

CURRICULUM VITAE

TUDOR CONSTANTIN BADEA M.D., M.A., Ph.D.

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Biographical Data:

Date and Place of Birth: August 16, 1968, Bucharest, Romania

Country of Citizenship: Romania, United States of America

Civil Status: Married

Positions held:

Senior Researcher (CS II), Research and Development Institute,
Faculty of Medicine, Transilvania University of Brasov, Romania Since September 2021

Investigator, Head of Retinal Circuits Development and Genetics Unit
N-NRL, National Eye Institute, NIH, Bethesda Maryland September 2010 – August 2021

Instructor, Department of Immunopathology,
University “Iuliu Hatieganu”, School of Medicine, Cluj-Napoca, Romania January 1995 - January 2000

Academic training:

Postdoctoral Fellow, Howard Hughes Medical Institute
Department of Molecular Biology and Genetics,
School of Medicine, Johns Hopkins University, Baltimore May 2004 – September 2010

Doctor of Philosophy (PhD), Biochemistry, Cell and Molecular Biology
School of Medicine, Johns Hopkins University, Baltimore June 1999 – May 2004

Master of Arts (MA), Biological Sciences
Columbia University, New York January 1998 – June 1999

Research Fellow, Department of Pathology,
Medical School, University of Maryland at Baltimore March 1995 - January 1998

Internship Clinical Laboratory, Medical Clinic No.1
School of Medicine Cluj-Napoca, Romania December 1994 - February 1995

Medical Doctor (MD), University “Iuliu Hatieganu”,
School of Medicine Cluj-Napoca, Romania September 1988 - September 1994

Online Profiles:

https://scholar.google.com/citations?user=enO60_gAAAAJ&hl=en

https://www.researchgate.net/profile/Tudor_Badea

<https://publons.com/researcher/1366808/tudor-constantin-badea/>

<https://www.brainmap.ro/tudor-constantin-badea>

Research experience and Skills:

Neurobiology:

- Generation of complex genetic marking systems in the mouse for analysis of neuronal cell morphology and function.
- Conditional gene ablation combined with reporter gene expression for mosaic analysis of expression pattern and developmental functions of transcription factors in neurons.
- Computer assisted reconstruction of neuronal dendrite and axonal arbors; description and discrimination of neuronal morphologies by statistical analysis of morphological traits.
- Analysis of neuronal population firing by correlation of action potential generation with live imaging of changes in intracellular calcium concentrations in neurons using brain slice preparations.
- Analysis of Retinal Ganglion Cell physiology by multi electrode array recordings in response to visual stimuli.
- Analysis of visual function in wild type and mutant mice, using commercial and novel behavior apparatus.
- Analysis of neuronal morphologies and function by retrograde and anterograde labeling, using fluorescent markers (DiI and fluorescently conjugated Cholera toxin B), or AAV delivered reporters.
- Gain and loss of function manipulations using in vivo gene delivery techniques.
- Blastomere fate mapping/lineage tracing in *Xenopus tropicalis* embryos.

Molecular Biology

- Cell culture of immortalized cell lines, primary oligodendrocyte precursors, C2C12 myoblasts, and mouse embryonic stem cells.
- Mouse embryonic stem cell targeting for knock-in constructs; conditional gene activation by Cre recombination; generation of transgenic mouse lines.
- In situ hybridization/immunohistochemistry for the analysis of developmentally regulated genes.
- Regulatory mechanisms of gene expression in tissue culture systems in vitro: northern analysis, ribonuclease protection assay, promoter activity studies by transient transfection of reporter gene constructs and DNA binding assays.
- Molecular cloning for RNA or protein expression, bacterial cell culture, bacteriophage work
- Gene cloning by differential display of mRNA, RACE and cDNA library screening.
- Gene expression profiling using RNASeq, analysis of Deep Sequencing data.
- Generation and purification of fusion proteins and generation and purification of polyclonal antibodies
- Affinity chromatography, Ion exchange chromatography, fractionation of samples.
- ELISA, Western Blotting, study of protein – protein interactions using yeast two hybrid assays and protein pull-downs combined with mass spectrometry.

