Stanford



Monther Abu-Remaileh

Assistant Professor of Chemical Engineering and of Genetics

Bio

BIO

The Abu-Remaileh Lab is interested in identifying novel pathways that enable cellular and organismal adaptation to metabolic stress and changes in environmental conditions. We also study how these pathways go awry in human diseases such as cancer, neurodegeneration and metabolic syndrome, in order to engineer new therapeutic modalities.

To address these questions, our lab uses a multidisciplinary approach to study the biochemical functions of the lysosome in vitro and in vivo. Lysosomes are membrane-bound compartments that degrade macromolecules and clear damaged organelles to enable cellular adaptation to various metabolic states. Lysosomal function is critical for organismal homeostasis—mutations in genes encoding lysosomal proteins cause severe human disorders known as lysosomal storage diseases, and lysosome dysfunction is implicated in age-associated diseases including cancer, neurodegeneration and metabolic syndrome.

By developing novel tools and harnessing the power of metabolomics, proteomics and functional genomics, our lab will define 1) how the lysosome communicates with other cellular compartments to fulfill the metabolic demands of the cell under various metabolic states, 2) and how its dysfunction leads to rare and common human diseases. Using insights from our research, we will engineer novel therapies to modulate the pathways that govern human disease.

ACADEMIC APPOINTMENTS

- Assistant Professor, Chemical Engineering
- Assistant Professor, Genetics
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)
- Institute Scholar, Sarafan ChEM-H
- Member, Stanford Cancer Institute
- Member, Wu Tsai Neurosciences Institute

HONORS AND AWARDS

- Walter A. Shaw Young Investigator Award in Lipid Research, ASBMB (2026)
- Arc Innovation Investigator, Arc Institute (2025)
- Sloan Research Fellow-Chemistry, The Alfred P. Sloan Foundation (2025)

- Günter Blobel Early Career Award, The American Society for Cell Biology (ASCB) (2024)
- R.R. Bensley Award in Cell Biology, American Association for Anatomy (AAA) (2024)
- Pew-Stewart Scholar, The Pew Charitable Trusts (2022)
- The NIH Director's New Innovator Award, NIH (2021)
- Cancer Innovation Award, Stanford Cancer Institute (2020)
- Terman Faculty Fellow, Stanford University (2019)
- Innovators Under 35 MENA, MIT Technology Review (2018)
- NCL-Stiftung Foundation Research Award, NCL-Stiftung (2018)
- The Charles A. King Trust Award, The Medical Foundation (2018)
- The EMBO Fellowship, EMBO (2014- 2016)
- Adams Fellowship, Israel Academy of Sciences and Humanities (2009-2013)

PROFESSIONAL EDUCATION

- Molecular Genetics, The Hebrew University of Jerusalem , Gene Regulation in Development and Cancer (2014)
- Postdoctoral training, Whitehead Institute/ MIT , Subcellular Metabolism (2019)

LINKS

- Lab website: http://www.abu-remaileh.com

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

We study the role of the lysosome in metabolic adaptation using subcellular omics approaches, functional genomics and innovative biochemical tools. We apply this knowledge to understand how lysosomal dysfunction leads to human diseases including neurodegeneration, cancer and metabolic syndrome.

Teaching

COURSES

2026-27

- Chemical Engineering Laboratory A: CHEMENG 185A (Aut)
- Chemical Engineering Laboratory B: CHEMENG 185B (Win)

2025-26

- Chemical Engineering Laboratory B: CHEMENG 185B (Win)
- Metabolism in Health and Disease: From Technological Advances to Novel Insights: CHEMENG 480 (Spr)

2024-25

- Chemical Engineering Laboratory B: CHEMENG 185B (Win)

2023-24

- Chemical Engineering Laboratory B: CHEMENG 185B (Win)
- Metabolism in Health and Disease: From Technological Advances to Novel Insights: CHEMENG 480 (Spr)

STANFORD ADVISEES

Med Scholar Project Advisor

Aswini Krishnan

Doctoral Dissertation Reader (AC)

