**Josien Levenga, PhD**

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**SUMMARY**

* Experience with science within a business environment. Expert in molecular biology, behavioral testing, imaging, and electrophysiological techniques in animal and cell culture models
* Leader in neuroscience research area and interested in wide range of research aimed at alleviating neurological and psychiatric disorders, such as autism, fragile X syndrome, Down syndrome, and Alzheimer’s disease
* Significant experience in nutritional interventions, especially early life nutrition
* Self-motivated and productive, managed multiple projects and collaborations, with a record of scientific publications
* Strong organizational, analytical and communication skills.

**EDUCATION**

2010 Ph.D. Clinical Genetics Erasmus University, Netherlands

2005 M.Sc. Medical Biology University of Groningen, Netherlands

**SKILLS**

Cell culture, induced pluripotent stem cells (iPSC), molecular cloning, qPCR, western blotting, immunohistochemistry, immunocytochemistry, (confocal) microscopy, ELISA, enzymatic assays, tissue sectioning, tissue isolation, tissue dissection, diet formulations, transcardial perfusion, mouse genetics and colony management, mouse behavior assays, stereotaxic surgery, electrophysiology, SPSS

**PROFESSIONAL EXPERIENCE**

**Principal Investigator, Neuroscience, Bolder BioPATH Inc** Feb 2020-Present

Boulder, Colorado, USA

* Manage and conduct preclinical efficacy studies related to the central nervous system and nutrition

**Sr Scientist, DSM Nutritional Products, Early Life Nutrition Segment** Aug 2019- Jan 2020

**Scientist, DSM Nutritional Products, Early Life Nutrition Segment** 2017- Aug 2019

Boulder, Colorado, USA

* Lead multiple projects that involves early life nutrition concepts. This includes examining the effect of new ingredients or a blend of ingredients on brain, intestine or immune development
* Introduced a new screening platform using induced pluripotent stem cells (iPSC)
* Supervise associate scientists
* Connected globally with internal and external stakeholders

**Postdoctoral Fellow and Research Associate** 2011-2017

New York University, Department of Physiology and Neuroscience, Smilow Neuroscience Program

Continued studies at Institute for Behavioral Genetics, University of Colorado Boulder

* Lead multiple research projects that examine various signaling pathways involved in brain function and disorders, sleep abnormalities in Down syndrome, Alzheimer’s disease, memory formation, and addiction
* Design and validate molecular reporter tools using cell culture and microscopy techniques, such as primary neuronal culture, FRET-based imaging, and live imaging
* Supervise lab technicians and mouse colony of 10+ strains
* Mentored lab members ranging from high school students to Ph.D. candidates
* Wrote grant applications and manuscripts for publication

**Dissertation**, Dr. Ben Oostra and Dr. Rob Willemsen 2006-2010

Erasmus University, Rotterdam, the Netherlands

* Managed several projects focused around fragile X syndrome, from molecular mechanisms of FMRP protein in neurons, behavioral analysis and experimental interventions to improve FXS phenotypes
* Acquired proficiency in molecular cloning, gene transfection/transduction, primary neuronal cultures, confocal imaging, and mouse behavior assays
* Developed strong written and verbal skills in scientific communication through grant writing, presentations, and publications, including my thesis: *Potential therapeutic interventions for fragile X syndrome*

**Master thesis,** Dr. Olivier Raineteau 2005

University of Cambridge, Centre for Brain Repair, United Kingdom

* Acquired proficiency in tissue dissection, organotypic slice culture, immunohistology, microscopy
* Studied the effect of inosine on axonal regeneration
* Developed written and verbal skills in scientific communication by writing and presenting data acquired during this research project

**Undergraduate Research**, Dr. Sjef Copray 2004

University Medical Centre Groningen, Department of Medical Physiology, the Netherlands

* Acquired proficiency in neural stem cell culture, immunostaining, PCR
* Studied the use of transcription factor Olig2 on in-vitro differentiation of Neural Stem Cells into Mature Oligodendrocytes.

