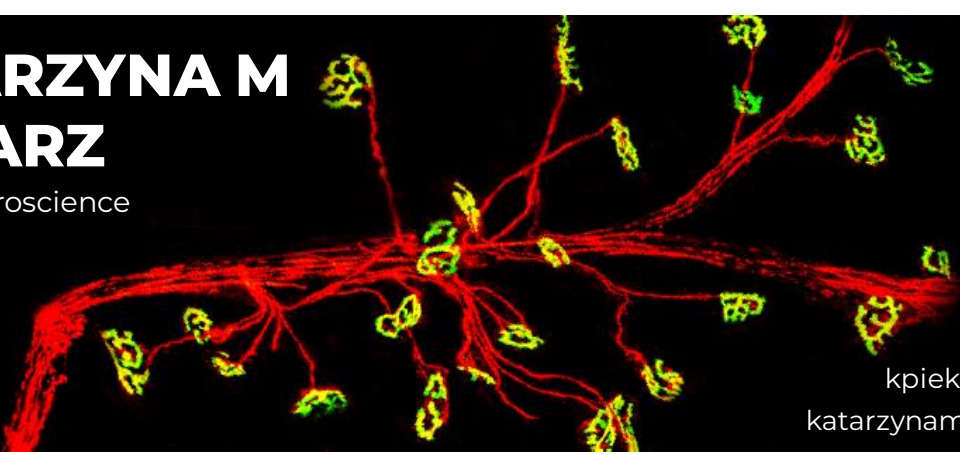# KATARZYNA M PIEKARZ

PhD in Neuroscience

kpiekarz3@gatech.edu
katarzynampiekarz.github.io

EXPERIENCE

- **POSTDOCTORAL FELLOW at GEORGIA TECH**
  November 2021-

  Developmental neuroscience in Ciona;
  Simulation neuroscience;
  Bioinformatics

- **PhD CANDIDATE/GRADUATE RESEARCH ASSISTANT**
  July 2016–August 2021

  OU Neuroscience
  University of Oklahoma Health Sciences
  Center, Oklahoma, USA

  Preventing alpha motor neuron loss in
  aging and neurodegeneration

- **WOC RESEARCH ASSISTANT at Veterans Affairs; Oklahoma City**
  May 2017–August 2021

- **RESEARCH TRAINEE at OKLAHOMA MEDICAL RESEARCH FOUNDATION**
  (Fulbright Visiting Graduate Research
  Traineeship Program; currently bioLAB)
  June 2015–June 2016

EDUCATION

- **PhD in NEUROSCIENCE**
  July 2016 – August 2021

  OU Neuroscience, University of Oklahoma
  Health Sciences Center

- **MSc in BIOTECHNOLOGY**
  October 2013 - July 2016

  Jagiellonian University, Faculty of
  Biochemistry, Biophysics and Biotechnology,
  Cracow, Poland
  Thesis: The role of Eco1 during meiosis in
  Saccharomyces cerevisiae

- **MA in LATIN AMERICAN STUDIES**
  October 2009 - July 2011

  Jagiellonian University, Faculty of
  International and Political Studies, Cracow,
  Poland

- **BA and MA in ITALIAN STUDIES**
  October 2004 - July 2009

  Jagiellonian University, Faculty of Philology,
  Cracow, Poland

LABORATORY SKILLS

MOLECULAR TECHNIQUES,
CELL CULTURE, YEAST CULTURE,
IMMUNOSTAINING,
CRISPR, VIRAL VECTORS,
ANIMAL MODELS (MOUSE, C. ELEGANS,
D. MELANOGASTER, CIONA)
CONFOCAL AND FLUORESCENCE
MICROSCOPY

COMPUTER SKILLS

PYTHON, R, MATLAB
DATA ANALYSIS
BIOINFORMATICS (RNA-seq, scRNA-seq
etc.; Seurat, scanpy)
MACHINE LEARNING,
NEURAL NETWORKS,
SIMULATIONS (NEURON, NetPyNE)
WEB DEVELOPMENT (HTML, CSS, JS)
BAYESIAN STATISTICS WITH JASP