Clinical and Experimental Immunology:

- Isolation and purification of blood cell subpopulations; immunohistology; indirect immunofluorescence studies for clinical immunology. Evaluating Auto-Immune antibodies in Lupus and Vasculitis syndromes
- Production and purification of Monoclonal Antibodies from Ascites or serum free cultures of hybridomas.
- In vitro studies of inflammatory mediators action on cell cycle, gene expression and differentiation programs of primary muscle and glial cell cultures.

Computational Skills:

- Comfortable with Mac OS, Windows and Unix environments, including command line scripts
- Expert User – Microsoft Office and Libre Office Suites

- Image processing using ImageJ/Fiji (including programming macros and plugins), Matlab, Adobe suite (Illustrator, Photoshop, Acrobat), Gimp and Inkscape
- Large data analysis, using embedded functions and scripts in Matlab, R and a variety of Python Packages: applications to Deep Sequencing datasets, Electrophysiological Recordings with large multielectrode arrays, neuronal arbor morphological analysis, and animal behavior data analysis.
- Basic level knowledge of C++, Javascript

Data synthesis and Communication Skills:

- Analysis and summary of data across a broad array of fields, ranging across Multichannel electrophysiology, Deep Sequencing/gene expression profiling, cell morphometry and animal behavior.
- Delivered presentations in international congresses and invited lectures at various universities
- Prepared Oral and Poster Presentations of various lengths and scopes
- Authored two book chapters and 56 publications, including figures

Language Proficiency: Romanian, English, German, French – Advanced Reading, Writing, Speaking
Italian, Spanish – Basic Reading, Speaking

Other training:

Tempus Program Internship in Immunology and Infectious Diseases. December 1- 31 1993

Kantonspital Basel, Department of Infectious Diseases, University Basel
(Laboratory of Werner Zimmerli)

Third Central European Summer School of Immunology September 1994

Kosice, Slovak Republic

Under the sponsorship of the International Union of Immunological Societies,
Basel Institute of Immunology and Gesellschaft fur Immunologie (Class of Lucien Aarden)

Teaching experience:

Delivered lectures and directed laboratory sections for the Immunology course in the School of Medicine, Spring Semester 1995
University “Iuliu Hatieganu,” Cluj-Napoca, Romania

Conducted research on antigen specificity in autoimmune vasculitis syndromes.

Teaching assistant – Lead discussion sections 1998-1999 academic year
and graded in the Neurobiology Course (Darcy Kelley and Stuart Firestein), Columbia University, New York

Teaching assistant – Graded and student discussions in the Genetics 2002-2004 academic years
course (Jeremy Nathans and Roger Reeves), Medical School at Johns Hopkins University

Mentoring/Supervisor/Manager activity:

- Lead a group of biomedical researchers for 10 years. Participated in recruitment and management committees at NEI and NIH levels for several years. Train PhD, Postdoctoral, Master and Bachelor students. All trainees have secured jobs in Academia, Biotech companies or Medical School / Residency Fellowship, etc.

Five Postdoctoral Fellows: Friedrich Kretschmer, Alireza Ghahari, Vladimir Muzyka, Manvi Goel, Raluca Pascalau.

Four PhD students: Graduate partnership Program with UBB Cluj, Romania: Miruna Ghinia, Szilard Sajgo, On advisory committee (co-mentorship with Phyllis Robinson, UMBC, Maryland): Preethi Somasundaram, Alexis Rubin.

Two M.S. Students: Walid Chatila (Georgetown) and Momina Tariq (George Mason)

Eight Postbac Fellows: Melody Shi, Sumit Kumar, Oluwaseyi Motajo, Katherine Chuang, Eileen Nguyen, Rebecca Lees, Annie Fuller, Armaan Akbar.