**AWARDS AND FELLOWSHIPS**

2014 Sie Foundation Postdoctoral research fellowship

2013 Excellence in Research Award, Postdoc Research day, NYU School of Medicine

2012 Alzheimer’s Drug Discovery Foundation Young Investigator Scholarship

 Travel Fellowship grant Alzheimer’s Association International Conference, Vancouver

2007-2010 Travel grants “Vereniging Trustfonds Erasmus University Rotterdam”

 Travel grants “Stichting Simonsfonds”, the Netherlands

2007 Award for best presentation, Genetic Retraite ZonMW, the Netherlands

 Award for best poster presentation, 14th MGC PhD Student Workshop

2003 Accepted for “Topmaster Research School of Behavioural and Cognitive Neurosciences, University of Groningen, the Netherlands

**PUBLICATIONS**

**Levenga J,** Peterson DJ, Cain P, Hoeffer CA (2018). Sleep behavior and EEG oscillations in aged DP(16)1Yey/+ Mice: A Down Syndrome Model. *Neuroscience*, Apr 15;376:117-126

**Levenga J,** Wong H, Milstead RA, Keller BN, LaPlante LE, Hoeffer CA (2017). AKT isoforms have distinct hippocampal expression and roles in synaptic plasticity. *eLife*. 6:e30640.

Koukouli F, Rooy M, Tziotis D, Sailor KA, O’Neill H, **Levenga J,** Witte M, Nilges M, Changeux JP, Hoeffer C, Stitzel JA, Gutkin B, DiGregorio DA & Maskos U (2017). Nicotin reverses hypofrontality in animal models of addiction and schizophrenia. *Nature Medicine*, 23 (3), 347-354

Congdon EE, Lin Y, Rajamohamedsait HB, Shamir DB, Krishnaswamy S, Rajamohamedsait WJ, Rasool S, Gonzalez V, **Levenga J,** Gu J, Hoeffer C, Sigurdsson EM (2016). Affinity of Tau antibodies for solubilizxed pathological Tau species but not their immunogen or insoluble Tau aggregates predicts in vivo and ex vivo efficacy. *Molecular Neurodegeneration*, Aug30;11(1):62

Wong H, **Levenga J**, Cain P, Rothermel B, Klann E, Hoeffer CA (2015). RCAN1 overexpression promotes age-dependent mitochondrial dysregulation related to neurodegeneration in Alzheimer’s disease. *Acta Neuropathologica.* 130:829-843.

**Levenga J**, Krishnamurthy P, Rajamohamedsait H, Wong H, Franke TF, Cain P, Sigurdsson EM, Hoeffer CA (2013). Tau pathology induces loss of GABAergic interneurons leading to altered synaptic plasticity and behavioral impairments. *Acta Neuropathol Commun*. Jul 11;1-34.

Hoeffer CA, Wong H, Cain P, Cowansage K, **Levenga J,** Steindam C, Majmundar N, McMillan RD, Monfils MH, Rothermel B, Klann E (2013). Regulator of Calcineurin 1 (RCAN1) modulates expression of innate anxiety and anxiogenic responses to selective serotonin reuptake inhibitor (SSRI) treatment. *J Neurosci.* 33:16930-44.

Pop AS, **Levenga J**, de Esch CE, Buijsen RA, Nieuwenhuizen IM, Li t, Isaacs A, Gasparini F, Oostra BA, Willemsen R (2014). Rescue of dendritic spine phenotype in Fmr1 KO mice with the mGluR antagonist AFQ056/Mavoglurant. *Psychopharmacology*, Mar;231(6):1227-35

**Levenga J,** Willemsen R (2012). Perturbation of dendritic protrusions in intellectual disability. *Progress in brain research*; 197:153-68

Willemsen R, **Levenga J,** Oostra BA (2011). CGG repeat in the FMR1 gene: size matters. *Clinical Genetics,* Sep;80(3):214-25

**Levenga J,** de Vrij FM, Buijsen RA, Li T, Nieuwenhuizen IM, Pop A, Oostra BA, Willemsen R (2011). Subregion-specific dendritic spine abnormalities in the hippocampus of Fmr1 KO mice. *Neurobiology of Learning and Memory,* May;95(4):467-72

