

BIOGRAPHICAL SKETCH

NAME Manuel F. Casanova	POSITION TITLE Kolb Endowed Chair in Psychiatry		
eRA COMMONS USER NAME MOCASA02			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Río Piedras, Puerto Rico	B.Sc.	1973	Chemistry
University of Puerto Rico School of Medicine, San Juan	M.D.	1979	Medicine

A. Personal statement

I am a board-certified neurologist with training in electrophysiology. My main focus of interest is autism. As of present we are trying to translate neuro-pathological findings from our group into potential translational trials as well as creating a biomarker. During the last seven years at the University of Louisville I have built the necessary infrastructure to facilitate our ongoing efforts. The success of our efforts is shown by our productivity as well as the establishment of a multidisciplinary Autism Center.

B. Positions and honors

Positions and employment

1982–1983	Chief resident in neurology, University District Hospital, Puerto Rico
1984–1986	Research fellow, Neuropathology lab, Johns Hopkins University School of Medicine
1985	Consultant/Neuropathologist, Sinai Hospital, Baltimore, Maryland
1986–1991	Neurologist/Neuropathologist, Clinical Brain Disorders Branch, NIMH
1987–1991	Director, Brain Bank Unit, Clinical Brain Disorders Branch, NIMH
1989–1994	Scientific Expert, Advisory Panel, Yakovlev-Haleem Collection, Armed Forces Institute of Pathology, Washington, D.C.
1990–1991	Deputy Medical Examiner, Washington, D.C.
1990–1991	Neuropathologist, D.C. General Hospital, Washington, D.C.
1990–1991	Professorial Lecturer, Department of Forensic Science, Graduate School of Arts and Sciences, George Washington University
1991–1998	Psychiatry Service Staff Physician, VA Hospital, Downtown Division, Augusta, Georgia
1991–2003	Professor of psychiatry and neurology, Medical College of Georgia, Augusta, Georgia
1991–2003	Consultant in pathology, Medical College of Georgia
1992–2003	Consultant in psychiatry, Dwight David Eisenhower Army Medical Center, Fort Gordon, Georgia
1995–2003	Research Resource Liaison Coordinator, Department of Psychiatry, Medical College of Georgia
1998–2000	Consultant, Eisai Inc.
2000	Consultant, Nycomed Amersham
2002–2003	Professor of Anatomy and Cell Biology, Medical College of Georgia
2002–2003	Professor, School of Graduate Studies, Medical College of Georgia
2003	Consultant, Aventis Pasteur Ltd.
2003	Affiliate member, Biomedical and Health Sciences Institute, University of Georgia
2003–present	Kolb Endowed Chair in Psychiatry, University of Louisville, Louisville, Kentucky
2005–present	Associate Chair for Research, Department of Psychiatry, University of Louisville

Other experience and professional memberships

1996–2002	Scientific Advisory Board, National Alliance for Autism Research (NAAR)
1991–2002	Founding member, Tissue Advisory Board, Autism Tissue Program (ATP)
2005–present	Advisory Board, Families for Effective Treatment of Autism (FEAT)
2005–2009	Chair of Developmental Brain Disorders (DBD) Study Section, Center for Scientific Review

2007–present	Editor, <i>Autism Research</i>
2008	President, Louisville chapter, Society for Neuroscience
2009–present	Associate Editor, <i>Translational Neuroscience</i>
2009–present	Editor, <i>Autism Insights</i>
2009–present	Editor, <i>Autism Research and Treatment</i>
2009–present	Review board, <i>Journal of Special Education and Rehabilitation</i>
2010–present	Review Editor, <i>Frontiers in Alzheimer's Disease</i>

Honors

1970–1975	Honor Society, University of Puerto Rico
1979	Academic Acknowledgment Plaque, University of Puerto Rico School of Medicine
1981	Presidential Award, Puerto Rico chapter, American Medical Association
1982	Mead and Johnson Award
1982–1985	Physician's Recognition Award, American Medical Association
1984–1986	National Research Service Award, PHS Fellowship 5-T32-NS07179-05-0031, U.S. Department of Health and Human Services
1994	Stanley Scholar
1995	Distinguished Faculty Award, Medical College of Georgia
2002	Senior Scientist Award, 11 th Biennial Winter Workshop on Schizophrenia, Davos, Switzerland
2003	Distinguished Clinical Research Award, Medical College of Georgia
2011	Contributing Piece Award, Families for Effective Autism Treatment

