

# Stanford

---



## Katrin J Svensson

Assistant Professor of Pathology

### Bio

---

#### BIO

Dr. Svensson received her M.Sc. in Molecular Biology from Lund University in Sweden. She completed her Ph.D. in Oncology at Lund University in the laboratory of Mattias Belting in 2013. Following her Ph.D., she moved to Boston in for her postdoctoral work at the Dana-Farber Cancer Institute and Harvard Medical School, in the lab of Bruce M. Spiegelman, studying mammalian energy metabolism. In 2018, Dr. Svensson was appointed to Assistant Professor in Pathology at Stanford University.

The Svensson Laboratory is dedicated to the discovery of new fundamental pathways of energy regulation. We are using a combination of multi-omics, gene editing and physiology approaches to better understand how to target complex diseases such as aging, metabolic diseases, and cancer.

#### ACADEMIC APPOINTMENTS

- Assistant Professor, Pathology
- Member, Bio-X
- Member, Cardiovascular Institute
- Member, Wu Tsai Neurosciences Institute

#### ADMINISTRATIVE APPOINTMENTS

- Member, MSTP MD-PhD Program, (2020- present)
- Affinity Group Leader, SDRC, Stanford Diabetes Research Center, (2019- present)
- Member, Stanford Diabetes Research Center, (2018- present)
- Member, Cancer Biology Graduate Program, (2018- present)

#### HONORS AND AWARDS

- McCormick and Gabilan Award, Stanford University (2018)
- K99/R00 Pathway to Independence Award, National Institutes of Health, NIDDK (2016-2021)
- SRC Postdoctoral Fellowship, SRC (2013-2016)

#### PROFESSIONAL EDUCATION

- Postdoctoral training, Harvard Medical School and Dana-Farber Cancer Institute (2017)
- Ph.D., Lund University (2012)
- M.S., Lund University (2007)

## PATENTS

- Katrin J Svensson, Bruce M Spiegelman. "United States Patent WO 2017011763 A1 Methods for identification, assessment, prevention, and treatment of metabolic disorders using slit2", Dana-Farber Cancer Institute, Inc., Jun 15, 2016

## LINKS

- Svensson Lab website: <http://www.svenssonlabstanford.org/>
- Google Scholar Profile: <https://scholar.google.com/citations?user=GWsHZo4AAAAJ&hl=en>
- Twitter: <https://twitter.com/SvenssonLab>

## Research & Scholarship

---

### CURRENT RESEARCH AND SCHOLARLY INTERESTS

The Svensson Laboratory is dedicated to the discovery of new fundamental pathways and their applications to complex diseases. We are using a combination of multi-omics, gene editing and physiology approaches to better understand how to target complex diseases such as aging, metabolic diseases, and cancer.

## Teaching

---

### STANFORD ADVISEES

#### Postdoctoral Faculty Sponsor

Yunshin Jung, Meng Zhao

#### Postdoctoral Research Mentor

Yunshin Jung

### GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Cancer Biology (Phd Program)

## Publications

---

### PUBLICATIONS

- **Discovery of Hydrolysis-resistant Isoindoline N-Acyl Amino Acid Analogs that Stimulate Mitochondrial Respiration.** *Journal of medicinal chemistry*  
Lin, H., Long, J. Z., Roche, A. M., Svensson, K. J., Dou, F., Chang, M. R., Strutzenberg, T., Ruiz, C., Cameron, M. D., Novick, S. J., Berdan, C. M., Louie, S., Nomura, et al  
2018
- **Ablation of PM20D1 reveals N-acyl amino acid control of metabolism and nociception.** *Proceedings of the National Academy of Sciences of the United States of America*  
Long, J. Z., Roche, A. M., Berdan, C. A., Louie, S. M., Roberts, A. J., Svensson, K. J., Dou, F. Y., Bateman, L. A., Mina, A. I., Deng, Z., Jedrychowski, M. P., Lin, H., Kamenecka, et al  
2018
- **Metastasis Stimulation by Hypoxia and Acidosis-Induced Extracellular Lipid Uptake Is Mediated by Proteoglycan-Dependent Endocytosis** *CANCER RESEARCH*  
Menard, J. A., Christianson, H. C., Kucharzewska, P., Bourseau-Guilmain, E., Svensson, K. J., Lindqvist, E., Chandran, V. I., Kjellen, L., Welinder, C., Bengzon, J., Johansson, M. C., Belting, M.  
2016; 76 (16): 4828-4840
- **The Secreted Enzyme PM20D1 Regulates Lipidated Amino Acid Uncouplers of Mitochondria** *CELL*  
Long, J. Z., Svensson, K. J., Bateman, L. A., Lin, H., Kamenecka, T., Lokurkar, I. A., Lou, J., Rao, R. R., Chang, M. R., Jedrychowski, M. P., Paulo, J. A., Gygi, S. P., Griffin, et al  
2016; 166 (2): 424-435