**Levenga J,** Hayashi S, de Vrij FM, Koekkoek SK, van der Linde HC, Nieuwenhuizen I, Song C, Buijsen RA, Pop AS, Gomezmancilla b, Nelson DL, Willemsen R, Gasparini F, Oostra BA (2011). AFQ056, a new mGluR5 antagonist for treatment of fragile X syndrome. *Neurobiology of Disease,* Jun;42(3):311-7

**Levenga J,** de Vrij FM, Oostra BA, Willemsen R (2010). Potential therapeutic interventions for fragile X syndrome. *Trends in Molecular Medicine*, Nov;16(11):516-27

**Levenga J,** Buijsen RA, Rife M, Moine H, Nelson DL, Oostra BA, Willemsen R, de Vrij FM (2009). Ultrastructural analysis of the functional domains in FMRP using primary hippocampal mouse neurons. *Neurobiology of disease,* Aug;35(2):241-50

De Vrij FM, **Levenga J,** van der Linde HC, Koekkoek SK, De Zeeuw CI, Nelson DL, Oostra BA, Willemsen (2008). Rescue of behavioral phenotype and neuronal protrusion morphology in Fmr1 KO mice. *Neurobiology of Disease,* Jul;31(1):127-32

Copray S, Balasubramaniyan V, **Levenga J,** de Bruijn J, Liem R, Boddeke E (2006). Olig2 overexpression induces the in vitro differentiation of neural stem cells into mature oligodendrocytes. *Stem Cells,* Apr;24(4):1001-10

**PRESENTATIONS**

Wong H, **Levenga J,** Ardizzone C, Hoeffer CA. “RCAN1 overexpression and mitochondrial dysfunction.” Society for Neuroscience Meeting 2019, Chicago, IL (Poster)

Milstead R, Wong H, **Levenga J**, Hoeffer CA. “Immunohistological examination of AKT isoforms in the brain.” Society for Neuroscience Meeting 2019, Chicago, IL (Poster)

Wong H, **Levenga J**, Hoeffer CA. “Investigating non-canonical protein synthesis in neurons.” Society for Neuroscience Meeting 2018, San Diego, CA (Poster)

Milstead R, **Levenga J**, Wong H, Hoeffer CA. “Role of AKT isoforms in reactive astrogliosis.” Society for Neuroscience Meeting 2018, San Diego, CA (Poster)

Wong H, **Levenga J**, Hoeffer CA. “Investigating non-canonical protein synthesis in neurons.” State of the Brain: Genetic Dissection of Brain Circuits and Behavior in Health and Disease Symposium 2018, Keystone, CO (Poster)

**Levenga J**, Wong H, Hoeffer CA. “AKT isoforms have distinct roles in synaptic plasticity.” Society for Neuroscience Meeting 2017, Washington, DC (Poster)

Butt CM, Weiser MJ, Wynalda KM, Grimshaw V, **Levenga J,** Salem N. “Essentiality of arachidonic acid (ARA) and docosahexaenoic acid (DHA) in primary neurons, microglia, astrocytes and oligodendrocytes.” Society for Neuroscience Meeting 2017, Washington, DC (Poster)

Wong H, **Levenga J,** Ardizzone C, Hoeffer CA. “RCAN1 overexpression and mitochondrial dysfunction.” Society for Neuroscience Meeting 2016, San Diego, CA (Poster)

Wong H, **Levenga J**, Rothermel BA, Klann E, Hoeffer CA. “RCAN1 overexpression promotes age-dependent mitochondrial dysregulation related to neurodegeneration.” International Conference on Alzheimer’s Drug Discovery 2016, Jersey City, NJ (Poster)

**Levenga J,** Wong H, Roche M, Sigurdsson EM, Hoeffer CA. “Hippocampal network activity in a mouse model for Down syndrome.” Society for Neuroscience Meeting, 2015, Chicago (Poster)

Wong H, **Levenga J**, Hoeffer CA, Rothermel BA, Klann E. “Age-dependent effects of RCAN1 overexpression on memory and synaptic plasticity.” Society for Neuroscience Meeting, 2015, Chicago (Poster)

