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Qualifications

Neurosciences, PhD, University of Oldenburg
Award Date: 7 Jun 2012

2018 → ... Full Member Anatomical Society

2016 → ... Full Member Physiological Society

Employment

Senior Lecturer

Applied Sciences
Northumbria University
1 May 2020 → present

Research outputs

Transplanted pluripotent stem cell-derived photoreceptor precursors elicit conventional and unusual light responses in mice with advanced retinal degeneration

Zerti, D., Hilgen, G., Dorgau, B., Collin, J., Ader, M., Armstrong, L., Sernagor, E. & Lako, M., 3 Mar 2021, In: Stem Cells.

Room temperature shipment does not affect the biological activity of pluripotent stem cell-derived retinal organoids

Georgiou, M., Chichagova, V., Hilgen, G., Dorgau, B., Sernagor, E., Armstrong, L. & Lako, M., 1 Jun 2020, In: PLoS One. 15, 6, e0233860.

Human iPSC differentiation to retinal organoids in response to IGF1 and BMP4 activation is line- and method-dependent

Chichagova, V., Hilgen, G., Ghareeb, A., Georgiou, M., Carter, M., Sernagor, E., Lako, M. & Armstrong, L., 1 Feb 2020, In: Stem Cells. 38, 2, p. 195-201 7 p.

Challenges for automated spike sorting: beware of pharmacological manipulations

Hilgen, G., 30 Nov 2019, In: Arxiv. p. 1-7 7 p., arXiv:1912.00270v1.

Systematic Comparison of Retinal Organoid Differentiation from Human Pluripotent Stem Cells Reveals Stage Specific, Cell Line, and Methodological Differences

Mellough, C. B., Collin, J., Queen, R., Hilgen, G., Dorgau, B., Zerti, D., Felemban, M., White, K., Sernagor, E. & Lako, M., 1 Jul 2019, In: Stem cells translational medicine. 8, 7, p. 694-706 13 p.

Decellularised extracellular matrix-derived peptides from neural retina and retinal pigment epithelium enhance the expression of synaptic markers and light responsiveness of human pluripotent stem cell derived retinal organoids

Dorgau, B., Felemban, M., Hilgen, G., Kiening, M., Zerti, D., Hunt, N. C., Doherty, M., Whitfield, P., Hallam, D., White, K., Ding, Y., Krasnogor, N., Al-Aama, J., Asfour, H. Z., Sernagor, E. & Lako, M., 1 Apr 2019, In: Biomaterials. 199, p. 63-75 13 p.

Non-parametric physiological classification of retinal ganglion cells in the mouse retina

Jouty, J., Hilgen, G., Sernagor, E. & Hennig, M. H., 7 Dec 2018, In: Frontiers in Cellular Neuroscience. 12, 481.

Disrupted alternative splicing for genes implicated in splicing and ciliogenesis causes PRPF31 retinitis pigmentosa

Buskin, A., Zhu, L., Chichagova, V., Basu, B., Mozaffari-Jovin, S., Dolan, D., Droop, A., Collin, J., Bronstein, R., Mehrotra, S., Farkas, M., Hilgen, G., White, K., Pan, K. T., Treumann, A., Hallam, D., Bialas, K., Chung, G., Mellough, C., Ding, Y. &

22 others, Krasnogor, N., Przyborski, S., Zwolinski, S., Al-Aama, J., Alharthi, S., Xu, Y., Wheway, G., Szymanska, K., McKibbin, M., Inglehearn, C. F., Elliott, D. J., Lindsay, S., Ali, R. R., Steel, D. H., Armstrong, L., Sernagor, E., Urlaub, H., Pierce, E., Lührmann, R., Grellscheid, S. N., Johnson, C. A. & Lako, M., 1 Dec 2018, In: *Nature Communications*. 9, 1, 4234.

Effects of Touch Location and Intensity on Interneurons of the Leech Local Bend Network

Pirschel, F., Hilgen, G. & Kretzberg, J., 1 Dec 2018, In: *Scientific Reports*. 8, 1, 3046.

Human-Induced Pluripotent Stem Cells Generate Light Responsive Retinal Organoids with Variable and Nutrient-Dependent Efficiency

Hallam, D., Hilgen, G., Dorgau, B., Zhu, L., Yu, M., Bojic, S., Hewitt, P., Schmitt, M., Uteng, M., Kustermann, S., Steel, D., Nicholds, M., Thomas, R., Treumann, A., Porter, A., Sernagor, E., Armstrong, L. & Lako, M., 1 Oct 2018, In: *Stem Cells*. 36, 10, p. 1535-1551 17 p.

Higher network activity induced by tactile compared to electrical stimulation of leech mechanoreceptors

Fathiazar, E., Hilgen, G. & Kretzberg, J., 7 Mar 2018, In: *Frontiers in Physiology*. 9, 173.