Four Undergraduates: Nadia Parmhans, Beverly Wu, Esika Savsani, Tyger Lin

Awards:

1. Young Investigator Award at the XVII International Complement Workshop October 11-16, 1998 Rhodes, Greece
2. First prize - poster presentation at the Gordon Research Conference on Visual Development, Salve Regina, Rhode Island, US, August 10-15, 2008
3. Ten Years Service Award – United States of America Government - 2020

Membership in Societies and Professional Organizations:

Howard Hughes Medical Institute – Research Associate 2005 - 2010.

American Association of the Advancement of Science – Since 1996.

Society for Neuroscience – Since 2001.

American Physiological Society – Since 2017

Association for Research in Vision and Ophthalmology – Since 2011

Stadtman Tenure Track Investigator Recruitment Committee – 2012 – 2013

Animal Care and Use Committee - NEI – since 2012

Referee for Scientific Journals, Tenure Evaluation and Granting Agencies:

Reviewer for: Acta Histochemica; Biochimica et Biophysica Acta; BMC Biology; BMC Molecular Brain; BMC Molecular Medicine; Cell Death and Disease; Cellular and Molecular Life Sciences; Developmental Dynamics; Developmental Biology; eNeuro; FEBS Letters; Genesis; Graefe's Archiv; Journal of Comparative Neurology; Journal of Neuroscience; Journal of Neurophysiology; Molecular Vision; Molecular Cellular Neuroscience; Molecular Medicine; Nature Communications; Neuroscience; Pigment Cell and Melanoma Research; PLOS One; Proceedings of the National Academy of Sciences (USA); Proceedings of the Royal Society (B)

Editorial Board: PLOSOne, Frontiers in Neuroscience (Neurodevelopment section)

Evaluated grant proposals for:

Agence Nationale de Recherche (France); Association Retina France; Wellcome Funds (UK); Royal Netherlands Academy of Arts and Sciences; Israel Science Foundation.

Served as referent for tenure/promotion Committees: Baylor College of Medicine, University of Virginia.

Patents:

(WO/2006/110748) RESPONSE GENE TO COMPLEMENT 32 (RGC-32) IN DISEASE
THE UNIVERSITY OF MARYLAND, BALTIMORE, Inventors: Rus, Horea, Badea, Tudor
Fosbrink, Matthew.

Genetic Mouse Models developed are being distributed through Jax Mice to more than 350 labs in 15 countries (as of 2014).

Funding history

Graduate and postdoctoral studies – Howard Hughes Medical Institute as part of the lab of Jeremy Nathans – Johns Hopkins

NEI Investigator 2011 - 2020 Intramural research awards = Retinal Circuit Development & Genetics Unit, Project numbers 1ZIAEY000504-01 - 10 (ranging from 900,000 – 1,800,000 US\$)

Invited Seminars:

July 2012 - College De France - Paris – France - (Dr. Alain Prochiantz)

August 2012 – Harvard Neurobiology – Boston (Dr. Michael Tri Do)

October 2012 – University of Pennsylvania – Philadelphia (Dr. Noga Vardi)

November 2012 – Columbia University – College of Physicians and Surgeons –New York (Drs. Carol Mason and Oliver Hobert).

March 2013 – George Washington University (Anthony LaMantia) and University of Maryland Baltimore County (Phyllis Robinson).

May 2013 – SUNY Upstate Medical University of New York (Barry Knox)

September 2015 - Baylor College of Medicine (Ross Poche).

November 2017 Washington University at St. Louis School of Medicine, Neuroscience program (Daniel Kerschensteiner).

