

## HAEYOUNG KIM, PH.D.

Associate Professor of Biomedical Science  
Department of Biological and Health Sciences  
Texas A&M University-Kingsville  
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### EDUCATION

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Ph.D. in Biochemistry and Molecular Biology, 2007  
University of Minnesota Twin Cities, Minneapolis, MN  
M.A. in Biochemistry, 2002  
Chonnam National University, South Korea  
B.A. in Genetic Engineering, 1999  
Chonnam National University, South Korea

### EMPLOYMENT HISTORY

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#### *Academic*

2022 – present Associate Professor, Department of Biological and Health Sciences  
Texas A&M University–Kingsville  
2016 – 2022 Assistant Professor, Department of Biological and Health Sciences  
Texas A&M University–Kingsville  
2007 – 2016 Research Fellow, Department of Genetics  
Harvard Medical School  
2002 – 2007 Graduate Assistant, Department of Biochemistry, Molecular Biology &  
Biophysics  
University of Minnesota Twin Cities, Minneapolis, MN  
2000 – 2002 Graduate Assistant, Department of Genetic Engineering  
Chonnam National University, Gwangju, South Korea

### LIST OF COURSES TAUGHT

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#### *Texas A&M University-Kingsville*

UNIV 1201 Learning in Global Context  
BIOL 1306 General Biology I  
BIOL 1307 General Biology II (including Honors College Course)  
BIOL 2421 Elementary Microbiology (including Lab)  
BIOL 4102 Writing Intensive Seminar  
BIOL 4335 Molecular Genetics  
BIOL 4355 Topics in Biology – Epigenetics  
BIOL 5308 *Advanced Molecular Genetics (Newly Developed Course)*

BIOL 5309 *Epigenetics (Newly Developed Course)*  
BIOL 5313 *Biotechniques (Newly Developed Course)*

*University of Minnesota Twin Cities*

BIOC 4332 Biochemistry II (Teaching Assistant)

*Chonnam National University*

Biochemistry I (Teaching Assistant)

Biochemistry II (Teaching Assistant)

Organic Chemistry Lab (Teaching Assistant)

## PUBLICATIONS

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### *Refereed Journal Articles*

- Kim D., Kim H., Wu H., and Shin DH. The effect of interaction rate on oncolytic virotherapy. *Computational Biology and Bioinformatics*. 2020, June;8(1):20-28.
- Guevara, E. and Silhavy, J. DNA damage repair genes expressed in human neurons (faculty mentor; Kim, H.). *Javelina Undergraduate Research Journal*. 2018 July 16;2:38-49.
- Kim H, Yim H. 53BP1: A guardian for centrosomal integrity. *Frontiers in Bioscience, Landmark*, 2018 Jan 1;23:1-12.
- Lu T, Aron L, Zullo J, Pan Y, Kim H, Chen Y, Yang TH, Kim HM, Drake D, Liu XS, Bennett DA, Colaiácovo MP, Yankner BA. Addendum: REST and stress resistance in ageing and Alzheimer's disease. *Nature*. 2016 Dec 15;540(7633):470.
- Lu T, Aron L, Zullo J, Pan Y, Kim H, Chen Y, Yang TH, Kim HM, Drake D, Liu XS, Bennett DA, Colaiácovo MP, Yankner BA. REST and stress resistance in ageing and Alzheimer's disease. *Nature*. 2014 Mar 27;507(7493):448-54.
- Mosammamarast N, Kim H, Laurent B, Zhao Y, Lim HJ, Majid MC, Dango S, Luo Y, Hempel K, Sowa ME, Gygi SP, Steen H, Harper JW, Yankner B, Shi Y. The histone demethylase LSD1/KDM1A promotes the DNA damage response. *J Cell Biol*. 2013 Nov 11;203(3):457-70.
- Kim H, Livingston DM. Suppression of a DNA polymerase delta mutation by the absence of the high mobility group protein Hmo1 in *Saccharomyces cerevisiae*. *Curr Genet*. 2009 Apr;55(2):127- 38.
- Kim H, Livingston DM. A high mobility group protein binds to long CAG repeat tracts and establishes their chromatin organization in *Saccharomyces cerevisiae*. *J Biol Chem*. 2006 Jun 9;281(23):15735-40.
- Myung K, Ghosh G, Fattah FJ, Li G, Kim H, Dutia A, Pak E, Smith S, Hendrickson EA. Regulation of telomere length and suppression of genomic instability in human somatic cells by Ku86. *Mol Cell Biol*. 2004 Jun; 24(11):5050-9.
- Kim ES, Kim H, Park RD, Lee Y, Han O. Dual positional specificity of wound-responsive lipoxygenase from maize seedlings. *J Plant Physiol*. 2002 Nov; 159(11): 1263-5.