**Levenga J,** Helen Wong, Michael Roche, Einar M. Sigurdsson, Charles Hoeffer. “Tau pathology induces loss of GABAergic interneurons leading to altered synaptic plasticity and behavioral impairments.” Annual RMRNG meeting, Denver (Presentation)

Wong H, **Levenga J**, Hoeffer CA, Rothermel BA, Klann E. “Age-dependent effects of RCAN1 overexpression on memory and synaptic plasticity.” Neurodegenerative Diseases: Biology & Therapeutics, Cold Spring Harbor Laboratory Meeting, 2014, Cold Spring Harbor, NY (Poster)

Wong H, **Levenga J**, Hoeffer CA, Rothermel BA, Klann E. “Age-dependent effects of RCAN1 overexpression on memory and synaptic plasticity.” Neurobiology of Brain Disorders Gordon Research Conference, 2014, Barcelona, Spain (Poster)

**Levenga J**, Helen Wong, Charles A. Hoeffer. “Tau pathology promotes age-dependent synaptic and behavioral changes via GABAergic interneuronal dysfunction.” Neurobiology of Brain Disorders Gordon Research Conference, 2014, Barcelona, Spain (Poster)

**Levenga J,** Helen Wong, Charles Hoeffer. “Dissecting differential roles for Akt isoforms in signaling, synaptic plasticity, and behavior”. Society of Neuroscience meeting, Washington DC, USA (Poster)

**Levenga J,** Helen Wong, Charles Hoeffer. “Dissecting differential roles for Akt isoforms in signaling, synaptic plasticity, and behavior”. Molecular and Cellular Cognition Society Meeting, 2014, Washington, DC (Poster)

Wong H, **Levenga J**, Hoeffer CA, Rothermel BA, Klann E. “Age-dependent effects of RCAN1 overexpression on memory and synaptic plasticity.” Society for Neuroscience Meeting, 2014, Washington, DC (Poster)

Wong H, **Levenga J**, Hoeffer CA, Rothermel BA, Klann E. “Age-dependent effects of RCAN1 overexpression on memory and synaptic plasticity.” Molecular and Cellular Cognition Society Meeting, 2014, Washington, DC (Poster)

**Levenga J,** Wong H, Hoeffer C. “Regulator of Calcineurin 1 in aging and hyperexcitability in Down syndrome”. Linda Crnic Symposium, Denver (Presentation)

**Levenga J**, Krishnamurthy P, Rajamohamed Sait HB, Cain P, Sigurdsson EM, and Hoeffer CA. “GABAergic interneuron loss in a mouse model for tau pathology associates with dysregulated synaptic plasticity and behavior”. Society of Neuroscience meeting, San Diego, USA (Poster)

Wong H, **Levenga J**, Hoeffer CA, Rothermel BA, Klann E. “Age-dependent effects of RCAN1 overexpression on memory and synaptic plasticity.” Society for Neuroscience Meeting, 2013, San Diego, CA (Poster)

Wong H, **Levenga J**, Hoeffer CA, Rothermel BA, Klann E. “Age-dependent effects of RCAN1 overexpression on memory and synaptic plasticity.” Molecular and Cellular Cognition Society Meeting, 2013, San Diego, CA (Poster)

**Levenga J**, Krishnamurthy P, Rajamohamed Sait HB, Cain P, Sigurdsson EM, and Hoeffer CA. “GABAergic interneuron loss in a mouse model for tau pathology associates with dysregulated synaptic plasticity and behavior”. Alzheimer’s Drug Discovery Foundation meeting, Jersey City, USA (Poster)

Wong H, **Levenga J**, Rothermel BA, Klann E, Hoeffer CA. “Epigenetic dysregulation via regulator of calcineurin 1 (RCAN1) in Alzheimer’s disease.” Experimental Biology Meeting, 2012, San Diego, CA (Poster)

**Levenga J**, Whelan A, Wong H, Krishnamurthy P, Rajamohamed Sait HB, Sigurdsson EM, and. Hoeffer CA. “Loss of GABAergic interneuron in a mouse model for tau pathology resulting in altered synaptic plasticity and behavior” Society of Neuroscience meeting, New Orleans, USA (Poster)