COMPUTATIONAL TRAINING

SimNeuroX: Simulation Neuroscience (EPFL, edX), August 2023

Allen Institute Modeling Software Workshop, Seattle, July 2023

The Computational Neuroscience, Neurotechnology and Neuro-inspired AI (CN3) Autumn School by Ulster University, October 2022

McMedHacks 2022 Summer School – Deep Learning and Medical Image Analysis

Neuromatch Academy – Computational Neuroscience, summer school, July 2022

Build Basic Generative Adversarial Networks; by DeepLearning.AI (Coursera), May 2021

Dimensionality Reduction using an Autoencoder in Python (Coursera), February 2021

Professional Certificate in TinyML (by HarvardX and Google on edX), March 2021 (Fundamentals of TinyML; Applications of TinyML; Deploying TinyML)

Deep Learning Specialization (by Andrew Ng, Coursera), December 2020 (Neural Networks and Deep Learning; Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization; Sequence Models; Convolutional Neural Networks; Structuring Machine Learning Projects)

Computational Neuroscience course (by University of Washington on Coursera), May 2020

Neuromatch 2.0 - the community driven online computational neuroscience conference (IEEE Brain, UPenn, PennState, Georgia Tech, NBDT, eLife, Imperial College London), May 25-27, 2020, online

29th Annual Computational Neuroscience Meeting CNS*2020, July 18-22, online

Allen Institute Modeling Workshop. Towards multipurpose models of cortical circuits; August 12-14, 2020, online

Numbers-Computers-Life, Student Conference and Workshops, Faculty of Mathematics and Informatics, Jagiellonian University, Poland 2015; R in Neuroinformatics, Computer-Aided Drug Design

NGS in Gene Regulation, Ideas4biology, Poznań, Poland 2014
Linux environment, R, data analysis and visualization

Bioinformatics for Biologists, VitaInSilica, Poznań, Poland 2013
Statistics, Databases

10th Poznan Summer School of Bioinformatics, Adam Mickiewicz University, Poznań, Poland 2013
Molecular evolution, Phylogenetics, Metagenomics

MEMBERSHIPS

2021- Society for Developmental Biology
2018- American Aging Association
2018- IEEE, IEEE Computer Society, IEEE Brain
2018- Society for Neuroscience

2018- Organization for Computational Neuroscience, Software Working Group
2018-2019 Microscopy Society of America
2016- American Association for the Advancement of Science
2016- Planetary Society

AWARDS AND SCHOLARSHIPS

Poster Award at OCNS Research Retreat, Feb 7th, 2020

Diana Jacobs Kalman/AFAR Scholarship for Research in the Biology of Aging 2019

2019 Oklahoma Center for Neuroscience Seed Grant

OUHSC Graduate College Award for Scientific Achievement at GREAT Symposium 2019

OUHSC sponsored AGE 2019 meeting Travel Award

OMRF Pre-doctoral Scholarship; Drs. Patricia H. and J. Donald Capra Scholarship Fund 2018-2019

OCNS Image Competition 2018 winner

OK Catalyst Researchers Program; May-July 2018

Bertelsmann Data Science Challenge Scholarship through Udacity; May-August 2018

Superior Poster Presentation by a Pre-doctoral Student at AGE 2018, meeting of the American Aging Association

Best Student Poster Award at 2018 Oklahoma Geroscience Symposium

Fulbright Visiting Graduate Research Traineeship Program (currently BioLAB) at Oklahoma Medical Research Foundation 2015-2016

Merit-based Jagiellonian University Scholarship for academic years 2011-2012, 2010-2011, 2009-2010

6-month visiting scholarship at Pontificia Universidad Católica del Peru 2010-2011

6-month Erasmus Program at Universita degli Studi di Siena 2007-2008

ADDITIONAL LABORATORY PRACTICE

SUMMER INTERN at KAROLINSKA INSTITUTET, SWEDEN, 2014
Department of Neuroscience, Experimental Neurogerontology Group, Brun Ulfhake's laboratory

10th Stem Cells Summer School at JAGIELLONIAN UNIVERSITY MEDICAL COLLEGE, 2014
Stem cells isolation, mouse handling