*Refereed Abstracts*

- Kim H. (2021). Role of REST and its corepressors in genome maintenance and aging. 1<sup>st</sup> Virtual International Workshop on Insights in Pharmacological and Pharmaceutical Sciences, Virtual Symposium, Hanyang University, Korea.
- Kim, H., Kalagara, S.S.S., Guevara, E., Silhavy, J., Chapa, C. (2018). Age-associated changes of DNA repair acitivity in human brain. 2nd Southwest Texas Asian Symposium, Texas A&M University-Corpus Christi, Corpus Christi, TX.
- Kim, H., and Livingston, D.M. (2006). A high mobility group protein binds to long CAG repeat tracts and establishes their chromatin organization in *Saccharomyces cerevisiae*. DNA replication and genome integrity. Salk Meeting, La Jolla, CA.
- Refsland, E., Kim, H., and Livingston D.M. (2004). Expansion of CAG repeat tracts in DNA ligase I mutants. Yeast Genetics Meeting, University of Washington, Seattle, WA.

PRESENTATIONS

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*International*

- Role of REST and its corepressors in genome maintenance and aging. 1<sup>st</sup> Virtual International Workshop on Insights in Pharmacological and Pharmaceutical Sciences, Virtual Symposium, Hanyang University, Korea. 2021 (Invited speaker)
- A high mobility group protein binds to long CAG repeat tracts and establishes their chromatin organization in *Saccharomyces cerevisiae*. DNA replication and genome integrity Salk Meeting, La Jolla, CA. 2006 (Poster presentation)
- Expansion of CAG repeat tracts in DNA ligase I mutants. Yeast Genetics Meeting, University of Washington, Seattle, WA. 2004 (Poster presentation)

*Regional*

- Kim, H., Guevara, E., Silhavy, J., Chapa, C., and Kalagara, S. Age-associated changes of DNA repair activity in human brain. 2nd Southwest Texas Asian Symposium, Texas A&M University-Corpus Christi, Corpus Christi, TX. 2018 (Oral presentation)
- Kalagara, S., and Kim, H. DNA repair activity in aging neurons. The Texas A&M System 15th Annual Pathways Student Research Symposium, November 2018 (Poster presentation)
- Arun, A.K., Schoen, J.R., Vempati, S., Kim, H., and Sung, C.K. Reactivation of SALL2 in Human Ovarian Cancer Cells. The Texas A&M System 15th Annual Pathways Student Research Symposium, November 2018 (Poster presentation)

*Local*

- Amrithesh K Arun, Jeffrey R Schoen, Swetha Vempati, Haeyoung Kim, Chang K Sung. Reactivation of SALL2 in Human Ovarian Cancer Cells. 13th Javelina Research Symposium. November 2019
- Begum, I., Ortega, A.J., Arun, A.K., Kim, H., and Sung, C.K. P150 Re-expression via Targeted Demethylation. 13th Javelina Research Symposium. November 2019
- Sai Sree Sumitra Kalagara and Haeyoung Kim. DNA repair activity in aging neurons. 12th Javelina Research Symposium, September 2018.