Cal Bridges, Zoe Cook, Karen Linde-Garelli, Kit Vodehnal

Postdoctoral Faculty Sponsor

Cindy Lin, Austin Murchison, Jian Xiong, Zhijun Zhu

Doctoral Dissertation Advisor (AC)

Hisham Alsohybe, Natalia Avina Ochoa, Chetan Chilkunda, Ibrahim Maaz, Nicholas Manfred, Matthew Matrongolo, Shadler Nguyen, Jacob Oh,

Anastasiia Safronova, Sam Scharenberg, Helen Sun, George Walters-Marrah

Postdoctoral Research Mentor

Jian Xiong

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Biophysics (PhD Program)
- Cancer Biology (PhD Program)
- Genetics (PhD Program)
- Neurosciences (PhD Program)

Publications

PUBLICATIONS

- **Cell-type resolved protein atlas of brain lysosomes identifies SLC45A1-associated disease as a lysosomal disorder.** *Cell*
  Ghoochani, A., Heiby, J. C., Rawat, E. S., Medoh, U. N., Di Fraia, D., Dong, W., Gastou, M., Rastogi, M., Hernandez, V., Nyame, K., Laqtom, N. N., Durso, W., Valkova, et al
  2026

- **Visions of the future of molecular cell biology.** *Nature reviews. Molecular cell biology*
  Abu-Remaileh, M., Chan, C. J., Chen, L., Demirer, G. S., Fiszbein, A., Jug, F., Lechuga-Vieco, A. V., Luisier, R., Pagan, J., Sabari, B. R., Shao, S., Sun, L., Żylicz, et al
  2025; 26 (10): 735-740

- **PLA2G15 is a BMP hydrolase and its targeting ameliorates lysosomal disease.** *Nature*
  Nyame, K., Xiong, J., Alsohybe, H. N., de Jong, A. P., Peña, I. V., de Miguel, R., Brummelkamp, T. R., Hartmann, G., Nijman, S. M., Raaben, M., Simcox, J. A., Blomen, V. A., Abu-Remaileh, et al
  2025

- **Uncovering a key enzyme opens possible therapeutic avenues for lysosomal diseases** *NATURE*
  Nyame, K., Abu-Remaileh, M.
  2025

- **The Bis(monoacylglycero)-phosphate Hypothesis: From Lysosomal Function to Therapeutic Avenues.** *Annual review of biochemistry*
  Medoh, U. N., Abu-Remaileh, M.
  2024

- **APOE4/4 is linked to damaging lipid droplets in Alzheimer's diseasemicroglia.** *Nature*
  Haney, M. S., Palovics, R., Munson, C. N., Long, C., Johansson, P. K., Yip, O., Dong, W., Rawat, E., West, E., Schlachetzki, J. C., Tsai, A., Guldner, I. H., Lamichhane, et al
  2024

- **Glycerophosphodiesters inhibit lysosomal phospholipid catabolism in Batten disease.** *Molecular cell*
  Nyame, K., Hims, A., Aburous, A., Laqtom, N. N., Dong, W., Medoh, U. N., Heiby, J. C., Xiong, J., Ori, A., Abu-Remaileh, M.
  2024

