

# GARY STEPHEN CIMENT

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**Current Title:** Professor Emeritus      **Date of Birth:** January 16, 1951  
**Place of Birth:** Montreal, Canada  
(Naturalized U.S. citizen)

**University Affiliation:** Professor Emeritus  
Department of Cell, Developmental and Cancer Biology (L215)  
School of Medicine  
Oregon Health & Sciences University  
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## Education:

Institution	Degree	Major	Date
University of California Los Angeles, California Dr. Sidney Rittenberg (Research Advisor)	B.A. ( <i>cum laude</i> )	Bacteriology	March, 1973
University of California Brain Research Institute Los Angeles, California Dr. Jean S. de Vellis (Research Advisor)	Ph.D.	Neuroscience	March, 1979

## Medical Expert Witness Experience (2011 - present):

- 18 Cases in Oregon, California, Washington, Idaho, Alaska, Puerto Rico
- 87% of the cases were for the plaintiffs; 13% of the cases were for defendants

## Academic Experience:

Research Associate with Dr. James A. Weston Department of Biology, University of Oregon, Eugene, Oregon	1979-1985
Assistant Professor, Department of Cell Biology and Anatomy School of Medicine, Oregon Health Sciences University Portland, Oregon	1985-1991

### **Academic Experience (continued):**

Associate Professor, Department of Cell, Developmental and Cancer Biology School of Medicine, Oregon Health Sciences University Portland, Oregon	1991-2010
Professor, Department of Cell, Developmental and Cancer Biology School of Medicine, Oregon Health & Sciences University Portland, Oregon	2010-2014
Professor Emeritus, Department of Cell, Developmental and Cancer Biology School of Medicine, Oregon Health & Sciences University Portland, Oregon	2015-present
Editorial Board Member, <b>Journal of Neuroscience Research</b> (Alan R. Liss, New York)	1988-1998
Editorial Board Member, <b>Perspectives in Developmental Neurobiology</b> (Gordon & Breach, London)	1992-1998
Chief Scientific Officer, Aves Labs (Tigard, OR)	1996-present

### **National and International Scientific Review Committees:**

NIH	-- Human Embryology Study Section ( <i>ad hoc</i> )	(1989, 1993)
	-- Biological Sciences 2 Study Section ( <i>ad hoc</i> )	(1993)
	-- Neurological Sciences BI Study Section ( <i>ad hoc</i> )	(1994)
	-- NIMH pre-doctoral fellowship study section ( <i>ad hoc</i> )	(1994)
	-- Program Project Review Committee ( <i>ad hoc</i> )	(1995)
	(Human Genetics of Neurofibromatosis)	
NSF	-- <i>Ad hoc</i> reviewer for Developmental Neurosciences, Molecular & Cellular Neurobiology, and Developmental Biology Programs	(1984 -- 2014)
American Heart Association (Oregon Affiliate)		
	-- Member, Grants Review Committee	(1993 -- 2014))
	-- Chair, Grants Review Committee	(1994 -- 1995)
Medical Research Foundation of Canada ( <i>ad hoc</i> )		(1992 -- 2014)

### **Teaching Experience:**

1986 -- 1993	(Oregon Health Sciences University)	
	Course director, <b>Neuroanatomy</b> for 1st year medical students and graduate students.	
1990 -- 1993	(Oregon Health Sciences University)	
	Contributing lecturer, <b>Histology</b> for medical and graduate students.	
1991 -- 1998	(Oregon Health Sciences University)	
	Organizer and Course director, <b>Developmental Biology Journal Club</b>	
1993 -- 1998	(Oregon Health Sciences University)	
	Organizer and Course director, <b>Developmental Neurobiology</b> for graduate students.	
1993 -- 1997	(Oregon Health Sciences University)	
	Contributing lecturer in <b>Signal Transduction</b> and <b>Techniques in Cell &amp; Developmental Biology</b> courses	

