

Stanford



Wenfei Sun

Postdoctoral Scholar, Bioengineering

Bio

HONORS AND AWARDS

- SNF postdoc fellowship, Schweizerische Nationalfonds (Swiss National Science Foundation) (2023)
- Pfizer Research Prize, Stiftung Pfizer Forschungspreis (Pfizer Research Prize Foundation) (2022)
- Science & SciLifeLab Prize for Young Scientists, Science/AAAS, SciLifeLab (2021)
- SNF postdoc fellowship, Schweizerische Nationalfonds (Swiss National Science Foundation) (2021)
- ETH Medal for outstanding doctoral theses, ETH Zürich (Swiss Federal Institute of Technology in Zürich) (2020)
- Award for Outstanding Self-Financed Students Abroad, Ministry of Education of China (2019)
- Best poster award (1st prize) in 58th International Conference on the Bioscience of Lipids, The International Conference on the Bioscience of Lipids (ICBL) (2017)

PROFESSIONAL EDUCATION

- Doctor of Philosophy, ETH Zurich (2020)
- Master of Science, Columbia University (2014)
- Bachelor of Science, China Pharmaceutical University (2010)

STANFORD ADVISORS

- Stephen Quake, Postdoctoral Faculty Sponsor

LINKS

- Google Scholar: <https://scholar.google.ch/citations?user=4odVrMoAAAAJ&hl=en>

Research & Scholarship

LAB AFFILIATIONS

- Stephen Quake (9/1/2021)
- Thomas Sudhof (9/1/2021)

Publications

PUBLICATIONS

- **Spatial transcriptomics reveal neuron-astrocyte synergy in long-term memory.** *Nature*
Sun, W., Liu, Z., Jiang, X., Chen, M. B., Dong, H., Liu, J., Südhof, T. C., Quake, S. R.
2024

