Mary Frances Nunez Teruel
Assistant Professor of Chemical and Systems Biology and, by courtesy, of Bioengineering

CONTACT INFORMATION

• Alternate Contact
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Bio

ACADEMIC APPOINTMENTS

• Assistant Professor, Chemical and Systems Biology
• Assistant Professor (By courtesy), Bioengineering
• Member, Bio-X
• Member, Cardiovascular Institute
• Member, Child Health Research Institute
• Member, Stanford Cancer Institute
• Faculty Fellow, Stanford ChEM-H

PROFESSIONAL EDUCATION

• Ph.D., Stanford University, Aeronautical Engineering
• M.S., Stanford University, Aeronautical Engineering
• B.S., University of Pennsylvania, Mechanical Engineering

LINKS

• Teruel Lab Site: http://med.stanford.edu/labs/mary-teruel/

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

The Teruel Lab uses a combination of engineering and biological approaches including high-throughput screening of RNAi and DNA construct libraries, targeted mass spectrometry, live-cell fluorescence microscopy, and bioinformatics to investigate the systems biology of cell differentiation and cell signaling with particular focus on uncovering the molecular mechanisms underlying insulin resistance, diabetes, and obesity.
Teaching

COURSES

2017-18
• Chemical and Systems Biology Bootcamp: CSB 201 (Aut)
• Research Seminar: CSB 270 (Aut, Win, Spr)

2016-17
• Chemical and Systems Biology Bootcamp: CSB 201 (Aut)
• Imaging: Biological Light Microscopy: BIO 152, CSB 222, MCP 222 (Spr)
• Research Seminar: CSB 270 (Aut, Win, Spr)

2015-16
• Cell Signaling: CSB 210 (Win)
• Chemical and Systems Biology Bootcamp: CSB 201 (Aut)

2014-15
• Cell Signaling: CSB 210 (Win)
• Chemical and Systems Biology Bootcamp: CSB 201 (Aut)
• Research Seminar: CSB 270 (Win)

STANFORD ADVISEES

Postdoctoral Faculty Sponsor
Ewa Bielczyk Maczynska, Devon Hunerdosse, Brooks Taylor, Stefan Tholen

Doctoral Dissertation Advisor (AC)
Zahra Bahrami nejad

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS
• Biophysics (Phd Program)
• Cancer Biology (Phd Program)
• Chemical and Systems Biology (Phd Program)

Publications

PUBLICATIONS

• Using SRM-MS to quantify nuclear protein abundance differences between adipose tissue depots of insulin-resistant mice JOURNAL OF LIPID RESEARCH
  2015; 56 (5): 1068-1078

• Controlling low rates of cell differentiation through noise and ultrahigh feedback. Science
  Ahrends, R., Ota, A., Kovary, K. M., Kudo, T., Park, B. O., Teruel, M. N.
  2014; 344 (6190): 1384-1389

• Consecutive Positive Feedback Loops Create a Bistable Switch that Controls Preadipocyte-to-Adipocyte Conversion CELL REPORTS
  Park, B. O., Ahrends, R., Teruel, M. N.
  2012; 2 (4): 976-990
• Parallel adaptive feedback enhances reliability of the Ca2+ signaling system. *Proceedings of the National Academy of Sciences of the United States of America*
  Abell, E., Ahrends, R., Bandara, S., Park, B. O., Teruel, M. N.
  2011; 108 (35): 14485-14490

• Heterogeneous Ribosomes Preferentially Translate Distinct Subpools of mRNAs Genome-wide. *Molecular cell*
  2017

• A dynamic picture of protein behavior in cells. *Nature biotechnology*
  Teruel, M. N., Gu, B., Zhao, M. L.
  2015; 33 (4): 356-357

  Ahrends, R., Niewiadomski, P., Teruel, M. N., Rohatgi, R.
  2015; 1322: 105-123

• Gli protein activity is controlled by multisite phosphorylation in vertebrate hedgehog signaling. *Cell reports*
  Niewiadomski, P., Kong, J. H., Ahrends, R., Ma, Y., Humke, E. W., Khan, S., Teruel, M. N., Novitch, B. G., Rohatgi, R.
  2014; 6 (1): 168-181

• The proteome of cholesteryl-ester-enriched versus triacylglycerol-enriched lipid droplets. *PloS one*
  2014; 9 (8)

• The E3 ubiquitin ligase UBE3C enhances proteasome processivity by ubiquitinating partially proteolyzed substrates. *Journal of biological chemistry*
  Chu, B. W., Kovary, K. M., Guillaume, J., Chen, L., Teruel, M. N., Wandless, T. J.
  2013; 288 (48): 34575-34587

