

CURRICULUM VITAE
Assistant Professor Bilal E. Kerman
Istanbul Medipol University
Department of Histology and Embryology
Regenerative and Restorative Medicine Research Center
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• **EDUCATION**

- Aug 2009-Apr 2015 Post-doctoral Research Fellow
Salk Institute, La Jolla, CA USA
- Sep 2001-Jul 2009 Ph.D., Biochemistry, Cellular and Molecular Biology
Johns Hopkins University, Baltimore, MD USA
- Sep 1997-Jun 2001 B.S., Department of Molecular Biology and Genetics
Bilkent University, Ankara Turkey

• **CURRENT POSITION**

- May 2015-Present Assistant Professor
Department of Histology and Embryology
Regenerative and Restorative Medicine Research Centre
Istanbul Medipol University, Istanbul Turkey
- Sep 2017-Present Scientific Advisor
Microscopy applications on in vitro platforms
Argenit Micro Systems, Istanbul Turkey

• **PREVIOUS POSITIONS**

- Aug 2009-Apr 2015 Post-doctoral Research Fellow; Advisor: Prof. Fred H. Gage
Salk Institute, La Jolla, CA USA

• **RESEARCH EXPERIENCE**

- May 2015-Present Assistant Professor
Istanbul Medipol University, Istanbul Turkey
Investigating myelination and demyelination through advanced imaging and bioinformatics.
Applying the acquired information to understand myelination disorders and to develop therapies for myelin disorders.
- Aug 2009-Apr 2015 Post-doctoral Research Fellow; Advisor: Prof. Fred H. Gage
Salk Institute, La Jolla, CA USA
Developed a stem cell-based myelination assay and a myelin quantification software.
Analyzed a candidate compound to promote myelination in an in vitro disease model.
Contributed to in vitro exploration of Huntington disease.
Collaborated in investigating transposons.
Established an imaging and evaluation strategy for comparing human and nonhuman primate neural progenitors derived from induced pluripotent stem cells.

CURRICULUM VITAE – Bilal E. Kerman

- Sep 2001-Jul 2009 Doctoral Research Fellow; Advisor: Prof. Deborah J. Andrew
Johns Hopkins University, Baltimore, MD USA
Doctoral thesis titled “Formation and maintenance of epithelial tubes: from mechanics to cell death”
Described the molecular basis for tissue mechanics during tube formation using a combination of genetics, cell biology, imaging and computer modeling. Mapped a mutation of interest to the *dalmation* gene and described its function in the development and maintenance of the *Drosophila* salivary duct.
- Sep 2000-Jun 2001 Honor’s Thesis; Advisor: Prof. Mehmet Ozturk
Bilkent University, Ankara, Turkey
Determined expression levels of signal transducers and activators of transcription (STATs) in hepatocellular carcinoma cell lines using quantitative PCR and Western blot analysis.
- Jun 2000-Sep 2000 Summer Research Assistant; Advisor: Prof. Deborah J. Andrew
Johns Hopkins University, Baltimore, MD USA
Under supervision of Dr. Monn Monn Myat participated in a chemical mutagenesis screen to identify genes required for *Drosophila* salivary gland and trachea invagination.
Performed immunostaining, microscopy, and *Drosophila* husbandry.
- Jun 1999-Jul 1999 Summer Research Assistant; Advisor: Prof. Tayfun Ozcelik
Bilkent University, Ankara, Turkey
Investigated a correlation between angiotensinogen polymorphisms and hypertension and cardiovascular diseases using SNP analysis.
- **MENTORSHIP EXPERIENCE**

2016-Present Advisor of 2 Master Students and 2 Ph.D. Students
Istanbul Medipol University, Istanbul Turkey

2016-Present Overseeing one High School Research Project with participation of 3 High School and 2 Undergraduate Students
Kabatas High School, Istanbul Turkey and Istanbul Medipol University, Istanbul Turkey

2014-2015 Oversaw 1 Masters’ Thesis Research Project; Advisor: Prof. Fred H. Gage
Salk Institute, La Jolla, CA USA

