Angèle Parent, Ph.D.

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Pubmed Link **Google Scholar Link**

I dedicated more than 25 years to investigate mechanisms that affect memory in Alzheimer's disease (AD) patients. My research aimed at understanding the protein machinery involved in memory formation and storage under normal and pathological conditions, focusing on neuronal plasticity. I combined my electrophysiological expertise with molecular/cell biology approaches to better understand the complex mechanisms underlying the memory process using AD mouse models. My laboratory focuses mainly on the mechanisms of neuronal plasticity associated with PS1 and APP expressions and their roles in memory formation and consolidation. In recent years, we investigated the importance of membrane association of APP intracellular domain (mAICD) on memory consolidation and amyloidosis. We identified a novel interaction between mAICD and the heterotrimeric G-protein subunit $G\alpha_s$. We demonstrated that interaction with $G\alpha_s$ and subsequent $G\alpha_s$ coupling to adenylate cyclase are essential for mAICD to induce neurite outgrowth. To achieve constitutive activation of APP signaling, we expressed mAICD using recombinant adeno-associated virus (rAAV) delivered in the brain of AD mouse models. Using this approach, we found that APP possesses autonomous regulatory components within its intracellular domain that precludes Aβ production, facilitates axodendritic development, and preserves intracellular substrates of memory. *These events contribute to strengthen cognitive function.* Our forthcoming studies intend at determining the interplay between PS1, γ-secretase substrates and sleep disturbances in memory consolidation. These research avenues will provide a more meaningful understanding of how combined genetic mutations and environmental risk factors contribute to accelerating cognitive decline in AD.

Based on our past findings, my laboratory developed three research themes:

Project 1: ***APP-mediated neuronal signaling and cell-adhesion molecules***

We are exploring whether APP cross-interactions with other γ-secretase substrates might affect synapse formation and synaptic plasticity that have profound consequences on memory.

Project 2: ***APP metabolism and sleep disturbances in the etiology of AD***

We are investigating whether APP expression is sufficient to alter sleep architecture in AD mice, and whether the lack of APP expression in sleep perturbed mouse models could affect differentially axonal outgrowth and memory consolidation.

Project 3: ***Exploring the therapeutic potential of APP-mediated signaling***

We are examining whether increased expression of mAICD in certain brain areas could rescue memory deficits and lower Aβ accumulation in well-characterized models of AD. We are pursuing our mission to develop new therapeutic approaches to alleviate AD pathology.

Academic Career

1990 – 1993 Postdoctoral Fellow (mentor Dr. Rémi Quirion)
Douglas Hospital Research Centre, Verdun, Québec, Canada

1994 – 1997 Postdoctoral Fellow (mentor Dr. David Linden)
Department of Neuroscience
Johns Hopkins University Sch. of Med, Baltimore, MD, USA

1997 – 1999 Visiting Associate (host Dr. Michael Rogawski)
Epilepsy Research Branch, Neuronal Excitability Section
National Institutes of Health, Bethesda, MD, USA

1999 – 2005 Research Assistant Professor
Department of Neurobiology, Pharmacology & Physiology
University of Chicago, Chicago, IL, USA

2005 – 2019 Research Associate Professor
Department of Neurobiology
University of Chicago, Chicago, IL, USA

2019 – Associate Professor
Department of Molecular Medicine
University of South Florida, FL, USA

Education

B.Sc. 1982 – 1985 Medical Biology
Québec University at Trois-Rivières, Québec, Canada

M.Sc. 1985 – 1987 Clinical Sciences (mentor Dr. Jean St-Louis)
University of Montréal, Montréal, Québec, Canada

Ph.D. 1987 – 1990 Clinical Sciences (mentor Dr. Ernesto Schiffrin)
University of Montréal, Montréal, Québec, Canada

Honors and Awards

1987 – 1990 PhD Student Fellowship from "Fonds pour la Formation de Chercheurs et l'Aide à la Recherche"

1990 PhD Student prize from Canadian Society of Arterial Hypertension for abstract submitted at the annual meeting (Toronto, Canada)

1990 – 1992 Postdoctoral Fellowship from Alzheimer Society of Canada

1993 Travel award from the International Society for Neurochemistry for the annual meeting (Montpellier, France)

1993 – 1996 Postdoctoral Fellowship from "Fonds de la Recherche en Santé du Québec"

1998	Travel award from the International Alzheimer Society for the Sixth International Conference on Alzheimer's Disease and Related Disorders (Amsterdam, Netherland)
2004	Seed grant from The Brain Research Foundation Women Council
2010	Cited in "Who's Who in America (64th Edition)
2015	Invited guest to a luncheon for the remittance of the Howie Dean Award to Dr. Carole Deyts – organized by the BSD development office/Alzheimer's Association
2017	Participate in "Cure in Mind. Cure in Sight" – a video clip sponsored by the BrightFocus Foundation https://www.brightfocus.org/about#video
2018	Invitation to meet with Senator Dick Durbin, at the International Alzheimer Disease Conference