April 2018 Zongshan Ophthalmic Center, Sun Yat-Sen University, China (Chun-Qiao Liu)

April 2018 Riken Brain Science Institute, Tokyo, Japan (Tomomi Shimogori)

September 2019 Genentech Inc., San Francisco (Henri Jasper)

December 2020 NERF/VIB, Leuven, Belgium (Karl Farrow)

June 2021 NeuroPSI - Paris-Saclay Institute of Neuroscience, Paris-Saclay University, France (Muriel Perron)

Publications:

Book Chapters:

1. Niculescu, F., **Badea, T.**, and Rus, H., (1998) Sublytic C5b-9 complexes induce proliferation of human aortic smooth muscle cells. Role of mitogen activated protein kinase and phosphatidylinositol 3-kinase. Proceedings of XIII World Congress of Cardiology. Monduzzi Editore, Bologna, pp1185-1190.

2. **Badea T.C.**, and Nathans J. (2008) New genetic technologies for studying the morphology, physiology, and development of mouse retinal neurons. Eye, Retina, and Visual System of the Mouse. Chalupa, L.M. and Williams, R.W., Editors. MIT Press, Cambridge, Massachussets.

Preprints (under review/revision in other journals)

1: Chuang JZ, Yang N, Otsu W, Fu C, Nakajima N, Yang HH, Lee MP, Akbar AF, **Badea TC**, Guo Z, Nuruzzaman A, Hsu KS, Dunaief JL, Sung CH (2021). Modeling and mechanistic investigation of a novel dry AMD 1 mouse model with CLIC4 deleted in RPE, In Revision

2: Zfp503/Nlz2 is Required for RPE Differentiation and Optic Fissure Closure (2021) Boobalan E, Thompson AH, Alur RP, Dong L, Shih G, Vieta-Ferrer ER, Onojafe IF, Arno G, Lotery AJ, Guan B, Bender C, Memon O, Brinster L, Soleilhavoup C, Panman L, Badea TC, Minella A, Lopez AJ, Thomasy S, Moshiri

A, Genomics England Research Consortium, Blain D, Hufnagel RB, Cogliati T, Bharti K, Brooks BP In review

3: Liu S, Aldinger KA, Cheng CV, Kiyama T, Dave M, McNamara HK, Caraffi SG, Ivanovski I, Errichiello E, Zweier C, Zuffardi O, Schneider M, Papavasiliou AS, Perry MS, Cho MT, Weber A, Swale A, Badea TC, Mao C-A, Garavelli L, Dobyns WB, and Reinberg D. (2021) NRF1 Association with AUTS2-Polycomb Mediates Specific Gene Activation in the Brain. In revision & *bioRxiv*, (2021): doi: 10.1101/2021.03.30.437620

4: Goel M, Aponte AM, Wistow G, Badea TC. (2021) Molecular studies into Copine-4 function in Retinal Ganglion Cells, under Review & *bioRxiv*(2021) , doi: [10.1101/2021.08.09.455730](https://doi.org/10.1101/2021.08.09.455730) .