2013-2014 Oversaw 1 Honor’s Thesis Research Project; Advisor: Prof. Fred H. Gage
Salk Institute, La Jolla, CA USA

Jan 2006-May 2006 Substitute Trainer for JHMI Microscope Facility
Johns Hopkins University, Baltimore, MD USA
 - **TEACHING EXPERIENCE**

2016-Present Associate Class Coordinator for International School of Medicine
Istanbul Medipol University, Istanbul Turkey

2017-Present Lecturer for Physics of Light Microscopy
Graduate School of Health Sciences
Istanbul Medipol University, Istanbul Turkey

CURRICULUM VITAE – Bilal E. Kerman

- 2015-Present Lecturer for Histology and Embryology-1, Histology and Embryology-2
School of Medicine & School of Dentistry
Istanbul Medipol University, Istanbul Turkey
- 2015-2016 Organizer of Graduate Student Journal Club
Department of Histology and Embryology
Istanbul Medipol University, Istanbul Turkey
- Fall Semester 2003 Teaching Assistant for Principles of Developmental Biology
School of Medicine
Johns Hopkins University, Baltimore, MD USA
- Fall Semester 2002 Tutor for Genetics
Biochemistry Cellular and Molecular Biology Program
Johns Hopkins University, Baltimore, MD USA

• EXAMPLES OF PARTICIPATION IN INDUSTRIAL INNOVATION

- **Microscopy applications on in vitro platforms**
2017-Present, initiated collaboration with **Argenit Micro Systems**, an R&D company focusing on developing innovative microscopy solutions. Obtained funding from sources within Turkey and European Union. Working closely with engineering scientists to develop 1) a myelin quantification software based on machine learning and 2) an automated imaging platform for diagnosis of neurodegenerative diseases.
- **Quantification of Myelination**
2009-2012, developed the assay system and computer application for rapid and efficient myelin quantification. Led a diverse group of academic group of scientists. Kept the communication with **Sanofi** industrial group constant with monthly meetings. Balanced the needs of industry and academic requirements.

• PRIZES AND AWARDS

- 2017-Present **Turkish Academy of Sciences**, Young Investigator Award
- 2016-Present **The Scientific and Technological Research Council of Turkey (TUBITAK)**,
Returnee Research Fellowship
- 2007 **Johns Hopkins University**, Department of Cell Biology, Lewis Travel Award
for attendance at 2007 Drosophila Research Conference
- 1997-2001 **Bilkent University**, Undergraduate Scholarship Award
- 1997-2001 **The Scientific and Technological Research Council of Turkey (TUBITAK)**
Achievement Scholarship
- 1997 **International Biology Olympiad**, Bronze Medalist

• PROFESSIONAL ASSOCIATIONS

- 2010-Present **Society for Neuroscience**
- 2015-Present **Molecular Biology Society of Turkey**
- 2017-Present **Turkish Society of Histology and Embryology**
- 2017-Present **Neuroscience Society of Turkey**

CURRICULUM VITAE – Bilal E. Kerman

• FUNDING

As Principal Investigator

- Mar 2016-Mar 2019 Investigation of Myelin Membrane Expansion Dynamics of the Central Nervous System
The Scientific and Technological Research Council of Turkey
360 000 TL (approximately \$104 000)
- Nov 2016-Dec 2018 Modelling Myelination and Myelin Disorders
Turkish Academy of Sciences
60 000 TL (approximately \$17 000)
- Oct 2017-Oct 2020 Development of Fluorescence Imaging and Analysis Tools for Myelin Quantification and Investigation of Myelin Mechanics
European Cooperation in Science and Technology (COST) Action *A new Network of European BioImage Analysts to advance life science imaging (NEUBIAS)* and The Scientific and Technological Research Council of Turkey
322 000 TL (approximately \$93 000)
- Oct 2017-Jul 2018 Investigation of effect of macrophages on neural cells of the central nervous system
The Scientific and Technological Research Council of Turkey
30 000 TL (approximately \$8 500)
- Apr 2016-Apr 2018 An Induced Pluripotent Stem Cell-based Multiple Sclerosis Model
The Scientific and Technological Research Council of Turkey
30 000 TL (approximately \$8 500)
- Jul 2016- Jan 2018 Investigating HRP3's role in biology of myelinating oligodendrocytes and Schwann cells
The Scientific and Technological Research Council of Turkey
60 000 TL (approximately \$17 000)

