Ying Wang

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Education:

Ph.D. 09/1997-04/2003. Department of Physiology & Biophysics, University of Miami Miller School of Medicine, Miami, Florida.

M.D. 09/1982-07/1987. Department of Medicine, Third Military Medical University, Chongqing, China.

Research Experiences:

- 12/2018-1/2020: Research Associate II (PI: Dr. Eric Greidinger)
  Department of Medicine, Division of Rheumatology,
  University of Miami Miller School of Medicine

  - Responsible for all lab management, including organizing and maintaining data and all IACUC and Biosafety records; maintaining equipment, chemical and reagents inventories; safely disposing of waste and ordering lab supplies.
  - Assist Clinical Coordinator to evaluate patients in clinical trials.
  - Breed and Maintain Mouse colonies.
  - Study antigenic targets of autoimmunity-associated Raynaud's Phenomenon: ELISA to measure auto-antibodies in serum of human and mouse models.
  - Investigate the mechanism of endothelial cell apoptosis induced by serum of Scleroderma patients: Caspase 3/7 apoptotic Assay in HUVEC.

- 09/2017-11/2018: Research Associate II (PI: Dr. Dana Ascherman)
  Department of Medicine, Division of Rheumatology,
  University of Miami Miller School of Medicine

  - Investigated the role of MyD88 in histidyl-tRNA synthetase (Jo-1) induced mouse myositis: Using Cre-Loxp system to make conditional knock out mice; Adoptive transfer GFP Splenocytes in Jo-1 immunized mice; Study T cells distribution in inflamed muscles using IHC and Flow cytometry.
  - Determined the binding of autoantigens with endogenous TLR ligands using ELISA.

- 03/2014-08/2017: Research Associate II (PI: Dr. Victor Perez)
  Department of Ophthalmology,
  University of Miami Miller School of Medicine

- Involved in processing patient blood samples and preparing serum tears and PRGF for patients.
- Assessed the effect of Cyclophosphamide treatment on mouse corneal allograft rejection.
- Studied the functional consequences of Mpzl3 knockout in the ocular surface of mice: Making double knock out mice; Using H&E and IF to assess mouse ocular change.

➢ 01/2007-11/2013: Senior Research Associate (PI: Dr. Laura Bianchi)
Department of Physiology & Biophysics,
University of Miami Miller School of Medicine

- Assisted PI setting up the new lab, responsible for organizing and maintaining Biosafety records, all lab supplies and *C. elegans* strains.
- Investigated the role of DEG/ENaC channels in glial cells played in functions of sensory neuron in *C. elegans*: Making mutant constructs; Microinjecting to make transgenic strains; Ca^{2+} imaging; Behavior testing.
- Studied the role of DEG/ENaC channels played in neurodegeneration in *C. elegans*: Making mutant constructs; injecting RNA to express channels and Whole cell clamping to assess channel properties in Xenopus oocytes.

➢ 04/2003-01/2007: Postdoctoral Associate (PI: Dr. W. Glenn L. Kerrick).
Department of Physiology & Biophysics,
University of Miami Miller School of Medicine

- Examined cardiac muscle function of FHC linked myosin light chain mutations in transgenic mice.
- Investigated the mechanisms involved in Ca^{2+} sensitivity changes in ssTnI expressing mouse heart muscles.
- Involved in functional studies of the role of triadin played in striated muscle contraction in triadin knock-out mice.

➢ 07/1998-03/2003: Doctoral Student (PI: Dr. W. Glenn L. Kerrick).
Department of Physiology & Biophysics,
University of Miami Miller School of Medicine

- Investigated the regulation of striated muscle contraction: Effects of cross-bridge kinetics on Ca^{2+} binding to troponin C.

➢ 03/1996-08/1997: Research Assistant (Supervisor: Dr. W. Glenn L. Kerrick).
Department of Physiology & Biophysics,
University of Miami Miller School of Medicine.

- Determined the Ca^{2+} binding constant for Ca-green-2 (a Ca^{2+} fluorescent indicator) at different pH conditions.
- Developed the techniques for measurement of the intact muscle action potential using

voltage sensitive fluorescent indicator.