### **Teaching Experience (continued):**

- 1994 -- 1996 (Oregon Health Sciences University)  
Course vice-direct, lecturer, laboratory organizer, **Neuroscience & Behavior** course for 2nd year medical students.
- 1996 -- 2013 (Oregon Health Sciences University) Course Director, laboratory organizer, **Neuroscience & Behavior (NSB)** course for 2nd year medical students.
- 1997 -- 2013 (Oregon Health Sciences University) Course director, **Gross Anatomy, Imaging, Embryology (GIE)** course for 1st year medical students.
- 2015 -- present (Oregon Health Sciences University) Lecturer, **Fundamentals of Clinical Anatomy** (1st and 2nd year medical students)

### **Teaching Awards:**

#### **Recipient of Excellence in Teaching awards (nominated by students):**

1986-87, 1989-90, 1992-93, 1993-94, 1994-95, 1995-96, 1996-97, 1998-99, 1999-2000, 2000-01, 2002-03, 2004-05, 2005-06, 2006-07, 2007-2008, 2009-2010; 2018-1019.

#### **Recipient of Faculty Excellence in Education (nominated by faculty): 2007-2008**

#### **Recipient of Best Course, Course Director award (nominated by students):**

2000-01, 2002-03, 2003-04, 2005-06 (for both GIE and NSB), 2008-2009

#### **Recipient of Excellence in Teaching award from the Allied Health students:**

1999, 2000

#### **Recipient of Allan J. Hill, Jr. Award for Excellence in Teaching -- 2009**

### **Editorial Work:**

Co-editor of **Neuroembryology: Cellular and Molecular Approaches**, Alan R. Liss, New York, 1988.

Editor of a special issue of **Perspectives in Developmental Neurobiology** entitled: "*GAP-43 -- Perspectives on its Biological Functions and its Expression in Non-Neuronal Cells* " (1992)

### **Past Research Grant Support**

#### **National Institutes of Health**

##### **"Neurofibromatosis: A model system using phorbol esters"**

R01 NS23883

\$ 63,686 annual direct costs (1 July 1986 through 30 June 1989), principal investigator

\$ 88,854 annual direct costs (1 July 1989 through 30 June 1992), principal investigator

\$140,978 annual direct costs (1 July 1992 through 30 June 1996), principal investigator

##### **"Characterization of Neural Crest-Derived cDNA library"**

RO1 DE07625

\$87,296 annual direct costs (1 Sept 1986 through 31 August 1989), principal investigator

##### **"Role of the protease stromelysin in axon invasiveness"**

R01 NS 27886

\$50,000 annual direct costs (1 July 1992 through 30 June 1995), principal investigator

**Past Research Grant Support (continued)**

**National Science Foundation**

***"Role of the protease stromelysin in axon invasiveness"*** BNS 91-19397

\$43,332 annual direct costs (1 March 1992 through 31 August 1995), principal investigator

***"Use of three-dimensional time-lapse microscopy to probe the role of proteases in neurite invasiveness"***

\$76,500 annual direct costs (15 April 1995 through 14 April 1998), co-investigator  
(J. Lochner, principal investigator)

***"1988 Northwest Regional Developmental Biology Conference"*** DCB-8801146

\$ 2,000 direct costs (April, 1988), principal investigator

**Alzheimer's Disease Center of Oregon**

***"Characterization of the NGF responsive elements in the 5' flanking DNA of the transin gene"***

\$12,000 direct costs (1 January 1989 through 31 December 1989), principal investigator

**Medical Research Foundation of Oregon**

***"Characterization of a Neural Crest-Derived cDNA library"***

\$12,000 direct costs (1 September 1985 through 31 August 1986), principal investigator

***"Synthesis and Release of transin in PC12 cells"***

\$17,000 direct costs (1 March 1990 through 28 February 1991), principal investigator

***"Role of Steel Growth Factor Isoforms in Neural Crest Cell Development"***

\$ 25,000 annual direct costs (1 September 1996 through 31 August 1997)