Student Laboratory Practice, JAGIELLONIAN UNIVERSITY, 2014-2015
Faculty of Biochemistry, Biophysics and Biotechnology, Department of Physical Biochemistry
Cell culture (MBE, HEK293), cell toxicity tests

Student Laboratory Practice, JAGIELLONIAN UNIVERSITY, 2013-2014
Faculty of Biology and Earth Sciences, Department of Genetics and Evolutionism, Institute of Zoology
SNPs analysis

SOCIAL

SELECTED PUBLICATIONS

Piekarz KM, Stolfi A. Development and circuitry of the tunicate larval Motor Ganglion, a putative hindbrain/spinal cord homolog, Molecular and Developmental Evolution, Journal of Experimental Zoology Part B: Molecular and Developmental Evolution 2023

Xu H*, **Piekarz KM***, Brown J, Bhaskaran S, Van Remmen H. Neuroprotective treatment with nitrone compound OKN-007 mitigates age-related muscle weakness and high oxidative stress in aging mice. 2023, in review

Bhaskaran S, Kumar G, Thadathil N, **Piekarz KM**, ..., Van Remmen H. Neuronal deletion of MnSOD in mice leads to demyelination, inflammation and progressive paralysis that mimics phenotypes associated with progressive multiple sclerosis. Redox Biology 2023

Johnson CJ, Razy-Krajka F, Zeng F, **Piekarz KM**, Biliya S, Rothbächer U, Stolfi A. Specification of distinct cell types in a sensory-adhesive organ for metamorphosis in the Ciona larva. doi: https://doi.org/10.1101/2023.05.02.539060; bioRxiv

Ahn B, Ranjit R, Kneis P, Xu H, **Piekarz KM**, Freeman WM, et al., Scavenging mitochondrial hydrogen peroxide by peroxiredoxin 3 overexpression attenuates contractile dysfunction and muscle atrophy in a murine model of accelerated sarcopenia. Aging Cell (2022) 3

Piekarz KM et al. Pharmacologic treatment with OKN-007 reduces alpha-motor neuron loss in spinal cord of aging mice. Geroscience (2022). https://doi.org/10.1007/s11357-021-00506-y

Piekarz KM, Bhaskaran S, Sataranatarajan K, Street K, Premkumar P, Saunders D, Zalles M, Gulej R, Khademi S, Laurin J, Peelor R, Miller BF, Towner R, Van Remmen H. Molecular changes associated with spinal cord aging. Geroscience. 2020 Apr;42(2):765-784

Xu H, Bhaskaran S, **Piekarz KM**, Ranjit R,... Van Remmen H. Age related changes in muscle mass and force generation in the Triple Transgenic (3xTgAD) Mouse Model of Alzheimer's Disease, Frontiers in Aging Neuroscience, 350 (2022)

Piekarz KM, and Holly Van Remmen. Knocking out MMP-9 and MMP-12 has a differential and sex-specific effect on age-related α-motor neuron loss and decline in muscle mass; in preparation

Piekarz KM, Saunders D, Smith N, Towner R, and Van Remmen H. OKN-007 treatment slows down disease progression in SOD1 G93A ALS mouse model by decreasing alpha-motor neuron loss and microglia activation, without affecting muscle mass at P145; in preparation

Piekarz KM, and Van Remmen H. Troponins are expressed in alpha-motor neurons of wildtype mouse and can translocate to the nucleus to potentially act as transcription factors; in preparation

Sataranatarajan K, Pharaoh G, Brown JL, Ranjit R, **Piekarz KM**, et al. Molecular changes in transcription and metabolic pathways underlying muscle atrophy in the CuZnSOD null mouse model of sarcopenia. Geroscience. 2020. doi: 10.1007/s11357-020-00189-x

Bhaskaran S, Pollock N, Macpherson P, Ahn B, **Piekarz KM**, et al. Neuron specific deletion of CuZnSOD leads to an advanced sarcopenic phenotype in older mice. Aging Cell. 2020, doi: 10.1111/acel.13225

Brown JL, Lawrence MM, Ahn B, Kneis P, **Piekarz KM**, et al. Cancer cachexia in a mouse model of oxidative stress. Journal of Cachexia, Sarcopenia and Muscle. 2020.

Full list on Google Scholar