

Yan Xiong

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PROFESSIONAL SUMMARY

Ph.D.-trained molecular and cellular biologist specializing in phosphorylation-dependent ubiquitination, E3-ligase substrate recognition, and ubiquitin–proteasome control of protein stability. First-author Nature Communications study defined an IKK/ β -TrCP2 phosphodegron cascade that drives TFEB degradation, revealing how kinase signaling creates an E3-ligase recognition motif to control transcription factor stability. Experienced in high-content phenotypic screening, assay development, and quantitative imaging, and seeking to apply mechanistic expertise in protein degradation to chemical biology, targeted protein degradation, and cancer drug discovery.

EDUCATION

- Ph.D. in Molecular Genetics & Genomics, Washington University in St. Louis.
(Transferred from Baylor College of Medicine). Jun 2020—Dec 2023
- Ph.D. candidate in Biochemistry, Baylor College of Medicine. Sep 2017—Jun 2020
- B.S. in Biology, Fudan University. Graduated with honors. Sep 2013—Jun 2017

RESEARCH EXPERIENCE

Washington University in St. Louis (Dec 2023 – Present)

Postdoctoral Research Associate, Department of Pediatrics

- Led the discovery of an **IKK/ β -TrCP2-dependent TFEB degradation pathway**, defining how IKK signaling disrupts lysosomal homeostasis and stress-adaptive transcriptional programs through phosphorylation, ubiquitination, and proteasomal degradation of TFEB. Results published in *Nature Communications*.
- Collaborated with the Genome Technology Access Center (GTAC) to identify **lysosomal gene upregulation in response to IKK silencing via transcriptomic analysis**, providing insights into lysosomal regulation pathways. Manuscript in preparation.
- Designed and executed ***in vivo* pharmacologic intervention** studies using intraperitoneal calpain inhibitor administration in *Kctd7*^{-/-} mice, demonstrating significant attenuation of neuropathology. Results published in *Cell Discovery* (2023).
- Contributed image analysis expertise to a collaborative study identifying **Galectin-1 as a driver of monocyte hyperinflammation in myeloproliferative neoplasms**, manuscript under review.
- Mentored junior researchers in experimental design, molecular biology, fluorescence imaging, quantitative image analysis, data interpretation, and scientific presentation.

Washington University in St. Louis / Baylor College of Medicine (Sep 2017 – Dec 2023)

Ph.D. Researcher

- Developed and applied **quantitative cell-based assays** to measure TFEB nuclear localization, TFEB protein abundance, lysosomal morphology and DQ-BSA-based lysosomal proteolytic activity across mammalian cell models.
- Designed and executed a **high-content kinase inhibitor screen** using a stable TFEB-GFP reporter

system, automated fluorescence imaging, Z'-factor-based assay quality control, data normalization, and hierarchical clustering to identify signaling pathways that regulate TFEB activity and lysosomal function.

- First to demonstrate **the mechanism of glycogen accumulation in tuberous sclerosis complex** (TSC); work published in *PNAS* and cited 20+ times.
- Co-led a collaborative study uncovering how lysosomal acid lipase inhibitors contribute to cardiomyocyte atrophy. Findings presented at the American Heart Association Scientific Sessions (2025). Manuscript under review.

MD Anderson Cancer Center (Jul 2016 – Sep 2016)

Summer Undergraduate Researcher

- Conducted independent research on genetic drivers of low-grade glioma (LGG) using wet-lab and computational approaches, ruling out a candidate oncogene mutation as a causal factor.

Fudan University (Sep 2014 – Sep 2016)

Undergraduate Researcher

- Studied CAR-T target-cell recognition enhancement by expressing inducible cell-surface receptors, building early experience in cell engineering and immune-cell therapy concepts.

SKILLS:

◆ **Cellular & Molecular Biology**

In vitro kinase assays; protein stability and cycloheximide-chase assays; ubiquitination assays; co-immunoprecipitation; molecular cloning and mutagenesis; CRISPR-Cas9 gene editing; siRNA-mediated gene silencing; mammalian and primary cell culture; flow cytometry; transfection; qRT-PCR; cell-based functional assays; cytokine and inflammatory signaling studies; western blotting; RNA-seq sample preparation; mass spectrometry.