## Curriculum Vita

- Christian Chapa and Haeyoung Kim. DNA Damage Repair: The Base Excision Repair Pathway in Human Neural and Nonneural Cells. 11th Javelina Research Symposium, April 2018. (Christian won a poster award)
- Sai Sree Sumitra Kalagara and Haeyoung Kim. Mechanisms of microsatellite instability in human neurons. 11th Javelina Research Symposium, April 2018.
- Amrithesh K Arun, Swetha Vempati, Jeffery R Schoen, Haeyoung Kim and Chang Sung, CRISPR-mediated Demethylation of SALL2 Promoter in Ovarian Carcinomas, 11th Annual Javelina Research Symposium, April 18, 2018
- Chapa, C., and Kim, H. DNA Damage Repair: The Base Excision Repair Pathway in Human Neural and Non-Neural Cells. Phi Kappa Phi Student Research Forum. 2018 (Oral presentation, Invited Talk)
- Sai Sree Sumitra Kalagara and Haeyoung Kim. Postmitotic instability of microsatellites in human neurons. 10th Javelina Research Symposium, September 2017.
- Sai Sree Sumitra Kalagara and Haeyoung Kim. Mechanisms of microsatellite instability in human neurons. 9th Javelina Research Symposium, April 2017.
- Eduardo Guevara, Jessica Silhavy and Haeyoung Kim. DNA damage repair genes expressed in human neurons. 9th Javelina Research Symposium, April 2017.
- Kalagara, S., and Kim, H. Induced-pluripotent stem cells as a cellular model to study neurodegenerative diseases. Phi Kappa Phi Student Research Forum. 2017 (Oral presentation, Invited Talk)
- Kim, H., and Yankner, B.A. Role of REST/NRSF in genome maintenance. Department of Genetics, Harvard Medical School, Boston, MA. 2013
- Kim, H., and Yankner, B.A. The novel function of REST in genome maintenance. Stanley Center for Psychiatric Diseases, Broad Institute, Cambridge, MA. 2012
- Kim, H., and Yankner, B.A. New biological functions of REST/NRSF. Department of Pathology, Harvard Medical School, Boston, MA. 2011

## RESEARCH AND SCHOLARLY ACTIVITIES

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### *Funded Grants*

#### **R16GM145578-02S1 (Active)**

Project Title: Requisition of Bio-RAD QX200 Droplet Digital PCR System

Source of Support: National Institute of Health (NIH)

Role: Principal Investigator

Granted Budget: \$61,533

Period: August 2024 – July 2027

#### **R16GM145578-01A1 (Active)**

Project Title: Control mechanisms of 5-hydroxymethylcytosine metabolism in human cells

Source of Support: National Institute of Health (NIH)

Role: Principal Investigator

Granted Budget: \$552,000

Period: September 2023 – July 2027

**Eurasia Foundation Grants (Active)**

Project Title: Engineering, Technology, and Globalization

Source of Support: Eurasia Foundation

Role: Co-Principal Investigator

Budget: \$50,999

Period: January 2022 – May 2024 (Selected for 3<sup>rd</sup> Renewal)

**SC3GM141756-01 (PI: Dr. Sung, Active)**

Project Title: Collaborative Activities of the Key Transcription Factors in Glioblastoma Stem-like Cancer Cells

Source of Support: National Institute of Health (NIH)

Role: Collaborator

Granted Budget: \$414,000

Period: May 2021 – March 2025

**2021 Research Equipment & Supplies Grant**

Project Title: Requisition of CFX Opus 96 Real-Time PCR

Source of Support: College of Arts and Sciences, Texas A&M University-Kingsville

Role: Principal Investigator

Budget: \$26,700

**COAS Research Support Award**

Project Title: Investigation of DNA demethylation mechanisms in human cells

Source of Support: College of Arts and Sciences, Texas A&M University-Kingsville

Role: Principal Investigator

Budget: \$6,000

Period: November 2020 – May 2021

**URA**

Project Title: Development of stem cell-based model system to study neurodegenerative diseases

Source of Support: University Research Award, Texas A&M University-Kingsville

Role: Principal Investigator

Budget: \$15,000

Period: September 2017 – May 2018

**TCUR**

Project Title: Studies on DNA damage repair pathways in human neurons

Source of Support: TAMUK Council Undergraduate Research

Role: Principal Investigator

Budget: \$4,800

Period: January 2017 – August 2017

*Curriculum Vita*

BRG Award

Project Title: Studies on the mechanism of somatic CAG repeat expansion using induced-neurons as a model system

Source of Support: Biomedical Research Group, Texas A&M University-Kingsville

Role: Principal Investigator

Budget: \$3,000

Period: June 2017

BRG Research Support (Drs. Sung and Kim)

Project Title: Epigenetic regulation of the silenced genes in human cancer and nerve cells

Source of Support: Biomedical Research Group Awards, TAMUK

Role: Co-investigator

Granted Budget: \$1,965

Period: January 2017 – May 2017

SC2GM122686 (PI: Dr. Sung)

Project Title: Targeted promoter demethylation in ovarian cancer cells

Source of Support: National Institute of Health (NIH)

Role: Collaborator

Granted Budget: \$413,996

Period: September 2017 – July 2020

*Proposals Submitted but Not Funded*

NIH SuRE-R16 (Withdrawn since awarding another R16)