Peer Reviewed Research Articles

1. Luzina IG, Rus V, Lockatell V, Courneya JP, Fischelevich R, Misharin AV, Todd NW, **Badea TC**, Rus, H, Atamas SP (2021) Regulator of Cell Cycle protein (RGCC/RGC-32) protects against pulmonary fibrosis. *American Journal of respiratory Cell and Molecular Biology* (AJRCMB) In press.
2. Muzyka, VV, **Badea TC**. (2021) Genetic Interplay Between Transcription Factor Pou4f1/Brn3a and Neurotrophin Receptor Ret In Retinal Ganglion Cell Type Specification. *Neural Development* (in press), & *bioRxiv*, no. (2020): 2020.03.23.004242. doi: 10.1101/2020.03.23.004242.
3. Tatomir A, Beltrand A, Nguyen V, Courneya, JP, Boodhoo D, Cudrici C, Muresanu DF, Rus V, **Badea TC**, Rus H (2021) RGC-32 acts as a hub to regulate the transcriptomic changes associated with astrocyte development and reactive astrocytosis. *Frontiers in Immunology* – Jul 29, <https://doi.org/10.3389/fimmu.2021.705308>
4. Chen CK, Kiyama T, Weber N, Whitaker CM, Pan P, **Badea TC**, Massey SC, Mao CA (2021). Characterization of Tbr2-expressing retinal ganglion cells, *J Comp Neurol* 2021 doi: <https://doi.org/10.1002/cne.25208> & *bioRxiv*: 2020.2006.2017.153551. <https://doi.org/10.1101/2020.06.17.153551>
5. Brodie-Kommit J, Clark BS, Shi Q, Shiao F, Kim DW, Langel J, Sheely C, Ruzycki PA, Fries M, Javed A, Cayouette M, Schmidt T, **Badea T**, Glaser T, Zhao H, Singer J, Blackshaw S, Hattar S. Atoh7-independent specification of retinal ganglion cell identity. *Sci Adv*. 2021 Mar 12;7(11):eabe4983. doi: 10.1126/sciadv.abe4983.& *bioRxiv*, no. (2020): 2020.05.27.116954. doi: 10.1101/2020.05.27.116954
6. Oliver KM, Florez-Paz DM, **Badea TC**, Mentis GZ, Menon V, de Nooij JC. (2021) Molecular development of muscle spindle and Golgi tendon organ sensory afferents revealed by single proprioceptor transcriptome analysis. *Nature Communications* Mar 1; 12(1):1451 doi: 10.1038/s41467-021-21880-3 & *bioRxiv*, no. (2020): 2020.04.03.023986. doi: 10.1101/2020.04.03.023986.
7. Tatomir A, Beltrand A, Nguyen V, Boodhoo D, Mekala A, Cudrici C, **Badea TC**, Muresanu DF, Rus V, Rus H (2021) RGC-32 regulates generation of reactive astrocytes in experimental autoimmune Encephalomyelitis. *Frontiers in Immunology* – Jan 25, doi: 10.3389/fimmu.2020.608294
8. Parmhans N, Fuller AD, Nguyen E, Chuang K, Swygart DI, Wienbar SR, Lin T, Kozmik Z, Dong L, Schwartz GW, **Badea TC** (2020). "Identification of Retinal Ganglion Cell Types and Brain Nuclei