As Participating Researcher

- Jan 2018- Dec 2021 Automated Functional Screening Of IgGs For Diagnostics of Neurodegenerative Diseases
Marie Skłodowska-Curie Research and Innovation Staff Exchange
European Commission
Total: 954 000 € (approximately \$ 1 130 000; My share is \$112 500)
- Sep 2017- Sep 2020 Development of novel therapeutic molecules with capability of targeting multiple receptors for treatment of Parkinson Disease
European Cooperation in Science and Technology (COST) Action *Multi-target paradigm for innovative ligand identification in the drug discovery process (MuTaLig)* and The Scientific and Technological Research Council of Turkey
Total: 360 000 TL (approximately \$104 000; My share is \$10 000)
- Sep 2017-Sep 2019 Dual Mode and Multi-wavelength 3D Quantitative Phase and Fluorescence Microscopy
European Cooperation in Science and Technology (COST) Action *Between Atom and Cell: Integrating Molecular Biophysics Approaches for Biology and Healthcare (MOBIEU)* and The Scientific and Technological Research Council of Turkey
Total: 360 000 TL (approximately \$104 000; My share is \$8 500)

CURRICULUM VITAE – Bilal E. Kerman

• PUBLICATIONS

1. Santos, R., Vadodaria, K., Jaeger, BN., Mei, A., Lefcochilos-Fogelquist, S., Mendes, AD., Erikson, G., Shokhirev, M., Randolph-Moore, L., Fredlender, C., Dave, S., Fitzpatrick, C., **Kerman, BE.**, Charnay, P., Kelsoe, JR., Marchetto, MC., and Gage, FH. (2017) Differentiation of Inflammation-Responsive Astrocytes from Glial Progenitors Generated from Human Induced Pluripotent Stem Cells. ***Stem Cell Reports*** 8(6):1757-1769
2. Kilic, U., Caglayan, AB., Beker, MC., Gunal, MY., Caglayan, B., Yalcin, E., Kelestemur, T., Gundogdu, RZ., Yulug, B., **Kerman, BE.**, and Kilic, E. (2017) Particular phosphorylation of PI3K/Akt on Thr308 via PDK-1 and PTEN mediates melatonin's neuroprotective activity after focal cerebral ischemia in mice*. ***Redox Biology*** 12:657-665
* This manuscript received **Prof. Dr. Altan GUNALP Research Award** at the XV. National Medical Biology and Genetics Congress (2017).
3. Aydınlı, FI., Celik, E., Kurt Vatandaslar, B., and **Kerman, BE.** (2016) Myelin disorders and stem cells: as therapies, models. ***Turkish Journal of Biology*** 40(5):1068-1080
4. Ettle, B., **Kerman, BE.**, Valera, E., Gillmann, C., Schlachetzki, JC., Reiprich, S., Büttner, C., Ekici, AB., Reis, A., Wegner, M., Bäuerle, T., Riemenschneider, MJ., Maslah, E., Gage, FH., and Winkler, J. (2016) α -Synuclein-induced myelination deficit defines a novel interventional target for multiple system atrophy. ***Acta Neuropathologica*** 132(1):59-75
5. Denli, AM., Narvaiza, I., **Kerman, BE.**, Pena, M., Benner, C., Marchetto, MC., Aslanian, A., Ma, J., Hunter, T., Saghatelian, A., and Gage, FH. (2015) Identification of a novel open reading frame, ORF0, in primate LINE-1 retrotransposons. ***Cell*** 163(3):583-593.
6. **Kerman, BE.**, Kim HJ., Padmanabhan, K., Mei, A., Georges, S., Joens, MS., Fitzpatrick, JAJ., Japelli, R., Chandross, K., August, P., and Gage, FH. (2015) *In vitro* myelin formation using embryonic stem cells. ***Development*** 142(12):2213-25.
7. Crotti, A., Benner, C., **Kerman, BE.**, Gosselin, G., Lagier-Tourenne, C., Zuccato, C., Cattaneo, E., and Gage, F.H., Cleveland, DW, Glass, CK. (2014) Mutant Huntingtin promotes cell-autonomous microglia activation via myeloid lineage-determining factors PU.1 and C/EBP. ***Nat Neurosci.*** 17(4):513-21.
8. Deshmukh, VA, Tardif, V, Lyssiotis, CA, Green, CC, **Kerman, B**, Kim, HJ, Padmanabhan, K, Swoboda, JG, Ahmad, I, Kondo, T, Gage, FH, Theofilopoulos, AN, Lawson, BR, Schultz, PG, Lairson, LL. (2013) A regenerative approach to the treatment of multiple sclerosis. ***Nature.*** 502(7471):327-32.
9. **Kerman, BE.** and Andrew, DJ. (2010) Staying alive: Dalmatian mediated epigenetic blocking of apoptosis is essential for tissue maintenance. ***Dev Dynamics.*** 239(6):1609-21.
10. Jattani, R., Patel, U., **Kerman, BE.**, and Myat, MM. (2009) Deficiency screen identifies a novel role for beta2 tubulin in salivary gland and myoblast migration in the Drosophila embryo. ***Dev Dynamics*** 238: 853-863.
11. **Kerman, BE.***, Cheshire, AM.*, Myat, MM., and Andrew, DJ. (2008) Ribbon Modulates Apical Membrane During Tube Elongation through Crumbs and Moesin. ***Co-first authors. Dev Biol*** 320: 278-288.
12. Cheshire, AM.*, **Kerman, BE.***, Zipfel, WR., Spector, AA., and Andrew, DJ. (2008) Kinetic and Mechanical Analysis of Live Tube Morphogenesis. ***Co-first authors. Dev Dynamics*** 237: 2874-2888.
13. **Kerman, BE.**, Cheshire, AM., and Andrew, DJ. (2006) From fate to function: the Drosophila trachea and salivary gland as models for tubulogenesis. ***Differentiation*** 74: 326–348.

