

## CURRICULUM VITAE

### Enrique C. Villacres

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### EDUCATION

<b>Institution</b>	<b>Degree</b>	<b>Conferred</b>	<b>Field</b>
California State University, Northridge, CA	B.A.	May 1977	Chemistry
Medical College of Wisconsin, Milwaukee, WI	M.D.	May 1981	Medicine

### POSTGRADUATE TRAINING

1981-1985	Internship and Residency, Department of Psychiatry and Behavioral Sciences, University of Washington School of Medicine, Seattle, WA
1985-1986	Postdoctoral Research Fellow, Genetic Approaches to Aging Research (NIA), Department of Pathology (George M. Martin, M.D., Sponsor), University of Washington School of Medicine, Seattle, WA
1986-1988	Postdoctoral Research Fellow, Individual National Research Service Award (NIMH), Department of Psychiatry and Behavioral Sciences (Richard C. Veith, M.D., sponsor), University of Washington School of Medicine, Seattle, WA
1988-1989	Postdoctoral Research Fellow, The John A. Hartford Foundation, Department of Medicine, Division of Gerontology and Geriatric Medicine (Itamar B. Abrass, M.D., sponsor), University of Washington School of Medicine, Seattle, WA

### APPOINTMENTS

1985-1990	Clinical Investigator, Psychiatry Service (Merlin H. Johnson, M.D., Chief), Veterans Administration Medical Center, Seattle, WA
1985-1990	Clinical Instructor, Department of Psychiatry and Behavioral Sciences (Gary J. Tucker, M.D., Chair), University of Washington School of Medicine, Seattle, WA
1990-1996	Research Assistant Professor, Department of Pharmacology (William A. Catterall, Ph.D., Chair) University of Washington School of Medicine, Seattle, WA
1990-1996	Research Assistant Professor, Department of Psychiatry & Behavioral Sciences (Gary J. Tucker, M.D., Chair) University of Washington School of Medicine, Seattle, WA
1995-	Research Affiliate, Center on Human Development and Disability, University of

present Washington, Seattle, WA

**APPOINTMENTS (cont.)**

- 1996-1998 Research Associate Professor, Department of Pharmacology (William A. Catterall, Ph.D., Chair) University of Washington School of Medicine, Seattle, WA
- 1996-1998 Research Associate Professor, Department of Psychiatry & Behavioral Sciences (Gary J. Tucker, M.D., Chair) University of Washington School of Medicine, Seattle, WA
- 1998-1999 Clinical Associate Professor, Department of Psychiatry & Behavioral Sciences (Richard C. Veith, M.D., Chair) University of Washington School of Medicine, Seattle, WA
- 1998- Present Attending Physician, Department of Psychiatry & Behavioral Sciences Harborview Medical Center (Peter P. Roy-Byrne, M.D., Chief), Seattle, WA
- 1999- Present Associate Professor, Department of Psychiatry & Behavioral Sciences (Richard C. Veith, M.D., Chair) University of Washington School of Medicine, Seattle, WA

**LICENSE TO PRACTICE**

Washington State since August 1982

**BOARD CERTIFICATION**

- 1996 American Board of Psychiatry and Neurology  
2006 American Board of Psychiatry and Neurology, Recertification

**AWARDS AND HONORS**

- 1977-1981 National Health Service Scholarship Program (PHS)  
1993-1998 Clinical Investigator Development Award (NINDS)

**ORGANIZATIONS**

American Association for the Advancement of Science (past member)  
Society for Neuroscience (past member)

**SPECIAL LOCAL RESPONSIBILITIES**

Faculty member of Vertical Advising for University of Washington Medical Students (1991-1993)  
Member of the Minority Recruitment Committee and Department of Pharmacology Representative (1994-1998)