**American Heart Association -- Oregon Affiliate**

***"Migration of neural crest Cells into the outflow tract of the embryonic avian heart"***

\$29,211 direct costs (1 April 1990 through 30 March 1991), principal investigator

## PUBLICATIONS

### Published Research Papers:

- Ciment, G.** and de Vellis, J.S. (1978). *Cellular interactions uncouple beta-adrenergic receptors from adenylate cyclase.* **Science** **202**: 765-768.
- Ciment, G.** and de Vellis, J.S. (1982). *Cell surface-mediated cellular interactions. Effects of B104 neuroblastoma surface determinants on C6 glioma cellular properties.* **Journal of Neuroscience Research** **7**: 371-386.
- Ciment, G.** and Weston, J.A. (1982). *Early appearance in neural crest and crest-derived cells of an antigenic determinant present in avian neurons.* **Developmental Biology** **93**: 355-367.
- Ciment, G.** and Weston, J.A. (1983). *Enteric neurogenesis by neural crest-derived branchial arch mesenchymal cells.* **Nature** **305**: 424-427.
- Ciment, G.** and Weston, J.A. (1985). *Segregation of developmental abilities in neural crest-derived cells: Identification of partially restricted intermediate cell types in the branchial arches of avian embryos.* **Developmental Biology** **111**: 73-83.
- Ciment, G.**, Ressler, A., Letourneau, P.C. and Weston, J.A. (1986). *A novel intermediate filament-associated protein, NAPA-73, which binds to different filament types at different stages of nervous system development.* **Journal of Cell Biology** **102**: 246-251.
- Tucker, G.C., **Ciment, G.** and Thiery, J.P. (1986). *Pathways of avian neural crest cell migration in the developing gut.* **Developmental Biology** **116**: 439-450.
- Ciment, G.**, Glimelius, B., Nelson, D. and Weston, J.A. (1986). *Reversal of a developmental restriction in neural crest-derived cells of avian embryos by a phorbol ester drug.* **Developmental Biology** **118**: 392-398.
- Hess, L., Chamberlin, T. and **Ciment, G.** (1988). *Changes in protein kinase C activities are correlated with the metaplastic transformation of Schwann cell precursors of avian embryos into melanocytes.* **Journal of Neuroscience Research** **120**: 101-106.
- Sears, R. and **Ciment, G.** (1988). *Changes in the migratory properties of neural crest and early crest-derived cells in vivo following treatment with a phorbol ester drug.* **Developmental Biology** **130**: 133-143.
- Machida, C.M., Rodland, K.D., Matrisian, L., Magun, B.E. and **Ciment, G.** (1989) *NGF induction of the gene encoding the protease transin accompanies neuronal differentiation in PC12 cells.* **Neuron** **2**: 1587-1596.
- Baizer, L., Alkan, S., Stocker, K. and **Ciment, G.** (1990) *Chicken growth-associated protein-(GAP)-43: Primary structure and regulated expression of mRNA during embryogenesis.* **Molecular Brain Research** **7**: 61-68.
- Stocker, K., Sherman, L., Rees, S., and **Ciment, G.** (1991) *Basic FGF and TGF $\beta$ 1 influence commitment to melanogenesis in neural crest-derived cells of avian embryos.* **Development** **111**: 635-645.