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• MANUSCRIPTS IN SUBMISSION

1. Marchetto, MC.*, Hrvoj-Mihic, B.*, **Kerman, BE.***, Yu, DX., Vadodaria, K., Narvaiza, I., Linker, SB., Santos, R., Denli, AM., Mendes, AD., Oefner, R., Cook, J., McHenry, L., Michael, J., Heard, K., Fredlender, C., Kshirsagar, R., Xenitopoulos, R., Muotri, AR., Padmanabhan, K., Semendeferi, K., and Gage, FH. Species-specific maturation profiles of human, chimpanzee and bonobo neural cells. ***Co-first authors**. *Submitted*.

• INVITED PRESENTATIONS

1. 2018 **Hacettepe University**, Institute of Neurological Sciences and Psychiatry
2. 2017 **Friedrich-Alexander University**, Department of Molecular Neurology, Erlangen, Germany
Institute of Biochemistry, Erlangen, Germany
3. 2017 **Istanbul Arel University**, Department of Molecular Biology and Genetics, Istanbul Turkey
4. 2016 **Johns Hopkins University**, Department of Biophysics, Baltimore, MD USA
5. 2016 **Istanbul University IUGEN Winter School**, Istanbul Turkey
6. 2016 **BioLaw Science Talks Annual Meeting**, Canakkale Turkey
7. 2015 **Molecular Biology Society of Turkey Annual Congress**, Ankara Turkey
8. 2015 **Istanbul Technical University, Department of Molecular Biology and Genetics**, Istanbul Turkey
9. 2015 **BioLaw Science Talks Annual Meeting**, Canakkale Turkey
10. 2014 **Koc University**, College of Science, Istanbul Turkey

• SELECTED CONFERENCE PROCEEDINGS

With an Accompanying Manuscript

1. Cimen, S., Capar, A., Ekinci, DA., Ayten, UE., **Kerman, BE.**, and Toreyin, BU. DeepMQ: A Deep Learning Approach Based Myelin Quantification in Microscopic Fluorescence Images. *Submitted*.