## **BIBLIOGRAPHY**

1. Featherstone, J.A., Veith, R.C., Flatness, D., Murburg, M.M., and Villacres, E.C. (1987) Age and alpha-2 adrenergic regulation of plasma norepinephrine kinetics in humans. *J. Gerontology* **42**: 271-276.
2. Villacres, E.C., Hollifield, M., Katon, W.J., Wilkinson, C.W., and Veith, R.C. (1987) Sympathetic nervous system activity in panic disorder. *Psychiatry Research* **21**: 313-321.
3. Villacres, E.C., Hollifield, M., Katon, W.J., Wilkinson, C.W., and Veith, R.C. (1988) Arterial epinephrine levels in panic disorder: in reply. *Psychiatry Research* **25**: 113-114.
4. Roy-Byrne, P.P., Lewis, N., Villacres, E.C., and Veith, R.C. (1988) Suppression of norepinephrine appearance rate in plasma by diazepam in humans. *Life Sciences* **43**: 1615-1623.
5. Roy-Byrne, P.P., Lewis, N., Villacres, E.C., Diem, H., Greenblatt, D.J., Shader, R.I., and Veith, R.C. (1989) Preliminary evidence of benzodiazepine subsensitivity in panic disorder. *Biological Psychiatry* **26**: 744-748.
6. Murburg, M.M., Villacres, E.C., Ko, G., Dorsa, D.M., and Veith, R.C. (1991) Effects of oral yohimbine on human sympathetic nervous system function. *Journal of Clinical Endocrinology & Metabolism*, Vol. 73, **4**:861-865.
7. Choi, E.J., Xia, Z., Villacres, E.C. and Storm, D.R. (1993) The Regulatory Diversity of the Mammalian Adenylyl Cyclases. *Current Opinions in Cell Biology* **5**:269-273
8. Grossmann, A., Kukull, W.A., Jinneman, J., Bird, T.D., Villacres, E.C., Larson, E.B., and Rabinovitch, P.S. (1993) Intracellular calcium response is reduced in CD4+ lymphocytes in Alzheimer's Disease and in older persons with Down's Syndrome. *Neurobiology of Aging*. **14**:177-185.
9. Villacres, E.C., Xia, Z., Bookbinder, L.H., Edelhoff, S., Disteché, C.M. and Storm, D.R. (1993) Cloning, chromosomal mapping, and expression of human fetal brain type I adenylyl cyclase. *Genomics* **16**:473-478.
10. Villacres, E.C., Choi, E.J., Xia, Z. and Storm, D.M. (1993) Calmodulin Regulation of Mammalian Adenylyl Cyclases. *Current Topics in Molecular Pharmacology* **1**:49-54.
11. Hinds, T.R., Kukull, W.A., vanBelle, G., Schellenberg, G.D., Villacres, E.C., and Larson, E.B. (1994) Relationships between serum  $\alpha$ 1-antichymotrypsin and Alzheimer's Disease. *Neurobiology of Aging* **15**:21-27.
12. Veith, R.C., Lewis, N., Linares, O.A., Barnes, R.F., Raskind, M.A., Villacres, E.C., Murburg, M.M., Ashleigh, E.A., Castillo, S., Peskind, E.R., Pascualy, M., and Halter, J.B. (1994) Sympathetic nervous system activity in major depression: basal and desipramine-induced alterations in plasma norepinephrine kinetics. *Archives of General Psychiatry* **51**:411-422.