- **The Batten disease gene product CLN5 is the lysosomal bis(monoacylglycero)phosphate synthase.** *Science (New York, N.Y.)*
  Medoh, U. N., Hims, A., Chen, J. Y., Ghoochani, A., Nyame, K., Dong, W., Abu-Remaileh, M.
  2023; 381 (6663): 1182-1189
- **Golgi-IP, a tool for multimodal analysis of Golgi molecular content.** *Proceedings of the National Academy of Sciences of the United States of America*
  Fasimoye, R., Dong, W., Nirujogi, R. S., Rawat, E. S., Iguchi, M., Nyame, K., Phung, T. K., Bagnoli, E., Prescott, A. R., Alessi, D. R., Abu-Remaileh, M.
  2023; 120 (20): e2219953120
- **CLN3 is required for the clearance of glycerophosphodiesters from lysosomes.** *Nature*
  Laqtom, N. N., Dong, W., Medoh, U. N., Cangelosi, A. L., Dharamdasani, V., Chan, S. H., Kunchok, T., Lewis, C. A., Heinze, I., Tang, R., Grimm, C., Dang Do, A. N., Porter, et al
  2022
- **Isotope tracing in health and disease.** *Current opinion in biotechnology*
  Dong, W., Rawat, E. S., Stephanopoulos, G., Abu-Remaileh, M.
  2022; 76: 102739
- **Lysosomal Immunoprecipitation (LysoIP) from Cells and Tissues for Metabolomic and Proteomic Analyses.** *Methods in molecular biology (Clifton, N.J.)*
  Laqtom, N. N., Abu-Remaileh, M.
  2026; 2976: 85-102
- **The Batten disease gene product CLN6 is a glycerophosphoglycerol epimerase that establishes S,S -BMP stereochemistry.** *bioRxiv : the preprint server for biology*
  Zhu, Z., Xiong, J., Maaz, I., Matrongolo, M. J., Goochani, A., Chilkunda, C., Peng, X., Alur, A., Porsen, C., Schulz, A., Cotman, S. L., Gomez-Ospina, N., Abu-Remaileh, et al
  2026
- **An in vivo resource of age-regulated C. elegans intestinal secretory-pathway proteins highlights secreted enzymes associated with lifespan regulation.** *Cell reports*
  Miklas, J. W., Papsdorf, K., Sun, E. D., Tsenter, A., Haseley, N. R., Ameglio, B., Medoh, U. N., Richard, D., McCarthy, F., Artiles, K. L., Hims, A., Levina, A., Zhou, et al
  2026; 45 (9): 117902
- **Robust analytical methods for bis(monoacylglycero)phosphate profiling in health and disease.** *Nature protocols*
  Dong, W., Nyame, K., Rawat, E. S., Medoh, U. N., Xiong, J., Bonin, C. C., Alsohybe, H. N., Liu, H. Y., Gomes, S., Shalit, T., Arnold, M., Hsieh, F., Sammler, et al
  2026
- **Mitochondrial degradation of metallothionein enables local zinc mobilization during zinc limitation.** *bioRxiv : the preprint server for biology*
  Murchison, A. K., Heiby, J. C., Tao, H., Matrongolo, M. J., Ori, A., Abu-Remaileh, M.
  2026
- **Granulin loss and TMEM106B risk converge on lysosomal C-terminal fragment pathology in frontotemporal dementia.** *bioRxiv : the preprint server for biology*
  Zeng, Y., Xiong, J., Lovchykova, A., Nguyen, T. P., Song, A., Gitler, S. W., Abu-Remaileh, M., Gitler, A. D.
  2026
- **Mucin-binding protein shuttles enable delivery of brain-targeted therapeutics.** *bioRxiv : the preprint server for biology*
  Shi, S. M., Tender, G. S., Xiong, J., Buff, J. K., Park, H. I., Mendiola, J. H., Wilson, E. N., Abu-Remaileh, M., Bertozzi, C. R., Wyss-Coray, T.
  2026
- **Translational lipidomics reveals BMP and its precursor LPG as biomarkers for CLN5 Batten disease.** *bioRxiv : the preprint server for biology*
  Rawat, E. S., Manfred, N., Alsohybe, H. N., Dong, W., Peña, I. V., Idris, M., Posern, C., Westermann, L. M., Murray, S. J., Panneman, D. M., Vecchia, S. D., Doccini, S., Marchese, et al
  2026
- **Ageing promotes microglial accumulation of slow-degrading synaptic proteins.** *Nature*

Guldner, I. H., Wagner, V. P., Moran-Losada, P., Shi, S. M., Golub, S. W., Hevler, J. F., Chen, K., Meese, B. T., Ghoochani, A., Pulido, E., Oh, H. S., Le Guen, Y., Lu, et al
2026

- **Defined human tri-lineage brain microtissues.** *bioRxiv : the preprint server for biology*
  Uenaka, T., Jung, S., Kumar, I., Vodehnal, K., Rastogi, M., Yoo, Y., Koontz, M., Thome, C., Li, W., Chan, T., Green, E. M., Chesnov, K., Sun, et al
  2025