Automatic segmentation of neurons from fluorescent microscopy imaging

Baglietto, S., Kepiro, I. E., Hilgen, G., Sernagor, E., Murino, V. & Sona, D., 1 Jan 2018, *Biomedical Engineering Systems and Technologies - 10th International Joint Conference, BIOSTEC 2017, Revised Selected Papers*. Ali, H. H., Peixoto, N., Silveira, M., van den Broek, E. L. & Maciel, C. (eds.). Cham: Springer, p. 121-133 13 p. (Communications in Computer and Information Science; vol. 881).

Unsupervised Spike Sorting for Large-Scale, High-Density Multielectrode Arrays

Hilgen, G., Sorbaro, M., Pirmoradian, S., Muthmann, J. O., Kepiro, I. E., Ullo, S., Ramirez, C. J., Puente Encinas, A., Maccione, A., Berdondini, L., Murino, V., Sona, D., Cella Zancacchi, F., Sernagor, E. & Hennig, M. H., 7 Mar 2017, In: *Cell Reports*. 18, 10, p. 2521-2532 12 p.

Pan-retinal characterisation of Light Responses from Ganglion Cells in the Developing Mouse Retina

Hilgen, G., Pirmoradian, S., Pamplona, D., Kornprobst, P., Cessac, B., Hennig, M. H. & Sernagor, E., Mar 2017, In: *Scientific Reports*. 7, 42330.

Segmentation of retinal ganglion cells from fluorescent microscopy imaging

Baglietto, S., Kepiro, I. E., Hilgen, G., Sernagor, E., Murino, V. & Sona, D., 2017, *BIOIMAGING 2017 - 4th International Conference on Bioimaging, Proceedings: Part of 10th International Joint Conference on Biomedical Engineering Systems and Technologies, BIOSTEC 2017*. Fred, A., Silveira, M., Gamboa, H. & Vaz, M. (eds.). Scitepress, p. 17-23 7 p. (BIOIMAGING 2017 - 4th International Conference on Bioimaging, Proceedings; Part of 10th International Joint Conference on Biomedical Engineering Systems and Technologies, BIOSTEC 2017; vol. 2017-January).

Dampening spontaneous activity improves the light sensitivity and spatial acuity of optogenetic retinal prosthetic responses

Barrett, J. M., Hilgen, G. & Sernagor, E., Dec 2016, In: *Scientific Reports*. 6, p. 1-19 19 p., 33565.

Encoding of tactile stimuli by mechanoreceptors and interneurons of the medicinal leech

Kretzberg, J., Pirschel, F., Fathiazar, E. & Hilgen, G., 28 Oct 2016, In: *Frontiers in Physiology*. 7, 506.

Rank order coding: A retinal information decoding strategy revealed by large-scale multielectrode array retinal recordings

Portelli, G., Barrett, J. M., Hilgen, G., Masquelier, T., Maccione, A., Di Marco, S., Berdondini, L., Kornprobst, P. & Sernagor, E., 3 Jun 2016, In: *eNeuro*. 3, 3, p. 1-18 18 p., e0134-15.2016.

All amacrine cells discriminate between heterocellular and homocellular locations when assembling connexin36-containing gap junctions

Meyer, A., Hilgen, G., Dorgau, B., Sammler, E. M., Weiler, R., Monyer, H., Dedek, K. & Hormuzdi, S. G., 15 Mar 2014, In: *Journal of Cell Science*. 127, 6, p. 1190-1202 13 p.

Lack of the Sodium-Driven Chloride Bicarbonate Exchanger NCBE Impairs Visual Function in the Mouse Retina

Hilgen, G., Huebner, A. K., Tanimoto, N., Sothilingam, V., Seide, C., Garrido, M. G., Schmidt, K. F., Seeliger, M. W., Löwel, S., Weiler, R., Hübner, C. A. & Dedek, K., 9 Oct 2012, In: PLoS One. 7, 10, 15 p., e46155.

Subcellular distribution of connexin45 in OFF bipolar cells of the mouse retina

Hilgen, G., Von Maltzahn, J., Willecke, K., Weiler, R. & Dedek, K., 15 Feb 2011, In: Journal of Comparative Neurology. 519, 3, p. 433-450 18 p.

Connexin57 is expressed in dendro-dendritic and axo-axonal gap junctions of mouse horizontal cells and its distribution is modulated by light

Janssen-Bienhold, U., Trümpler, J., Hilgen, G., Schultz, K., De Sevilla Muller, L. P., Sonntag, S., Dedek, K., Dirks, P., Willecke, K. & Weiler, R., 1 Apr 2009, In: Journal of Comparative Neurology. 513, 4, p. 363-374 12 p.