Gerrit Hilgen
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Qualifications

Neurosciences, PhD, Expression and functional role of the solute carrier NCBE and the gap junction proteins connexin45 and connexin57 in the mouse retina, University of Oldenburg
Award Date: 7 Jun 2012

2022 → … Full Member Royal Society of Biology

2021 → … Fellow of the Higher Education Academy, FHEA

2018 → … Full Member Anatomical Society

2016 → … Full Member Physiological Society

Employment

Associate Professor

Applied Sciences Department

Northumbria University

1 May 2020 → present

Research outputs

Receptive field estimation in large visual neuron assemblies using a super-resolution approach
Pamplona, D., Hilgen, G., Hennig, M. H., Cessac, B., Sernagor, E. & Kornprobst, P., 1 May 2022, In: Journal of Neurophysiology. 127, 5, p. 1334-1347 14 p.

Connexin45 colocalization patterns in the plexiform layers of the developing mouse retina
Hilgen, G., 21 Mar 2022, (E-pub ahead of print) In: Journal of Anatomy. p. 1-7 7 p.

Human Retinal Organoids Provide a Suitable Tool for Toxicological Investigations: a Comprehensive Validation Using Drugs and Compounds Affecting the Retina
Dorgau, B., Georgiou, M., Chaudhary, A., Moya-Molina, M., Collin, J., Queen, R., Hilgen, G., Davey, T., Hewitt, P., Schmitt, M., Kustermann, S., Pognan, F., Steel, D. H., Sernagor, E., Armstrong, L. & Lako, M., 17 Mar 2022, In: Stem cells translational medicine. 11, 2, p. 159-177 19 p.

A novel approach to the functional classification of retinal ganglion cells
Hilgen, G., Kartsaki, E., Kartysh, V., Cessac, B. & Sernagor, E., Mar 2022, In: Open Biology. 12, 3, p. 1-14 14 p., 210367.

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, (E-pub ahead of print) 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, 7 p.

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 othersKrasnogor, 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.

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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).

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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.

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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.

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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.

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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.