- **Hepatic lipid remodeling in cold exposure uncovers direct regulation of bis(monoacylglycero)phosphate lipids by phospholipase A2 group XV.** *Cell metabolism*
  Davidson, J. W., Jain, R., Kizzar, T., Geoghegan, G., Nesbitt, D. J., Cavanagh, A., Abe, A., Nyame, K., Hunger, A., Chao, X., James, I., Walesewicz, H., Baldwin, et al
  2025

- **Neurodegeneration: Intra-Lysosomal Lipid Metabolism in the Driver's Seat**
  Abu-Remaileh, M.
  ELSEVIER.2025

- **Hematopoietic Stem Cell Transplantation with Enhanced Brain Conditioning Corrects Progranulin Deficiency in mouse models**
  Colella, P., Suarez-Nieto, M., Tejeda-Polanco, E., Vera, L., Poletto, E., Basurto, J., Nyame, K., Xiong, J., Abu-Remaileh, M., Gomez-Ospina, N.
  CELL PRESS.2025

- **Cellular and organismal function of choline metabolism.** *Nature metabolism*
  Kenny, T. C., Scharenberg, S., Abu-Remaileh, M., Birsoy, K.
  2025

- **Tagless LysoIP for immunoaffinity enrichment of native lysosomes from clinical samples.** *The Journal of clinical investigation*
  Saarela, D., Lis, P., Gomes, S., Nirujogi, R. S., Dong, W., Rawat, E., Glendinning, S., Zeneviciute, K., Bagnoli, E., Fasimoye, R., Lin, C., Nyame, K., Boros, et al
  2024; 135 (4)

- **Cell-Type Resolved Protein Atlas of Brain Lysosomes Identifies SLC45A1-Associated Disease as a Lysosomal Disorder.** *bioRxiv : the preprint server for biology*
  Ghoochani, A., Heiby, J. C., Rawat, E. S., Medoh, U. N., Di Fraia, D., Dong, W., Gastou, M., Nyame, K., Laqtom, N. N., Gomez-Ospina, N., Ori, A., Abu-Remaileh, M.
  2024

- **Rapid phagosome isolation enables unbiased multiomic analysis of human microglial phagosomes.** *Immunity*
  Wogram, E., Sümpelmann, F., Dong, W., Rawat, E., Fernández Maestre, I., Fu, D., Braswell, B., Khalil, A., Buescher, J. M., Mittler, G., Borner, G. H., Vlachos, A., Tholen, et al
  2024

- **CNS-wide repopulation by hematopoietic-derived microglia-like cells corrects progranulin deficiency in mice.** *Nature communications*
  Colella, P., Sayana, R., Suarez-Nieto, M. V., Sarno, J., Nyame, K., Xiong, J., Pimentel Vera, L. N., Arozqueta Basurto, J., Corbo, M., Limaye, A., Davis, K. L., Abu-Remaileh, M., Gomez-Ospina, et al
  2024; 15 (1): 5654

- **MFSD1 with its accessory subunit GLMP functions as a general dipeptide uniporter in lysosomes.** *Nature cell biology*
  Jungnickel, K. E., Guelle, O., Iguchi, M., Dong, W., Kotov, V., Gabriel, F., Debacker, C., Dairou, J., McCort-Tranchepain, I., Laqtom, N. N., Chan, S. H., Ejima, A., Sato, et al
  2024

- **Sharing is caring: TMEM165 a Golgi calcium importer used by the lysosome.** *Trends in biochemical sciences*
  Murchison, A. K., Abu-Remaileh, M.
  2024

- **Organelle proteomic profiling reveals lysosomal heterogeneity in association with longevity.** *eLife*
  Yu, Y., Gao, S. M., Guan, Y., Hu, P. W., Zhang, Q., Liu, J., Jing, B., Zhao, Q., Sabatini, D. M., Abu-Remaileh, M., Jung, S. Y., Wang, M. C.
  2024; 13

- **CNS Repopulation by Hematopoietic-Derived Microglia-Like Cells Corrects Progranulin deficiency.** *Research square*

Colella, P., Sayana, R., Suarez-Nieto, M. V., Sarno, J., Nyame, K., Xiong, J., Vera, L. N., Basurto, J. A., Corbo, M., Limaye, A., Davis, K. L., Abu-Remaileh, M., Gomez-Ospina, et al