- expressing the transcription factor Brn3c/Pou4f3 using a Cre recombinase knock-in allele." *J Comp Neurol.* 2020 Nov 2, doi: 10.1002/cne.25065.
9. Lees RN, Akbar AF, **Badea TC** (2020). "Retinal Ganglion Cell defects cause decision shifts in visually evoked defense responses". *J. Neurophysiology*, Epub 2020 Sept 30. doi:10.1152/jn.00474.2019
 10. Gheorghiu M, Stănică L, Ghinia Tegla MG, Polonschii C, Bratu D, Popescu O, **Badea T, (co-corresponding author)** Gheorghiu E. Cellular sensing platform with enhanced sensitivity based on optogenetic modulation of cell homeostasis. *Biosens Bioelectron.* 2020 Apr 15;154:112003. doi: 10.1016/j.bios.2019.112003. Epub 2019 Dec 31.
 11. Gheorghiu M, Stanica L, Polonschii C, David S, Ruckenstein A, Popescu O, **Badea T**, Gheorghiu E. Modulation of Cellular Reactivity for Enhanced Cell-Based Biosensing. *Anal Chem.* 2020 Jan 7;92(1):806-814. doi: 10.1021/acs.analchem.9b03217. Epub 2019 Dec 9. PubMed PMID: 31751507.
 12. Goel M, Li T, **Badea TC**. Differential expression and subcellular localization of Copines in mouse retina. *J Comp Neurol.* 2019 Oct 1;527(14):2245-2262. Epub 2019 Mar 28.
 13. Kiyama T, Long Y, Chen CK, Whitaker CM, Shay A, Wu H, **Badea T.C.**, Mohsenin A, Parker-Thornburg J, Klein WH, Mills SL, Massey SC, Mao CA. Essential Roles of Tbr1 in the Formation and Maintenance of the Orientation-Selective J-RGCs and a Group of OFF-Sustained RGCs in Mouse. *Cell Rep.* 2019 Apr 16;27(3):900-915.e5.
 14. Tatomir A, Tegla CA, Martin A, Boodhoo D, Nguyen V, Sugarman AJ, Mekala A, Anselmo F, Talpos-Caia A, Cudrici C, **Badea T.C.**, Rus V, Rus H. RGC-32 regulates reactive astrocytosis and extracellular matrix deposition in experimental autoimmune encephalomyelitis. *Immunol Res.* 2018 Jul 13.
 15. Muzyka VV, Brooks M, **Badea T.C.** Postnatal developmental dynamics of cell type specification genes in Brn3a/Pou4f1 Retinal Ganglion Cells. *Neural Dev.* 2018 Jun 29;13(1):15.
 16. Ghahari A, Kumar SR, **Badea T.C.** Identification of Retinal Ganglion Cell Firing Patterns Using Clustering Analysis Supplied with Failure Diagnosis. *Int J Neural Syst.* 2018 Feb 22:1850008.
 17. Parmhans N, Sajgo S, Niu J, Luo W, **Badea T.C.** Characterization of retinal ganglion cell, horizontal cell, and amacrine cell types expressing the neurotrophic receptor tyrosine kinase Ret. *J Comp Neurol.* 2018 Mar 1;526(4):742-766. Epub 2017 Dec 19.
 18. Sajgo S, Ghinia MG, Brooks M, Kretschmer F, Chuang K, Hiriyan S, Wu Z, Popescu O, **Badea T.C.** Molecular codes for cell type specification in Brn3 retinal ganglion cells. *Proc Natl Acad Sci U S A.* 2017 May 16;114(20):E3974-E3983.
 19. Kretschmer F, Tariq M, Chatila W, Wu B, **Badea T.C.** Comparison of optomotor and optokinetic reflexes in mice. *J Neurophysiol.* 2017 Jul 1;118(1):300-316.
 20. Rus V, Nguyen V, Tatomir A, Lees JR, Mekala AP, Boodhoo D, Tegla CA, Luzina IG, Antony PA, Cudrici CD, **Badea T.C.**, Rus HG. RGC-32 Promotes Th17 Cell Differentiation and Enhances Experimental Autoimmune Encephalomyelitis. *J Immunol.* 2017 May 15;198(10):3869-3877.
 21. Wang X, Zhao L, Zhang Y, Ma W, Gonzalez SR, Fan J, Kretschmer F, **Badea T.C.**, Qian HH, Wong WT. Tamoxifen Provides Structural and Functional Rescue in Murine Models of Photoreceptor Degeneration. *J Neurosci.* 2017 Mar 22;37(12):3294-3310.

