

**Colin D. Rasmussen, Ph.D., LL.B.**

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## **Previous Professional Experience**

### **Scientific Advisor / Registered Patent Agent**

**McDermott Will & Emery LLP**

January 2007 – present

- Drafting of patent application in the areas of medical devices and biotechnology, including provisional, nonprovisional, and PCT applications.
- Prosecution of applications including preliminary amendments, office action responses, responses to restriction requirements.
- Patent advising including freedom to operate opinions, patentability opinions.
- Preparation of miscellaneous legal documents including assignments, opinion letters, and client communications.

### **Private Consultant**

**Self-employed**

June – December 2006

- Contract patent drafting in the areas of mechanical devices, consumer goods, polymers, and biofuels

### **Professional Researcher**

**Department of Chemistry University of California (Riverside)**

July 2005 – May 2006

- Basic research in stem cell biology

### **Associate**

**Intellectual Property Law / Bennett Jones LLP (Calgary Canada)**

October 2004 – June 2005

- Pharmaceutical patent validity and infringement analysis
- Pharmaceutical composition clearances

### **Associate**

**Intellectual Property Law / Furman & Kallio (Saskatoon Canada)**

May 2003 – October 2004

- Patent drafting and prosecution
- Trademark prosecution

**Asst. / Associate Professor - Tenured                      Dept. of Anatomy & Cell Biology / University of Saskatchewan**

July 1997 – December 2002

- Research: Calmodulin dependent protein kinase cascades

**Asst. / Associate Professor - Tenured                      Dept. of Anatomy & Cell Biology / University of Alberta**

July 1991 – June 1997

Research: Molecular genetic analysis of calmodulin dependent enzymes in eukaryotes

**Education**

<b>Institution .....</b>	<b>Degree .....</b>	<b>Graduation Date</b>
<b>University of Saskatchewan</b>	<b>LL.B.</b>	<b>2003</b>
<b>Baylor College of Medicine (Houston, TX)</b>	<b>Ph.D.</b>	<b>1988</b>
<i>Thesis: Calmodulin Levels Regulate the Rate of Cell Cycle Progression: Evidence that Calmodulin is required for Progression through G1 and Mitosis).</i>		
<b>University of British Columbia</b>	<b>M.Sc.</b>	<b>1984</b>
<i>Thesis: Studies on the Cell Cycle in Paramecium tetraurelia.</i>		
<b>University of British Columbia</b>	<b>B.Sc.</b>	<b>1981</b>
		<b>First Class Standing</b>

**Academic Achievements**

- NSERC Summer Research Award (1981)
- Baylor College of Medicine / Texas A & M Student Research Day – Best Research Talk
- Alberta Heritage Foundation for Medical Research Scholar (1991-96)
- Medical Research Council of Canada Scholar (1992-97)
- Member - Board of Editors of the Saskatchewan Law Review (2002-03)

**Research Support**

- **Alberta Heritage Foundation for Medical Research Establishment Grant**  
7-1-91 to 6-30-94  
\$209,000
- **National Cancer Institute of Canada Team Development Award**  
6-1-91 to 5-31-92  
\$80,000
- **MRC Canada Scholar**  
Research Allowance (1992)  
\$15,000

- **Cancer Research Society Internal Award from Faculty of Medicine U of Alberta (1992)**  
\$10,000
- **Medical Research Council of Canada - Operating Grant**  
“Calmodulin dependent cell cycle regulation”  
7-1-92 to 9-30-95  
\$77,000 per year  
  