C. Selected peer-reviewed publications (in chronological order)

1. **Casanova MF**, Konkachbaev AI, Switala AE, Elmaghraby AS. Recursive trace line method for detecting myelinated bundles: a comparison study with pyramidal cell arrays. *J Neurosci Methods* 2008;168:367–72
2. **Casanova MF**, Kreczmanski P, Trippe JT II, Switala AE, Heinsen H, Steinbusch HWM, Schmitz C. Neuronal distribution in the neocortex of schizophrenic patients. *Psychiatry Res* 2008;158:267–77
3. Fajardo C, Escobar MI, Buriticá E, Arteaga G, Umbarila J, **Casanova MF**, Pimienta H. Von Economo neurons are present in the dorsolateral (dysgranular) prefrontal cortex of humans. *Neurosci Lett* 2008;435:215–8
4. El-Zehiry N, **Casanova MF**, Elmaghraby A. Variability of the relative corpus callosum cross sectional area between dyslexic and normally developed brains. In: *Biomedical imaging: From nano to macro*. Piscataway: IEEE; 2008. p. 436–9
5. **Casanova MF**. Neuropathological findings in Asperger syndrome. In: Rausch JL, Johnson ME, Casanova MF, eds. *Asperger's disorder*. New York: Informa Healthcare; 2008, 155–70
6. El-Baz A, **Casanova MF**, Gimel'farb G, Mott M, Switala AE. An MRI-based diagnostic framework for early diagnosis of dyslexia. *Int J Comput Assist Radiol Surg* 2008;3:181–9
7. El-Baz A, **Casanova MF**, Gimel'farb G, Mott M, Switala AE, Vanbogaert E, McCracken R. A new CAD system for early diagnosis of dyslexic brains. *IEEE Int Conf Image Process* 2008;15:1820–3
8. **Casanova MF**. The significance of minicolumnar size variability in autism: a perspective from comparative anatomy. In: Zimmerman AW, ed. *Autism: Current theories and evidence*. Totowa: Humana Press; 2008. p. 349–60
9. Chance SA, **Casanova MF**, Switala AE, Crow TJ. Auditory cortex asymmetry, altered minicolumn spacing and absence of ageing effects in schizophrenia. *Brain* 2008;131:3178–92
10. El-Baz A, **Casanova MF**, Gimel'farb G, Mott M, Switala AE, Vanbogaert E, McCracken R. Dyslexia diagnostics by 3D texture analysis of cerebral white matter gyrifications. *IEEE Int Conf Pattern Recogn* 2008;19. DOI: 10.1109/ICPR.2008.4760971
11. **Casanova MF**, Trippe J II, Tillquist C, Switala AE. Morphometric variability of minicolumns in the striate cortex of Homo sapiens, Macaca mulatta, and Pan troglodytes. *J Anat* 2009;214:226–34
12. Sokhadze EM, Baruth J, Tasman A, Sears L, Mathai G, El-Baz A, **Casanova MF**. Event-related potential study of novelty processing abnormalities in autism. *Appl Psychophysiol Biofeedback* 2009;34:37–51
13. Sokhadze EM, El-Baz A, Baruth J, Mathai G, Sears L, **Casanova MF**. Effects of low frequency repetitive transcranial magnetic stimulation (rTMS) on gamma frequency oscillations and event-related potentials during processing of illusory figures in autism. *J Autism Dev Disord* 2009;39:619–34