Peer Review Committees

1994	Fonds de la Recherche en Santé du Québec
1999	Irish Health Research Board
2003 –	Alzheimer's Association
2010	Research on Alzheimer Disease and Related Disorders, Québec – France – Canada Consortium
2011	Natural Sciences and Engineering Research Council of Canada
2015	Illinois Department of Public Health – Alzheimer Disease Research Fund
2015	Texas Alzheimer's Research and Care Consortium
2017, 2018	Chicago Brain Research Foundation Neuroscience Day poster judge
2017	NIH-NIA special emphasis MDCN study section (*ad-hoc* review panel)
2018	NIH Small Business SEP - ETTN study section (*ad-hoc* review panels)
2020	University of South Florida Research Day poster judge

Journal Referee

- Cellular and Molecular Life Sciences (IF 7.01)
- Experimental Neurology (IF 4.48)
- Frontiers in Molecular Neuroscience (IF 3.72)
- Hippocampus (IF 3.94)
- Journal of Chemical Neuroanatomy (IF 2.36)
- Journal of Clinical Investigation (IF 12.28)
- Journal of Neurochemistry (IF 4.61)

- Journal of Psychiatry and Neuroscience (IF 5.86)
- Molecular Neurodegeneration (IF 8.27)
- Neurobiology of Aging (IF 4.40)
- Neuropharmacology (IF 4.25)
- PlosOne (IF 2.78)
- Proceedings of the National Academy of Sciences (IF 9.58)
- Trends in Molecular Medicine (IF 11.03)

Thesis Examiner

2020 Huang Tzu-Rung, Ph.D. candidate, National University of Singapore
"Non-Canonical Trafficking of the Amyloid Precursor Protein in the Neuronal Somatodendritic Compartment"

Academic Activities

2005 – 2006 Coordinator for the monthly Seminar Series of the Department of Neurobiology, Pharmacology & Physiology Post-doctoral Committee

2007 Coordinator for the bi-monthly floor Neurobiology Seminar Series

2008 Coordinator for the bi-monthly Neurobiology Department Seminar Series

2017 – 2019 Founding chair of "UC Global" – a Resource Group for the International community
https://voices.uchicago.edu/bsddiversity/initiatives/resource-groups/ucglobal-resource-group/

Fundraising events

2015 Invited guest to a fundraising event hosted by the BrightFocus Foundation

2017 – 2019 Invited guest to the annual fundraising event – the Chicago Rita Hayworth Gala of the Alzheimer's Association

2017 Invited guest to the annual fundraising – Discovery Dinner hosted by the Chicago Brain Research Foundation

2018 Hosted the BrightFocus Foundation representative and their private donors to present my research program and visit my laboratory

Society Membership

1991 – Society for Neuroscience

2010 – Research Gate (RG score 36.13)

Research fellow training

Past:

2006 – 2007 Jun Shi, Ph.D. (Third Military Medical University, China). Currently a Research Associate at Northwestern University, Chicago.

2009 – 2010 Hyun-Ju Kim, Ph.D. (Gwangju Institute of Science and Technology, Gwangju, South Korea). Currently holding a teaching position in South Korea.

2008 – 2017 Carole Deyts, Ph.D. (Institute of Neurobiology, CNRS Gif sur Yvette, France). Current position: CNS Senior Research Scientist, Spark Therapeutics, Neurodegenerative disease biotechnology, Philadelphia

Current:

2019 – Anjana Sadanand, Ph.D. (University of Madras, Chennai, India)

2020 – Thywill Sabblah, Ph.D. (University of Central Florida, Orlando, USA)

Graduate student training

Current:

2019 – Alex Torrelli-Diljohn (MS degree at the University of South Florida)

Undergraduate student training

Past:

2005 – 2007 Lima Lawrence (University of Chicago 2007 alumni – MD)

2006 – 2007 Casey Armstrong (University of Chicago 2008 alumni – MD)

2008 Denise Valero (University of Chicago 2009 alumni – MD)

2008 Kristian Coerper (University of Chicago 2009 alumni – High School Teacher)

2008 – 2010 Rafael Marquez (University of Chicago 2010 alumni – Med School)

2008 – 2010 Yumiko Shepherd (University of Chicago 2010 alumni)

2009 Adria Simon (University of Chicago 2011 alumni – MD)

2009 – 2011 Megan Rawson (University of Chicago 2011 alumni – Teacher of America)

2010 – 2011 Priya Edward (University of Chicago 2012 alumni – MD)