Renewed in March 1995 competition  
10-1-95 to 9-30-98  
\$73,150 per year
- **MRC / SaskHealth**  
“Calmodulin dependent cell cycle regulation”  
4-1-99 to 3-31-00  
\$63,842
- **HSURC Establishment**  
“Calmodulin-dependent protein kinase cascades”  
7-1-99 to 6-30-00  
\$69,000
- **CIHR / SaskHealth**  
“Calmodulin kinase cascades in yeast”  
10-01-00 to 9-30-02  
\$57,062 Year 1  
\$73,764 Year 2
- **NIH – RFA-RM-06-004**  
“High-Throughput Assay for Insulin Producing Cells”  
Application pending  
\$125,000
- **CDMRP – DOD Breast Cancer Initiative**  
“Novel Inhibitors of PI3K for Potential Use in Breast Cancer”  
Application pending  
\$75,000

## Teaching Experience

### University of Alberta

ANAT 413	Cell Biology & Histology (Lecturer and Lab Instructor)
ANAT 614	Molecular Mechanisms of Cell Regulation (Lecturer and Course coordinator)
PMCOL 513	Pharmacology of Receptors (Lecturer)
BIOCH 201	Introductory Biochemistry / Transcription and RNA processing (Lecturer)
BIOCH 630	Nucleic Acids (Lecturer)
BIOCH 205	Introductory Biochemistry (Intersession Lecturer)

### University of Saskatchewan

ANAT 211	Histology for Arts and Science Students (Lecturer and Course Coordinator)
ANAT 401	Undergraduate Research (Student Research Advisor)
ANAT 813	Experimental Medicine (Research Advisor)
ANAT 331	Methods in Cellular and Developmental Biology (Lecturer, course designer, course coordinator)
ANAT 325	Cell Biology (Guest lectures on cell cycle regulation)

### Other

Participating Faculty in “Biotechnology for Business” Course. Course Coordinator Dr. Michael Pirrung  
July 2006: November 2006: May 2007: August 2007 (invited)

### **Administrative Experience**

U of Alberta Undergraduate Cell Biology Program (Director)  
NCI Molecular Mechanisms of Growth Control Group (Director)

#### University of Alberta

Faculty of Medicine Health Sciences Library Committee  
Committee to establish an Undergraduate Cell Biology Program  
Dept. of Anatomy & Cell Biology Faculty Search and Selection Committee  
Graduate Education Committee

#### University of Saskatchewan

Anatomy & Cell Biology Graduate Education Committee (Chair)  
Anatomy & Cell Biology Undergraduate Program Committee (Chair)  
University Graduate Scholarship Awards Committee (Chair)

#### Other Committees

MRC Cell Physiology Grant Panel (June 1996 to May 1998)  
Alberta Heritage Foundation for Medical Research – Major Equipment Grant Panel (2000-2003)