**Levenga J**, Lo YH, Hoeffer CA, and Franke TF. “Isoform-specific roles of Akt signaling in hippocampal learning and synaptic plasticity.” Society of Neuroscience meeting, New Orleans, USA (Poster)

**Levenga J**, Wong H, Krishnamurthy P, Rajamohamed Sait HB, Sigurdsson EM, and Hoeffer CA. “Loss of GABAergic interneuron in a mouse model for tau pathology resulting in altered synaptic plasticity and behavior”. Alzheimer Association International Conference, Vancouver, Canada (Presentation)

**Levenga J**, de Vrij FMS, Buijsen R, Nelson D, Gasparini F, Willemsen R and Oostra BA. “Experimental approaches towards therapeutic intervention for fragile X syndrome”. Donders Discussion, Nijmegen, The Netherlands (Presentation)

**Levenga J**, de Vrij FMS, Buijsen R, Nelson D, Gasparini F, Willemsen R and Oostra BA. “Effect of treatment of mGluR5 antagonist AFQ056”. FRAXA meeting, Durham, USA (Poster)

**Levenga J**, Buijsen RAM, Willemsen R, Oostra BA, de Vrij FMS. “Ultrastructural analysis of the functional domains in FMRP using primary hippocampal mouse neurons”. 8th Dutch Endo-Neuro-Psycho meeting, 2009 (Poster)

**Levenga J**, de Vrij FMS, Buijsen RAM, Nieuwenhuizen IM, Oostra BA, Willemsen R. “Transport kinetics and mRNA transport of mutant FMRP”. FRAXA meeting, Durham, USA (Poster)

**Levenga J**, de Vrij FMS, Willemsen R, Oostra BA. “Transport kinetics and mRNA transport of mutant FMRP”. 7thDutch Endo-Neuro-Psycho meeting, 2008 (Poster)

de Vrij FMS, **Levenga J,** Oostra BA, Willemsen R. “Rescue of behavioral phenotype and neuronal protrusion morphology in Fmr1 KO mice”. 7thDutch Endo-Neuro-Psycho meeting, 2008 (Poster)

**Levenga J,** de Vrij FMS, Oostra BA, Willemsen R. “Transport kinetics and mRNA transport of mutant FMRP”. 15th MGC PhD student Workshop, Heidelberg, Germany (Presentation)

**Levenga J**, de Vrij FMS, Oostra BA, Willemsen R. “The role of fragile X mental retardation protein in dendritic mRNA transport”. Genetica Retreat, ZonMW, 2008 (Presentation)

**Levenga J**, de Vrij FMS, Oostra BA, Willemsen R. “The role of fragile X mental retardation protein in dendritic mRNA transport and translation”. 14th MGC PhD student Workshop, Maastricht, The Netherlands (Poster)

**Levenga J**, de Vrij FMS, Willemsen R, Oostra BA. "The role of fragile X mental retardation protein in dendritic mRNA transport and translation". Gordon Research Conferences; Dendrites: Molecules, Structure and Function, Ventura, USA (Poster and presentation)

**Levenga J**, de Vrij FMS, Willemsen R, Oostra BA. “The role of fragile X mental retardation protein in dendritic mRNA transport and translation”. Genetica Retraite, ZonMW, The Netherlands (Presentation)

De Vrij FMS., **Levenga J**., Willemsen R., Oostra B.A. “The role of fragile x De Vrij F.M.S., Levenga J., Willemsen R., Oostra B.A. “The role of fragile x mental retardation protein in dendritic mRNA transport and glutamatergic signalling in the brain”. 5th Dutch Endo-Neuro-Psycho meeting, 2006 (Poster)

**TEACHING EXPERIENCE**

2005 *Biology in* *Business and Policy*, University of Groningen, Teaching Assistant

**REVIEW EXPERIENCE**

­­­­­2013 *Journal of Neuroscience* and *Neuroscience,* Ad-hoc Reviewer

**MEMBERSHIPS**

2011- New York Academy of Sciences

2011- Molecular and Cellular Cognition Society

2011- Society for Neuroscience