2023

- **APOE4/4 is linked to damaging lipid droplets in Alzheimer's microglia.** *bioRxiv : the preprint server for biology*

  Haney, M. S., Pálovics, R., Munson, C. N., Long, C., Johansson, P., Yip, O., Dong, W., Rawat, E., West, E., Schlachetzki, J. C., Tsai, A., Guldner, I. H., Lamichhane, et al

  2023

- **CYP4F2 is a human-specific determinant of circulating N-acyl amino acid levels.** *The Journal of biological chemistry*

  Tanzo, J. T., Li, V. L., Wiggenhorn, A. L., Moya-Garzon, M. D., Wei, W., Lyu, X., Dong, W., Tahir, U. A., Chen, Z. Z., Cruz, D. E., Deng, S., Shi, X., Zheng, et al

  2023: 104764

- **An SPNS1-dependent lysosomal lipid transport pathway that enables cell survival under choline limitation.** *Science advances*

  Scharenberg, S. G., Dong, W., Ghoochani, A., Nyame, K., Levin-Konigsberg, R., Krishnan, A. R., Rawat, E. S., Spees, K., Bassik, M. C., Abu-Remaileh, M.

  2023; 9 (16): eadf8966

- **Carnitine octanoyltransferase is important for the assimilation of exogenous acetyl-L-carnitine into acetyl-CoA in mammalian cells.** *The Journal of biological chemistry*

  Hsu, J., Fatuzzo, N., Weng, N., Michno, W., Dong, W., Kienle, M., Dai, Y., Pasca, A., Abu-Remaileh, M., Rasgon, N., Bigio, B., Nasca, C., Khosla, et al

  2022: 102848

- **R-loop-derived cytoplasmic RNA-DNA hybrids activate an immune response.** *Nature*

  Crossley, M. P., Song, C., Bocek, M. J., Choi, J., Kousorous, J., Sathirachinda, A., Lin, C., Brickner, J. R., Bai, G., Lans, H., Vermeulen, W., Abu-Remaileh, M., Cimprich, et al

  2022

- **Ferroptosis inhibition by lysosome-dependent catabolism of extracellular protein.** *Cell chemical biology*

  Armenta, D. A., Laqtom, N. N., Alchemy, G., Dong, W., Morrow, D., Poltorack, C. D., Nathanson, D. A., Abu-Remalieh, M., Dixon, S. J.

  2022

- **Lysosomal cathepsin D mediates endogenous mucin glycodomain catabolism in mammals.** *Proceedings of the National Academy of Sciences of the United States of America*

  Pedram, K., Laqtom, N. N., Shon, D. J., Di Spiezio, A., Riley, N. M., Saftig, P., Abu-Remaileh, M., Bertozzi, C. R.

  2022; 119 (39): e2117105119

- **Small molecule C381 targets the lysosome to reduce inflammation and ameliorate disease in models of neurodegeneration.** *Proceedings of the National Academy of Sciences of the United States of America*

  Vest, R. T., Chou, C. C., Zhang, H., Haney, M. S., Li, L., Laqtom, N. N., Chang, B., Shuken, S., Nguyen, A., Yerra, L., Yang, A. C., Green, C., Tanga, et al

  2022; 119 (11): e2121609119

- **Ferroptosis regulation by the NGLY1/NFE2L1 pathway.** *Proceedings of the National Academy of Sciences of the United States of America*

  Forcina, G. C., Pope, L., Murray, M., Dong, W., Abu-Remaileh, M., Bertozzi, C. R., Dixon, S. J.

  2022; 119 (11): e2118646119

- **Lessons from metabolic perturbations in lysosomal storage disorders for neurodegeneration** *CURRENT OPINION IN SYSTEMS BIOLOGY*

  Medoh, U. N., Chen, J. Y., Abu-Remaileh, M.

