Diren Beyoğlu, PhD, CBiol MRSB

Associate Director and
Associate Professor,
Arthur G. Zupko's Systems Pharmacology
And Pharmacogenomics,
Arnold & Marie Schwartz College of
Pharmacy and Health Sciences,
Brooklyn, NY 11201, USA

Consultant,
Laboratory of Metabolism,
[Chief: Dr. Frank J. Gonzalez]
Center for Cancer Research
National Cancer Institute
National Institutes of Health
Bethesda MD, USA

Email: direnbeyoglu@gmail.com; diren.beyoglu@liu.edu

PERSONAL INFORMATION

- Nationality: Turkish
- Residency: USA

EDUCATION

• Marmara University‡, Istanbul	PhD in Pharmaceutical Toxicology	2006
• Marmara University, Istanbul	MSc in Pharmaceutical Toxicology	2002
• Marmara University, Istanbul	BSc in Pharmacy	2000

‡ ranked 2nd from over 50 colleges of pharmacy in Turkey.

WORK EXPERIENCE

• Long Island University, Associate Director & Associate Professor	2018-
• Bern, Switzerland, Independent Consultant	2016-2017
• University of Bern, Group Leader	2013-2016
• University of Bern, Research Assistant	2011-2013
• Marmara University, Istanbul, Assistant Professor	2009-2010

- Marmara University, Istanbul, Lecturer 2006-2008
- Marmara University, Istanbul, Research Assistant 2000-2006

RESEARCH AREAS

- Metabolomics and Lipidomics
- Pharmacogenetics
- Genetic, Environmental, and Food Toxicology

COURSES TAUGHT

General toxicology, pharmaceutical toxicology laboratory practice, pharmacognosy laboratory practice, medical English (BSc Pharmacy 3rd and 4th years; Marmara University)

Hepatology module (BMSc), founding course director and lecturer in metabolomics (BMSc students, PhD students and post-docs; University of Bern)

RESEARCH SUPERVISION

Supervision of four PhD students, visiting scientist from Portugal in Turkey.

Supervision of visiting professor from China for 1 year and BMSc project students in Bern.

LABORATORY TECHNIQUES AND PROFICIENCIES

1. Determination of metabolomic and lipidomic profiles of urine, plasma/serum, and tissue by GCMS and UPLC-ESI-QTOFMS.
2. Determination of metabolomic and lipidomic profiles and identification of compounds using Progenesis QI software (training at Imperial College London Phenome Centre).
3. Multivariate data analysis, including PCA, PLS-DA, OPLS-DA using SIMCAP+ software (training at Umetrics, Malmö, Sweden).
4. Polymerase chain reaction (PCR with RFLP analysis) for genotyping of DNA.
5. Quantitative real-time PCR for gene expression.
6. *In vitro* genotoxicity assays including, COMET single-cell electrophoresis assay, micronucleus test, and clastogenicity assays.
7. Determination of xenobiotics in foodstuffs by HPLC.

8. Full range of software packages, including Microsoft Office (Word, Excel, PowerPoint), EndNote, Adobe Acrobat, Photoshop, GraphPad Prism, Agilent ChemStation, Quant Browser GCMS, and R.

ADDITIONAL TRAINING

July, June 2017 – *Online course (statistics.com)*. Visualization with ggplot2.

April, May 2017 – *Online course (statistics.com)*. R programming Introduction 2.

February, March 2017 – *Online course (statistics.com)*. R programming Introduction 1.

February 2017 – *University of Zürich*. Introduction to R programming.

September 2015 – *University of Bern*. Effective presentation in English.

October 2013 – *Imperial International Phenome training Centre, Imperial College, London.* Hands on LC-MS for Metabolic Profiling.

June 2012 – *Waters AG, Baden-Dättwil, Switzerland*. Training in MassLynx and MarkerLynx XS software.

October 2011, 2012 and 2013 – *Waters AG*, Waters MS Technology Days, Basel.

May 2011 – *Umetrics AB, Malmö, Sweden*. Training course on Multivariate Data Analysis for "Omics".