- **Identification of a regulatory pathway inhibiting adipogenesis via RSPO2.** *Nature metabolism*
Dong, H., Sun, W., Shen, Y., Baláz, M., Balázová, L., Ding, L., Löffler, M., Hamilton, B., Klötting, N., Blüher, M., Neubauer, H., Klein, H., Wolfrum, et al
2022
- **Analysis of Single-Cell/Nucleus Transcriptome Data in Adipose Tissue.** *Methods in molecular biology (Clifton, N.J.)*
Sun, W.
2022; 2448: 291-306
- **Local acetate inhibits brown adipose tissue function.** *Proceedings of the National Academy of Sciences of the United States of America*
Sun, W., Dong, H., Wolfrum, C.
2021; 118 (49)
- **Fat for heat.** *Science (New York, N.Y.)*
Sun, W.
2021; 374 (6571): 1066
- **Plasticity and heterogeneity of thermogenic adipose tissue** *NATURE METABOLISM*
Sun, W., Modica, S., Dong, H., Wolfrum, C.
2021; 3 (6): 751-761
- **snRNA-seq reveals a subpopulation of adipocytes that regulates thermogenesis** *NATURE*
Sun, W., Dong, H., Balaz, M., Slyper, M., Drokhlyansky, E., Colleluori, G., Giordano, A., Kovanicova, Z., Stefanicka, P., Balazova, L., Ding, L., Husted, A., Rudofsky, et al
2020; 587 (7832): 98-+
- **Environmental and Nutritional Effects Regulating Adipose Tissue Function and Metabolism Across Generations** *ADVANCED SCIENCE*
Sun, W., von Meyenn, F., Peleg-Raibstein, D., Wolfrum, C.
2019; 6 (11): 1900275
- **Fat cells with a sweet tooth** *NATURE*
Sun, W., Wolfrum, C.
2019; 565 (7738): 167-168
- **Cold-induced epigenetic programming of the sperm enhances brown adipose tissue activity in the offspring** *NATURE MEDICINE*
Sun, W., Dong, H., Becker, A. S., Dapito, D. H., Modica, S., Grandl, G., Opitz, L., Efthymiou, V., Straub, L. G., Sarker, G., Balaz, M., Balazova, L., Perdikari, et al
2018; 24 (9): 1372-+
- **Adipocyte p53 coordinates the response to intermittent fasting by regulating adipose tissue immune cell landscape.** *Nature communications*
Reinisch, I., Michenthaler, H., Sulaj, A., Moyschewitz, E., Krstic, J., Galhuber, M., Xu, R., Riahi, Z., Wang, T., Vujic, N., Amor, M., Zenezini Chiozzi, R., Wabitsch, et al
2024; 15 (1): 1391
- **Alternative splicing of latrophilin-3 controls synapse formation.** *Nature*
Wang, S., DeLeon, C., Sun, W., Quake, S. R., Roth, B. L., Südhof, T. C.
2024
- **Laminin #4 Expression in Human Adipose Tissue Depots and Its Association with Obesity and Obesity Related Traits.** *Biomedicines*
Hagemann, T., Czechowski, P., Ghosh, A., Sun, W., Dong, H., Noć, F., Wolfrum, C., Blüher, M., Hoffmann, A.
2023; 11 (10)
- **The obesity-linked human lncRNA AATBC stimulates mitochondrial function in adipocytes.** *EMBO reports*
Giroud, M., Kotschi, S., Kwon, Y., Le Thuc, O., Hoffmann, A., Gil-Lozano, M., Karbiener, M., Higareda-Almaraz, J. C., Khani, S., Tews, D., Fischer-Posovszky, P., Sun, W., Dong, et al
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- **Effect of high-dose glucocorticoid treatment on human brown adipose tissue activity: a randomised, double-blinded, placebo-controlled cross-over trial in healthy men.** *EBioMedicine*
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- **Inhibition of AXL receptor tyrosine kinase enhances brown adipose tissue functionality in mice.** *Nature communications*
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- **Adipogenic and SWAT cells separate from a common progenitor in human brown and white adipose depots.** *Nature metabolism*
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2023
- **Monoallelic intragenic POU3F2 variants lead to neurodevelopmental delay and hyperphagic obesity, confirming the gene's candidacy in 6q16.1 deletions.** *American journal of human genetics*
Schönauer, R., Jin, W., Findeisen, C., Valenzuela, I., Devlin, L. A., Murrell, J., Bedoukian, E. C., Pöschla, L., Hantmann, E., Riedhammer, K. M., Hoefele, J., Platzer, K., Biemann, et al
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- **Obesity Is Associated with Distorted Proteoglycan Expression in Adipose Tissue.** *International journal of molecular sciences*
Meen, A. J., Doncheva, A. I., Böttcher, Y., Dankel, S. N., Hoffmann, A., Blüher, M., Fernø, J., Mellgren, G., Ghosh, A., Sun, W., Dong, H., Noé, F., Wolfrum, et al
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- **A low-carbohydrate diet induces hepatic insulin resistance and metabolic associated fatty liver disease in mice.** *Molecular metabolism*
Long, F., Bhatti, M. R., Kellenberger, A., Sun, W., Modica, S., Höring, M., Liebisch, G., Krieger, J. P., Wolfrum, C., Challa, T. D.
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- **Genetic variants in genes involved in creatine biosynthesis in patients with severe obesity or anorexia nervosa.** *Frontiers in genetics*
Rajcsanyi, L. S., Hoffmann, A., Ghosh, A., Matrisch-Dinkler, B., Zheng, Y., Peters, T., Sun, W., Dong, H., Noe, F., Wolfrum, C., Herpertz-Dahlmann, B., Seitz, J., de Zwaan, et al
2023; 14: 1128133
- **Single-cell RNA sequencing identifies MFSD2B in megakaryocyte progenitors as a regulator of vascular senescence** *Atherosclerosis*
Saeedi, S., Sun, W., Wang, T., Dong, H., Allemann, M., Lee, P., Wolfrum, C., Beer, J.
2023; 379
- **Spatial and single-cell transcriptomics reveal neuron-astrocyte interplay in long-term memory** *bioRxiv*
Sun, W., Liu, Z., Jiang, X., Chen, M. B., Dong, H., Liu, J., Südhof, T., Quake, S.
2023
- **Myoglobin-mediated lipid shuttling increases adrenergic activation of brown and white adipocyte metabolism and is as a marker of thermogenic adipocytes in humans.** *Clinical and translational medicine*
Christen, L., Broghammer, H., Rapöhn, I., Möhli, K., Strehlau, C., Ribas-Latre, A., Gebhardt, C., Roth, L., Krause, K., Landgraf, K., Körner, A., Rohde-Zimmermann, K., Hoffmann, et al
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- **Architecture of the outbred brown fat proteome defines regulators of metabolic physiology.** *Cell*
Xiao, H., Bozi, L. H., Sun, Y., Riley, C. L., Philip, V. M., Chen, M., Li, J., Zhang, T., Mills, E. L., Emont, M. P., Sun, W., Reddy, A., Garrity, et al
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- **Metabolic reconstitution of germ-free mice by a gnotobiotic microbiota varies over the circadian cycle.** *PLoS biology*
Hoces, D., Lan, J., Sun, W., Geiser, T., Staubli, M. L., Cappio Barazzone, E., Arnoldini, M., Challa, T. D., Klug, M., Kellenberger, A., Nowok, S., Faccin, E., Macpherson, et al
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- **Remission of obesity and insulin resistance is not sufficient to restore mitochondrial homeostasis in visceral adipose tissue.** *Redox biology*
Gonzalez-Franquesa, A., Gama-Perez, P., Kulis, M., Szczepanowska, K., Dahdah, N., Moreno-Gomez, S., Latorre-Pellicer, A., Fernandez-Ruiz, R., Aguilar-Mogas, A., Hoffman, A., Monelli, E., Samino, S., Miro-Blanch, et al
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- **GPR180 is a component of TGF beta signalling that promotes thermogenic adipocyte function and mediates the metabolic effects of the adipocyte-secreted factor CTHRC1** *NATURE COMMUNICATIONS*
Balazova, L., Balaz, M., Horvath, C., Horvath, A., Moser, C., Kovanicova, Z., Ghosh, A., Ghoshdastider, U., Efthymiou, V., Kiehlmann, E., Sun, W., Dong, H., Ding, et al