2011 – 2012 Shibandri Das (University of Chicago 2013 alumni – MD)

2012 – 2013 Peggy Chau (University of Chicago)

2012 – 2013 Jane Zhang (University of Chicago)

2011 – 2013 Mary Clutter (University of Chicago 2013 alumni – Research Technician)
2011 – 2014 Natalia Jovanovic (University of Chicago 2014 alumni – MD)
2013 – 2015 Anna Goddi (University of Chicago 2016 alumni – Graduate Program)
2014 – 2015 Peter Boxley (University of Chicago 2016 alumni – MD)

Current:

2019 – Rhianna Jackson (University of South Florida)
2020 – Pragnya Kulkarni (University of South Florida)
2020 – Nikunj Borad (University of South Florida)
2020 – Christian Jamal (University of South Florida)

Research Support

Currently Active Support:

NATIONAL INSTITUTES OF HEALTH **R01 AG054589**
APP-mediated signaling, sleep perturbations, and Alzheimer's disease mouse models
Principal Investigators: Angèle Parent, USF/David Gozal, UM
8/01/2019 – 5/30/2024 $ 2,718,135 total direct cost

The major goals of this project are to test if (1) APP-mediated signaling tempers memory deterioration associated with sleep disturbances in mouse models of amyloidosis and non-amyloidosis; (2) APP-mediated signaling affects sleep architecture in AD mice; (3) enhanced APP-mediated signaling preserves dynamic regulation of axonal outgrowth and synapses in sleep perturbed AD mice.

NATIONAL INSTITUTES OF HEALTH **R01 AG056061**
The role of elevated BIN1 expression in Alzheimer's disease
Principal Investigator: G. Thinakaran, USF 5.0 percentile
Dr. Parent – Investigator (1.2 months effort)
4/01/2018 – 3/31/2023 $ 2,499,671 total direct cost

The goal of this investigation is to develop novel insights into the elevated expression of BIN1 observed in patients with AD, and use BIN1 transgenic mice to test the contribution of the increased BIN1 levels to AD-related neuropathology and behavior abnormalities. Dr. Parent will train postdoctoral fellow to perform electrophysiology experiments, and participate in data analysis and interpretation.

NATIONAL INSTITUTES OF HEALTH **R01 AG057290**
Programming amylin secretion to slow brain aging - an animal model
Principal Investigators: F. Despa, Univ of Kentucky / G. Thinakaran, USF
Dr. Parent – Investigator (1.2 months effort)
9/01/2017 – 8/31/2022 $568,228 direct cost per year

The overarching goal of this proposal is to test our hypothesis that amylin dyshomeostasis in pancreatic islets and subsequent secretion of oligomerized amylin in the blood can affect the progression of AD and investigate molecular mechanisms underlying the interaction of amylin with Aβ pathology. Dr. Parent will supervise mouse colony management and behavioral experiments, and participate in data analysis and interpretation.

BRIGHTFOCUS FOUNDATION **A2017443S**
Membrane-targeted AICD: effect on cognition and Aβ
Principal Investigator: Angèle Parent
7/01/2017 – 6/30/2020 $300,000 total direct cost

The major goals of this project are to investigate if AAV-mediated expression of mAICD in the brain could: (1) rescue memory decline observed in well-characterized AD mouse models; (2) to attenuate Aβ production and deposition; and (3) to perform a comparison of mAICD and mAICD lacking GαS-protein interaction in order to determine the requirement of adenylate cyclase-dependent signaling in these outcomes.

Completed:

ALZHEIMER'S ASSOCIATION **NIRG-15-342442**
Targeting APP-CTF as potential disease modifier to reduce Abeta burden
Principal Investigator: on behalf of Carole Deyts
4/01/2015 – 3/31/2017 $100,000 total direct cost

The major goal of this project was to assess the influence of membrane targeted APP intracellular domain onto Aβ production in various Alzheimer's disease animal models using intracerebrovascular brain injection of adeno-associated virus (AAV).

NATIONAL INSTITUTES OF HEALTH **R01 AG019070**
Amyloidogenic processing of APP
Principal Investigator: Gopal Thinakaran
3/15/2001 – 6/30/2017

The major goals of this proposal were to examine the role of *S*-palmitoylation of γ-secretase and BACE1 for APP processing and amyloid deposition in transgenic mice, and to investigate BACE1 trafficking in lipid rafts. Angèle Parent devoted 3 calendar months to this project.