November 2010 - September 2019 – Various visits to *The Laboratory of Metabolism, Center for Cancer Research, National Cancer Institute, National Institutes of Health, Bethesda*, MD, USA, initially training in the laboratory of Dr. Frank J. Gonzalez in GCMS and UPLC-ESI-QTOFMS-based metabolomics, SIMCA-P-based multivariate data analyses, and random forests machine learning algorithm. Subsequently, advanced training in GCMS and UPLC-ESI-QTOFMS-based metabolomics, Progenesis QI and SIMCA-P-based multivariate data analyses. Most recently, basic training of Dr. Gonzalez's post-docs in SIMCA-P-based multivariate data analyses and discussion of collaborative projects.

July 2010 – *Institute of Pharmacology, Charles University, Prague, Czech Republic*. Training in the laboratory of Professor Ondřej Slanař in techniques in molecular pharmacogenetics, especially PCR and RFLP analyses.

July 2010 – *Institute of Clinical Pharmacology, University of Bern, Switzerland*.

Training in the laboratory of Professor Jeff Idle in methods for determining lipid peroxidation indices, in particular, malondialdehyde levels by surrogate TBARS determination.

OTHER EXPERIENCE AND PROFESSIONAL MEMBERSHIPS

2002 -	Member, Turkish Society of Toxicology
2002 -	Member, Turkish Pharmacists' Association
2007 -	Member, Turkish Pharmacovigilance Society
2010 -	Reviewer, Scientific Reports
2010 -	Reviewer, Biochemical Pharmacology
2010 -	Reviewer, Journal of Hepatology
2010 -	Reviewer, Food and Chemical Toxicology
2010 -	Reviewer, Methods in Enzymology
2010 -	Reviewer, Hepatology
2013 - 2016	Editorial Board, Journal of Biophysical Chemistry
2014 -	Member, Royal Society of Biology
2018 -	Member, Clinical Pharmacogenetics Implementation Consortium
2021 -	Guest Editor (Special Issue), Journal of Clinical Medicine

HONORS

2003	Award of Encouragement and Support for International Publications, Marmara University
2008	Prestigious Publication Award, Scientific and Technological Research Council of Turkey
2010	Prestigious Publication Award, Scientific and Technological Research Council of Turkey
2014	Chartered Biologist, Royal Society of Biology, London, UK

CONTRIBUTION TO SCIENCE

1. **Metabolic reprogramming and hepatocellular carcinoma pathogenesis.** Little was known regarding energy metabolism and lipid homeostasis in HCC. These two factors are important as they relate to both the pathogenesis and treatment of the disease. Using a combination of metabolomics, lipidomics, and transcriptomics, a metabolic reprogramming from mitochondrial oxidation to aerobic glycolysis was demonstrated for the first time in HCC. Additional evidence of dysregulated lipid metabolism was uncovered in the first case-control study of HCC lipidomics and in mice where the tumor suppressor gene *Hint1* had been inactivated. These

innovative studies advanced the field vertically with several groups continuing to research this area. The paper of Ciu et al. is provided in “d” below as evidence of how others have built on these contributions. My specific role in these studies was to both design and conduct the laboratory investigations and to analyze and interpret the data.

a. Patterson AD, Maurhofer O, **Beyoğlu D,** Lanz C, Krausz KW, Pabst T, Gonzalez FJ, Dufour JF, Idle JR (2011). Aberrant lipid metabolism in hepatocellular carcinoma revealed by plasma metabolomics and lipid profiling. Cancer Research, 71(21), 6590-600. PMCID: PMC3206149
b. **Beyoğlu D**, Imbeaud S, Maurhofer O, Bioulac-Sage P, Zucman-Rossi J, Dufour JF, Idle JR (2013). Tissue metabolomics of hepatocellular carcinoma: tumor energy metabolism and the role of transcriptomic classification. Hepatology, 58(1), 229-238. PMCID: PMC3695036
c. **Beyoğlu D**, Krausz KW, Martin J, Maurhofer O, Dorow J, Ceglarek U, Gonzalez FJ, Dufour JF, Idle JR (2014). Disruption of tumor suppressor gene *Hint1* leads to remodeling of the lipid metabolic phenotype of mouse liver. Journal of Lipid Research, 55(11), 2309-2319. PMCID: PMC4617133
d. Cui M, et al. (2015). Long Noncoding RNA HULC modulates abnormal lipid metabolism in hepatoma cells through an miR-9-mediated RXRA signaling pathway. Cancer Research, 75(5), 846-857.

