

CURRICULUM VITAE

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Education

University of Glasgow, Scotland. B.Sc. (Hons 1st. class), 1981. Biochemistry.

University of Oxford, England. D.Phil., 1990. Biochemistry.

Research and Professional Experience

1980 Research Assistant, European Molecular Biology Laboratory. Grenoble, France.
1981-85 Graduate Student, Biochemistry Dept. University of Oxford, supervisor J. Knowland.
1985-90 Fellow, Biochemistry Dept. University of Oxford, supervisors A.J. & S.M. Kingsman.
1990-92 Postdoctoral Fellow, Cancer Center, University of California San Diego, supervisor J.R. Feramisco.
1993-97 Research Assistant Professor, Cardiology Division, Dept. of Internal Medicine, University of Utah.
1993-98 Member, Program in Human Molecular Biology and Genetics. University of Utah.
1997-99 Assistant Professor, Department of Oncological Sciences, University of Utah.
1999-00 Investigator, Huntsman Cancer Institute at the University of Utah.
1999-00 Associate Professor, Department of Oncological Sciences, University of Utah.
2000-04 Associate Professor (tenured), Department of Cancer Biology, Wake Forest University.
2003-04 Director, Cell Growth & Survival Program, Comprehensive Cancer Center, Wake Forest University.
2004-05 Associate Professor of Pharmacology, University of Colorado School of Medicine, Aurora, CO.
2004- Associate Director for Basic Research, University of Colorado Comprehensive Cancer Center.
2004- Grohne endowed chair in Cancer Research.
2005- Professor of Pharmacology (tenured), University of Colorado School of Medicine, Aurora, CO.
2005- Professor, Dept. of Craniofacial Biology, Univ. of Colorado School of Dentistry, Aurora, CO.
2005- Vice Chair, Dept. of Pharmacology, Univ. of Colorado School of Medicine, Aurora, CO.

Fellowships

1985-90 U.K. Cancer Research Campaign Fellowship.
1990-92 Human Frontiers Science Program Long Term Fellowship.

Academic Activities

Membership.

American Association for Cancer Research
American Association for Biochemistry and Molecular Biology

Associate Editor.

Journal of Clinical Pharmacology, 2009-

Editorial Boards.

J. Biol. Chem., 2005-2010.
Apoptosis, 2005-
Section Editor (Apoptosis): The Encyclopedic Reference of Cancer (2nd Edition), Springer
Autophagy, 2008-

Ad Hoc Reviewer (in last two years):

Cancer Research, Clinical Cancer Research, Molecular Cell, Cell Death & Differentiation, FEBS Letters, J. Cell Science, Molecular & Cellular Biology, Oncogene, PLOS Biology, Carcinogenesis, Molecular Cancer Therapeutics.

Reviewer/consultant

Veterans Administration Research & Development Committee, Salt Lake City. 1995-98.
The Israel Science Foundation, March 1996.
Special Review Committee NHLBI, May 1996.
Netherlands Heart Foundation Program Grants, September 1996.
Special Review Committee NHLBI January 1997.
The Israel Science Foundation, April 1997.
Special Emphasis Panel: Heart Failure Research, NHLBI, NIA, June 1998.
American Heart Association, Texas & Western States Affiliate, 1999-2000.
Welcome Trust, April 1999.
NHLBI, Program Project Grant, May 1999.
Human Frontiers Science Program, December 1999.
American Heart Association, Mid Atlantic Affiliate, 2001-2004.
DoD Breast Cancer Research Program, Pathobiology 5 study section 2002-2004.
California Tobacco Related-Disease Research program, 2003.
Cancer Research UK, August 2004.
DoD Prostate Cancer Research Program, Cell Biology 2 study section, 2004-2005.
NIH CAMP IRG 2004-2005 Ad Hoc member.
Irish Research Council for Science, Engineering and Technology, April 2005.
U.K. Biotechnology Biological Sciences Research Council, April 2005.
Morehouse School of Medicine Minority Biomedical Research Support Program, August 2005.
U.S. Civilian Research & Development Foundation, 2005.
California Breast Cancer Research Program, 2004-2007.
NIH CAMP IRG 2006- Charter Member
CDMRP Breast Cancer Research Program, Ad Hoc member Programmatic Review Committee, 2005-2008.
CDMRP Breast Cancer Research program, Synergistic IDEA awards, 2007.
Vienna Science and Technology Fund (WWTF), Austria, 2007.
Israel Science Foundation, 2007.
CDMRP Breast Cancer Research Program, Integration Panel 2009-
Luxembourg National Research Fund, 2008.
Health Research Board, Ireland, 2008.
New Jersey Commission on Cancer Research, 2008.
Irish Health Research Board, 2008.