  2022; 29

- **Increased lysosomal biomass is responsible for the resistance of triple-negative breast cancers to CDK4/6 inhibition** *SCIENCE ADVANCES*

  Fassl, A., Brain, C., Abu-Remaileh, M., Stukan, I., Butter, D., Stepien, P., Feit, A. S., Bergholz, J., Michowski, W., Otto, T., Sheng, Q., Loo, A., Michael, et al

  2020; 6 (25)

- **The microbiota programs DNA methylation to control intestinal homeostasis and inflammation.** *Nature microbiology*

  Ansari, I., Raddatz, G., Gutekunst, J., Ridnik, M., Cohen, D., Abu-Remaileh, M., Tuganbaev, T., Shapiro, H., Pikarsky, E., Elinav, E., Lyko, F., Bergman, Y.

2020

- **Maintaining Iron Homeostasis Is the Key Role of Lysosomal Acidity for Cell Proliferation.** *Molecular cell*
  Weber, R. A., Yen, F. S., Nicholson, S. P., Alwaseem, H. n., Bayraktar, E. C., Alam, M. n., Timson, R. C., La, K. n., Abu-Remaileh, M. n., Molina, H. n., Birsoy, K. n.
  2020

- **Increased lysosomal biomass is responsible for the resistance of triple-negative breast cancers to CDK4/6 inhibition.** *Science advances*
  Fassl, A. n., Brain, C. n., Abu-Remaileh, M. n., Stukan, I. n., Butter, D. n., Stepien, P. n., Feit, A. S., Bergholz, J. n., Michowski, W. n., Otto, T. n., Sheng, Q. n., Loo, A. n., Michael, et al
  2020; 6 (25): eabb2210

- **Structural basis for the docking of mTORC1 on the lysosomal surface.** *Science (New York, N.Y.)*
  Rogala, K. B., Gu, X., Kedir, J. F., Abu-Remaileh, M., Bianchi, L. F., Bottino, A. M., Dueholm, R., Niehaus, A., Overwijn, D., Fils, A. P., Zhou, S. X., Leary, D., Laqtom, et al
  2019; 366 (6464): 468-475

- **WWOX somatic ablation in skeletal muscles alters glucose metabolism.** *Molecular metabolism*
  Abu-Remaileh, M. n., Abu-Remaileh, M. n., Akkawi, R. n., Knani, I. n., Udi, S. n., Pacold, M. E., Tam, J. n., Aqeilan, R. I.
  2019; 22: 132–40

- **MITO-Tag Mice enable rapid isolation and multimodal profiling of mitochondria from specific cell types in vivo.** *Proceedings of the National Academy of Sciences of the United States of America*
  Bayraktar, E. C., Baudrier, L. n., Özerdem, C. n., Lewis, C. A., Chan, S. H., Kunchok, T. n., Abu-Remaileh, M. n., Cangelosi, A. L., Sabatini, D. M., Birsoy, K. n., Chen, W. W.
  2019; 116 (1): 303–12

- **High-fat diet enhances stemness and tumorigenicity of intestinal progenitors (vol 531, pg 53, 2016)** *NATURE*
  Beyaz, S., Mana, M. D., Roper, J., Kedrin, D., Saadatpour, A., Hong, S., Bauer-Rowe, K. E., Xifaras, M. E., Akkad, A., Arias, E., Pinello, L., Katz, Y., Shinagare, et al
  2018; 560 (7717): E26

- **Histidine catabolism is a major determinant of methotrexate sensitivity.** *Nature*
  Kanarek, N. n., Keys, H. R., Cantor, J. R., Lewis, C. A., Chan, S. H., Kunchok, T. n., Abu-Remaileh, M. n., Freinkman, E. n., Schweitzer, L. D., Sabatini, D. M.
  2018; 559 (7715): 632–36

- **NUFIP1 is a ribosome receptor for starvation-induced ribophagy.** *Science (New York, N.Y.)*
  Wyant, G. A., Abu-Remaileh, M. n., Frenkel, E. M., Laqtom, N. N., Dharamdasani, V. n., Lewis, C. A., Chan, S. H., Heinze, I. n., Ori, A. n., Sabatini, D. M.
  2018; 360 (6390): 751–58