Project Title: Post-DNA damage repair restoration of chromatin in mitotic and postmitotic cells

Source of Support: National Institute of Health (NIH)

Role: Principal Investigator

Grant Budget: \$552,000

Period: April 2023 – March 2028

NIH SuRE-R16

Project Title: Locus-Specific 5hmC Enrichment by Tissue-Specific Regulation of DNA Demethylation

Source of Support: National Institute of Health (NIH)

Role: Principal Investigator

Grant Budget: \$542,500

Period: May 2022 – April 2026

NSF Major Research Instrumentation Program

Project Title: Acquisition of a Super-Resolution Nanoscope for Science and Education in South Texas (ASSET)

Role: Co-Principal Investigator

Source of Support: National Science Foundation (NSF)

*Curriculum Vita*

Grant Budget: \$1,591,746  
Period: Sep 2021 – Aug 2024

NSF Major Research Instrumentation Program

Project Title: Acquisition of a White Light Laser Nanoscope for Multidimensional Studies at a Hispanic Serving University  
Role: Co-Principal Investigator  
Source of Support: National Science Foundation (NSF)  
Grant Budget: \$1,492,858.66  
Period: Sep 2020 – Aug 2023

ARDF Annual Open Grant Program

Project Title: Controlling epigenetic ages of induced-neurons derived from human induced-pluripotent stem cells  
Role: Principal Investigator  
Source of Support: Alternatives Research and Development Foundation  
Grant Budget: \$40,000  
Period: Sep 2020 – Aug 2021

ARDF Annual Open Grant Program

Project Title: Controlling epigenetic ages of induced-neurons derived from human induced-pluripotent stem cells  
Role: Principal Investigator  
Source of Support: Alternatives Research and Development Foundation  
Grant Budget: \$40,000  
Period: Sep 2019 – Aug 2020

NSF Major Research Instrumentation Program

Project Title: Acquisition of an optical tweezers and AFM combi-system and a stereo 3D3C micron-resolution particle image velocimetry system for micro/nanofluidic and biological research at Texas A&M University-Kingsville  
Role: Co-Principal Investigator  
Source of Support: National Science Foundation (NSF)  
Grant Budget: \$1,067,208.54  
Period: Sep 2019 – Aug 2022

KSEA Small Research Grant

Project Title: Development of a novel model system using induced-pluripotent stem cells and CRISPR/Cas9-mediated genome editing techniques

Source of Support: Korean American Scientists and Engineers Association (KSEA)

Role: Principal Investigator

Grant Budget: \$1,000

Period: 2018-2019

NIH SCORE-SC2

Project Title: Controlling the epigenetic age of induced-neurons and induced-pluripotent stem cells for neurodegenerative disease studies

Source of Support: National Institute of Health (NIH)

Role: Principal Investigator

Grant Budget: \$414,000

Period: May 2018 – April 2021

*Other Juried Activities*

- IMERS Workshop, November 2019  
Grant Writing Workshop for 20 invited PIs, University of Kentucky, Lexington, KY
- Travel Award, December 2017  
SEED Career Development Workshop, Korean American Scientists and Engineers Association (KSEA), Vienna VA
- Travel Grants, 2004 and 2006  
Department of Biochemistry, Molecular Biology & Biophysics  
University of Minnesota Twin Cities

PROFESSIONAL GROWTH AND ACTIVITIES

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*Membership in Professional Societies*

- Genetics Society of America
- Texas Academy of Science
- New England Bioscience Society
- Massachusetts Biotechnology Council
- Korean American Scientists and Engineers Association (KSEA)

*Attendance at Meetings of Professional Societies*

- Marsoro-Barshop Conference on Aging, UT Health Science Center San Antonio, Bandera, TX. 2023
- International Symposium: Insights on Pharmaceutical Sciences, Virtual Symposium, South Korea
- Session Chair at the 3rd Southwest Texas Asian Symposium, Texas A&M University-Kingsville, Kingsville, TX. 2019