14. Seelan RS, Lakshmanan J, **Casanova MF**, Parthasarathy RN. Identification of *myo*-inositol-3-phosphate synthase isoforms: characterization, expression, and putative role of a 16-kDa γ_c isoform. *J Biol Chem* 2009;284:9443–57
15. **Casanova MF**, Trippe J. Radial cytoarchitecture and patterns of cortical connectivity in autism. *Phil Trans R Soc B* 2009;364:1433–6
16. **Casanova MF**, El-Baz A, Mott M, Mannheim G, Hassan H, Fahmi R, Giedd J, Rumsey JM, Switala AE, Farag A. Reduced gyral window and corpus callosum size in autism: possible macroscopic correlates of a minicolumnopathy. *J Autism Dev Disord* 2009;39:751–64
17. Johnson SB, **Casanova MF**. Interhemispheric connectivity: the evolution and nature of the corpus callosum. In: Westland TB, Calton RN, eds. *Handbook on white matter: Structure, function and changes*. Hauppauge: Nova Science Publishers; 2009, 3–15
18. **Casanova MF**. La esquizofrenia como condición neurológica debido a una falta en la lateralización del cerebro: observaciones micro- y macroscópicas. *Rev Neurol* 2009;49:136–42
19. Crespo F, Fernandez-Botran R, Tillquist C, Mott M, **Casanova M**. Cytokine polymorphisms in autism: their role in immune alterations. In: Chauhan A, Chauhan V, Brown WT, eds. *Autism: Oxidative stress, inflammation and immune abnormalities*. Boca Raton: CRC Press; 2009, 315–24
20. Sokhadze E, Baruth J, **Casanova MF**. Neuropathological theories and EEG gamma oscillation abnormalities in autism. *Neuroconnections* 2009;2009(Fall):34–37
21. **Casanova MF**, El-Baz AS, Vanbogaert E, Narahari P, Trippe J. Minicolumnar width: comparison between supragranular and infragranular layers. *J Neurosci Methods* 2009;184:19–24
22. Williams EL, **Casanova MF**. Autism and dyslexia: a spectrum of cognitive styles as defined by minicolumnar morphometry. *Med Hypotheses* 2010;74:59–62
23. **Casanova MF**, El-Baz A, Giedd J, Rumsey JM, Switala A. Increased white matter gyral depth in dyslexia: implications for corticocortical connectivity. *J Autism Dev Disord* 2010;40:21–9
24. **Casanova MF**, El-Baz A, Vanbogaert E, Narahari P, Switala A. A topographic study of minicolumnar core width by lamina comparison between autistic subjects and controls: possible minicolumnar disruption due to an anatomical element in-common to multiple laminae. *Brain Pathol* 2010; 20:451–8
25. **Casanova MF**, Trippe J II, Tillquist CR, Switala AE. Radial structure of dolphin insula: dolphin insula reflects minicolumnar organization of mammalian isocortex. *Transl Neurosci* 2010;1:37–42
26. **Casanova MF**. Cortical organization: anatomical findings based on systems theory. *Transl Neurosci* 2010;1:62–71
27. Baruth J, Sokhadze E, El-Baz A, Mathai G, Sears L, **Casanova MF**. Transcranial magnetic stimulation. In: Siri K, Lyons T, eds. *Cutting-edge therapies for autism: 2010–2011*. New York: Skyhorse; 2010, 388–97
28. **Casanova M**, Sokhadze E, El-Baz A, Baruth J, Mathai G, Sears L. Research at the University of Louisville Autism Center. In: Siri K, Lyons T, eds. *Cutting-edge therapies for autism: 2010–2011*. New York: Skyhorse; 2010, 410–3
29. Elnakib A, El-Baz A, **Casanova MF**, Gimel'farb G, Switala AE. Image-based detection of corpus callosum variability for more accurate discrimination between dyslexic and normal brains. *Proc Int Symp Biomed Imag* 2010;7:109–12
30. Sokhadze E, Baruth J, El-Baz A, Horrell T, Sokhadze G, Carroll T, Tasman A, Sears L, **Casanova MF**. Impaired error monitoring and correction function in autism. *J Neurother* 2010;14:79–95
31. **Casanova MF**. The pathology of paraphrenia. *Curr Psychiatry Rep* 2010;12:193–201
32. **Casanova MF**. The role of the entorhinal cortex in paraphrenia. *Curr Psychiatry Rep* 2010;12:202–7
33. Sokhadze E, Baruth J, Tasman A, Mansoor M, Ramaswamy R, Sears L, Mathai G, El-Baz A, **Casanova MF**. Low-frequency repetitive transcranial magnetic stimulation (rTMS) affects event-related potential measures of novelty processing in autism. *Appl Psychophysiol Biofeedback* 2010;35:147–61
34. **Casanova MF**, El-Baz A, Elnakib A, Giedd J, Rumsey JM, Williams EL, Switala AE. Corpus callosum shape analysis with application to dyslexia. *Transl Neurosci* 2010;1:124–30
35. Baruth JM, **Casanova MF**, Sears L, Sokhadze E. Early-stage visual processing abnormalities in autism spectrum disorders. *Transl Neurosci* 2010;1:177–87
36. Williams EL, **Casanova MF**. Potential teratogenic effects of ultrasound on corticogenesis: implications for autism. *Med Hypotheses* 2010;75:53–8
37. Baruth JM, **Casanova MF**, El-Baz A, Horrell T, Mathai G, Sears L, Sokhadze E. Low-frequency repetitive transcranial magnetic stimulation modulates evoked-gamma frequency oscillations in autism spectrum disorder. *J Neurother* 2010;14:179–94