NATIONAL INSTITUTES OF HEALTH **R21 AG046710**
Axodendritic signaling of APP-CTF
Principal Investigator: Angèle Parent 8.0 percentile
5/01/2014 – 2/29/2016 $270,500 total direct cost

The major goals of this investigation were to determine: (1) if axodendritic localization of β-CTF is regulated by G-protein interactions, and (2) if β-CTF•G-protein interactions affect selectively signaling in axons *vs* dendrites.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
Raft-targeted AICD as potential therapeutic tools to combat Alzheimer's disease
Principal Investigator: on behalf of Carole Deyts
7/01/2014 – 6/30/2015 $30,000 total direct cost

The major goals of this project were to generate various adeno-associated virus (AAV) expressing raft-targeted APP intracellular domain (AICD) constructs and to evaluate their therapeutic potential onto Aβ production.

NATIONAL INSTITUTES OF HEALTH **R21 AG042762**
Animal models of membrane-targeted APP intracellular domain
Principal Investigator: Angèle Parent 7.0 percentile
6/01/2013 – 5/31/2015 $275,000 total direct cost

The major goals of this investigation were (1) to examine if APP-CTF•G-protein functional coupling is sufficient and necessary to promote axodendritic outgrowth *in vivo* and could influence Abeta production and deposition in transgenic Alzheimer disease mouse model, and (2) to generate transgenic mice with conditional overexpression of membrane-tethered APP intracellular domain.

AMERICAN HEALTH ASSISTANCE FOUNDATION **A2012386**
Functional Interaction of APP-CTF with GalphaS in brain
Principal Investigator: Angèle Parent
7/01/2012 – 6/30/2014 $150,000 total direct cost

The major goals of this project were to investigate the functional coupling of APP cytoplasmic domain with GalphaS-protein that could impact neurite outgrowth, synaptic morphology, PKA/GSK3beta signaling, Abeta production and deposition in Alzheimer's disease mouse model.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
APP cytoplasmic domain interaction with G-proteins: consequence on associated signaling pathways and Aβ production
Principal Investigator: Angèle Parent
7/01/2012 – 6/30/2014 $60,000 total direct cost

The major goals of this project were to characterize and identify the amino acid(s) of APP-CTF that are critical for G-protein interactions that could impact PKA/GSK3beta signaling and Abeta production in cell cultures.

NATIONAL INSTITUTES OF HEALTH **R01 NS055223**
Presenilins and Cell Adhesion Molecules
Principal Investigator: Angèle Parent 2.9 percentile
12/01/2007 – 11/30/2013 $1,079,342 total direct cost

The major goals of this project were to examine the influence of Presenilin-dependent proteolysis of cell adhesion molecules: 1) on cellular function, 2) on synapse formation, and 3) on cellular substrates of memory.

AMERICAN HEALTH ASSISTANCE FOUNDATION **A2009073**
Microdomain localization and trafficking of BACE1
Principal Investigators: Gopal Thinakaran / Angèle Parent
4/01/2009 – 3/31/2012 $400,000 total direct cost

The major goals of this project were to better understand the localization and dynamics of BACE1 movement in cells to shed more light on the mechanisms involved in amyloid beta production.

ALZHEIMER ASSOCIATION **IIRG-06-26148**
Role of Cell Adhesion Molecules in Presenilin Animal Models
Principal Investigator: Angèle Parent
8/01/2006 – 7/31/2009 $216,000 total direct cost

The major goals of this project were to examine the influence of Presenilin-dependent intramembraneous cleavage of cell adhesion molecules onto signaling events and synaptic function using mainly knock-out PS1 animal model.

ALZHEIMER ASSOCIATION **IIRG-02-3952**
Synaptic Transmission in Presenilin Animal Models
Principal Investigator: Angèle Parent
1/01/2003 – 12/31/2005 $216,000 total direct cost

The major goals of this project were to examine the influence of PS1 and FAD-linked PS1 variants on synaptic transmission and the influence of PS1 and FAD-linked PS1 variants on synaptic machinery.

Invited Lectures / Conference Oral Presentations

1992 Protein kinase C, inositol phosphates and neuronal plasticity. Invited speaker at *Canadian College of Neuropsychopharmacology*, Symposium on Transduction Mechanisms, Saskatoon, Sask., Canada, June 1992.

Differential localization and pH dependency of the inositide IP_3, IP_4 and IP_6 binding sites in rat brain: An autoradiographic analysis. Invited speaker at *Annual Meeting of Society for Neuroscience*, Anaheim, CA, Oct. 1992.

1993 Protein kinase C, inositol phosphates and neuronal plasticity. FRSQ-McGill Mental Health Network Seminar Series, Psychiatry Department, *McGill University*, Montréal, Qué., Canada, April 1993.

2002 Familial Alzheimer's disease associated presenilin and glutamatergic synaptic transmission. *Douglas Hospital Research Centre*, Montréal, Qué., Canada, April 2002.

