Curriculum vitae

Peter M. Douglas

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Education

2004-2009	University of North Carolina at Chapel Hill, Ph.D. School of Medicine Department of Cell and Developmental Biology Thesis Advisor: Dr. Douglas Cyr
1997-2001	University of Colorado at Boulder, B.A. Department of Biochemistry

Research Experience

2015-present	Assistant Professor University of Texas Southwestern Medical Center Hamon Center for Regenerative Science and Medicine Department of Molecular Biology Chair: Dr. Eric Olson
2012-2015	Postdoctoral Fellow University of California at Berkeley Molecular and Cellular Biology Advisor: Dr. Andrew Dillin
2009-2012	Research Assistant/Postdoctoral Fellow The Salk Institute for Biological Studies Molecular and Cell Biology Laboratories Advisor: Dr. Andrew Dillin
2004-2009	Graduate Research Department of Cell and Developmental Biology Research Advisor: Dr. Douglas Cyr

Publications

Egge N, Arneaud SLB, McClendon J, Fonseca RS, **Douglas PM**. Trauma-induced regulation of VHP-1 modulates the cellular response to mechanical stress. ***Nat Commun***, 2020. In press.

Ramadurgum P, Woodard DR, Daniel S, Peng H, Mallipeddi PL, Niederstrasser H, Mihelakis M, Chau VQ, **Douglas PM**, Posner BA, Hulleman JD. Simultaneous control of endogenous and user-defined genetic pathways using unique ecDHFR pharmacological chaperones. ***Cell Chem Biol***, 2020 Mar 24, S2451-9456(20)30080-5.

Egge N, Arneaud SLB, Wales P, Mihelakis M, McClendon J, Fonseca RS, Savelle C, Gonzalez I, Ghorashi A, Yadavalli Y, Lehman WJ, Mirzaei H, **Douglas PM**. Age-onset phosphorylation of a minor actin variant promotes intestinal barrier dysfunction. ***Dev Cell*****,** 2019 Dec 2, 51(5):587-601.e7. *Featured on the December 2nd Developmental Cell journal cover

Das R, Melo JA, Thondamal M, Morton EA, Cornwell AB, Crick B, Kim JH, Swartz EW, Lamitina T, **Douglas PM**, Samuelson AV. ***PLoS Genet***, 2017 Oct 16; 13(10):e1007038.

Wang C, Niederstrasser H, **Douglas PM**, Lin R, Jaramillo J, Li Y, Olswald NW, Zhou A, McMillan EA, Mendiratta S, Wang Z, Zhao T, Lin Z, Luo M, Huang G, Brekken RA, Posner BA, MacMillan JB, Gao J, White MA. ***Nat Commun***, 2017 Dec 22;8(1):2270.

Arneaud S and **Douglas PM**. The stress response paradox: Fighting degeneration at the cost of cancer*.* ***FEBS J****,* 2016 May 26.

Douglas PM*, Baird NA*, Simic MS, Uhlein S, McCormick MA, Wolff SC, Kennedy BK, Dillin A. Heterotypic signals by neural HSF-1 separate thermotolerance from lifespan*.* ***Cell Reports***, 2015 Aug 5. Pii S2211-1247(15)00766-4 *authors contributed equally

Baird NA*, **Douglas PM***, Simic MS, Grant A, Moresco J, Yates JR, Dillin A. HSF-1 mediated cytoskeletal integrity determines thermotolerance and lifespan. ***Science***, 2014 Oct 17; 346(6207):360-3 *authors contributed equally

Douglas PM, Dillin A. The disposable soma theory of aging in reverse. ***Cell Res***, 2014, Jan 24(1):7-8

Vilchez D, Morantte I, Liu Z, **Douglas PM**, Merkwirth C, Rodrigues A, Manning G and Dillin A. RPN-6 determines *C. elegans* longevity under proteotoxic stress conditions. ***Nature***, 2012, Sep 13; 489(7415): 263-8.

Douglas PM, Dillin A. Protein homeostasis and aging in neurodegeneration*.* ***J Cell Biol***. 2010 Sep 6; 190(5):719-29.

Douglas PM, Cyr DM. Interplay between protein homeostasis networks in protein aggregation and proteotoxicity. ***Biopolymers***, 2010 Mar; 93(3):229-36.

Douglas PM, Summers DW, Ren HY and Cyr DM. Reciprocal efficiency of RNQ1 and polyglutamine detoxification in the cytosol and nucleus*.* ***Mol Biol Cell***, 2009. Oct 20; (19): 4162-73. *Feature on the October 20thnd Molecular Biology of the Cell journal cover

Summers DW, **Douglas PM**, and Cyr DM. Roles of molecular chaperones in yeast prion formation and propagation. ***Prion,*** 2009. Apr 3; (2): 59-64.

Douglas PM, Summers DW and Cyr DM. Molecular chaperones antagonize proteotoxicity by differenetially modulating protein aggregation pathways. ***Prion,*** 2009. Apr 3; (2): 51-8.

Summers DW, **Douglas PM,** Ramos CH and Cyr DM. Polypeptide transfer from Hsp40 and Hsp70 molecular chaperones. ***Trends Biochem Sci***, 2009. May 34; (5): 230-3.

Summers DW, **Douglas PM**, Ren HY and Cyr DM. The Type I Hsp40 Ydj1 utilizes a farnesyl moiety and zinc finger-like region to suppress prion toxicity. ***J Biol Chem***, 2009. Feb 6; 284(6): 3628-39.