- 09/1993-09/1995: Research Associate (PI: Dr. Sunwei Li).
  Department of Neurology,
  Peking Union Medical College,
  Chinese Academy of Medical Science, China.

  - Studied the glucocorticoid receptor using radioimmunoassay (RIA) technique.

Skills:

Molecular Biology:	Plasmid preparation**,** ligation, transformation, Genomic DNA extraction, total RNA extraction, RT-PCR, PCR, site-directed mutagenesis.
Immunology:	ELISA, Isolation of murine immune cells, immunohistochemistry, immunofluorescence staining, flow cytometry.
Cell Biology:	Cell Culture, Caspase Apoptotic Assay, Cryostat frozen sectioning, H&E staining, Ca^{2+} imaging, fluorescent microscopy, confocal microscopy.
Electrophysiology:	Whole cell voltage clamp in Xenopus oocytes
Animals:	Survival surgery (mouse corneal transplant), tissue collection and dissection, intrastromal injection, subconjunctival injection, Retro-Orbital injection, Tail vein injection, genotyping, breeding and maintaining the mouse colonies.

Other Work Experiences:

07/1991-09/1995:	Neurologist, Department of Neurology, Beijing Army Hospital, China.
09/1987-06/1991:	Resident, Department of Neurology, Beijing Army Hospital, China.

Honors and Awards:

07/2008-06/2009: NIH Postdoctoral Training Grant in Synapses, Channels, and Transduction in Neuroscience

07/1999-06/2001: American Heart Association Predoctoral Fellowship,
Florida/Puerto Rico Affiliate.

10/2000: The Best Research Project Award, Medical Faculty Association, University of Miami.

Professional and Honorary Organizations:

03/2015-03/2016: The Association for Research in Vision and Ophthalmology (ARVO)

10/1997-10/2006: The Biophysical Society.

Publications in Peer-Reviewed Journals:

- Johnson C, Fernandez JA, **Wang Y**, and Bianchi L. The Na^+/K^+-ATPase is needed in glia of touch receptors for responses to touch in *C. elegans. Submitted to Journal of Neurophysiology (in revision) 2020*
- **Wang, Y**, Bianchi, L. Temperature-sensitive mosquito TRP channel rescues touch deficits caused by knock-out of a DEG/ENaC channel in C. elegans glia. *microPublication Biology 2020. 10.17912/micropub.biology.000209*
- Wikramanayake TC, Borda LJ, **Wang Y**, Duffort S, Reyes-Capo A, Barsam A, Urbieta M, Perez VL, Kirsner RS. Loss of MPZL3 Function Causes Seborrheic Dermatitis-like Phenotype in Mice. *Exp Dermatol. 2016 Aug 4 doi: 10.1111/exd.13150. [Epub ahead of print]*
- **Wang Y**, Matthewman C, Han L, Miller T, Miller III DM, Bianchi L. Neurotoxic *unc-8* mutants encode constitutively active DEG/ENaC channels that are blocked by divalent cations. *J Gen Physiol.* 142(2):157-69, 2013
- Han L, **Wang Y**, Sangaletti R, D'Urso G, Lu Y, Shaham S, Bianchi L. Two novel DEG/ENaC channel subunits expressed in glia are needed for nose-touch sensitivity in Caenorhabditis elegans. *J Neurosci.* 33(3):936-49, 2013
- **Wang Y,** D'Urso G, Bianchi L. Knockout of glial channel ACD-1 exacerbates sensory deficits in a *C. elegans* mutant by regulating calcium levels of sensory neurons. *J Neurophysiol*., 107(1):148-58, 2012.
- **Wang Y,** Bianchi L. Insights into the molecular determinants of proton inhibition in an acid-inactivated degenerins and mammalian epithelial Na(+) channel. *Biochemistry*, 48(42):10005-13, 2009.
- **Wang Y**, Apicella A, Lee SK, Ezcurra M, Slone D, Schafer WR, Driscoll M and Bianchi L. A glial DEG/ENaC channel functions with neuronal channel DEG-1 to mediate specific sensory functions in *C. elegans*. *EMBO J*, 27(18):2388-99, 2008.
- Zhang W, Bianchi L, Lee WH, **Wang Y**, Israel S, and Driscoll M. Inter-subunit Interactions Between Mutant DEG/ENaCs Induce Synthetic Neurotoxicity. *Cell Death & Differentiation*, 15(11):1794-803, 2008.

