Stanford

Jan Niklas Hansen

Postdoctoral Scholar, Bioengineering

Publications

PUBLICATIONS

- **A genome-scale CRISPRi perturbation atlas of human induced pluripotent stem cells.** *Nature biotechnology*
  Nourreddine, S., Doctor, Y., Dailamy, A., Lee, Y. H., Hansen, J. N., Chinn, R., Forget, A., Polacco, B., Muralidharan, M., Sigaeva, A., Sunder, S., Pan, E., Gao, et al
  2026

- **A high-resolution spatial map of cilia-associated proteins in the human fallopian tube.** *Nature communications*
  Hikmet, F., Digre, A., Hansen, J. N., Schon, S. B., Lundberg, E., Olovsson, M., Uhlén, M., Méar, L., Lindskog, C.
  2026; 17 (1)

- **Cell shapes decode molecular phenotypes in image-based spatial proteomics.** *Cell systems*
  Le, T., Leineweber, W. D., Viana, M. P., Cesnik, A., Hansen, J. N., Ouyang, W., Rafelski, S. M., Lundberg, E.
  2026: 101589

- **Generative machine learning unlocks the first proteome-wide image of human cells.** *bioRxiv : the preprint server for biology*
  Sun, H., Kahnert, K., Hansen, J. N., Leineweber, W., Li, M., Feng, W., Ballllosera, F., Axelsson, U., Ouyang, W., Lundberg, E.
  2026

- **A High-Resolution Subcellular Map of Proteins in Cells with Motile Cilia.** *Journal of proteome research*
  Bertilsson, F., Hikmet, F., Hansen, J. N., Uhlén, M., Méar, L., Lindskog, C.
  2025

- **Towards the ethical development of functional genomics research.** *Trends in biotechnology*
  Stevens, I., Pacia, D., Hansen, J. N., Parker, J., Payne-Foster, P., Ideker, T., Belisle-Pipon, J., Ravitsky, V.
  2025

- **SubCell: Proteome-aware vision foundation models for microscopy capture single-cell biology.** *bioRxiv : the preprint server for biology*
  Gupta, A., Wefers, Z., Kahnert, K., Hansen, J. N., Misra, M. K., Leineweber, W., Cesnik, A., Lu, D., Axelsson, U., Ballllosera, F., Altman, R. B., Karaletsos, T., Lundberg, et al
  2025

- **Spatiotemporal gene expression and cellular dynamics of the developing human heart.** *Nature genetics*
  Lázár, E., Mauron, R., Andrusivová, Ž., Foyer, J., He, M., Larsson, L., Shakari, N., Salas, S. M., Avenel, C., Sariyar, S., Hansen, J. N., Vicari, M., Czarnewski, et al
  2025

- **Protocol for measuring cilium length using 3D confocal fluorescence microscopy, CiliaQ software, and a quality control pipeline.** *STAR protocols*
  Burgdorf, D., Yüksel, S., Sieckmann, K., Hansen, J. N., Wachten, D., Jurisch-Yaksi, N.
  2025; 6 (4): 104128

- **Intrinsic heterogeneity of primary cilia revealed through spatial proteomics.** *Cell*
  Hansen, J. N., Sun, H., Kahnert, K., Westenius, E., Johannesson, A., Villegas, C., Le, T., Tzavlaki, K., Winsnes, C., Pohjanen, E., Mäkiniemi, A., Fall, J., Ballllosera Navarro, et al
  2025

- **Cell shapes decode molecular phenotypes in image-based spatial proteomics.** *bioRxiv : the preprint server for biology*

Le, T., Leineweber, W. D., Viana, M. P., Cesnik, A., Hansen, J. N., Ouyang, W., Rafelski, S. M., Lundberg, E.
2025

- **MicroVQA: A Multimodal Reasoning Benchmark for Microscopy-Based Scientific Research**
  Burgess, J., Nirschl, J. J., Bravo-Sanchez, L., Lozano, A., Gupte, S., Galaz-Montoya, J. G., Zhang, Y., Su, Y., Bhowmik, D., Coman, Z., Hasan, S. M., Johannesson, A., Leineweber, et al
  IEEE COMPUTER SOC.2025: 19552-19564

- **High-parametric protein maps reveal the spatial organization in early-developing human lung.** *Nature communications*
  Sariyar, S., Sountoulidis, A., Hansen, J. N., Marco Salas, S., Mardamshina, M., Martinez Casals, A., Ballllosera Navarro, F., Andrusivova, Z., Li, X., Czarnewski, P., Lundeberg, J., Linnarsson, S., Nilsson, et al
  2024; 15 (1): 9381