Familial Alzheimer's disease associated presenilin and glutamatergic synaptic transmission. Centre Fernand-Séguin, *Hôpital Louis-Hippolyte Lafontaine*, Montréal, Qué., Canada, April 2002.

Familial Alzheimer's disease associated presenilin and glutamatergic synaptic transmission. Neuroscience Seminar Series, *Ottawa Health Research Institute*, Ottawa, Ont., Canada, May 2002.

Familial Alzheimer's disease associated presenilin and glutamatergic synaptic transmission. Cell Biology Department and Center for Neurodegenerative Diseases, *Emory University*, Atlanta, GA, USA, May 2002.

Familial Alzheimer's disease associated presenilin and glutamatergic synaptic transmission. *National Research Council*, Ottawa, Ont., Canada, Oct 2002.

2006 Presenilin: The Terminator. Department of Neurobiology, Pharmacology & Physiology Post-doctoral Committee, *University of Chicago*, Chicago, IL, USA, Feb 2006.

2008 Presenilin-dependent changes in synaptic components and associated signaling cascades. Invited speaker at *International Conference on Alzheimer's Disease and Related Disorders*, Chicago, IL, July 2008.

2010 Presenilin substrates and their membrane associated signaling cascades. Department of Neuroscience and Center for Translational Research in Neurodegenerative Disease, *University of Florida*, Gainesville, FL, USA, Dec 2010.

2011 Presenilin substrates and their membrane associated signaling cascades. Neuroscience Research Department, *Mayo Clinic Jacksonville*, Jacksonville, FL, USA, June 2011.

2013 G-protein signaling associated with membrane APP-CTF accumulation. Invited speaker at *Alzheimer's Association International Conference,* Boston, MA, July 2013.

2018 Viral brain expression of APP C-terminal fragment preserves memory in Alzheimer's disease mouse models. Invited speaker at *The 5th International Conference on Molecular Neurodegeneration (ICMN2018)*, Stockholm, Sweden, June 2018.

APP-mediated signaling prevents memory decline in Alzheimer's disease. Department of Molecular Medicine and Alzheimer's Disease Byrd Institute, *University of South Florida*, Tampa, FL, USA, Aug 2018.

2019 Signaling associated with membrane-tethered APP intracellular domain regulates non-amyloidogenic processing of APP at the cell surface. Invited speaker at *International Conference on Alzheimer's & Parkinson's Diseases,* Lisbon, Portugal, March 2019.

Peer Reviewed Articles *(3,263 citations; h-index=25)*

1. St-Louis, J., PARENT, A., Larivière, R., and Schiffrin, E.L.: Vasopressin responses and receptors in the mesenteric vasculature of estrogen-treated rats. *Am. J. Physiol.* 251 (Heart Circ. Physiol. 20): H885-H889, 1986. *(IF 3.57 – 17 citations)*

2. Massicotte, G., St-Louis, J., PARENT, A., and Schiffrin, E.L.: Decreased *in vitro* responses to vasoconstrictors during gestation in normotensive and spontaneously hypertensive rats. *Can. J. Physiol. Pharmacol.* 65: 2466-2471, 1987. *(IF 1.77 – 48 citations)*

3. St-Louis, J., PARENT, A., Gutkowska J., Genest J., and Schiffrin E.L.: Vasorelaxation and vascular binding sites for atrial natriuretic peptide in pregnant rat. *Am. J. Physiol.* 254 (Heart Cir. Physiol. 23): H1027-H1033, 1988. *(IF 3.57 – 17 citations)*

4. Massicotte, G., PARENT, A., and St-Louis, J.: Blunted responses to vasoconstrictors in mesenteric vasculature but not in portal vein of spontaneously hypertensive rats treated with relaxin. *Proc. Soc. Exp. Bio. Med.* 190 (3): 254-259, 1989. *(IF 2.69 – 67 citations)*

5. PARENT, A., St-Louis, J., and Schiffrin, E.L.: Vascular effects of bradykinin and sodium nitroprusside during pregnancy in the rat. *Clin. Exp. Hyp.: Hyp. in Preg.* Vol. B8, No. 3, pp. 561-582, 1989. *(IF 1.23 – 5 citations)*

6. PARENT, A., Schiffrin, E.L., and St-Louis, J.: Role of the endothelium on adrenergic responses of mesenteric artery rings of pregnant rats. *Am. J. Obstet. Gynecol.* 163: 229-234, 1990. *(IF 6.12 – 45 citations)*

7. PARENT, A., Schiffrin, E.L., and St-Louis, J.: Receptors for Arg^{8}-vasopressin, angiotensin II and atrial natriuretic peptide in the mesenteric vasculature of pregnant rats. *Can. J. Physiol. Pharmacol.* 69: 137-144, 1991. *(IF 1.77 – 30 citations)*