22. Somasundaram P, Wyrick GR, Fernandez DC, Ghahari A, Pinhal CM, Simmonds Richardson M, Rupp AC, Cui L, Wu Z, Brown RL, **Badea T.C.**, Hattar S, Robinson PR. C-terminal phosphorylation regulates the kinetics of a subset of melanopsin-mediated behaviors in mice. *Proc Natl Acad Sci U S A*. 2017 Mar 7;114(10):2741-2746.
23. Ghahari A, **Badea T.C.** Robust spike sorting of retinal ganglion cells tuned to spot stimuli. *Conf Proc IEEE Eng Med Biol Soc*. 2016 Aug;2016:1745-1749.
24. Keenan WT, Rupp AC, Ross RA, Somasundaram P, Hiriyanna S, Wu Z, **Badea T.C.**, Robinson PR, Lowell BB, Hattar SS. A visual circuit uses complementary mechanisms to support transient and sustained pupil constriction. *Elife*. 2016 Sep 26;5.
25. Ghinia MG, Novelli E, Sajgo S, **Badea TC**, Strettoi E. Brn3a and Brn3b knockout mice display unvaried retinal fine structure despite major morphological and numerical alterations of ganglion cells. *J Comp Neurol*. 2019 Jan 1;527(1):187-211. Epub 2016 Jul 29.
26. Wang X, Zhao L, Zhang J, Fariss RN, Ma W, Kretschmer F, Wang M, Qian HH, **Badea T.C.**, Diamond JS, Gan WB, Roger JE, Wong WT. Requirement for Microglia for the Maintenance of Synaptic Function and Integrity in the Mature Retina. *J Neurosci*. 2016 Mar 2;36(9):2827-42.
27. Sajgo S, Ali S, Popescu O, **Badea T.C.** Dynamic expression of transcription factor Brn3b during mouse cranial nerve development. *J Comp Neurol*. 2016 Apr 1;524(5):1033-61. Epub 2015 Sep 29.
28. Chuang K, Nguyen E, Sergeev Y, **Badea T.C.** Novel Heterotypic Rox Sites for Combinatorial Dre Recombination Strategies. *G3 (Bethesda)*. 2015 Dec 29;6(3):559-71.
29. Kretschmer F, Sajgo S, Kretschmer V, **Badea T.C.** A system to measure the Optokinetic and Optomotor response in mice. *J Neurosci Methods*. 2015 Dec 30;256:91-105. Epub 2015 Aug 14.
30. Tegla CA, Cudrici CD, Nguyen V, Danoff J, Kruszewski AM, Boodhoo D, Mekala AP, Vlaicu SI, Chen C, Rus V, **Badea T.C.**, Rus H. RGC-32 is a novel regulator of the T-lymphocyte cell cycle. *Exp Mol Pathol*. 2015 Jun;98(3):328-37. Epub 2015 Mar 11.
31. Sajgo S, Ghinia MG, Shi M, Liu P, Dong L, Parmhans N, Popescu O, **Badea T.C.** Dre - Cre sequential recombination provides new tools for retinal ganglion cell labeling and manipulation in mice. *PLoS One*. 2014 Mar 7;9(3):e91435.
32. Niu J, Ding L, Li JJ, Kim H, Liu J, Li H, Moberly A, **Badea T.C.**, Duncan ID, Son YJ, Scherer SS, Luo W. Modality-based organization of ascending somatosensory axons in the direct dorsal column pathway. *J Neurosci*. 2013 Nov 6;33(45):17691-709.
33. Shi M, Kumar SR, Motajo O, Kretschmer F, Mu X, **Badea T.C.** Genetic Interactions between Brn3 Transcription Factors in Retinal Ganglion Cell Type Specification. *PLoS One*. 2013 Oct 8;8(10):e76347.
34. **Badea T.C.**, (co-corresponding author) Williams J, Smallwood P, Shi M, Motajo O, Nathans J. Combinatorial expression of Brn3 transcription factors in somatosensory neurons: genetic and morphologic analysis. *J Neurosci*. 2012 Jan 18;32(3):995-1007.
35. Matsuoka, R.L., Chivatakarn, O, **Badea, T.C.**, Samuels, I.S., Cahill, H., Katayama K, Suto F, Chédotal, A., Peachey, N.S., Nathans, J, Yoshida, Y., Giger, R.J., and Kolodkin, A.L. (2011).

Class 5 transmembrane semaphorins control mammalian inner retinal lamination, neurite arborization, and function. *Neuron* 2011 71, 460–473, August 11