- **AI-readiness for Biomedical Data: Bridge2AI Recommendations.** *bioRxiv : the preprint server for biology*
  Clark, T., Caufield, H., Mohan, J. A., Al Manir, S., Amorim, E., Eddy, J., Gim, N., Gow, B., Goar, W., Haendel, M., Hansen, J. N., Harris, N., Hermjakob, et al
  2024

- **Early AI Lifecycle Co-Reasoning: Ethics Through Integrated and Diverse Team Science.** *The American journal of bioethics : AJOB*
  Pacia, D. M., Ravitsky, V., Hansen, J. N., Lundberg, E., Schulz, W., Bélisle-Pipon, J. C.
  2024; 24 (9): 86-88

- **Morphometric Analyses of Macrophages.** *Methods in molecular biology (Clifton, N.J.)*
  Hansen, J. N.
  2024; 2713: 519-541

- **Cell Maps for Artificial Intelligence: AI-Ready Maps of Human Cell Architecture from Disease-Relevant Cell Lines.** *bioRxiv : the preprint server for biology*
  Clark, T., Mohan, J., Schaffer, L., Obernier, K., Al Manir, S., Churas, C. P., Dailamy, A., Doctor, Y., Forget, A., Hansen, J. N., Hu, M., Lenkiewicz, J., Levinson, et al
  2024

- **Opposing roles of resident and infiltrating immune cells in the defence against Legionella longbeachae via IL-18R/IFN-γ/ROS axis in mice.** *Mucosal immunology*
  Oberkircher, L. M., Scheiding, V. M., Linda Rafeld, H., Hanssen, E., Hansen, J. N., Fleischmann, M. J., Kessler, N., Pitsch, D., Wachten, D., Kastenmüller, W., Brown, A. S., Hartland, E. L., van Driel, et al
  2024

- **Human fertilization in vivo and in vitro requires the CatSper channel to initiate sperm hyperactivation.** *The Journal of clinical investigation*
  Young, S., Schiffer, C., Wagner, A., Patz, J., Potapenko, A., Herrmann, L., Nordhoff, V., Pock, T., Krallmann, C., Stallmeyer, B., Ropke, A., Kierzek, M., Biagioni, et al
  2024; 134 (1)

- **Cylicins are a structural component of the sperm calyx being indispensable for male fertility in mice and human** *ELIFE*
  Schneider, S., Kovacevic, A., Mayer, M., Dicke, A., Arevalo, L., Koser, S. A., Hansen, J. N., Young, S., Brenker, C., Kliesch, S., Wachten, D., Kirfel, G., Struenker, et al
  2023; 12

- **Novel analytical tools reveal that local synchronization of cilia coincides with tissue-scale metachronal waves in zebrafish multiciliated epithelia.** *eLife*
  Ringers, C., Bialonski, S., Ege, M., Solovev, A., Hansen, J. N., Jeong, I., Friedrich, B. M., Jurisch-Yaksi, N.
  2023; 12

- **AdipoQ-a simple, open-source software to quantify adipocyte morphology and function in tissues and in vitro.** *Molecular biology of the cell*
  Sieckmann, K., Winnerling, N., Huebecker, M., Leyendecker, P., Juliana Silva Ribeiro, D., Gnad, T., Pfeifer, A., Wachten, D., Hansen, J. N.
  2022; 33 (12): br22

- **Measurement of ciliary beating and fluid flow in the zebrafish adult telencephalon.** *STAR protocols*
  Jeong, I., Hansen, J. N., Wachten, D., Jurisch-Yaksi, N.
  2022; 3 (3): 101542

- **MotiQ: an open-source toolbox to quantify the cell motility and morphology of microglia.** *Molecular biology of the cell*
  Hansen, J. N., Brückner, M., Pietrowski, M. J., Jikeli, J. F., Plescher, M., Beckert, H., Schnaars, M., Fülle, L., Reitmeier, K., Langmann, T., Förster, I., Boche, D., Petzold, et al
  2022; 33 (11): ar99

- **A cAMP signalosome in primary cilia drives gene expression and kidney cyst formation.** *EMBO reports*
  Hansen, J. N., Kaiser, F., Leyendecker, P., Stüven, B., Krause, J. H., Derakhshandeh, F., Irfan, J., Sroka, T. J., Preval, K. M., Desai, P. B., Kraut, M., Theis, H., Drews, et al
  2022; 23 (8): e54315

- **Cannabinoid receptor 2 is necessary to induce toll-like receptor-mediated microglial activation.** *Glia*
  Reusch, N., Ravichandran, K. A., Olabiyi, B. F., Komorowska-Müller, J. A., Hansen, J. N., Ulas, T., Beyer, M., Zimmer, A., Schmöle, A. C.
  2022; 70 (1): 71-88