### **Research Paper Publications (continued)**

- Machida, C.M., Scott, J.D., and **Ciment, G.** (1991) *NGF-induction of the metalloproteinase transin/stromelysin in PC12 cells: Involvement of multiple protein kinases.* **Journal of Cell Biology 114:** 1037-1048.
- Stocker, K., Baizer, L. and **Ciment, G.** (1992) *Transient expression of GAP-43 in non-neuronal cells of the embryonic chicken limb.* **Developmental Biology 149:** 406-414.
- Jakowlew, S.B., **Ciment, G.**, Tuane, R.S., Sporn, M.B. and Roberts, A.B. (1992) *Pattern of expression of transforming growth factor- $\beta$ 4 mRNA and protein in the developing chicken embryo.* **Developmental Dynamics 195:** 276-289.
- Stocker, K.M., Brown, A.M.C. and **Ciment, G.** (1993). *Gene transfer of LacZ into avian neural tube and neural crest cells by retroviral infection of grafted embryonic tissues.* **Journal of Neuroscience Research 34:** 135-145.
- Baizer, L., **Ciment, G.**, and Schaeffer, G.L. (1993). *Analysis of the sequence and embryonic expression of the chicken neurofibromatosis type 1 (NF-1) gene product.* **Molecular and Chemical Neuropathology 18:** 267-278.
- Sherman, L., Stocker, K.M., Morrison, R., and **Ciment, G.** (1993). *Basic fibroblast growth factor (bFGF) acts intracellularly to cause the transdifferentiation of avian neural crest-derived Schwann cell precursors into melanocytes.* **Development 118:** 1313-1326.
- Schaeffer, G., **Ciment, G.** and Baizer, L. (1993). *Regulated expression of the neurofibromin type I transcript in the developing chicken brain.* **Journal of Neurochemistry 61:** 2054-2060.
- Jakowlew, S.B., **Ciment, G.**, Tuane, R.S., Sporn, M.B. and Roberts, A.B. (1994) *Expression of transforming growth factors- $\beta$ 2 and  $\beta$ 3 mRNAs and proteins in the developing chicken embryo.* **Differentiation 55:** 105-118.
- DeSouza, S., Lochner, J., Machida, C.M., Matrisian, L.M. and **Ciment, G.** (1995) *A novel NGF-responsive element in the stromelysin-1 (transin) gene that is necessary and sufficient for gene expression in PC12 cells.* **Journal of Biological Chemistry 270:** 9106-9114.
- Nordstrom, L.A., Lochner, Yeung, W. and **Ciment, G.** (1995) *The metalloproteinase stromelysin-1 (transin) mediates PC12 cell growth cone invasiveness through basal laminae.* **Molecular and Cellular Neuroscience 6:** 56-68.
- Stocker, K.M., Baizer, L., Coston, T., Sherman, L. and **Ciment, G.** (1995). *Regulated expression of neurofibromin in migrating neural crest cells of avian embryos.* **Journal of Neurobiology 27:** 535-552.
- Baskar, J.F., Smith, P.O., **Ciment, G.**, Hoffman, S., Tucker, C., Tenney, D.J., Coberg-Poley, A.M., Nelson, J. and Ghazal, P. (1996). *Developmental analysis of the cytomegalovirus enhancer in transgenic animals.* **Journal of Virology 70:** 3215-3226.
- Guo, C.S., Wehre-Haller, B., Rossi, J. and **Ciment, G.** (1997). *Autocrine regulation of neural crest cell development by Steel Factor.* **Developmental Biology 183:** 61-69.

## Research Paper Publications (continued)

DeSouza, S., Nordstrom, L.A., and **Ciment, G.** (1997). *Role of the bZIP transcription factor IREBF1 in the NGF-induction of stromelysin-1 (transin) gene expression in PC12 cells.* **Journal of Molecular Neuroscience** **8**: 243-255.

## Book Chapters and Review Articles:

**Ciment, G.** and Weston, J.A. (1981). *Immunochemical studies of avian sensory neurogenesis.* In: **Monoclonal Antibodies to Neural Antigens** (R. McKay, M.C. Raff & L.F. Reichardt, editors), pp. 73-89. Cold Spring Harbor Press, Cold Spring Harbor, New York.

**Ciment, G.** (1983). *Neurogenesis in the neural crest-derived branchial arch mesenchyme of avian embryos.* In **Developing and Regenerating Vertebrate Nervous Systems** (P.W. Coates & R.R. Markwald, editors), pp. 159-165. Alan R. Liss, New York.