2. **Hepatitis C virus and hepatic metabolism.** Despite the prevalence of hepatitis C virus (HCV) and diseases that arise as a result of its infection, there were few data on the effect of HCV on hepatic metabolism. Perturbed metabolic profiles yield key information regarding the biological effects of the virus on the liver. I designed and led a case-control study on the plasma and urine metabolome in HCV+ and HCV- subjects. Surprisingly, the polyol pathway and *AKR1B10* expression were found to be increased with HCV infection, which was thought to be involved in the liver inflammation. The findings reported in Semmo et al. have been confirmed by Sato et al. reference “b” below. Additionally, I conducted a similar study with hepatitis B virus infected patients that used additional bioinformatic tools. Comparison of the plasma and urine metabolomics data for these two viruses showed how they differentially altered metabolic networks in the liver. Using human hepatoma cell lines, my group employed metabolomic profiling to characterize the effect of a novel anti-HCV drug on hepatic tumor purine, pyrimidine, and glucose metabolism.

a. Semmo N, Weber T, Idle JR, **Beyoğlu D** (2015). Metabolomics reveals that aldose reductase activity due to AKR1B10 is upregulated in hepatitis C infection. Journal of Viral Hepatitis, 22(7), 617-624.
b. Sato S, et al. (2016). Impact of aldo-keto reductase family 1 member B10 on the risk of hepatitis C virus-related hepatocellular carcinoma. Journal of Gastroenterology and Hepatology, 31(7), 1315-1322.
c. Simillion C, Semmo N, Idle JR, **Beyoğlu D** (2017). Robust regression analysis of GCMS data reveals differential rewiring of metabolic networks in hepatitis B and C patients. Metabolites, 7(4), pii: E51. PMCID: PMC5746731

d. Keogh A, Şenkardeş S, Idle JR, Küçükgüzel ŞG, **Beyoğlu D** (2017). A novel anti-hepatitis C virus and antiproliferative agent alters metabolic networks in HepG2 and Hep3B cells. Metabolites, 7(2), pii: E23. PMCID: PMC5487994

3. **Ionizing radiation provokes the Warburg effect in hepatoma and muscle cells.** The effects of radiation on liver and muscle metabolism have been poorly investigated. To remedy this, I orchestrated a metabolomic investigation of 1 to 4 Gy gamma-irradiation human hepatoma and muscle cell lines. Both cell types showed an upregulation of aerobic glycolysis consistent with the Warburg effect, which had not been previously reported. These metabolic perturbations provide a greater understanding of the mechanisms of tissue damage after exposure to ionizing radiation. In collaboration with colleagues at NCI, NIH, the impact of total-body γ-irradiation on various mouse tissues including the liver was investigated. We reported a number of novel biomarkers of radiation, together with their specific tissue distribution. This was the first report of the tissue origin of individual radiation metabolomic biomarkers, which will impact positively on the detection and treatment of radiation damage. I conceived the cell culture study, mentored a visiting scientist from China, and supervised the research. In the mouse *in vivo* investigation, my role was to interpret the data and contribute to the overall conclusions.
   a. Wang M, Keogh A, Treves S, Idle JR, **Beyoğlu D** (2016). The metabolomic profile of gamma-irradiated human hepatoma and muscle cells reveals metabolic changes consistent with the Warburg effect. PeerJ, 4, e1624. PMCID: PMC4730869
   b. Golla S, Golla JP, Krausz KW, Manna SK, Simillion C, **Beyoğlu D**, Idle JR, Gonzalez FJ (2017). Metabolomic analysis of mice exposed to gamma radiation reveals a systemic understanding of total-body exposure. Radiation Research, 187(5), 612-629. PMCID: PMC5539505

RESEARCH PERSPECTIVES

To combine my training in chemical analysis by chromatographic methods and in genotoxicity assays with the new technologies of metabolomics in several areas of research, specifically:

1. The use of liquid chromatography-mass spectrometry and gas chromatography-mass spectrometry-based metabolomics and lipidomics in the context of translational research. This has been applied initially in Bern in hepatology and leukemia patients using biobanked plasma, urine and tissue samples. This paradigm can be extended to translational research in any clinical specialty.