- **Diversity and function of motile ciliated cell types within ependymal lineages of the zebrafish brain.** *Cell reports*
  D'Gama, P. P., Qiu, T., Cosacak, M. I., Rayamajhi, D., Konac, A., Hansen, J. N., Ringers, C., Acuña-Hinrichsen, F., Hui, S. P., Olstad, E. W., Chong, Y. L., Lim, C. K., Gupta, et al
  2021; 37 (1): 109775

- **Soluble adenylyl cyclase inhibition prevents human sperm functions essential for fertilization.** *Molecular human reproduction*
  Balbach, M., Ghanem, L., Rossetti, T., Kaur, N., Ritagliati, C., Ferreira, J., Krapf, D., Puga Molina, L. C., Santi, C. M., Hansen, J. N., Wachten, D., Fushimi, M., Meinke, et al
  2021; 27 (9)

- **Nucleo-cytoplasmic shuttling of splicing factor SRSF1 is required for development and cilia function.** *eLife*
  Haward, F., Maslon, M. M., Yeyati, P. L., Bellora, N., Hansen, J. N., Aitken, S., Lawson, J., von Kriegsheim, A., Wachten, D., Mill, P., Adams, I. R., Caceres, J. F.
  2021; 10

- **Multifocal imaging for precise, label-free tracking of fast biological processes in 3D.** *Nature communications*
  Hansen, J. N., Gong, A., Wachten, D., Pascal, R., Turpin, A., Jikeli, J. F., Kaupp, U. B., Alvarez, L.
  2021; 12 (1): 4574

- **Cannabinoid receptor 1 signalling modulates stress susceptibility and microglial responses to chronic social defeat stress.** *Translational psychiatry*
  Beins, E. C., Beiert, T., Jenniches, I., Hansen, J. N., Leidmaa, E., Schrickel, J. W., Zimmer, A.
  2021; 11 (1): 164

- **CiliaQ: a simple, open-source software for automated quantification of ciliary morphology and fluorescence in 2D, 3D, and 4D images.** *The European physical journal. E, Soft matter*
  Hansen, J. N., Rassmann, S., Stüven, B., Jurisch-Yaksi, N., Wachten, D.
  2021; 44 (2): 18

- **Tubulin glycylation controls axonemal dynein activity, flagellar beat, and male fertility.** *Science (New York, N.Y.)*
  Gadadhar, S., Alvarez Viar, G., Hansen, J. N., Gong, A., Kostarev, A., Ialy-Radio, C., Leboucher, S., Whitfield, M., Ziyyat, A., Touré, A., Alvarez, L., Pigino, G., Janke, et al
  2021; 371 (6525)

- **Molecular Mechanism Underlying the Action of Zona-pellucida Glycoproteins on Mouse Sperm.** *Frontiers in cell and developmental biology*
  Balbach, M., Hamzeh, H., Jikeli, J. F., Brenker, C., Schiffer, C., Hansen, J. N., Neugebauer, P., Trötschel, C., Jovine, L., Han, L., Florman, H. M., Kaupp, U. B., Strünker, et al
  2020; 8: 572735

- **Cfap97d1 is important for flagellar axoneme maintenance and male mouse fertility.** *PLoS genetics*
  Oura, S., Kazi, S., Savolainen, A., Nozawa, K., Castañeda, J., Yu, Z., Miyata, H., Matzuk, R. M., Hansen, J. N., Wachten, D., Matzuk, M. M., Prunskaite-Hyyryläinen, R.
  2020; 16 (8): e1008954

- **Nanobody-directed targeting of optogenetic tools to study signaling in the primary cilium.** *eLife*
  Hansen, J. N., Kaiser, F., Klausen, C., Stüven, B., Chong, R., Bönigk, W., Mick, D. U., Möglich, A., Jurisch-Yaksi, N., Schmidt, F. I., Wachten, D.
  2020; 9

- **Reduced sialylation triggers homeostatic synapse and neuronal loss in middle-aged mice.** *Neurobiology of aging*
  Klaus, C., Hansen, J. N., Ginolhac, A., Gérard, D., Gnanapragassam, V. S., Horstkorte, R., Rossdam, C., Buettner, F. F., Sauter, T., Sinkkonen, L., Neumann, H., Linnartz-Gerlach, B.
  2020; 88: 91-107