• Neuropilins are positive regulators of Hedgehog signal transduction. *Genes & Development*
  Hillman, R. T., Feng, B. Y., Ni, J., Woo, W., Milenkovic, L., Gephart, M. G., Teruel, M. N., Oro, A. E., Chen, J. K., Scott, M. P.
  2011; 25 (22): 2333-2346

• Comprehensive identification of PIP3-regulated PH domains from C elegans to H sapiens by model prediction and live imaging. *Molecular cell*
  Park, W. S., Do Heo, W., Whalen, J. H., O'Rourke, N. A., Bryan, H. M., Meyer, T., Teruel, M. N.
  2008; 30 (3): 381-392

• Rab10, a target of the AS160 Rab GAP, is required for insulin-stimulated translocation of GLUT4 to the adipocyte plasma membrane. *Cell metabolism*
  2007; 5 (4): 293-303

• siRNA screen of the human signaling proteome identifies the PtdIns(3,4,5) P-3-mTOR signaling pathway as a primary regulator of transferrin uptake. *Genome biology*
  Galvez, T., Teruel, M. N., Do Heo, W., Jones, J. T., Kim, M. L., Liou, J., Myers, J. W., Meyer, T.
  2007; 8 (7)

• Single cell imaging of PI3K activity and glucose transporter insertion into the plasma membrane by dual color evanescent wave microscopy. *Science's STKE: signal transduction knowledge environment*
  Tengholm, A., Teruel, M. N., Meyer, T.
  2003; 2003 (169): PL4-?

• Fluorescence imaging of signaling networks. *Trends in cell biology*
  Meyer, T., Teruel, M. N.
  2003; 13 (2): 101-106

• Parallel single-cell monitoring of receptor-triggered membrane translocation of a calcium-sensing protein module. *Science*
  Teruel, M. N., Meyer, T.
  2002; 295 (5561): 1910-1912
• Control of astrocyte Ca\textsuperscript{2+} oscillations and waves by oscillating translocation and activation of protein kinase C \textit{CURRENT BIOLOGY}
  
  Codazzi, F., Teruel, M. N., Meyer, T.
  
  2001; 11 (14): 1089-1097

• Localized biphasic changes in phosphatidylinositol-4,5-bisphosphate at sites of phagocytosis \textit{JOURNAL OF CELL BIOLOGY}
  
  Botelho, R. J., Teruel, M., Dierckman, R., Anderson, R., Wells, A., York, J. D., Meyer, T., Grinstein, S.
  
  2000; 151 (7): 1353-1367

• Spatial sensing in fibroblasts mediated by 3' phosphoinositides \textit{JOURNAL OF CELL BIOLOGY}
  
  Haugh, J. M., Codazzi, F., Teruel, M., Meyer, T.
  
  2000; 151 (6): 1269-1279

• Translocation and reversible localization of signaling proteins: A dynamic future for signal transduction \textit{CELL}
  
  Teruel, M. N., Meyer, T.
  
  2000; 103 (2): 181-184

• Molecular memory by reversible translocation of calcium/calmodulin-dependent protein kinase II \textit{NATURE NEUROSCIENCE}
  
  
  2000; 3 (9): 881-886

• Differential codes for free Ca\textsuperscript{2+}-calmodulin signals in nucleus and cytosol \textit{CURRENT BIOLOGY}
  
  Teruel, M. N., Chen, W., PERSECHINI, A., Meyer, T.
  
  2000; 10 (2): 86-94

• A versatile microporation technique for the transfection of cultured CNS neurons \textit{JOURNAL OF NEUROSCIENCE METHODS}
  
  
  1999; 93 (1): 37-48

• CaMKII beta functions as an F-actin targeting module that localizes CaMKII alpha/beta heterooligomers to dendritic spines \textit{NEURON}
  
  Shen, K., Teruel, M. N., Subramanian, K., Meyer, T.
  
  1998; 21 (3): 593-606

• Green fluorescent protein (GFP)-tagged cysteine-rich domains from protein kinase C as fluorescent indicators for diacylglycerol signaling in living cells \textit{JOURNAL OF CELL BIOLOGY}
  
  Oancea, E., Teruel, M. N., Quest, A. F., Meyer, T.
  
  1998; 140 (3): 485-498

• Electroporation-induced formation of individual calcium entry sites in the cell body and processes of adherent cells \textit{BIOPHYSICAL JOURNAL}
  
  Teruel, M. N., Meyer, T.
  
  1997; 73 (4): 1785-1796