- Wen Y, Pinto JR, Gomes AV, Xu Y, Wang Y, **Wang Y**, Potter JD, Kerrick WG. Functional consequences of the human cardiac troponin I hypertrophic cardiomyopathy mutation R145G in transgenic mice. *J Biol Chem*. 2008, 283(29):20484-94

- Shen X, Franzini-Armstrong C, Lopez JR, Jones LR, Kobayashi YM, **Wang Y**, Kerrick WG, Caswell AH, Potter JD, Miller T, Allen PD, Perez CF. Triadins modulate intracellular Ca2+ homeostasis but are not essential for excitation-contraction coupling in skeletal muscle. *J Biol Chem.* 282(52):37864-74, 2007.

- Szczesna-Cordary D, Jones M, Moore JR, Watt J, Kerrick WG, Xu Y, **Wang Y**, Wagg C, Lopaschuk GD. Myosin regulatory light chain E22K mutation results in decreased cardiac intracellular calcium and force transients. *FASEB J.* 21(14):3974-85, 2007.

- **Wang Y**, Xu Y, Kerrick WG, Wang Y, Guzman G, Diaz-Perez Z, Szczesna-Cordary D. Prolonged Ca2+ and force transients in myosin RLC transgenic mouse fibers expressing malignant and benign FHC mutations. *Journal of Molecular Biology* 361(2):286-99. 2006.

- Hernandez OM, Szczesna-Cordary D, Knollmann BC, Miller T, Bell M, Zhao J, Sirenko SG, Diaz Z, Guzman G, Xu Y, **Wang Y**, Kerrick WG, Potter JD. F110I and R278C troponin T mutations that cause familial hypertrophic cardiomyopathy affect muscle contraction in transgenic mice and reconstituted human cardiac fibers.
  Journal of Biological Chemistry. 280(44):37183-94. 2005

- **Wang Y** and Kerrick WGL. The off-rate of Ca^{2+} from TnC is regulated by force generating myosin cross-bridges in mouse skeletal muscle. *Journal of Applied Physiology* 92: 2409-2418, 2002.

- Robinson JM, **Wang Y**, Kerrick WGL, Kawai R and Cheung HC. Activation of striated muscle: nearest-neighbor regulatory-unit and cross-bridge influence on myofilament kinetics. *Journal of Molecular Biology* 322: 1065-1088, 2002.

- Miller T, Szczesna D, Housmans PR, Zhao J, de Freitas F, Gomes AV, Culbreath L, McCue J, **Wang Y**, XuY, Kerrick WGL and Potter JD. Abnormal contractile function in tranagenic mice expressing an FHC-linked troponin T (I79N) mutation. *Journal of Biological Chemistry* 276: 3743-3755, 2001.

- **Wang Y**, Xu Y, Guth K and Kerrick WGL. Troponin C regulates the rate constant for the dissociation of force generating myosin cross-bridges in cardiac muscle. *Journal of Muscle Research & Cell Motility* 20: 645-653, 1999.

Publications Presented in National Conferences:

- Harlow L, **Wang Y**, Zang Y, Gupta V, Huang J, Young K, Aubourg B, Greidinger EL. Distinct Immune Pathways in Anti-RNP-Associated Pulmonary Hypertension and Anti-RNP-Associated Raynaud's Phenomenon. *Arthritis Rheumatol*. 2018; 70 (suppl 10) (ACR/ARHP Annual Meeting Abstract)

- Barsam A; **Wang Y**; Reyes-Capo A; Urbieta M; Mitchell H; Wikramanayake TC; Perez VL. Functional consequences of Mpzl3 knockout in the ocular surface of mice. *Invest. Ophthalmol. Vis. Sci.*. 2015; 56(7):4035 (ARVO Annual Meeting Abstract)

- **Wang Y**, Han L, Matthewman C, Miller T, Miller D, Bianchi L**.** Neurotoxic *unc-8* mutants encode constitutively active DEG/ENaC channels that are blocked by divalent cations. *19th International C. elegans Meeting,* 2013 (Abstract)

