Wu A., Jampol R., Palter K., Betenbaugh M., Zhang H.
ANALYTICAL CHEMISTRY, vol.83, no.13, pp.5296-5303, 2011 (Journal Indexed in SCI)
- XXVI. **GlycoFly: A Database of Drosophila N-linked Glycoproteins Identified Using SPEG-MS Techniques**
Baycin-Hizal D., Tian Y., Akan I., Jacobson E., Clark D., Chu J., Palter K., Zhang H., Betenbaugh M. J.

- JOURNAL OF PROTEOME RESEARCH, vol.10, no.6, pp.2777-2784, 2011 (Journal Indexed in SCI)
- XXVII. **Increased expression of the integral membrane protein ErbB2 in Chinese hamster ovary cells expressing the anti-apoptotic gene Bcl-x(L)**
O'Connor S., Li E., Majors B. S. , He L., Placone J., Baycin D., Betenbaugh M. J. , Hristova K.
PROTEIN EXPRESSION AND PURIFICATION, vol.67, no.1, pp.41-47, 2009 (Journal Indexed in SCI)
- XXVIII. **Isolation of polyphenols from the extracts of olive leaves (*Olea europaea* L.) by adsorption on silk fibroin**
Altıok E., Baycin D., BAYRAKTAR O., Uelkue S.
SEPARATION AND PURIFICATION TECHNOLOGY, vol.62, no.2, pp.342-348, 2008 (Journal Indexed in SCI)
- XXIX. **Adsorption of olive leaf (*Olea europaea* L.) antioxidants on silk fibroin**
Baycin D., Altıok E., Ulku S., BAYRAKTAR O.
JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY, vol.55, no.4, pp.1227-1236, 2007 (Journal Indexed in SCI)

Articles Published in Other Journals

- I. **Physicochemical and Functional Characterization of a Candidate Adalimumab Biosimilar TUR01**
Atik A. E. , Demirhan D., Alpan R. S.
25th European Society for Animal Cell Technology Meeting, BMC Proceedings , vol.12, pp.13, 2018 (International Conference Book)
- II. **Measurement of sialic acid content on recombinant membrane proteins.**
Baycin-Hizal D., Mai S., Wolozny D., Akan I., Tomiya N., Palter K., Betenbaugh M.
BMC proceedings, 2011 (Refereed Journals of Other Institutions)

Refereed Congress / Symposium Publications in Proceedings

- I. **Terapötik Monoklonal Antikorun Stres Koşulları Altında Bağlanma Özelliklerinin İncelenmesi**
Atik A. E. , Demirhan D., Can Ö., Alpan R. S.
3. Ulusal Proteomik Konferansı (TUPA), İstanbul, Turkey, 27 - 29 February 2020, pp.42
- II. **Oksidatif Stres Altındaki Referans & Biyobenzer Monoklonal Antikorun Karşılaştırmalı Fizikokimyasal Analizleri**
Atik A. E. , Demirhan D., Can Ö., Serdar M. A.
2. Ulusal Proteomik Konferansı (TUPA), İstanbul, Turkey, 24 - 25 November 2017, pp.32
- III. **Biyobenzer Bir Monoklonal Antikorun Fonksiyonel ve Sitotoksik Özelliklerinin Belirlenmesi ve Referans Ürün ile Karşılaştırılması**
Atik A. E. , Demirhan D., Can Ö.
2. Ulusal Proteomik Konferansı (TUPA), İstanbul, Turkey, 24 - 25 November 2017, pp.40
- IV. **Improvement of Glycosylation Profile to Increase Similarity of Adalimumab Biosimilar to the Innovator with High-Resolution Mass Spectrometry**
Atik A. E. , Demirhan D., Can Ö.
65th ASMS Conference on Mass Spectrometry and Allied Topics, Indiana, United States Of America, 4 - 08 June 2017, pp.186
- V. **Applying iTRAQ Proteomics and Systems Biology Approach to Understand the Glycosylated and Sialylated Pathways of CHO Mutants**
Can Ö., Demirhan D., Atik A. E.
X Annual Congress of the European Proteomics Association (EuPA), İstanbul, Turkey, 22 - 25 June 2016, pp.25

Supported Projects

Demirhan D., Alpan R. S. , TUBITAK Project, Biyobenzer-vegf-blokorunun-turkiyede-gelistirilmesi-karakterizasyonu-ve-pilot-olcek-prosesinin-gelistirilmesi, 2018 - 2021

Demirhan D., Kocagöz Z. T. , TUBITAK Project, Biyobenzer Tnf-Alfa Blokörü Üreten Endüstriyel Amaçlı Hücre Hatlarının Geliştirilmesi, 2018 - 2021

Atik A. E. , Kocagöz Z. T. , Özal İldeniz T. A. , Süyen G., Arbak S., Ünübol N., Can Ö., Demirhan D., TUBITAK Project, Doğadan Esinlenerek Antimikrobiyal Peptit ve Benzerlerinin Geliştirilmesi, 2018 - 2021

Demirhan D., EU Supported Other Project, Biyoteknoloji Uygulamalarında Kullanılmak Üzere Özel Sensörlere Sahip Robot Teknolojilerinin Geliştirilmesi, 2018 - 2021

Edit Congress and Symposium Activities

Bioexpo, Invited Speaker, İstanbul, Turkey, 2021

Bioexpo, Panelists, İstanbul, Turkey, 2021

Bioexpo, Invited Speaker, İstanbul, Turkey, 2020

Bioexpo, Invited Speaker, İstanbul, Turkey, 2020

Citations

Total Citations (WOS):1030

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