Leighton T. Izu, Ph.D.

Research/Academic Interests
Professor Izu's interests range from specific problems of cardiovascular physiology to broad questions germane to all areas of biology. He combines mathematics and laboratory experiments to study (1) how the heart senses and responds to mechanical loading, (2) the impact of population diversity on the population, and (3) how parts of complex systems are coordinated to produce a particular response.

Title
Professor

Specialty
Pharmacology

Department
Pharmacology

Division
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Education
Ph.D., Biophysics, State University of New York at Buffalo, Buffalo NY 1990
B.A., University of Hawaii at Manoa, Honolulu HI 1979

Honors and Awards
Chair, Session on Calcium sparks, fluxes, and waves, Biophysical Society annual meeting, 2005
Ph.D. with Highest Distinction SUNY at Buffalo, 1990
Woodburn Fellowship for Academic Excellence SUNY at Buffalo, 1979, 1980, 1981, 1982
B.A. with Distinction University of Hawaii at Manoa, 1979

Select Recent Publications
Izu LT, Kohl P, Boyden PA, Miura M, Banyasz T, Chiamvimonvat N, Trayanova N, Bers DM, Chen-Izu Y. Mechano-electric and mechano-chemo-transduction in cardiomyocytes. J Physiol. 2020 Apr; 598(7):1285-1305. doi:10.1113/JP276494. Epub 2020 Feb 3. PMID:31789427.

Chen-Izu Y, Izu LT. Mechano-chemo-transduction in cardiac myocytes. J Physiol. 2017 Jun 15;595 (12):3949-3958. doi:10.1113/JP273101. Epub 2017 Mar 10. PMID:28098356.

Hegyi B, Bányász T, Shannon TR, Chen-Izu Y, Izu LT. Electrophysiological Determination of Submembrane Na(+) Concentration in Cardiac Myocytes. Biophys J. 2016 Sep 20;111(6):1304-1315. doi:10.1016/j.bpj.2016.08.008. PMID:27653489.

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Awasthi S, Izu LT, Mao Z, Jian Z, Landas T, Lerner A, Shimkunas R, Woldeyesus R, Bossuyt J, Wood BM, Chen YJ, Matthews DL, Lieu DK, Chiamvimonvat N, Lam KS, Chen-Izu Y, Chan JW. Multimodal SHG-2PF Imaging of Microdomain Ca2+-Contraction Coupling in Live Cardiac Myocytes. Circ Res. 2016 Jan 22;118(2):e19-28. doi:10.1161/CIRCRESAHA.115.307919. Epub 2015 Dec 7. Erratum in: Circ Res. 2017 Apr 14;120(8):e32. PMID:26643875.

Alexander AM, DeNardo EK, Frazier III E, McCauley M, Rojina N, Coulibaly Z, Peercy BE, Izu LT. Spontaneous calcium release in cardiac myocytes: Store overload and electrical dynamics. SPORA: A Journal of Biomathematics. 2015;1(1):36-48. doi:10.30707/SPORA1.1Alexander.

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Jian Z, Han H, Zhang T, Puglisi J, Izu LT, Shaw JA, Onofiok E, Erickson JR, Chen YJ, Horvath B, Shimkunas R, Xiao W, Li Y, Pan T, Chan J, Banyasz T, Tardiff JC, Chiamvimonvat N, Bers DM, Lam KS, Chen-Izu Y. Mechanochemotransduction during cardiomyocyte contraction is mediated by localized nitric oxide signaling. Sci Signal. 2014 Mar 18;7(317):ra27. doi:10.1126/scisignal.2005046. PMID:24643800.

Izu LT, Xie Y, Sato D, Bányász T, Chen-Izu Y. Ca²? waves in the heart. J Mol Cell Cardiol. 2013 May;58:118-24. doi:10.1016/j.yjmcc.2012.11.014. Epub 2012 Dec 5. PMID:23220129.

Banyasz T, Horvath B, Jian Z, Izu LT, Chen-Izu Y. Sequential dissection of multiple ionic currents in single cardiac myocytes under action potential-clamp. J Mol Cell Cardiol. 2011 Mar;50(3):578-81. doi:10.1016/j.yjmcc.2010.12.020. Epub 2011 Jan 6. PMID:21215755.

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