36. Chen S.K., **Badea T. C.** (co-corresponding author), Hattar S. (2011) Photoentrainment and pupillary light reflex are mediated by distinct populations of ipRGCs. *Nature* 476: 92-96, August 4
37. McNeill D.S., Sheely C.J., Ecker J.L., **Badea T.C.**, Morhardt D., Guido W., Hattar S. (2011) Development of melanopsin-based irradiance detecting circuitry. *Neural Dev.* 6:8.
38. Matsuoka R.L., Nguyen-Ba-Charvet K.T., Parray A., **Badea T.C.**, Chedotal A., Kolodkin A.L. (2011) Transmembrane semaphorin signalling controls laminar stratification in the mammalian retina. *Nature*. 470(7333):259-63.
39. **Badea T.C.**, (corresponding author) and Nathans J., (2011) Morphologies of mouse retinal ganglion cells expressing transcription factors Brn3a, Brn3b, and Brn3c: analysis of wild type and mutant cells using genetically-directed sparse labeling. *Vision Res.* 51(2):269-79. Epub 2010 Sep 6.
40. **Badea T.C.**, (co-corresponding author) Hua L.Z., Smallwood P.M., Williams J., Rotolo T., Nathans J., (2009) New mouse lines for the analysis of neuronal morphology using CreER(T)/loxP-directed sparse labeling. *PLoS ONE* Nov 16 4(11): e7859.
41. Ye X., Wang Y., Cahill H., Yu M., **Badea T.C.**, Smallwood P., Peachey N.S., Nathans J. (2009) Norrin, Frizzled4, and Lrp5 signaling in endothelial cells control a genetic program for retinal vascularization. *Cell* 139: 285-298.
42. **Badea T.C.**, Cahill H.C., Ecker J.L., Hattar S. and Nathans J. (2009) Distinct roles of transcription factors Brn3a and Brn3b in controlling the development, morphology, and function of retinal ganglion cells. *Neuron* 61: 852-864.
43. Guler, A.D., Ecker, J.L., Lall, G.S., Haq, S., Altimus, C.M., Liao, H.W., Barnard, A.R., Cahill, H., **Badea, T.C.**, Zhao, H., Hankins, M.W., Berson, D.M., Lucas, R.J., Yau, K.W., and Hattar, S. (2008) Melanopsin cells are the principal conduits for rod-cone input to non-image-forming vision. *Nature* 453 (7191): 102-105.
44. Wang, Y., **Badea, T.** (co-first author), and Nathans, J. (2006) Order from disorder: Self-organization in mammalian hair patterning. *Proceedings of the National Academy of Sciences USA* 103 (52): 19800-19805.
45. Fosbrink, M., Cudrici, C., Niculescu, F., **Badea, T.C.**, David, S., Shamsuddin, A., Shin, M.L., and Rus, H. (2005) Overexpression of RGC-32 in colon cancer and other tumors. *Experimental Molecular Pathology* 78 (2): 116-122.
46. **Badea, T.C.**, and Nathans, J. (2004) Quantitative analysis of neuronal morphologies in the mouse retina visualized by using a genetically directed reporter. *Journal of Comparative Neurology* 480 (4): 331-351.
47. **Badea, T.C.**, Park, J.H., Soane, L., Niculescu, T., Niculescu, F., Rus, H., and Shin, M.L. (2003) Sublytic terminal complement attack induces c-fos transcriptional activation in myotubes. *Journal of Neuroimmunology* 142 (1-2): 58-66.
48. **Badea, T.C.**, Wang, Y., and Nathans, J. (2003) A noninvasive genetic/pharmacologic strategy for visualizing cell morphology and clonal relationships in the mouse. *Journal of Neuroscience* 23 (6): 2314-2322.

49. **Badea, T.**, Niculescu, F., Soane, L., Fosbrink, M., Sorana, H., Rus, V., Shin, M.L., and Rus, H. (2002) RGC-32 increases p34CDC2 kinase activity and entry of aortic smooth muscle cells into S-phase. *Journal of Biology Chemistry* 277 (1): 502-508.
50. **Badea, T.**, Goldberg, J., Mao, B., and Yuste, R. (2001) Calcium imaging of epileptiform events with single-cell resolution. *Journal of Neurobiology* 48 (3): 215-227.
51. Niculescu, F., Soane, L., **Badea, T.**, Shin, M., and Rus, H. (1999) Tyrosine phosphorylation and activation of Janus kinase 1 and STAT3 by sublytic C5b-9 complement complex in aortic endothelial cells. *Immunopharmacology* 42 (1-3): 187-193.
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