38. Elnakib A, Gimel'farb G, **Casanova M**, Switala A, El-Baz A. Dyslexia diagnostics by centerline-based shape analysis of the corpus callosum. *Proc Int Conf Pattern Recogn* 2010;20:261–4
39. Farag A, Elhabian S, Abdelrahman M, Graham J, Farag AA, Chen D, **Casanova M**. Shape modeling of the corpus callosum. *Proc Int Conf IEEE Eng Med Biol Soc* 2010;32:4288–91
40. Elnakib A, El-Baz A, **Casanova M**, Gimel'farb G, Switala A. Image-based detection of corpus callosum variability for more accurate discrimination between autistic and normal brains. *Proc Int Conf Med Image Comput Assist Intervention* 2010;17:4337–40
41. Williams EL, **Casanova MF**. Autism or autisms? Finding the lowest common denominator. *Bol Asoc Méd PR* 2010;102(4):17–24
42. Farag A, Elhabian S, Abdelrahman M, Graham J, Farag A, Chen D, **Casanova MF**. Surface modeling of the corpus callosum from MRI scans. *Lect Notes Comput Sci* 2010;6455:9–18
43. Seelan RS, Pisano MM, Greene RM, **Casanova MF**, Parthasarathy RN. Differential methylation of the gene encoding *myo*-inositol 3-phosphate synthase (*Isyn1*) in rat tissues. *Epigenomics* 2011;3:111–24
44. **Casanova MF**, El-Baz A, Elnakib A, Switala AE, Williams EL, Williams DL, Minshew NJ, Conturo TE. Quantitative analysis of the shape of the corpus callosum in patients with autism and comparison individuals. *Autism* 2011;15:223–38
45. Elnakib A, **Casanova MF**, Gimel'farb G, Switala AE, El-Baz A. Autism diagnostics by centerline-based shape analysis of the corpus callosum. *IEEE Int Symp Biomed Imag* 2011;8:1843–6
46. Nitzken M, **Casanova MF**, Gimel'farb G, Elnakib A, Khalifa F, Switala A, El-Baz A. 3D shape analysis of the brain cortex with application to autism. *IEEE Int Symp Biomed Imag* 2011;8:1847–50
47. Baruth JM, Williams EL, Sokhadze E, El-Baz A, **Casanova MF**. Beneficial effects of repetitive transcranial magnetic stimulation (rTMS) on behavioral outcome measures in autism spectrum disorder. *Autism Sci Dig* 2011;1:52–7
48. Williams EL, **Casanova MF**. Prenatal ultrasound: it's not just a photograph. *Autism Sci Dig* 2011;1:58–60
49. Williams EL, **Casanova MF**. Above genetics: lessons from cerebral development in autism. *Transl Neurosci* 2011;2:106–20
50. Dombroski BA, Switala AE, El-Baz AS, **Casanova MF**. Gyral window mapping of typical cortical folding using MRI. *Transl Neurosci* 2011;2:142–7
51. **Casanova MF**, Starkstein SE, Jellinger KA. Clinicopathological correlates of behavioral and psychological symptoms of dementia. *Acta Neuropathol* 2011;122:117–35
52. Blažek V, Brůžek J, **Casanova MF**. Plausible mechanisms for brain structural and size changes in human evolution. *Colleg Antropol* 2011; in press
53. El-Baz A, Elnakib A, **Casanova MF**, Gimel'farb G, Switala AE, Jordan D, Rainey S. Accurate automated detection of autism related corpus callosum abnormalities. *J Med Syst* 2011; in press
54. Mott MC, Fernandez-Bostrán R, **Casanova MF**. Neuroinflammation in the pathogenesis of Autism Spectrum Disorders: converging evidence for systemic and central nervous system immune interaction. *Brain Res J* 2011;3:in press

D. Research support

Active

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| 2007–2011 | NIH P30-ES-014443 Center for Environmental Genomics and Integrative Biology (CEGIB) (Board member) PD: Kenneth S. Ramos |
| 2009–2011 | NIH R01-HD-65279 Gross morphological correlates to the minicolumnopathy of autism (Principal Investigator) |
| 2009–2013 | NIH R01-MH-86784 Building a selective inhibitory control tone in autism: An rTMS study (Principal Investigator) |

Completed

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| 2004–2008 | NIH R01-MH-69991 Modular abnormalities of brain organization in autism (Principal Investigator) |
| 2005–2009 | VA Merit Review: Mood stabilizing medications and the inositol signaling system (Co-investigator) PI: Ranga N. Parthasarathy |
| 2008–2010 | Autism Speaks pre-doctoral mentored fellowship: Electrocortical study of cognitive and perceptual processing deficits in autism (Mentor) Fellow: Joshua Baruth |
| 2008–2010 | Autism Speaks basic & clinical research grant: Cytokine polymorphisms and their role in autism (Collaborative Consultant) PI: Fabián Crespo |