Weston, J.A., Girdlestone, J. and **Ciment, G.** (1984). *Heterogeneity in cultured neural crest cell populations.* In: **Cellular and Molecular Biology of Neuronal Development** (I. Black, editor), pp. 51-62. Plenum Press, New York.

Weston, J.A., **Ciment, G.** and Girdlestone, J. (1984). *The role of extracellular matrix in neural crest development: A reevaluation.* In: **The Role of Extracellular Matrix in Development** (R. Trelstad, editor), pp. 433-460. Alan R. Liss, New York.

Yen, S-H., Reding, H., Davies, P. and **Ciment, G.** (1985). *The compositions of neurofibrillary tangles of the senile dementia of the Alzheimer's type: An immunological study.* In: **Intermediate Filaments** (E. Wang, D. Fischman, R.K.H. Liem and T-T. Sun, editors). Annals of the New York Academy of Sciences **455**: 819-825.

**Ciment, G.**, Glimelius, B., Nelson, D.M. and Weston, J.A. (1986). *Reversal of a developmental restriction in neural crest-derived dorsal root ganglion cells of avian embryos by the tumor-promoting drug 12-O-Tetradecanoylphorbol-13-acetate (TPA).* In: **Progress in Developmental Biology, Part B** (H.C. Slavkin, editor) pp. 259-262. Alan R. Liss, New York.

**Ciment, G.** and Sears, R. (1988). *Neural crest cells change their homing behavior following treatment with a phorbol ester drug.* In: **Cellular and Molecular Aspects of Neural Development and Regeneration** (J. de Vellis, A. Gorio, B. Haber, J.R. Perez-Polo, editors). Alan R. Liss, New York, pp. 21-30.

**Ciment, G.** (1990). *Precocious expression of NAPA-73, an intermediate filament-associated protein, during nervous system and heart development in the chicken embryo.* In: **Embryonic Origins of Defective Heart Development** (D.E. Bockman and M.L. Kirby, editors). Annals of the New York Academy of Sciences, Vol. 588, p.225-235.

**Ciment, G.** (1990). *The Melanocyte/Schwann Cell Lineage: A Bipotent Intermediate in the Neural Crest Lineage.* In: **Comments on Developmental Neurobiology, Vol. 1, No. 4 (J. Lauder, Editor).** Gordon and Breach, London, pp. 207-223.

Sherman, L., Stocker, K.M., Rees, S., Morrison, R.S., and **Ciment, G.** (1991). *Expression of Multiple Forms of bFGF in Early Avian Embryos and their possible Role in Neural Crest Cell Commitment.* In: **The Fibroblast Growth Factor Family** (A. Baird, M. Klagsburn, editors). Annals of the New York Academy of Sciences, Vol. 638, p. 470-473.

**Book Chapter and Review Article Publications (continued)**

Stocker, K.M., Baizer, L. and Ciment, G. (1992). *GAP-43 in non-neuronal cells of the embryonic chick limb: Clues to function.* In: **GAP-43 -- Perspectives on its Biological Functions and its Expression in Non-Neuronal Cells** (G. Ciment, editor). Gordon & Breach, London, pp. 53-62.

Morrison, R., Sherman, L. and **Ciment, G.** (1993). *Antisense oligonucleotides suppress basic fibroblast growth factor expression in glioma cell lines and primary cultures of neural crest cells.* In: **Neuroprotocols, Vol. 2** (K. Kosik, editor). Academic Press, New York. pp.51-58.

Eckenstein, F.P., Kuzis, K., Nishi, R., Woodward, W.R., Meshul, C., Sherman, L. and **Ciment, G.** (1993). *Cellular distribution, subcellular localization and possible functions of basic and acidic fibroblast growth factors.* **Biochemical Pharmacology** **47**: 103-110.

**Ph.D. Dissertation (1979):**

*Cellular interactions between central nervous system neuroblastoma and glioma cells in culture.*  
University of California, Los Angeles.