- Miller T, Petersen S, Gornet M, **Wang Y**, Han L, Bianchi L, Richmond J, Miller D. UNC-8, a degenerin family ion channel, functions in an activity-dependent mechanism that remodels GABAergic synapses in *C. elegans. The Axon Guidance, Synapse Formation, and Regeneration meeting at Cold Spring Harbor*, 2012 (Abstract).
- Han L, **Wang Y**, Lu Y, Shaham S, Bianchi L. Two novel DEG/ENaC channel subunits expressed in glia play an essential role in C. elegans touch sensitivity. *International Worm Meeting*, 2011 (Abstract).

- **Wang Y**, D'Urso G, Bianchi L. Knockout of glial channel ACD-1 exacerbates sensory deficits in a hypomorphic mutant of cGMP channel subunit tax-2. *Neuronal Development, Synaptic Function and Behavior, Madison, WI,* 2010 (Abstract).

- **Wang Y**, Bianchi L. Glial DEG/ENaC channel ACD-1 functions in odor sensation in C. elegans. *International Worm Meeting*, 2009 (Abstract).
- Zhang W, Bianchi L, **Wang Y**, Israel S, Driscoll M. Specific interactions between MEC-4 and MEC-10 subunits change channel activity and induce neurotoxicity. *International Worm Meeting,* 2007 (Abstract).

- Guzman G, Diaz Z, Wei J, Xu Y, **Wang Y**, W. Kerrick WGL, Szczesna-Cordary D. Cardiac Morphology and Function of Transgenic Mice Expressing the E22K Mutation in the Myosin Regulatory Light Chain that Causes Hypertrophic Cardiomyopathy in Humans. *Biophysical Journal* 88: 1 (2 part of 2), 2005 (abstract).

- **Wang Y**, Robinson JM, Xu Y, Cheung HC and Kerrick WGL. Nearest neighbor influences of Ca^{2+} and cross-bridge binding to adjacent regulatory units on Ca^{2+} activation of muscle contraction. *Biophysical Journal* 84: 2 (Part 2 of 2), 2003 (abstract).

- **Wang Y**, Robinson JM, Cheung HC and Kerrick WGL. Effects of cross-bridge kinetics on Ca^{2+} binding to cTnC. *Biophysical Journal* 84: 2 (Part 2 of 2), 2003 (abstract).

- Robinson JM, **Wang Y**, Kerrick WGL, Kawai R and Cheung HC. A tight-coupling cooperative model reproduces observed steady-state and dynamic muscle activation data. *Biophysical Journal* 82: 393a, 2002 (abstract).

- **Wang Y**, Xu Y and Kerrick WGL. During a twitch, fewer myosin cross-bridges cycle during shortening than in isometric contraction in mouse skeletal muscles. *Biophysical Journal* 80: 78a, 2001 (abstract).

- **Wang Y**, Xu Y and Kerrick WGL. Troponin C regulates the rate constant for the dissociation of

force generating myosin cross-bridges in striated muscle. *Biophysical Journal* 76: A155, 1999 (abstract).

- **Wang Y** and Kerrick WGL. Intracellular diastolic Ca^{2+} regulates the duration of the action potential, intracellular Ca^{2+} transient and isometric twitch in Guinea Pig papillary muscle. *Biophysical Journal* 74(2): A160, 1998 (abstract).

- Kerrick WGL, **Wang Y**, Xu Y and Guth K. Cardiac troponin C regulates the rate constant for dissociation of force generating myosin cross-bridges. *Circulation* Oct: I-141, 1997 (abstract).

- Xu Y, **Wang Y**, Rowe D and Kerrick WGL. The effect of PH on the rate constant for the dissociation of force of generating myosin cross-bridges in rat ventricular skinned fibers. *Biophysical Journal* 72: A174, 1997(abstract).

- **Wang Y**, Lui G, Guth K and Kerrick WGL. Dissociation of force generating myosin cross-bridges results in an increase in the off-rate of Ca^{2+} from troponin in rat papillary muscle. *Biophysical Journal* 72: A174, 1997(abstract).