### **Graduate Student Committees**

#### **Thesis Advisory Committees**

##### University of Alberta

21 Ph.D. students; 2 M.Sc. students

##### University of Saskatchewan

5 Ph.D. students; 1 M.Sc. student

#### **Graduate Students Supervised**

##### University of Alberta

5 Ph.D.; 2 M.Sc.

##### University of Saskatchewan

3 M.Sc.

## Publications

### I. Papers in refereed journals

1. Rasmussen, C.D. & Berger, J.D. (1982). Downward regulation of cell size in *Paramecium tetraurelia*: Effects of increased size, with or without increased DNA content, on the cell cycle. *J. Cell Sci.* 57: 315-329.
2. Rasmussen, C.D. & Berger, J.D. (1984). A gene function required for cell cycle progression during the G<sub>1</sub> portion of the cell cycle and for maintenance of macronuclear DNA synthesis in *Paramecium tetraurelia*. *Exp. Cell Res.* 155: 593-597.
3. Rasmussen, C.D., Ching, A.S.L. & Berger, J.D. (1985). The full schedule of macronuclear DNA synthesis is not required for cell division in *Paramecium tetraurelia*. *J. Protozool.* 32: 366-368.
4. Rasmussen, C.D., Berger, J.D. & Ching, A.S.L. (1986). Effects of increased cell mass and altered gene dosage on the timing of initiation of macronuclear DNA synthesis in *Paramecium tetraurelia*. *Exp. Cell Res.* 165: 53-62.
5. Rasmussen, C.D. & Means A.R. (1987). Calmodulin is involved in regulation of cell proliferation. *EMBO J.* 6: 3961-3968.
6. Rasmussen, C.D. & Means A.R. (1989). Calmodulin is required for cell cycle progression during G<sub>1</sub> and mitosis. *EMBO J.* 8: 73-82.
7. Rasmussen, C.D. & Means A.R. (1989). The presence of parvalbumin in a non-muscle cell line attenuates progression through mitosis. *Mol. Endocrinol.* 3: 588-596.
8. Evans, D.P., Simonette, R.A., Rasmussen, C.D., Means, A.R. & Tomasovic, S.P. (1989). Altered synthesis of the 26-kDa heat stress protein family and thermotolerance in cell lines with elevated levels of calcium-binding proteins. *J. Cell. Physiol.* 142: 615-627.
9. Rasmussen, C.D., Means, R.L., Lu, K.P., May, G.S. & Means, A.R. (1990). Characterization and expression of the unique calmodulin gene of *Aspergillus nidulans*. *J. Biol. Chem.*, 265: 13767-13775.
10. Rasmussen, C.D. & Means A.R. (1992). Increased calmodulin affects cell morphology and expression of cytoskeletal protein genes. *Cell Motil. Cytoskel.* 21: 45-57.
11. Lu, K.P., Rasmussen, C.D., May, G.S., Osmani, S.A. & Means, A.R. (1992). Cooperative regulation of cell proliferation by calcium and calmodulin in *Aspergillus nidulans*. *Mol. Endo.* 6: 365-374.
12. Rasmussen, C.D., Means, R.L., Lu, K.P. & Means, A.R. (1992). Calmodulin & cell cycle control. *J. Physiologie (Paris)*, 86, 83-88.
13. Rasmussen, C. & Garen, C. (1993). Activation of calmodulin-dependent enzymes can be selectively inhibited by histone H1. *J. Biol. Chem.* 268, 23788-23791.
14. Rasmussen, C. & Rasmussen, G. (1994). Inhibition of G<sub>2</sub>/M progression in *Schizosaccharomyces pombe* by calmodulin kinase II. *Mol. Biol. Cell.* 5, 785-795.
15. Rasmussen, C., Garen, C., Brining, S., Kincaid, R.L., Means, R.L. & Means, A.R. (1994). Calmodulin-dependent protein phosphatase catalytic subunit (Calcineurin A) is an essential gene in *Aspergillus nidulans*. *EMBO J.* 13, 2545-2552.

16. Rasmussen, C. & Rasmussen, G. (1995). Calmodulin-dependent protein kinase II is required for G<sub>1</sub>/S progression in HeLa cells. *Biochem. Cell Biol.* 73: 201-207.
17. Plochocka-Zulinska, D., Rasmussen, G. & Rasmussen, C. (1995). Regulation of calcineurin gene expression in *Schizosaccharomyces pombe*: Dependence on the *ste11* transcription factor. *J. Biol. Chem.* 270: 24794-24799.
18. Zheng, C., Chang, L.J. & Rasmussen, C. (1997). Expression of HIV Vpr and SIV Vpx proteins in fission yeast causes cell cycle arrest in *Schizosaccharomyces pombe*. *Viol.* 230, 103-112.
19. Rasmussen, C. & Wiebe C.W. (1999). Cloning of the *Schizosaccharomyces pombe* elongation factor 1 $\alpha$  gene by two-hybrid selection for calmodulin binding proteins. *Biochem. Cell Biol.*, 77, 421-430.
20. Rasmussen, C. (2000). Molecular cloning and characterization of a calmodulin kinase I homologue from fission yeast. *J. Biol. Chem.*, 275, 685-690.
21. Rasmussen, C. (2004). Canada's *Assisted Human Reproduction Act*: Is it scientific censorship, or a reasoned approach to the regulation of rapidly emerging reproductive technologies? *Sask. Law. Review.* 67(1), 97-134