2. Metabolomic studies of animal models, developed both in Bethesda and in Bern, for human diseases, specifically, genetically modified mice used to examine pathways that might be involved in disease mechanisms.

3. Metabolomic studies of human cell culture models in relation to the metabolic effects of ionizing radiation and of novel drug candidates.

4. Pursuing a systems biology approach to the mechanisms of disease susceptibility and progression using mass spectrometry-based metabolomics and lipidomics combined with genomics and gene expression analyses.

PUBLICATIONS

Beyoğlu D, Idle JR. The gut microbiota – a vehicle for the prevention and treatment of hepatocellular carcinoma. *Biochem Pharmacol*, *in press*.

Beyoğlu D, Park EJ, Quiñones-Lombraña A, Dave A, Parande F, Pezzuto JM, Idle JR. Addition of grapes to both a standard and a high-fat Western pattern diet modifies hepatic and urinary metabolite profiles in the mouse. *Foods Funct* 2022, doi.org/10.1039/D2FO00961G.

Dave A, Park EJ, Kumar A, Parande F, **Beyoğlu D**, Idle JR, Pezzuto JM. Consumption of grapes modulates gene expression, reduces non-alcoholic fatty liver disease, and extends longevity in female C57BL/6J mice on a high-fat western-pattern diet. *Foods* 2022; 11: 1984.

Beyoğlu D, Simillion C, Storni F, De Gottardi A, Idle JR. A metabolomic analysis of cirrhotic ascites. *Molecules* 2022, 27, 3935. https://doi.org/10.3390/molecules27123935

Beyoğlu D, Idle JR. Metabolic Rewiring and the Characterization of Oncometabolites. *Cancers,* 2021, *13*(12), 2900; https://doi.org/10.3390/cancers13122900.

Mocan T, Kang D, Molloy BJ, Jeon H, Spârchez Z, **Beyoğlu D**, Idle JR. Plasma fetal bile acids 7α-hydroxy-3-oxochol-4-en-24-oic acid and 3-oxachola-4,6-dien-24-oic acid indicate severity of liver cirrhosis. *Scientific Reports*, 2021, 11:8298; doi.org/10.1038/s41598-021-87921-5.

Idle JR, Seipel K, Bacher U, Pabst T and **Beyoğlu D.** (2*R*,3*S*)-Dihydroxybutanoic Acid Synthesis as a Novel Metabolic Function of Mutant Isocitrate Dehydrogenase 1 and 2 in Acute Myeloid Leukemia. *Cancers,* 2020, *12*(10), 2842; https://doi.org/10.3390/cancers12102842.

Beyoğlu D, Idle JR. Metabolomic insights into the mode of action of natural products in the treatment of liver disease. *Biochem Pharmacol,* 2020 Jul 22;180;114171.

Beyoğlu D, Idle JR. Metabolomic and Lipidomic Biomarkers for Premalignant Liver Disease Diagnosis and Therapy. *Metabolites,* 2020 Jan 28;10(2):50.doi: 10.3390/metabo10020050.

Beyoğlu D, Zhou Y, Chen C, Idle JR. Mass isotopomer-guided decluttering of metabolomic data to visualize endogenous biomarkers of drug toxicity. *Biochem Pharmacol.* 2018 Oct;156:491-500. doi: 10.1016/j.bcp.2018.09.022.

Simillion C, Semmo N, Idle JR, **Beyoğlu D.** Robust regression analysis of GCMS data reveals differential rewiring of metabolic networks in hepatitis B and C patients. *Metabolites.* 2017 Oct 8;7(4). pii: E51. doi: 10.3390/metabo7040051.

Keogh A, Şenkardeş S, Idle JR, Küçükgüzel ŞG, **Beyoğlu D**. A novel anti-hepatitis C virus and antiproliferative agent alters metabolic networks in HepG2 and Hep3B cells. *Metabolites* 2017 June; 7(23). doi:10.3390/metabo7020023.