**BIBLIOGRAPHY (cont.)**

13. Duhe, R.J., Nielsen, M.D., Dittman, A.H., Villacres, E.C., Choi, E.J., and Storm, D.R. (1994) Oxidation of Critical Cysteine Residues of Type I Adenylyl Cyclase by o-Iodosobenzoate and Nitric Oxide Reversibly Inhibits Stimulation by Calcium and Calmodulin. *J. Biol. Chem.* **269**: 7290-7296.
14. Wu, Z.L., Thomas, S.A., Villacres, E.C., Xia, Z., Simmons, M.L., Chavkin, C., Palmiter, R.D., and Storm, D.R. (1995) Altered behavior and long-term potentiation in type I adenylyl cyclase mutant mice. *Proc. Natl. Acad. Sci. USA* **92**:220-224.
15. Edelhoff, S., Villacres, E.C., Storm, D.R., and Disteché, C.M. (1994) Mapping of adenylyl cyclase genes type I, II, III, IV, V, VI in mouse. *Mammalian Genome* 6:111-113.
16. Reddy, R., Smith, D., Wayman, G., Wu, Z., Villacres, E.C., and Storm, D.R. (1994) Voltage-Sensitive Adenylyl Cyclase Activity in Cultured Neurons: A Calcium Independent Phenomenon. *J. Biol. Chem.* **270**: 14340-46.
17. Villacres, E.C., Hua, W., Wu, Z., Nielsen, M.D., Watters, J.J., Yan, C., Beavo, J., and Storm, D.R. (1995) Developmentally expressed Ca<sup>2+</sup> sensitive adenylyl cyclase activity is disrupted in the brains of type I adenylyl cyclase mutant mice. *J. Biol. Chem.* **270**: 14352-57.
18. Impey, S., Mark, M., Villacres, E.C., Poser, S., Chavkin, C., and Storm, D.R. (1996) Induction of CRE-Mediated Gene Expression by Stimuli That Generate Long-Lasting LTP in Area CA1 of the Hippocampus. *Neuron* **16**:973-982.
19. Hacker, B.M., Tomlinson, J.E., Wayman, G.A., Sultana, R., Chan, G., Villacres, E.C., Disteché, C.M., and Storm, D.R. (1998) Cloning, Chromosomal Mapping, and Regulatory Properties of the Human Type 9 Adenylyl Cyclase. *Genomics* **50**:97-104.
20. Villacres, E.C., Wong, S., Chavkin, C., and Storm, D.R. (1998) Type I adenylyl cyclase mutant mice have impaired mossy fiber but normal perforant path and CA1 LTP. *J. Neurosci.* **18(9)**: 3186-3194.
21. Sultana, R., Yu, C.E., Yu, J., Munson, J., Chen, D., Hua, W., Estes, A., Cortes, F., de la Barra, F., Yu, D., Haider, S.T., Trask, B.J., Green, E.D., Raskind, W.H., Disteché, C.M., Wijsman, E., Dawson, G., Storm, D.R., Schellenberg, G.D., Villacres, E.C. (2002) Identification of a Novel Gene on Chromosome 7q11.2 Interrupted by a Translocation Breakpoint in a Pair of Autistic Twins. *Genomics* **80**:129-134.
22. Sultana, R., She, X., Yu, C.E., Haider, S.T., Raskind, W.H., Disteché, C.M., Eichler, E.E., Dawson, G., Schellenberg, G.D., Villacres, E.C. (Manuscript in preparation) Cloning of the translocation breakpoint at 7q36.1 and identification of candidate genes for autism in a boy with a complex chromosomal translocation (1;7;21).
23. Sultana, R., She, X., Yu, C.E., Haider, S.T., Raskind, W.H., Disteché, C.M., Eichler, E.E., Dawson, G., Schellenberg, G.D., Villacres, E.C. (Manuscript in preparation) Cloning of the translocation breakpoint at 7q11.2 in a boy with autism and a complex chromosomal translocation (1;7;21).

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24. Sultana, R., Yu, C.E., Cortes, F., de la Barra, F., Haider, S.T., Raskind, W.H., Disteche, C.M., Dawson, G., Schellenberg, G.D., Villacres, E.C. (Manuscript in preparation)  
Cloning of the translocation breakpoint t(7;20) in a pair of autistic twins.

## **ABSTRACTS**

1. Veith, R.C., Halter, J.B., Murburg, M.M., Barnes, R.F., Villacres, E.C., and Backus, F.I. (1985) Desipramine alters plasma norepinephrine kinetics. New Research Section, American Psychiatric Association Annual Meeting, Dallas, Texas, May 22, 1985.
2. Veith, R.C., Halter, J.B., Murburg, M.M., Barnes, R.F., Villacres, E.C., and Backus, F.I. (1985) Effect of acute and chronic desipramine on plasma norepinephrine kinetics. Fourth World Congress of Biological Psychiatry, Philadelphia, Pennsylvania, September 8-13, 1985.
3. Veith, R.C., Halter, J.B., Murburg, M.M., Barnes, R.F., Villacres, E.C., and Backus, F.I. (1985) Increased plasma norepinephrine appearance rate in dexamethasone-resistant depression. Fourth World Congress of Biological Psychiatry, Philadelphia, Pennsylvania, September 8-13, 1985.
4. Veith, R.C., Barnes, R.F., Villacres, E.C., Featherstone, J.A., Linares, O.A., and Halter, J.B. (1987) Norepinephrine kinetics: Aging, depression and panic. 140<sup>th</sup> Annual Meeting of the American Psychiatric Association, Chicago, Illinois, May 9-15. 1987/
5. Veith, R.C., Barnes, R.F., Villacres, E.C., Murburg, M.M., Raskind, M.A., Borson, S., Backus, R.I., and Halter, J.B. (1987) Plasma catecholamines and norepinephrine kinetics in depression and panic disorder. Symposium: Regulation of catecholamine metabolism and its evaluation in neuropsychiatric disorders. Sixth International Catecholamine Symposium, Jerusalem, Israel, June 14-19, 1987.
6. Murburg, M.M. , Villacres, E.C., Ko, G.N., and Veith, R.C. (1987) Yohimbine increases human plasma norepinephrine appearance rate without affecting clearance. Society for Neuroscience Meeting, New Orleans, Louisiana, November, 1987.
7. Roy-Byrne, P.P., Lewis, N., Villacres, E.C., Greenblatt, D. Shader, R.I., and Veith, R.C. (1987) Suppression of norepinephrine appearance rate in plasma by diazepam in humans. Presented at the Annual Meeting of the American College of Neuropsychopharmacology, Puerto Rico, December 8, 1987.
8. Villacres, E.C., Liu, Y., Au, D.C., and Storm, D.R. (1990) Palmitoylation of recombinant mouse neuromodulin (GAP-43). American Society for Biochemistry and Molecular Biology/The American Association of Immunologists Joint Meeting, New Orleans, Louisiana, June 4-7, 1990.
9. Grossmann, A., Kukull, W.A., Bird, T.D., Villacres, E.C., Larson, E.B., and Rabinovitch, P.S. (1991) Intracellular calcium response is reduced in CD4<sup>+</sup> lymphocytes in Alzheimer's Disease and in older person's with Down Syndrome. The Gerontological Society of America, San Francisco, November 22-26, 1991.