## II. Book Chapters & Reviews

1. Rasmussen, C.D., Simmen, R.C.M., MacDougall, E. & Means, A.R. (1987). Expression of a calmodulin mini-gene in eukaryotic cells using bovine papilloma virus-based vectors. *Meth. in Enzymol.* 139: 642-654.
2. Rasmussen, C.D. & Means A.R. (1987). Calmodulin as a regulator of cell growth and gene expression. *J. Gen. Physiol.* 19: 288-293.
3. Means A.R. & Rasmussen, C.D. (1988). Calcium, calmodulin and cell proliferation. *Cell Calcium*, 9: 313-319.
4. Rasmussen, C.D. & Means A.R. (1988). Calmodulin regulates cell cycle progression and gene expression In: *Molecular Mechanisms in Secretion* (N.A. Thorn, O.H. Petersen and J.H. Thaysen eds.) Munksgaard: Copenhagen pp. 655-665.
5. Means, A.R., Putkey, J.A., Rasmussen, C.D. & Epstein P (1988). Structure, evolution and expression of calcium-binding protein genes. In: *Calmodulin* (P. Cohen and C. Klee eds.) Elsevier Biomedical Press: Amsterdam.
6. Means A.R. & Rasmussen, C.D. (1988). Regulation of cell growth by calmodulin. In: *Endocrinology and Malignancy: Basic and Clinical Issues* (S. Iacobelli, ed.) Elsevier Biomedical Press: Amsterdam.
7. Rasmussen, C.D. & Means A.R. (1989). Calmodulin, cell growth and gene expression. *Trends in Neurosciences* 12: 433-439.
8. Rasmussen, C.D. & Means A.R. (1990). Effects of changes in calmodulin levels on cell proliferation. *Environmental Health Perspectives.* 84: 31-34.
9. Means, A.R., Bagchi, I., VanBerkum, M.F.A. & Rasmussen, C.D. (1991). Calmodulin, In: *Cellular Calcium: A Practical Approach*, Oxford University Press, (J.G. McCormack & P.H. Cobbold, eds.), pp. 205-245.
10. Means, A.R., VanBerkum, M.F.A., Bagchi, I., Lu, K.P. & Rasmussen, C.D. (1991). Regulatory functions of calmodulin, *Pharmacology and Therapeutics*, 50 (C.W. Taylor, ed.), pp. 255-270.