- **Elucidating cyclic AMP signaling in subcellular domains with optogenetic tools and fluorescent biosensors.** *Biochemical Society transactions*
  Klausen, C., Kaiser, F., Stüven, B., Hansen, J. N., Wachten, D.
  2019; 47 (6): 1733-1747

- **Exacerbation of C1q dysregulation, synaptic loss and memory deficits in tau pathology linked to neuronal adenosine A2A receptor.** *Brain : a journal of neurology*
  Carvalho, K., Faivre, E., Pietrowski, M. J., Marques, X., Gomez-Murcia, V., Deleau, A., Huin, V., Hansen, J. N., Kozlov, S., Danis, C., Temido-Ferreira, M., Coelho, J. E., Mériaux, et al
  2019; 142 (11): 3636-3654

- **Neural sphingosine 1-phosphate accumulation activates microglia and links impaired autophagy and inflammation.** *Glia*
  Karunakaran, I., Alam, S., Jayagopi, S., Frohberger, S. J., Hansen, J. N., Kuehlwein, J., Hölbling, B. V., Schumak, B., Hübner, M. P., Gräler, M. H., Halle, A., van Echten-Deckert, G.
  2019; 67 (10): 1859-1872

- **Revisiting and Redesigning Light-Activated Cyclic-Mononucleotide Phosphodiesterases.** *Journal of molecular biology*
  Stabel, R., Stüven, B., Hansen, J. N., Körschen, H. G., Wachten, D., Möglich, A.
  2019; 431 (17): 3029-3045

- **Cyclic Nucleotide-Specific Optogenetics Highlights Compartmentalization of the Sperm Flagellum into cAMP Microdomains.** *Cells*
  Raju, D. N., Hansen, J. N., Rassmann, S., Stüven, B., Jikeli, J. F., Strünker, T., Körschen, H. G., Möglich, A., Wachten, D.
  2019; 8 (7)

- **Species-specific differences in nonlysosomal glucosylceramidase GBA2 function underlie locomotor dysfunction arising from loss-of-function mutations.** *The Journal of biological chemistry*
  Woeste, M. A., Stern, S., Raju, D. N., Grahn, E., Dittmann, D., Gutbrod, K., Dörmann, P., Hansen, J. N., Schonauer, S., Marx, C. E., Hamzeh, H., Körschen, H. G., Aerts, et al
  2019; 294 (11): 3853-3871

- **Ciliary Beating Compartmentalizes Cerebrospinal Fluid Flow in the Brain and Regulates Ventricular Development.** *Current biology : CB*
  Olstad, E. W., Ringers, C., Hansen, J. N., Wens, A., Brandt, C., Wachten, D., Yaksi, E., Jurisch-Yaksi, N.
  2019; 29 (2): 229-241.e6

- **SpermQ#A Simple Analysis Software to Comprehensively Study Flagellar Beating and Sperm Steering.** *Cells*
  Hansen, J. N., Rassmann, S., Jikeli, J. F., Wachten, D.
  2018; 8 (1)

- **CCL17 exerts a neuroimmune modulatory function and is expressed in hippocampal neurons.** *Glia*
  Fülle, L., Offermann, N., Hansen, J. N., Breithausen, B., Erazo, A. B., Schanz, O., Radau, L., Gondorf, F., Knöpper, K., Alferink, J., Abdullah, Z., Neumann, H., Weighardt, et al
  2018; 66 (10): 2246-2261

- **Plaque-dependent morphological and electrophysiological heterogeneity of microglia in an Alzheimer's disease mouse model.** *Glia*
  Plescher, M., Seifert, G., Hansen, J. N., Bedner, P., Steinhäuser, C., Halle, A.
  2018; 66 (7): 1464-1480

- **Shedding light on the role of cAMP in mammalian sperm physiology.** *Molecular and cellular endocrinology*
  Balbach, M., Beckert, V., Hansen, J. N., Wachten, D.
  2018; 468: 111-120

- **Cannabinoid Receptor 2-Deficiency Ameliorates Disease Symptoms in a Mouse Model with Alzheimer's Disease-Like Pathology.** *Journal of Alzheimer's disease : JAD*
  Schmöle, A. C., Lundt, R., Toporowski, G., Hansen, J. N., Beins, E., Halle, A., Zimmer, A.
  2018; 64 (2): 379-392

- **P2Y1 receptor blockade normalizes network dysfunction and cognition in an Alzheimer's disease model.** *The Journal of experimental medicine*

  Reichenbach, N., Delekate, A., Breithausen, B., Keppler, K., Poll, S., Schulte, T., Peter, J., Plescher, M., Hansen, J. N., Blank, N., Keller, A., Fuhrmann, M., Henneberger, et al

  2018; 215 (6): 1649-1663