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- **Lipolysis drives expression of the constitutively active receptor GPR3 to induce adipose thermogenesis** *CELL*
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- **Quantification of adipocyte numbers following adipose tissue remodeling** *CELL REPORTS*
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2021; 35 (4): 109023
- **Peroxisomal β -oxidation acts as a sensor for intracellular fatty acids and regulates lipolysis.** *Nature metabolism*
Ding, L., Sun, W., Balaz, M., He, A., Klug, M., Wieland, S., Caiazzo, R., Raverdy, V., Pattou, F., Lefebvre, P., Lodhi, I. J., Staels, B., Heim, et al
2021; 3 (12): 1648-1661
- **Lysosomal lipoprotein processing in endothelial cells stimulates adipose tissue thermogenic adaptation.** *Cell metabolism*
Fischer, A. W., Jaeckstein, M. Y., Gottschling, K., Heine, M., Sass, F., Mangels, N., Schlein, C., Worthmann, A., Bruns, O. T., Yuan, Y., Zhu, H., Chen, O., Itrich, et al
2021; 33 (3): 547-564.e7
- **ESRRG and PERM1 Govern Mitochondrial Conversion in Brite/Beige Adipocyte Formation** *FRONTIERS IN ENDOCRINOLOGY*
Mueller, S., Perdikari, A., Dapito, D. H., Sun, W., Wollscheid, B., Balaz, M., Wolfrum, C.
2020; 11: 387
- **A Genetic Model to Study the Contribution of Brown and Brite Adipocytes to Metabolism** *CELL REPORTS*
Challa, T. D., Dapito, D. H., Kulenkampff, E., Kiehlmann, E., Moser, C., Straub, L., Sun, W., Wolfrum, C.
2020; 30 (10): 3424-+
- **Antioxidants protect against diabetes by improving glucose homeostasis in mouse models of inducible insulin resistance and obesity** *DIABETOLOGIA*
Straub, L. G., Efthymiou, V., Grandl, G., Balaz, M., Challa, T., Truscello, L., Horvath, C., Moser, C., Rachamin, Y., Arnold, M., Sun, W., Modica, S., Wolfrum, et al
2019; 62 (11): 2094-2105
- **Human brown adipose tissue is phenocopied by classical brown adipose tissue in physiologically humanized mice** *NATURE METABOLISM*
de Jong, J. A., Sun, W., Pires, N. D., Frontini, A., Balaz, M., Jespersen, N. Z., Feizi, A., Petrovic, K., Fischer, A. W., Bokhari, M., Niemi, T., Nuutila, P., Cinti, et al
2019; 1 (8): 830-843
- **Maternal overnutrition programs hedonic and metabolic phenotypes across generations through sperm tsRNAs** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
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2019; 116 (21): 10547-10556
- **Inhibition of Mevalonate Pathway Prevents Adipocyte Browning in Mice and Men by Affecting Protein Prenylation** *CELL METABOLISM*
Balaz, M., Becker, A. S., Balazova, L., Straub, L., Mueller, J., Gashi, G., Maushart, C., Sun, W., Dong, H., Moser, C., Horvath, C., Efthymiou, V., Rachamin, et al
2019; 29 (4): 901-+
- **BATLAS: Deconvoluting Brown Adipose Tissue** *CELL REPORTS*
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2018; 25 (3): 784-+
- **A stromal cell population that inhibits adipogenesis in mammalian fat depots** *NATURE*
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2018; 559 (7712): 103-+
- **Peroxisome Proliferator Activated Receptor Gamma Controls Mature Brown Adipocyte Inducibility through Glycerol Kinase** *CELL REPORTS*
Lasar, D., Rosenwald, M., Kiehlmann, E., Balaz, M., Tall, B., Opitz, L., Lidell, M. E., Zamboni, N., Krznar, P., Sun, W., Varga, L., Stefanicka, P., Ukropec, et al
2018; 22 (3): 760-773
- **Bmp4 Promotes a Brown to White-like Adipocyte Shift** *CELL REPORTS*
Modica, S., Straub, L. G., Balaz, M., Sun, W., Varga, L., Stefanicka, P., Profant, M., Simon, E., Neubauer, H., Ukropcova, B., Ukropec, J., Wolfrum, C.

2016; 16 (8): 2243-2258

- **Dietary ratios of n-6/n-3 polyunsaturated fatty acids during maternal pregnancy affect hippocampal neurogenesis and apoptosis in mouse offspring** *NUTRICION HOSPITALARIA*

Fan, C., Sun, W., Fu, H., Dong, H., Xia, L., Lu, Y., Deckelbaum, R. J., Qi, K.

2015; 32 (3): 1170-1179