Patel DP, Krausz KW, Xie X, **Beyoğlu D**, Gonzalez FJ, Idle JR. Metabolic profiling of energy metabolism in high-fat diet-fed obese mice. *PLoS ONE* 2017 May 16;12(5):e0177953. doi: 10.1371/journal.pone.0177953. eCollection 2017.

Golla S, Golla JP, Krausz KW, Mann SK, Simillion C, **Beyoğlu D,** Idle JR, Gonzalez FJ. Metabolomic analysis of mice exposed to γ-irradiation reveals a systemic understanding of total body radiation exposure. *Radiat Res* 2017 May; 187(5):612629.

Pabst T, Kortz L, Fiedler GM, Ceglarek U, Idle JR, **Beyoğlu D**. The plasma lipidome in acute myeloid leukemia at diagnosis in relation to clinical disease features. *BBA Clin* 2017; 7: 105-114.

Wang M, Keogh A, Treves S, Idle JR, **Beyoğlu D**. The metabolomic profile of gamma-irradiated human hepatoma and muscle cells reveals metabolic changes consistent with the Warburg effect. *PeerJ* 2016 Jan 26;4:e1624. doi: 10.7717/peerj.1624. eCollection 2016.

Semmo N, Weber T, Idle JR, **Beyoğlu D**. Metabolomics reveals that aldose reductase activity due to AKR1B10 is upregulated in hepatitis C infection. *J Viral Hepat* 2015; 22: 617-624.

Beyoğlu D, Krausz KW, Martin J, Maurhofer O, Dorow J, Ceglarek U, Gonzalez FJ, Dufour JF, Idle JR. Disruption of tumor suppressor gene *Hint1* leads to remodeling of the lipid metabolic phenotype of mouse liver. *J Lipid Res* 2014; 55: 2309-2319.

Beyoğlu D, Idle JR. Painting the liver with lasers: The future of the liver histology? *Hepatology* 2014; 59: 757-760.

Beyoğlu D, Idle JR. A history and overview of phenotypic variability in CYP2D6 activity. In: CYP2D6: genetics, pharmacology and clinical relevance. Baumann P. (Ed.), Future Medicine, London, UK (2014).

Beyoğlu D, Idle JR. The metabolomic window into hepatobiliary disease. *J Hepatol* 2013; 59: 842-858.

Cheng J, Zhen Y, Miksys S, **Beyoğlu D**, Krausz KW, Tyndale RF, Yu A, Idle JR, Gonzalez FJ. Potential role of CYP2D6 in the central nervous system. *Xenobiotica* 2013; 43: 973-984.

Beyoğlu D, Imbeaud S, Maurhofer O, Bioulac-Sage P, Zucman-Rossi J, Dufour JF, Idle JR. Tissue metabolomics of hepatocellular carcinoma: Tumor energy metabolism and the role of transcriptomic classification. *Hepatology* 2013; 58: 229-238.

Beyoğlu D, Idle JR. Metabolomics and its potential in drug development. *Biochem Pharmacol* 2013; 85: 12-20.

*Fahrner R, ***Beyoğlu D**, Beldi G, Idle JR. Metabolomic markers for intestinal ischemia in a mouse model. *J Surg Res* 2012; 178: 879-887 (*co-first authors).

Beyoğlu D, Idle JR. The glycine deportation system and its pharmacological consequences. *Pharmacol Ther* 2012; 135: 151-67.

Beyoğlu D, Smith RL, Idle JR. Dog bites man or man bites dog? The enigma of the amino acid conjugations. *Biochem Pharmacol* 2012; 83: 1331-1339.

Şardaş S, Omurtag GZ, Monteiro IFC, **Beyoğlu D**, Tozan-Beceren A, *et al*. (2012) Assessment of DNA Damage and Protective Role of Vitamin E Supplements after Exhaustive Exercise by Comet Assay in Athletes. *J Clinic Toxicol* S5: 001. doi:10.4172/2161-0495.S5-001.

Patterson AD, Maurhofer O, **Beyoğlu D**, Lanz C, Krausz KW, Pabst T, Gonzalez FJ, Dufour JF, Idle JR. Aberrant lipid metabolism in hepatocellular carcinoma revealed by plasma metabolomics and lipid profiling. *Cancer Res* 2011; 71: 6590-600.

