

## Asst. Prof. DENİZ DEMİRHAN

### Personal Information

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### Courses

General Chemistry, Undergraduate, 2021 - 2022

General Chemistry, Undergraduate, 2021 - 2022

Basic Chemistry, Undergraduate, 2021 - 2022

### Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Comparative systemics to elucidate physiological differences between CHO and SP2/0 cell lines**  
DEMİRHAN D., Kumar A., Zhu J., Poulsen P. C., Majewska N., Sebastian Y., Chaerkady R., Yu W., Zhu W., Zhuang L., et al.  
SCIENTIFIC REPORTS, vol.12, no.1, 2022 (SCI-Expanded)
- II. **Glycoengineering of Mammalian Expression Systems on a Cellular Level**  
Heffner K. M., Wang Q., Hizal D., Can Ö., Betenbaugh M. J.  
ADVANCES IN GLYCOBIOTECHNOLOGY, pp.37-69, 2021 (SCI-Expanded)
- III. **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 (SCI-Expanded)
- IV. **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 (SCI-Expanded)
- V. **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 (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 (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 (SCI-Expanded)
- 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 (SCI-Expanded)

- 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 (SCI-Expanded)
- 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 (SCI-Expanded)
- 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 (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 (SCI-Expanded)
- 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 (SCI-Expanded)
- 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 (SCI-Expanded)
- 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 (SCI-Expanded)
- 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 (SCI-Expanded)
- 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 (SCI-Expanded)
- 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 (SCI-Expanded)
- 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 (SCI-Expanded)
- 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 (SCI-Expanded)
- 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 (SCI-Expanded)
- 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 (SCI-Expanded)

- 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 (SCI-Expanded)
- XXIV. **Increased expression of the integral membrane proteins EGFR and FGFR3 in anti-apoptotic Chinese hamster ovary cell lines**  
Ohfeldt 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 (SCI-Expanded)
- 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 (SCI-Expanded)
- 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 (SCI-Expanded)
- 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 (SCI-Expanded)
- 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 (SCI-Expanded)
- 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 (SCI-Expanded)

## **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 (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 (Peer-Reviewed Journal)

## **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

## Supported Projects

Demirhan D., EU Supported Other Project, Biyoteknoloji Uygulamalarında Kullanılmak Üzere Özel Sensörlere Sahip Robot Teknolojilerinin Geliştirilmesi, 2018 - 2022

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

## Metrics

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