Oral or Poster Only Presentations

1. Cimen, S., Capar, A., Ekinci, DA., Ayten, UE., Toreyin, BU., and **Kerman, BE.**, (2018) Automated Myelin Quantification from CEM to DeepMQ. *The 2nd NEUBIAS Conference*. (Poster)
2. **Kerman, BE.**, (2017) An in vitro approach to understanding myelination and myelin disorders. *15th International Congress of Histochemistry and Cytochemistry*. (Oral presentation)
3. **Kerman, BE.**, (2017) Dissecting myelination and demyelination at high resolution. *15th National Neuroscience Congress*. (Oral presentation)
4. **Kerman, BE.**, (2016) Comparison of Central and Peripheral Myelination Dynamics. *Turkish Society of Physiological Sciences National Physiology Congress*. (Oral presentation) and published in ***Acta Physiologica*** 218:5-5
5. **Kerman, BE.**, (2016) Modeling myelin formation and myelination disorders using stem cells. *XIII. National Histology and Embryology Congress*. (Poster)
6. **Kerman, BE.**, Kim HJ., Mei, A., Padmanabhan, K., Georges, S., Joens, MS., Fitzpatrick, JAJ., Japelli, R., Chandross, K., August, P., and Gage, FH. (2013) A novel, embryonic stem cell-based myelination assay. *Society for Neuroscience Annual Meeting – CDRF Hot Topics in Stem Cell Biology*. (Oral presentation)
7. **Kerman, BE.**, Kim HJ., Mei, A., Chandross, K., August, P., and Gage, FH. (2012) Development of an embryonic stem cell-based myelination assay. *International Society for Stem Cell Research Annual Meeting*. (Oral presentation)

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8. **Kerman, BE.**, Mei, A. Kim HJ., and Gage, FH. (2011) Development of an embryonic stem cell-based myelination assay. *Society for Neuroscience Annual Meeting*. (Poster)
9. **Kerman, BE.**, Mei, A. Genoud, S., Denli, AM., and Gage, FH. (2010) Development of a myelination assay of human neurons generated from HESCs. *Joint Spinal Cord Injury Meeting*. (Poster)
10. **Kerman, BE.**, Cheshire, AM., Zipfel, WR., Myat, MM., Spector, AA., and Andrew, DJ. (2007) Transcriptional Control of Apical Mechanics During Tube Morphogenesis. *ASCB Meeting*. (Poster)
11. **Kerman, BE.**, Cheshire, AM., Zipfel, WR., Myat, MM., Spector, AA., and Andrew, DJ. (2007) Transcriptional Control of Apical Mechanics During Tube Morphogenesis. *Drosophila Research Conference*. (Oral presentation)
12. **Kerman, BE.**, Cheshire, AM., Zipfel, WR., Myat, MM., Spector, AA., and Andrew DJ. (2006) Ribbon and Lola-like increase apical surface elasticity during tube migration via regulation of *crumbs* transcription and Moesin phosphorylation. *Santa Cruz Conference on Developmental Biology*. (Poster)
13. **Kerman, BE.** and Andrew, DJ. (2006) Analysis of *dalmatian* suggests a role for the Nervous System in Drosophila Embryonic Trachea and Salivary Duct Development. *Drosophila Research Conference*. (Poster)
14. **Kerman, BE.** and Andrew, DJ. (2005) Dalmatian suggests a role for the Nervous System in Drosophila Embryonic Trachea and Salivary Duct Development. *Morphogenesis and Regenerative Medicine Symposium, University of Virginia* (Poster)
15. **Kerman, BE.** and Andrew, DJ. (2005) Dalmatian suggests a role for the Nervous System in Drosophila Embryonic Trachea and Salivary Duct Development. *Developmental Biology Research Interest Group*. (Oral presentation)
16. **Kerman, BE.** and Andrew, DJ. (2003) Drosophila Embryonic Salivary Duct Morphogenesis. *Drosophila Research Conference*. (Poster)