8. Nguyen, P.V., PARENT, A., Deng, L.Y., Fluckiger, J.-P., Thibault, G., and Schiffrin, E.L.: Endothelin vascular receptors and responses in deoxycorticosterone acetate-salt hypertensive rats. *Hypertension* 19(Suppl II): II-98-II-104, 1992. *(IF 7.02 – 86 citations)*

9. Schiffrin, E.L., PARENT, A., St-Louis, J., Tremblay J., Garcia, R., and Thibault, G.: Vascular atrial natriuretic peptide receptors in spontaneously hypertensive rats. *Cardiovasc. Res.* 26: 857-864, 1992. *(IF 7.01 – 9 citations)*

10. PARENT, A., Nguyen, P.V., Yang, X.P., and Schiffrin, E.L.: Inositol phosphate production in response to Arg^{8}-vasopressin, endothelin-1, and prostaglandin $F_{2\alpha}$ in rat aorta and mesenteric arteries. *Can. J. Physiol. Pharmacol.* 70: 1408-1416, 1992. *(IF 1.77 – 2 citations)*

11. PARENT, A., Dea, D., Quirion, R., and Poirier, J.: [^{3}H]Phorbol ester binding sites and neuronal plasticity in the hippocampus following entorhinal cortex lesions. *Brain Res.* 607: 23-32, 1993. *(IF 3.12 – 12 citations)*

12. PARENT, A. and Quirion, R.: Differential localization and pH dependency of phosphoinositide 1,4,5-IP_3, 1,3,4,5-IP_4 and IP_6 binding receptors in rat and human brains. *Eur. J. Neuroscience* 6: 67-74, 1994. *(IF 2.94 – 20 citations)*

13. PARENT, A., Poirier, J., Baccichet, A. and Quirion, R.: Regulation of 1,4,5-IP_3, 1,3,4,5-IP_4 and IP_6 binding sites following entorhinal cortex lesions in rat brain. Neuroscience 61: 565-573, 1994. *(IF 3.24 – 7 citations)*

14. Kar, S., Quirion, R. and PARENT, A.: An Interaction between inositol hexakisphosphate (IP_6) and insulin-like growth factor II receptor binding sites in the rat brain. NeuroReport 5: 625-628, 1994. *(IF 1.34 – 21 citations)*

15. Quirion, R., Wilson, A., Rowe, W., Aubert, I., Richard, J., Doods, H., PARENT, A., White, N. and Meaney, M.J.: Facilitation of acetylcholine release and cognitive performance by an M_2-muscarinic receptor antagonist in aged memory-impaired rats. J. Neuroscience 15: 1455-1462, 1995. *(IF 6.07 – 238 citations)*

16. PARENT, A., Rowe, W., Meaney, M. and Quirion,R.: Increased production of inositol phosphates and diacylglycerol in aged cognitively impaired rats after stimulation of muscarinic, metabotropic-glutamate and endothelin receptors. J. Pharmacol. Exp. Ther. 272: 1110-1116, 1995. *(IF 3.87 – 30 citations)*

17. Yaspal, K., Pitcher, G.M., PARENT, A., Quirion, R. and Coderre, T.J.: Noxious termal and chemical stimulation induce increases in ^{3}H-phorbol 12,13-dibutyrate binding in spinal cord of dorsal horn as well as persistent pain and hyperalgesia, which is reduced by inhibition of protein kinase C. J. Neuroscience 15: 3263-3272, 1995. *(IF 6.07 – 152 citations)*

18. Krieger, C., Jacques, D., PARENT, A. and Quirion, R.: [^{3}H]-Phorbol 12,13-dibutyrate binding/ PKC binding in thoracic spinal cord: no change in amyotrophic lateral sclerosis. NeuroReport 6: 1253-1256, 1995. *(IF 1.34)*

19. PARENT, A.T., Schrader, K. Munger, S.D., Reed, R.R., Linden, D.J. and Ronnett, G.V.: Synaptic transmission and hippocampal long-term potentiation in olfactory cyclic nucleotide-gated channel type 1 (OCNC1) null mouse. J. Neurophysiology 79: 3295-3301, 1998. *(IF 2.89 – 47 citations)*

20. Storm, D.R., Hansel, C., Hacker, B., PARENT, A.T., and Linden, D.J.: Impaired cerebellar long-term potentiation in type 1 adenylyl cyclase mutant mice. Neuron 20: 1199-1210, 1998. *(IF 14.40 – 156 citations)*

21. PARENT, A.T., Linden, D.J., Sisodia, S.S., and Borchelt, D.R.: Synaptic transmission and hippocampal long-term potentiation in transgenic mice expressing FAD-linked presenilin 1. Neurobiology of Disease 6: 56-62, 1999. *(IF 5.23 – 124 citations)*