- **A Secreted Slit2 Fragment Regulates Adipose Tissue Thermogenesis and Metabolic Function** *CELL METABOLISM*  
Svensson, K. J., Long, J. Z., Jedrychowski, M. P., Cohen, P., Lo, J. C., Serag, S., Kir, S., Shinoda, K., Tartaglia, J. A., Rao, R. R., Chedotal, A., Kajimura, S., Gygi, et al  
2016; 23 (3): 454-466
- **Exosome and microvesicle mediated phene transfer in mammalian cells** *SEMINARS IN CANCER BIOLOGY*  
Christianson, H. C., Svensson, K. J., Belting, M.  
2014; 28: 31-38
- **Meteorin-like Is a Hormone that Regulates Immune-Adipose Interactions to Increase Beige Fat Thermogenesis** *CELL*  
Rao, R. R., Long, J. Z., White, J. P., Svensson, K. J., Lou, J., Lokurkar, I., Jedrychowski, M. P., Ruas, J. L., Wrann, C. D., Lo, J. C., Camera, D. M., Lachey, J., Gygi, et al  
2014; 157 (6): 1279-1291
- **A Smooth Muscle-Like Origin for Beige Adipocytes** *CELL METABOLISM*  
Long, J. Z., Svensson, K. J., Tsai, L., Zeng, X., Roh, H. C., Kong, X., Rao, R. R., Lou, J., Lokurkar, I., Baur, W., Castellot, J. J., Rosen, E. D., Spiegelman, et al  
2014; 19 (5): 810-820
- **Ablation of PRDM16 and Beige Adipose Causes Metabolic Dysfunction and a Subcutaneous to Visceral Fat Switch** *CELL*  
Cohen, P., Levy, J. D., Zhang, Y., Frontini, A., Kolodin, D. P., Svensson, K. J., Lo, J. C., Zeng, X., Ye, L., Khandekar, M. J., Wu, J., Gunawardana, S. C., Banks, et al  
2014; 156 (1-2): 304-316
- **Cancer cell exosomes depend on cell-surface heparan sulfate proteoglycans for their internalization and functional activity** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Christianson, H. C., Svensson, K. J., van Kuppevelt, T. H., Li, J., Belting, M.  
2013; 110 (43): 17380-17385
- **Exosomes reflect the hypoxic status of glioma cells and mediate hypoxia-dependent activation of vascular cells during tumor development** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Kucharzewska, P., Christianson, H. C., Welch, J. E., Svensson, K. J., Fredlund, E., Ringner, M., Morgelin, M., Bourseau-Guilmain, E., Bengzon, J., Belting, M.  
2013; 110 (18): 7312-7317
- **Role of extracellular membrane vesicles in intercellular communication of the tumour microenvironment** *BIOCHEMICAL SOCIETY TRANSACTIONS*  
Svensson, K. J., Belting, M.  
2013; 41: 273-276
- **Exosome uptake depends on ERK1/2-heat shock protein 27 signaling and lipid Raft-mediated endocytosis negatively regulated by caveolin-1.** *J Biol Chem.*  
Svensson, K. J., Christianson, H. C., Witttrup, A., Bourseau-Guilmain, E., Lindqvist, E., Svensson, L. M., Morgelin, M., Belting, M., et al  
2013; 2013 Jun 14;288(24):17713-24.
- **Standardization and Utilization of Biobank Resources in Clinical Protein Science with Examples of Emerging Applications** *JOURNAL OF PROTEOME RESEARCH*  
Marko-Varga, G., Vegvari, A., Welinder, C., Lindberg, H., Rezeli, M., Edula, G., Svensson, K. J., Belting, M., Laurell, T., Fehniger, T. E.  
2012; 11 (11): 5124-5134
- **Dermatan Sulfate Is Involved in the Tumorigenic Properties of Esophagus Squamous Cell Carcinoma** *CANCER RESEARCH*  
Thelin, M. A., Svensson, K. J., Shi, X., Bagher, M., Axelsson, J., Isinger-Ekstrand, A., van Kuppevelt, T. H., Johansson, J., Nilbert, M., Zaia, J., Belting, M., Maccarana, M., Malmstrom, et al  
2012; 72 (8): 1943-1952
- **Chondroitin sulfate expression predicts poor outcome in breast cancer** *INTERNATIONAL JOURNAL OF ONCOLOGY*  
Svensson, K. J., Christianson, H. C., Kucharzewska, P., Fagerstrom, V., Lundstedt, L., Borgquist, S., Jirstrom, K., Belting, M.  
2011; 39 (6): 1421-1428
- **Hypoxia triggers a proangiogenic pathway involving cancer cell microvesicles and PAR-2-mediated heparin-binding EGF signaling in endothelial cells** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Svensson, K. J., Kucharzewska, P., Christianson, H. C., Skold, S., Lofstedt, T., Johansson, M. C., Morgelin, M., Bengzon, J., Ruf, W., Belting, M.  
2011; 108 (32): 13147-13152
- **Heparan sulfate proteoglycan-mediated polyamine uptake.** *Methods in molecular biology (Clifton, N.J.)*