### III. Published Abstracts

1. Rasmussen, C.D. & Means A.R. Regulation of cell-cycle dependent gene expression by calmodulin. Endocrine Society - 69th Annual Meeting, Indianapolis, Indiana, June 10-12, 1987.
2. Rasmussen, C.D. & Means A.R. Calmodulin and regulation of cell proliferation. Endocrine Society - 70th Annual Meeting, New Orleans, Louisiana, June 8-11, 1988.
3. Rasmussen, C.D. & Means A.R. Control of cell cycle progression by calmodulin. 5th Symposium on Calcium Binding Proteins in Health and Disease, Nagoya, Japan, July 1988.
4. Rasmussen, C.D. & Means A.R. Calmodulin is essential for cell proliferation. Endocrine Society - 71st Annual Meeting, Seattle, Washington, June 19-22, 1989.
5. Rasmussen, C.D., Means, R.L., May, G.S. & Means, A.R. Cloning and characterization of the calmodulin gene of *Aspergillus nidulans*. American Society for Cell Biology - 29th Annual Meeting, Houston, Texas, November 5-9, 1989.
6. Christenson, M.A., Rasmussen, C.D. & Means, A.R. Differential expression from multiple calmodulin genes during the mammalian cell cycle. American Society for Cell Biology - 29th Annual Meeting, Houston, Texas, November 5-9, 1989.
7. Evans, D.P., Simmonette, R.A., Rasmussen, C.D., Means, A.R. & Tomasovic, S.P. Heat sensitivity and thermotolerance development in cell lines overexpressing Ca<sup>2+</sup> binding proteins, American Society for Cell Biology - 29th Annual Meeting, Houston, Texas, November 5-9, 1989.
8. Lu, K.P., Osmani, S., Rasmussen, C.D. & Means, A.R. Changes in calmodulin and its mRNA during the cell cycle in *Aspergillus nidulans*. American Society for Cell Biology - 29th Annual Meeting, Houston, Texas, November 5-9, 1989.
9. Rasmussen, C.D. & Means A.R. (1990). Cloning and Characterization of the Unique Calmodulin Gene of *Aspergillus nidulans*., 6th Symposium on Calcium Binding Proteins, Banff, Canada, March, 1990.
10. Rasmussen, C.D. & Means A.R. (1990). A strain of *Aspergillus nidulans* conditional for calmodulin expression, American Society for Cell Biology - 30th Annual Meeting, San Diego, California, December 9-14, 1990.
11. Planas-Silva, M., Shenolikar, S., Rasmussen, C.D. & Means, A.R. (1991). Altered growth regulation in mouse C127 cell lines transfected with a synthetic gene encoding the active fragment of protein phosphatase inhibitor-1. Biochemistry Society Annual Meeting, Atlanta Georgia, March 1991.
12. Newcomb, T.G., Means, A.R., Rasmussen, C.D., Mullins, R.D. & Siskin, J.E. (1991). Effect of calmodulin and parvalbumin on serum and bradykinin-induced calcium transients. ASCB - 31st Annual Meeting, Boston, MA, Dec. 8-12, 1991.
13. Rasmussen, G. & Rasmussen, C. (1992). Characterization of a novel cell cycle regulated calmodulin binding protein in *Aspergillus nidulans*. (8th International Symposium on Calcium Binding Proteins and Calcium Function in Health and Disease; August, 1992, Davos, Switzerland).

14. Rasmussen, C. et al. (1992). Isolation and characterization of cDNA and genomic clones for the calmodulin-dependent protein phosphatase, Calcineurin (PPase 2B). (8th International Symposium on Calcium Binding Proteins and Calcium Function in Health and Disease; August, 1992, Davos, Switzerland).
15. Rasmussen, C. (1993). Inhibition of G<sub>2</sub>/M progression in *Schizosaccharomyces pombe* by a mutant calmodulin kinase II with constitutive activity. (Cell Cycle '93; May, 1993, George Washington University, Washington, D.C.).
16. Wiebe, C.A. & Rasmussen, C. (1995). Cloning of a *Schizosaccharomyces pombe* cDNA for Elongation Factor 1-a by two-hybrid selection of calmodulin binding proteins. (ASCB Annual Meeting, Dec. 9-13, 1995, Washington, D.C.).
17. Zheng, C., Chang, L.J. & Rasmussen, C. (1996). Expression of HIV Vpr protein in fission yeast causes cell cycle arrest in *Schizosaccharomyces pombe*. AACR Meeting, Cell Cycle and Cancer, Jan. 17-20, 1996. Lausanne, Switzerland.
18. Rasmussen, C., Weber, D. & Wiebe, C. (1997). Cloning of a CaM kinase I homologue from *Schizosaccharomyces pombe*. 1st European Symposium on Calcium Signaling and the Nucleus. Calabria Italy, October 4-7, 1997.
19. Rasmussen, C. (1998). Cloning and characterization of a calmodulin kinase I homologue from *S. pombe* whose expression is cell-cycle regulated. Canadian Federation of Biological Societies Annual Meeting, Edmonton, AB, June 17-20, 1998.
20. Barrett, L. & Rasmussen, C. (2001). A novel calmodulin kinase in fission yeast. Yeast Cell Cycle Meeting. Salk Institute, La Jolla, CA. June 22-26, 2001.