- **Identification of a transporter complex responsible for the cytosolic entry of nitrogen-containing bisphosphonates.** *eLife*
  Yu, Z. n., Surface, L. E., Park, C. Y., Horlbeck, M. A., Wyant, G. A., Abu-Remaileh, M. n., Peterson, T. R., Sabatini, D. M., Weissman, J. S., O'Shea, E. K.
  2018; 7

- **Fasting Activates Fatty Acid Oxidation to Enhance Intestinal Stem Cell Function during Homeostasis and Aging.** *Cell stem cell*
  Mihaylova, M. M., Cheng, C. W., Cao, A. Q., Tripathi, S. n., Mana, M. D., Bauer-Rowe, K. E., Abu-Remaileh, M. n., Clavain, L. n., Erdemir, A. n., Lewis, C. A., Freinkman, E. n., Dickey, A. S., La Spada, et al
  2018; 22 (5): 769–78.e4

- **Lysosomal metabolomics reveals V-ATPase- and mTOR-dependent regulation of amino acid efflux from lysosomes.** *Science (New York, N.Y.)*
  Abu-Remaileh, M. n., Wyant, G. A., Kim, C. n., Laqtom, N. N., Abbasi, M. n., Chan, S. H., Freinkman, E. n., Sabatini, D. M.
  2017; 358 (6364): 807–13

- **mTORC1 Activator SLC38A9 Is Required to Efflux Essential Amino Acids from Lysosomes and Use Protein as a Nutrient.** *Cell*
  Wyant, G. A., Abu-Remaileh, M. n., Wolfson, R. L., Chen, W. W., Freinkman, E. n., Danai, L. V., Vander Heiden, M. G., Sabatini, D. M.
  2017; 171 (3): 642–54.e12

- **Physiologic Medium Rewires Cellular Metabolism and Reveals Uric Acid as an Endogenous Inhibitor of UMP Synthase.** *Cell*
  Cantor, J. R., Abu-Remaileh, M. n., Kanarek, N. n., Freinkman, E. n., Gao, X. n., Louissaint, A. n., Lewis, C. A., Sabatini, D. M.
  2017; 169 (2): 258–72.e17
- **KICSTOR recruits GATOR1 to the lysosome and is necessary for nutrients to regulate mTORC1.** *Nature*
  Wolfson, R. L., Chantranupong, L. n., Wyant, G. A., Gu, X. n., Orozco, J. M., Shen, K. n., Condon, K. J., Petri, S. n., Kedir, J. n., Scaria, S. M., Abu-Remaileh, M. n., Frankel, W. N., Sabatini, et al
  2017; 543 (7645): 438–42
- **Embryonic Stem Cell (ES)-Specific Enhancers Specify the Expression Potential of ES Genes in Cancer.** *PLoS genetics*
  Aran, D., Abu-Remaileh, M., Levy, R., Meron, N., Toperoff, G., Edrei, Y., Bergman, Y., Hellman, A.
  2016; 12 (2): e1005840
- **A PHGDH inhibitor reveals coordination of serine synthesis and one-carbon unit fate.** *Nature chemical biology*
  Pacold, M. E., Brimacombe, K. R., Chan, S. H., Rohde, J. M., Lewis, C. A., Swier, L. J., Possemato, R. n., Chen, W. W., Sullivan, L. B., Fiske, B. P., Cho, S. n., Freinkman, E. n., Birsoy, et al
  2016; 12 (6): 452–58
- **High-fat diet enhances stemness and tumorigenicity of intestinal progenitors.** *Nature*
  Beyaz, S. n., Mana, M. D., Roper, J. n., Kedrin, D. n., Saadatpour, A. n., Hong, S. J., Bauer-Rowe, K. E., Xifaras, M. E., Akkad, A. n., Arias, E. n., Pinello, L. n., Katz, Y. n., Shinagare, et al
  2016; 531 (7592): 53–58
- **Chronic inflammation induces a novel epigenetic program that is conserved in intestinal adenomas and in colorectal cancer.** *Cancer research*
  Abu-Remaileh, M., Bender, S., Raddatz, G., Ansari, I., Cohen, D., Gutekunst, J., Musch, T., Linhart, H., Breiling, A., Pikarsky, E., Bergman, Y., Lyko, F.
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