Şardaş S, Omurtag GZ, Tozan A, Gül H, **Beyoğlu D**. Evaluation of DNA damage in construction site workers occupationally exposed to welding fumes and solvent based paints in Turkey. *Toxicol Ind Hlth* 2010; 26: 601-608.

Beyoğlu D, Ozkozacı T, Akici N, Omurtag G, Akici A, Ceran O, Şardaş S. Assessment of DNA damage in children exposed to indoor tobacco smoke. *Int J Hyg Environ Hlth* 2010; 213: 40-43.

Beyoğlu D, Omurtag GZ. Occurrence of naphthalene in honey in Turkey by HPLC. *J Food Prot* 2007; 70: 1735-1738.

Omurtag GZ, **Beyoğlu D**. Occurrence of deoxynivalenol (vomitoxin) in beer in Turkey detected by HPLC. *Food Control* 2007; 18: 163-166.

Omurtag GZ, Yazıcıoğlu D, **Beyoğlu D**, Tozan A, Atak G. A review on fumonisin and trichothecene mycotoxins in foods consumed in Turkey. *Bull Tech Univ Istanbul* 2006; 54: 39-44.

Omurtag GZ, **Beyoğlu D**. Occurrence of deoxynivalenol (vomitoxin) in processed cereals and pulses in Turkey. *Food Addit Contam* 2003; 20: 405-409.

PRESENTATIONS

International Scientific Meetings

Beyoğlu D, Dufour JF, Idle JR. Lipid metabolomics in hepatocellular carcinoma. EASL Monothematic Conference. Systems Biology of the Liver. Systems Biology and Clinics Face à Face. February 21-23, 2013, Luxembourg. (Oral presentation)

Idle JR, **Beyoğlu D**. The origins and the future of metabolomics in clinical chemistry – individualized diagnosis. *Clin Chem Lab Med* 2012; 50: A219. (Oral presentation)

Beyoğlu D, Fahrner R, Beldi G, Idle JR. GCMS metabolomics reveals serum biomarkers for intestinal ischemia in a mouse model. Poster 2, Metabolomics and proteomics workshop “Technologies and Applications”. October 1-3, 2012, CIC bioGUNE, Bilbao, Spain. (Poster presentation)

Beyoğlu D, Idle JR. Radiation metabolomics: A solution for rapid radiation biodosimetry. 5th International REAC/TS Symposium on the Medical Basis for Radiation Accident Preparedness. Miami, Florida, September 27-29, 2011. (Oral presentation)

Beyoğlu D, Serdar Aşiran Z, Zindancı İ, Omurtag GZ, Şardaş S. Comet assay and cytokinesis-blocked micronucleus test for monitoring the genotoxic effects of narrowband UVB treatment in psoriasis patients. 9th International ISSX Meeting, Istanbul, Turkey, September 4-8, 2010. (Poster presentation)

Omurtag GZ, **Beyoğlu D**, Oğuz S, İnanç N, Direskeneli H, Şardaş S. Assessment of

DNA damage and DNA repair capacity in patients with rheumatoid arthritis. 3th *International Meeting on Pharmacy & Pharmaceutical Sciences*, Istanbul, Turkey, June 9-12, 2010. (Poster presentation)

Beyoğlu D, Serdar Aşiran Z, Zindancı İ, Omurtag GZ, Şardaş S, Does phototherapy cause DNA damage in psoriasis patients? 3th *International Meeting on Pharmacy & Pharmaceutical Sciences*, Istanbul, Turkey, June 9-12, 2010. (Oral presentation)

Beyoğlu D, Dönbak L, Çimen B, Omurtag GZ, Şardaş S. Evaluation of genotoxicity through cytokinesis-blocked micronucleus assay in offset printing workers. 3th *International Meeting on Pharmacy & Pharmaceutical Sciences*, Istanbul, Turkey, June 9-12, 2010. (Poster presentation)

Beyoğlu D, Omurtag GZ, Topsakal N, Monteiro IFC, Cotuk B, Şardaş S. Do antioxidants prevent the lymphocyte DNA damage induced by exhaustive exercise? *10th International Conference on Environmental Mutagens,* Florence, Italy, August 20-25, 2009. (Poster presentation)