## Curriculum Vita

- IMERS Grant Writing Workshop, University of Kentucky, Lexington, KY. 2019
- 3rd Southwest Texas Asian Symposium, Texas A&M University-Kingsville, Kingsville, TX. 2019
- 2nd Southwest Texas Asian Symposium, Texas A&M University-Corpus Christi, Corpus Christi, TX. 2018
- KSEA Coastal Bend Chapter Meetings (2016 – 2019): Faculties in TAMUK, TAMUCC, and UTRGV including engineers from the Coastal Band area initiated multiple organization meetings and established the local chapter of Korean-American Scientists and Engineers Association in March 2017.
- KSEA SEED Workshop, Vienna VA, December 2017
- Abcam Meeting – Cellular Responses to DNA Damage (2008)
- Salk Meeting – DNA Replication and Genome Integrity (2006)
- Yeast Genetics Meeting (2004)

### *Professional Service Activities*

- AP Biology Visiting Fellow, College Board, 2021
- Grant Reviewer, Texas Academy of Science, 2020 - present
- Session Chair at the 3rd Southwest Texas Asian Symposium, Texas A&M University-Kingsville, Kingsville, TX. 2019
- Editorial Board Member, International Journal of Biotechnology and Recent Advances
- Journal Reviewer, Cell Biochemistry and Biophysics, Springer

## SERVICE ACTIVITIES

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### *Membership on University, College, and Department Committees*

- University Faculty Senate 2023 – present
- University General Education Committee 2022 – present
- Department Faculty Hiring Committee 2022 – present
- Institutional Biosafety Committee, Alternative Member 2019 – present
- College of Arts and Sciences Curriculum Committee 2019 – 2020
- J. Talmer and Corkey Peacock Math and Science Scholarship Committee 2017
- Biomedical Research Group 2016 – present
- Associate Graduate Faculty Membership 2016 – 2020
- Graduate Faculty Membership 2020 – present
- Scholarship Committee Chair (Department) 2019
- Scholarship Committee (Department) 2018 – 2023
- GTA Committee (Department) 2019
- Biomedical Curriculum Committee (Department) 2017 – present

### *Thesis Committees*

Thesis Committee, Biology Graduate Program

Pedro Gonzalez, master's degree, 2021 (as a thesis advisor)

Bilikis Ibikunle, master's degree, 2021

Irfana Begum Fnu, master's degree, 2020

## Curriculum Vita

Swetha Deekshitulu Vempati, master's degree, 2019  
Olamide Foluso Adefioye, master's degree, 2019  
Sarjina Niraula, master's degree, 2018  
Sai Sree Sumitra Kalagara, master's degree, 2018 (as a thesis advisor)  
Hanoof Alahdal, master's degree, 2018  
Songmi Lee, master's degree, 2017

### *Judges for Research Symposiums and Science Fairs*

Javelina Research Symposiums, 2016 – 2019

## HONORS AND AWARDS

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Olan Kruse Science Faculty Award, 2023  
Texas A&M University-Kingsville

COAS Research Support Award, 2020  
Texas A&M University-Kingsville

SEED Career Development Workshop Travel Award, 2017  
Korean American Engineers and Scientists Association (KSEA)

University Research Award, 2017  
Texas A&M University-Kingsville

Biomedical Research Group Summer Research Award, 2017  
Texas A&M University-Kingsville

TAMUK Council for Undergraduate Research (TCUR) Award, 2017  
Texas A&M University-Kingsville

Dr. Frederick J. Bollum Research Award, 2006  
Minnesota Medical Foundation, University of Minnesota Twin Cities

Summer Research Fellowship in Structural Biology, 2002  
University of Minnesota Twin Cities

### *Student Awards*

Chika Awujo (Graduate Student): 2<sup>nd</sup> Place Award at the 18<sup>th</sup> Pathways Student Research Symposium, 2023

Esperanza Zambrano: Undergraduate Research Support Award from the Greater Texas Foundation (GTF), 2022

*Curriculum Vita*

Margarita Martinez: Undergraduate Research Support Award from the Greater Texas Foundation (GTF), 2022

Christian Chapa: “2<sup>nd</sup> Place Undergraduate” at the 11<sup>th</sup> Javelina Research Symposium, 2018  
Texas A&M University-Kingsville

Eduardo Guevara: TCUR Undergraduate Research Award, 2017  
Texas A&M University-Kingsville

Jessica Silhavy: TCUR Undergraduate Research Award, 2017  
Texas A&M University-Kingsville

**OTHER PROFESSIONAL ACTIVITIES NOT COVERED ABOVE**

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Completed Distance Learning Certification Program, 2019  
Texas A&M University-Kingsville

Completed New Faculty Investment Program, 2016-2018  
Texas A&M University-Kingsville