Douglas PM*, Treusch S*, Ren HY, Halfmann R, Duennwald ML, Lindquist S and Cyr DM. Chaperone-dependent amyloid assembly protects cells from prion toxicity. ***Proc Natl Acad Sci***, 2008. May 20; 105(20): 7206-11. *authors contributed equally

Honor and Awards

2006	American Heart Association pre-doctoral fellowship Award
2008	Seminar Series Best Speaker Award (Dept. Cell & Dev Biol, UNC Chapel Hill)
2009	Neuroplasticity of Aging Training Fellowship Award (T32AG000216-11)
2010	George E. Hewitt Medical Foundation Fellowship Award
2014	Awarded Best Postdoctoral Fellow runner-up (UC Berkeley)
2015	UT Southwestern Endowed Scholars Award
2015	Cancer Prevention Research Institute of Texas Young Investigator Award
2016	Glenn Center of Aging Young Investigator Award
2017	Texas Institute of Brain Injury Research (TIBIR) Pilot Award
2017	Welch Foundation Award in Chemical Biology
2017	American Federation of Aging Research (AFAR) Young Investigator Award
2020	Clayton Medical Foundation Investigator Award

Invited Talks

2010	Cold Spring Harbor Conference on the Molecular Genetics of Aging
2014	Cold Spring Harbor Conference on Chaperones and Stress response, NY
2014	Department of Cell Biology and Physiology (U of North Carolina Chapel Hill)
2014	J. Craig Venter Institute in La Jolla, CA
2014	Cold Spring Harbor Conference on the Molecular Genetics of Aging
2015	Department of Integrative Biology and Physiology (U of California Los Angeles)
2016	Paul Allen Institute “Exploring Frontiers Group”
2016	Keynote speaker at Graduate Symposium at Oklahoma State University, OK
2017	Barshop Aging Institute in San Antonio, TX
2017	Gordon Conference on Protein Homeostasis and Stress Response
2018	University of North Texas (BioFrontiers Lecture series)
2018	Madison *C. elegans* meeting (U of Wisconsin Madison)
2018	Texas Women’s University Biology Department
2018	3rd Conference on Neurotrauma of Chinese Research Hospitals (Suzhou, China)
2018	Inaugural Brain Injury Research Showcase (Brain Performance Institute, Dallas)

2019 Kentucky Spinal Cord and Head Injury Research Symposium (Louisville, KY)
2019 Gordon Research Conference on Aging, (Sunday River, ME)
2019 Dillin Symposium on Stress Response and Aging, (Lake Tahoe, CA)
2020 UCLA Medical School, Department of Neurology, Grand Rounds, (Los Angelas, CA)
2020 Center for Autophagy Research, UT Southwestern (Dallas, TX)
2020 UT Southwestern Medical School, PM&R Grand Rounds, (Dallas, TX)
2020 STARS Basic Sciences Symposium, Genetics in model organisms (Dallas, TX)

Funding

Ongoing:

NIH (R01) National Institute of Health (1R01AG061338) (2019-2024)
National Institute of Aging (NIA)
Heat Shock Factor mediates actin phosphorylation in tissue integrity and age.
The overall goal of this project is to determine the mechanism by which age-onset phosphorylation of an intestinal specific actin isoform promotes intestinal barrier dysfunction and pathogenesis.
Role: PI

Cancer Prevention and Research Institute of Texas (CPRIT) (2015-2020)
Recruitment Award
Stress responsive signaling in cancer
The goal of this project is to investigate the role of the master transcriptional regulator of the heat stress response, HSF1, in cell proliferation and tumorogenesis.
Role: PI

Clayton Foundation (2020-
Discovering New Mechanisms and Therapeutics for Brain Injury
The goal of this project is to characterize molecular mechanism underlying progressive neurodegeneration resulting from traumatic brain injury.
Role: PI

Completed:

Welch Foundation (2017-2020)
Molecular characterization of actin phosphorylation
The goal of this project is to characterize whether phosphorylation to beta-actin in mammals alters its structural properties and propensity to phase separate.
Role: PI

NIH Pathway to Independence Award (K99/R00) National Institute of Health (2013-2020)
National Institute of Aging (NIA)
Cell Non-Autonomous Nature of the Heat Shock Response
The overall goal of this project is to determine the trans-cellular signaling mechanisms utilized by HSF1 to regulate the aging process and protect against stress.
Role: PI

American Federation of Aging Research (AFAR) (2017-2019)
Stress-mediated age regulation through the actin cytoskeletal network
The goal of this project is to understand how stress response pathways alter the actin cytoskeleton to influence the aging process.

Role: PI

Texas Institute of Brain Injury Research (TIBIR) (2017-2018)
Determine the Susceptibility of Different Neural subtypes to Blunt Force Injury
The goal of this project is to determine whether different neural subsets within the nematode, *C. elegans*, possess different sensitivity to trauma-induced neurodegeneration.
Role: PI

Glenn Award for Research in Biological Mechanisms of Aging (2016-2018)
Determine fundamental mechanisms of age regulation
The goal of this project is to determine molecular mechanisms of aging in individual organ systems.
Role: PI

George E. Hewitt Medical Foundation Fellowship (2010-2013)
Detoxification of model disease proteins by Heat Shock Factor
The goal was to examine the ability of the transcriptional regulator of the heat shock response, HSF1, to detoxify model disease proteins.
Role: PI

Neuroplasticity of Aging Training Fellowship (T32AG000216-11) (2009-2010)
Stress responsive elements in aging
The goal was to identify stress responsive elements capable of regulating the aging process.
Role: PI

American Heart Association Pre-Doctoral Fellowship (2006-2008)
Role of small heat shock proteins, HSP40, in protein homeostasis and proteotoxicity
The goal was to determine the mechanisms by which particular HSP40 proteins detoxify unstable disease linked proteins.
Role: PI