22. Zaman, S.H., PARENT, A.T., Laskey, A., Lee, M.K., Borchelt, D.R., Sisodia, S.S., and Malinow, R.: Enhanced synaptic potentiation in transgenic mice expressing *presenilin 1* familial Alzheimer's disease mutation is normalized with a benzodiazepine. Neurobiology of Disease 7: 54-63, 2000. *(IF 5.23 – 68 citations)*

23. Mothet, J.P. *, PARENT, A.T.*, Wolosker, H., Brady, R.O., Linden, D.J., Ferris, C.D., Rogawski, M.A., and Snyder, S.H.: D-serine is an endogenous ligand for the glycine site of the NMDA receptor. Proc. Nat. Acad. Sci. USA 97: 4926-4931, 2000. *(IF 9.58 – 1080 citations)*

* Equal contribution

►Featured in News of the Week of Science (286: 1265-1266, 1999).

24. Valastro, B., Girard, M., Gagne, J., Martin, F., PARENT, A.T., Baudry, M., and Massicotte, G.: Inositol hexakisphosphate-mediated regulation of glutamate receptors in rat brain sections. *Hippocampus* 11: 673-682, 2001. *(IF 3.95 – 10 citations)*

25. PARENT, A.T., Barnes, N.Y., Taniguchi, Y., Thinakaran, G., and Sisodia, S.S.: Presenilin attenuates receptor-mediated signaling and synaptic function. *J. Neuroscience* 25: 1540-1549, 2005. *(IF 6.07 – 74 citations)*

26. Vetrivel, K.S., Cheng, H., Kim, S.H., Chen, Y., Barnes, N.Y., PARENT, A.T., Sisodia, S.S., and Thinakaran, G.: Spatial segregation of gamma-secretase and substrates in distinct membrane domains. *J. Biol. Chem.* 280: 25892-25900, 2005. *(IF 4.11 – 230 citations)*

27. Barnes, N.Y., Shi, J., Yajima, H, Thinakaran, G. and PARENT, A.T.: Steady-state increase of cAMP-response element binding protein, Rac, and PAK signaling in presenilin-deficient neurons. *J. Neurochem.* 104: 1637-1648, 2008. *(IF 4.61 – 9 citations)*

28. Vetrivel, K.S., Zhang, X., Meckler, X., Cheng, H., Lee, S., Gong, P., Lopes, K.O., Chen, Y., Iwata, N., Yin, K.J., Lee, J.M., PARENT, A.T., Saido, T.C., Li, Y.M., Sisodia, S.S., and Thinakaran, G.: Evidence that CD147 modulation of beta-amyloid (Abeta) levels is mediated by extracellular degradation of secreted Abeta. *J. Biol. Chem.* 283: 19489-19498, 2008. *(IF 4.11 – 56 citations)*

29. Vetrivel, K.S., Kodam, A., Gong, P., Chen, Y., PARENT, A.T., Kar, S. and Thinakaran, G.: Localization and regional distribution of p23/TMP21 in the brain. *Neurobiology of Disease* 32: 37-49, 2008. *(IF 5.23 – 28 citations)*

30. Gong, P., Vetrivel, K.S., Nguyen, P.D., Meckler, X., Cheng, H., Kounnas, M.Z., Wagner, S.L., PARENT, A.T. and Thinakaran, G.: Mutation analysis of the presenilin 1 N-terminal domain reveals a broad spectrum of gamma-secretase activity towards amyloid precursor protein and other substrates. *J. Biol. Chem.* 285: 38042-52, 2010. *(IF 4.11 – 30 citations)*

31. Meckler, X., Roseman, J., Das, P., Cheng, H., Pei, S., Keat, M., Kassarjian, B., Golde, T.E., PARENT, A.T. and Thinakaran, G.: Reduced Alzheimer's disease beta-amyloid deposition in transgenic mice expressing S-palmitoylation-deficient APH1aL and nicastrin. *J. Neuroscience* 30: 16160-9, 2010. *(IF 6.07 – 33 citations)*

32. Gong, P., Roseman, J., Fernandez, C.G., Vetrivel, K.S., Bindokas, V.P., Zitzow, L.A., Kar, S., PARENT, A.T. and Thinakaran, G.: Transgenic neuronal overexpression reveals that stringently regulated p23 expression is critical for coordinated movement in mice. *Molecular Neurodegeneration* 6: 87, 2011. *(IF 8.27 – 21 citations)*