Welch, J., Svensson, K., Kucharzewska, P., Belting, M.  
2011; 720: 327-338

- **Ornithine decarboxylase and extracellular polyamines regulate microvascular sprouting and actin cytoskeleton dynamics in endothelial cells** *EXPERIMENTAL CELL RESEARCH*  
Kucharzewska, P., Welch, J. E., Svensson, K. J., Belting, M.  
2010; 316 (16): 2683-2691
- **Magnetic nanoparticle-based isolation of endocytic vesicles reveals a role of the heat shock protein GRP75 in macromolecular delivery** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Wittrup, A., Zhang, S., Svensson, K. J., Kucharzewska, P., Johansson, M. C., Morgelin, M., Belting, M.  
2010; 107 (30): 13342-13347
- **The polyamines regulate endothelial cell survival during hypoxic stress through PI3K/AKT and MCL-1** *BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS*  
Kucharzewska, P., Welch, J. E., Svensson, K. J., Belting, M.  
2009; 380 (2): 413-418
- **Hypoxia-Mediated Induction of the Polyamine System Provides Opportunities for Tumor Growth Inhibition by Combined Targeting of Vascular Endothelial Growth Factor and Ornithine Decarboxylase** *CANCER RESEARCH*  
Svensson, K. J., Welch, J. E., Kucharzewska, P., Bengtson, P., Bjurberg, M., Pahlman, S., ten Dam, G. B., Persson, L., Belting, M.  
2008; 68 (22): 9291-9301
- **Single chain fragment anti-heparan sulfate antibody targets the polyamine transport system and attenuates polyamine-dependent cell proliferation** *INTERNATIONAL JOURNAL OF ONCOLOGY*  
Welch, J. E., Bengtson, P., Svensson, K., Wittrup, A., Jenniskens, G. J., ten Dam, G. B., van Kuppevelt, T. H., Belting, M.  
2008; 32 (4): 749-756
- **HIV-Tat protein transduction domain specifically attenuates growth of polyamine deprived tumor cells** *MOLECULAR CANCER THERAPEUTICS*  
Mani, K., Sandgren, S., Lilja, J., Cheng, F., Svensson, K., Persson, L., Belting, M.  
2007; 6 (2): 782-788
- **Synthesis and transfection efficiencies of new lipophilic polyamines** *JOURNAL OF MEDICINAL CHEMISTRY*  
Gardner, R. A., Belting, M., Svensson, K., Phanstiel, O.  
2007; 50 (2): 308-318