Beyoğlu D, Omurtag GZ, Topsakal N, Monteiro IFC, Cotuk B, Şardaş S. DNA damage after exhaustive exercise, using comet assay and protective role of vitamin E. *11th European Regional Meeting*, Lisbon, Portugal, May 17-20, 2009. (Poster presentation)

Omurtag GZ, Gül H, Yazar S, **Beyoğlu D**, Tozan A, Kadıoğlu E, Şardaş S. DNA damage comparison between construction site workers and controls by comet assay. *10th European Regional Meeting*, Vienna, Austria, May 18-21, 2008. (Poster presentation)

Beyoğlu D, Akıcı N, Omurtag GZ, Özkozacı T, Tozan A, Ceran Ö, Akıcı A, Şardaş S. Evaluation of DNA damage by chromosomal aberration and comet assay in children exposed to tobacco smoke. *3rd Euro-Asian Conference on Hazardous Waste & Human Health*, Istanbul, March 27-30, 2008. (Poster presentation)

Omurtag GZ, Gül H, Yazar S, **Beyoğlu D**, Tozan A, Şardaş S. DNA damage assessment by comet assay in workers exposed to welding fume metals. *3rd EuroAsian Conference on Hazardous Waste & Human Health*, Istanbul, March 27-30, 2008. (Poster presentation)

Beyoğlu D, Omurtag GZ, Determination of naphthalene in honey specimens provided from Marmara and Aegean regions by HPLC. *6th International Congress of Turkish Society of Toxicology*, Antalya, November 2-5, 2006. (Poster presentation)

Beyoğlu D, Omurtag GZ, Determination Of naphthalene in honey specimens provided from north, south, east, south-east and central Anatolia by HPLC. 8th International

Symposium on Pharmaceutical Sciences, Ankara, June 13-16, 2006. (Poster presentation)

Omurtag GZ, **Beyoğlu D**, Determination of deoxynivalenol (vomitoxin) in processed cereals and pulses by HPLC and TLC. 5th *International Congress of Turkish Society of Toxicology,* Antalya, October 30- November 2, 2003. (Poster presentation)

Beyoğlu D, Omurtag GZ, Determination of deoxynivalenol (vomitoxin) in beer by HPLC. *7th International Symposium on Pharmaceutical Sciences, ISOPS-7*, Ankara University, Faculty of Pharmacy, Ankara, June 24-27, 2003. (Poster presentation)

Omurtag GZ, **Beyoğlu D**, Determination of deoxynivalenol (vomitoxin) in cereals and breakfast cereals by HPLC. *Eurotox 2001, The 39th Congress of the European Societies of Toxicology,* İstanbul, *Toxicol. Lett*, September 13-16, 2001. (Poster presentation)

PROJECTS AND GRANTS AWARDED

Genotoxicity assessment of psoriasis patients in routine clinical treatment protocols, M.U. Scientific Researchers Projects Directorship, SAG-B-090909-0287, **Principal Investigator**, 2009-2010.

Determination of DNA damage repair in patients with Rheumatoid Arthritis, M.U. Scientific Researchers Projects Directorship, SAG-B-060308-0027, **Co-Investigator**, 2008-2010.

Evaluation of DNA Damage in Passive Smoker Children who Exposed to Tobacco Smoke, M.U. Scientific Researchers Projects Directorship, SAG-BGS-060907-0179, **Principal Investigator**, 2007-2009.

Determination of naphthalene concentration by HPLC in honey specimens provided from various regions of Turkey, *M.U. Scientific Researchers Projects Directorship,* SAG-040/230804, **Co-Investigator***,* 2004-2006.

Determination of deoxynivalenol in processed cereal and pulse products provided from Istanbul market, *M.U. Research Fund Project,* HEA-019/230501*,* **Co-Investigator***,* 2001-2002.

ONGOING GRANTS

LIU Seed Grant, **Principal Investigator**. “Piloting a noninvasive human urinary test to support the development of an aldose reductase activity biosensor” (3.1.2020-08.31.2022)

California Table Grape Commission, **Co-Principal Investigator.** “A metabolomic and lipidomic investigation of a table grape diet in human volunteers” (8.1.2020-12.31.2022)