### **ABSTRACTS (cont.)**

10. Kukull, W.A., Hinds, T.R., Schellenger, G.D., Villacres, E.C., vanBelle, G., and Larson, E.B. (1991) Platelet membrane fluidity is not increased in adult Down Syndrome. The Gerontological Society of America, San Francisco, November 22-26, 1991.
11. Murburg, M.M., Villacres, E.C., Ko, G., Dorsa, D.M., and Veith, R.C. (1991) Effects of oral yohimbine on human sympathetic nervous system function. *Yearbook of Endocrinology, Mosby-Yearbook, Inc.* – 1992.
12. Villacres, E.C., Bookbinder, L.H., Xia, Z., Edelhoff, S., Adler, D.A., Disteché, C.M., and Storm, D.R. (1992) Human fetal brain adenylyl cyclase: cloning, chromosomal mapping, and expression. Society for Neuroscience, Anaheim, CA, October 25-30, 1992.
13. Duhe, R.J., Dittman, A.H., Villacres, E.C., Choi, E.J., and Storm, D.R. (1993) Nitric Oxide Treatment for Type I Adenylyl Cyclase Causes a Reversible Loss of Calcium/Calmodulin Sensitivity via Cysteine Oxidation. Society for Neuroscience, Washington DC, November 7-12, 1993.
14. Villacres, E.C., Watters, J.J., Wu, Z., Hinds, T., and Storm, D.R. (1994) Postnatal development of type I adenylyl cyclase in rat hippocampus, cerebellum, and cerebral cortex. Geriatrics Fellows and Junior Faculty Research Program, AGS/AFAR Annual Meeting, Los Angeles, CA, May 21, 1994.
15. Impey, S., Villacres, E.C., and Storm, D.R. (1995) cAMP response element mediated transcription coincides with the late phase of LTP in area CA1 of the hippocampus. Society for Neuroscience, San Diego, CA, November 11-16, 1995.
16. Nielsen, M.D., Villacres, E.C., and Storm, D.R. (1995) *In vivo* inhibition of Ca<sup>2+</sup>/calmodulin stimulation of type I adenylyl cyclase by somatostatin. Society for Neuroscience, San Diego, CA, November 11-16, 1995.
17. Sultana, R., Yu, J., Raskind, W., Disteché, C.M., de la Barra, F., and Villacres, E.C. Cloning a candidate gene (ARG1) from the breakpoint of t(7;20) in an autistic twin pair. The American Society of Human Genetics, San Francisco, CA, October 19-23, 1999.

### **BOOKS**

1. Veith, R.C., Barnes, R.F., Villacres, E.C., Murburg, M.M., Raskind, M.A., Borson, S., Backus, F.I., and Halter, J.B. Plasma catecholamines and norepinephrine kinetics in depression and panic disorder. In R. Belmaker, ed., Catecholamines: Clinical Aspects. New York: Alan Liss Co., 1988, 197-202.