◆ **High-Content imaging and Assay development**

High-content imaging using IN Cell Analyzer 2000 and ImageXpress Micro XLS; confocal microscopy; cell-based fluorescence assays; image-based phenotyping; quantitative assay design and optimization; treatment titration; hit identification and validation.

◆ **In Vivo & Translational Research**

Murine studies, mouse handling, genotyping, perfusion, tissue collection, intraperitoneal injection, pharmacologic intervention studies, disease-model experimentation.

◆ **Data Analysis & Computational Tools**

Python (pandas), R (tidyverse), GraphPad Prism, Excel, ImageJ/Fiji, CellProfiler, transcriptomic analysis, GSEA, hierarchical clustering, TCGA/UniProt/NCBI database analysis.

LEADERSHIP and PROFESSIONAL ACTIVITIES:

- **Invited manuscript reviewer** for *BMC Cancer*, *Journal of Agricultural and Food Chemistry* (2024–2025), and *Biochemical Genetics* (2025–2026), providing expert evaluation of studies in drug discovery and biochemistry.
- Mentor for the Summer Undergraduate Research Guided Experience (SURGE) program, Washington University in St. Louis (Aug 2025).
- B4U University Mentoring Program Sponsored by Bayer (2025–2026)

- **Guest lecturer**, Washington University in St. Louis (Fall 2020)
Delivered biochemistry lectures to 30+ undergraduate students and developed interactive teaching strategies to enhance learning.

TALKS and AWARDS:

- Awarded Dompé Foundation scholarship (2026).
- Awarded “Top Viewed Article” by *eJHaem* (2026).
- Delivered a talk at the Pediatrics Department Retreat, Washington University in St. Louis (2024).
- Awarded *Best Abstract*, Pediatrics Department Retreat (2024).
- Presented at the 17th International Congress on Neuronal Ceroid Lipofuscinosis (NCL) (2022).
- Poster presentation at the Society for Neuroscience (SfN) Conference (2022).
- Recipient of Undergraduate Scholarship (2014–2016) and Undergraduate Research Fellowship (2016).

CERTIFICATIONS:

- Algorithms for DNA Sequencing, Johns Hopkins University (Coursera), 2025
- Python for Genomic Data Science, Johns Hopkins University (Coursera), 2025
- Leadership and Management in Action Program (L-MAP), Washington University in St. Louis, 2025

PUBLICATIONS:

Peer-Reviewed Publications:

- **Xiong Y.**, Sharma J., Sardiello M. TFEB degradation is regulated by an IKK/ β -TrCP2 phosphorylation-ubiquitination cascade. *Nature Communications*. 2026.
- Pal R., **Xiong Y.**, Sardiello M. Abnormal glycogen storage in tuberous sclerosis complex caused by impairment of mTORC1-dependent and -independent signaling pathways. *PNAS*. 2019.
- Sharma J., Mulherkar S., Chen U., **Xiong Y.**, Sardiello M. Calpain activity is negatively regulated by a KCTD7–cullin 3 complex via non-degradative ubiquitination. *Cell Discovery*. 2023.
- Yan S., Lin S., Gao B., Xu R., Shang H., **Xiong Y.**, Jiang C. Multiple Myeloma, IL6, and Risk of Schizophrenia: A Mendelian Randomization, Transcriptome, and Bayesian Colocalization Study. *EJHaem*. 2024.
- Fan He, Shuyang Lin, Tim Kong, Daniel A. C. Fisher, Alexander B. Kim, Molly Brakhane, Varun Ramesh, Christopher T. Letson, Maggie J. Cox, Mary C. Fulbright, Katrina Bark, **Yan Xiong**, Angelo B. A. Laranjeira, Stephen M. Sykes, Jorge Di Paola, Stephen T. Oh. Galectin-1 Fuels Monocyte-Driven Hyperinflammation and Represents a Novel Therapeutic Target in Myeloproliferative Neoplasms. Manuscript accepted for publication in *Blood*.

Manuscripts Under Review:

- Anahita Ataran, Ahmed Diab, **Yan Xiong**, Marco Sardiello, Ali Javaheri. Lysosomal lipolysis is required for cardiomyocyte growth and lipid metabolism. Manuscript under review for *Nature Communications*.