33. Deyts, C., Vetrivel, K.S., Das, S., Shepherd, Y.M., Dupré, D.J., Thinakaran, G. and PARENT, A.T.: Novel $G\alpha_s$-protein signaling associated with membrane-tethered APP intracellular domain. *J. Neuroscience* 32: 1714-29, 2012. *(IF 6.07 – 45 citations)*
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    ►Invited oral presentation
    ►Travel award for the best abstract presentation
83. Deyts, C., Herrera, S., Das, S., Clutter, M., Thinakaran, G. and PARENT, A.: The influence of secretase-dependent APP-CTF accumulation on axodendritic development and associated signaling. *Society for Neuroscience Chicago chapter*, Chicago, IL, March 2013.
84. Deyts, C., Herrera, S., Das, S., Clutter, M., Thinakaran, G. and PARENT, A.T.: The influence of secretase-dependent APP-CTF accumulation on axodendritic development and associated signaling. *Alzheimer's Association International Conference*, Boston, MA, July 2013.
85. PARENT, A.T. and Deyts C.: G-protein signaling associated with membrane APP-CTF accumulation. *Alzheimer's Association International Conference,* Boston, MA, July 2013.
    ►Invited oral presentation and chair session
86. Deyts, C., Clutter, M., Herrera, S., Jovanovic, N., Goddi, A. and PARENT, A.T.: Presenilin-dependent modulation of axodendritic outgrowth requires APP function. *Society for Neuroscience Chicago chapter*, Chicago, IL, March 2015.
87. Deyts, C., Clutter, M., Herrera, S., Jovanovic, N., Goddi, A. and PARENT, A.T.: Loss of Presenilin function is associated with a gain of APP function. *Annual Meeting of Society for Neuroscience*, Chicago, IL, Oct. 2015.
88. Deyts C., Clutter, M., Herrera, S., Jovanovic, N., Goddi, A. and PARENT, A.T.: Presenilin-dependent modulation of axodendritic outgrowth requires APP function. *Society for Neuroscience Chicago chapter*, Chicago, IL, April 2016.
89. Deyts, C., Clutter, M., Chakrabarty, P., Rosario, A.M., Pierce, P., Goddi, A., Vetrivel, K., Wagner, S.L., Thinakaran, G., Golde, T.E., and PARENT, A.T.: APP-CTF targeted at the membrane reduces Abeta burden and ameliorates cognitive fonction in Alzheimer's disease mouse models. *Society for Neuroscience Chicago chapter*, Chicago, IL, March 2017.
90. Deyts, C., Clutter, M., Chakrabarty, P., Rosario, A.M., Pierce, P., Goddi, A., Vetrivel, K., Wagner, S.L., Thinakaran, G., Golde, T.E., and PARENT, A.T.: APP-CTF targeted at the membrane reduces Abeta burden and ameliorates cognitive fonction in Alzheimer's disease mouse models. *Brain Research Foundation Neuroscience Day*, Chicago, IL, April 2017.
    ►First place winner of the 2017 postdoctoral poster competition
91. Andrew, R.J., Fernandez, C.G., Stanley, M., Jiang, H., Nguyen, P., De Rossi, P., Krause, S., Rice, R.C., Lamb, R., Argemi, A., Rathbun, E., Wagner, S.L., PARENT, A.T., Holtzman, D.M., and Thinakaran, G.: BACE1 *S*-palmitoylation as a specific modulator of Alzheimer's disease amyloid burden *in vivo*. *Brain Research*

Foundation Neuroscience Day, Chicago, IL, April 2017.

►Second place winner of the 2017 postdoctoral poster competition

92. Deyts, C., Clutter, M., Pierce, N., Golde, T.E., and PARENT, A.T.: Viral brain expression of APP C-terminal fragment preserves memory in Alzheimer's disease mouse models. *International Conference on Molecular Neurodegeneration*, Stockholm, Sweden, June 2018.

►Invited oral presentation

93. Deyts, C., Clutter, M., Pierce, N., Cruz, P., Golde, T.E., and PARENT, A.T.: Overexpression of APP intracellular domain rescues memory in Alzheimer's disease mouse models. *Alzheimer's Association International Conference,* Chicago, IL, July 2018.

94. Deyts, C., Clutter, M., Pierce, N., Cruz, P., Golde, T.E., and PARENT, A.T.: Signaling associated with membrane-tethered APP intracellular domain regulates non-amyloidogenic processing of APP at the cell surface. *International Conference on Alzheimer's & Parkinson's Diseases,* Lisbon, Portugal, March 2019.

►Invited oral presentation

95. Deyts, C., Clutter, M., Pierce, N., Besant, G., Spruill, V., Cruz, P., Thinakaran, G., Golde, T.E., and PARENT, A.T.: APP-mediated signaling rescues memory impairment in presenilin knock-in mice carrying familial Alzheimer's disease variant. *Annual Meeting of Society for Neuroscience*, Chicago, IL, Oct. 2019.