Teaching (awards)

2006 Dept. of Pharmacology University of Colorado, Faculty Excellence in Teaching Award.
2008 Dept, of Pathology, University of Colorado, Recognition for Excellence in Teaching

Teaching (University of Utah)

MBiol 610 Signal Transduction. Winter 1996 (instructor).
Path 734 Molecular Biology of Cancer. Winter 1996 (instructor).
Path 734 Molecular Biology of Cancer. Winter 1997 (instructor).
Bio 787 Myogenesis. Winter 1997 (instructor).
MBiol 610 Protein Phosphorylation. Winter 1997 (course organizer).
MBiol 646 Advanced Cell Biology. Spring 1997 (instructor).
Path 734 Molecular Biology of Cancer. Winter 1998 (instructor).
MBiol 646 Advanced Cell Biology. Spring 1998 (course organizer).
MBiol 6480 Cell Biology. Spring 1998 (course organizer).

Teaching (Wake Forest University School of Medicine).

Course director, lecturer or facilitator/tutor on the following courses.

CABI 707 Oncology Core Curriculum, 2000-2001.
Basic & Clinical Science Problems Course Phase IIB, 2000.
CB704 Cell Biology of Breast and Prostate Cancer, 2001.
CB708 Molecular targets of cancer therapy, 2001.
Basic & Clinical Science Problems Course Phase IIB, 2001.
CB703 Molecular Pathogenesis of Cancer, 2001.
CB704 Cell Biology of Breast and Prostate Cancer, 2002.
CB703 Molecular Pathogenesis of cancer, 2002.
CB708 Molecular targets of cancer therapy, 2003
CB704 Cancer Cell Biology (course director), 2003
CB703 Molecular Pathogenesis of cancer, 2003.
CB704 Cancer Cell Biology, 2004.

Teaching (University of Colorado).

PHCL 7620 Graduate Pharmacology Course. 2005-present: 3-4 lectures (cancer chemotherapy)
PHCL 7606 Receptors and cell signaling. 2005-present (Tyrosine kinase signaling, cell death signaling, autophagy).
Molecules to Medicine 2005-present: 1 lecture (Receptor Tyrosine Kinases)
Disease & Defense 2006-present: 2 lectures (Anti-tumor Agents, Biology of Cancer)
CANB7600 Cancer Biology 2006-present: 2 lectures (apoptosis, target identification for therapy)
Chair: Cancer Biology Comprehensive Examination committee 2007, 2008

Graduate Student Mentoring.

Heidi Huntsman M.S. Univ. of Utah 1994-1997. Current Position: Venture Capital business advisor, San Francisco.
Wirt Hines MD/Ph.D. Univ. of Utah 1996-1999. Current position: Dermatologist, Anacortes, WA.
Jodi Dufner-Beattie Ph.D. Univ. of Utah 1994-1999. Current Position: Senior Scientist, Apath LLC St. Louis.
Michael Morgan Ph.D. Univ. of Utah 1996-2001. Current position: Research Fellow, NIH.
Cicely Jette, Ph.D. Univ. of Utah 1997-2000. Current Position: Instructor, Harvard Univ.
Lance Thomas, Ph.D. Wake Forest Univ. 1998-2004. Current position: Postdoc, Vanderbilt Univ.
Laura Bender, Ph.D. Wake Forest Univ. 2001-2005. Current position: Research Specialist/Core Manager, Emory Univ.
Patrick O'Toole, M.S. Student Univ. of Colorado, 2005-2007. Current position, sales.
Henrick Horita, Ph.D. Student Univ. of Colorado, 2006-

Postdoctoral Mentoring.

Christophe Montessuit Ph.D. Swiss National Science Foundation Postdoctoral Fellow 1997-99. Current position: Maitre Assistant (equivalent to Research Asst. Professor), Univ. of Geneva.
J. Robinson Singleton MD. NIH Mentored Physician Scientist 1997-2002. Current Position: Assoc. Professor, Univ. of Utah.
Marc Berg MD. Critical Care Fellow, Univ. of Utah, Department of Pediatrics. 1997-99. Current Position: Assoc. Professor, Univ. of Arizona.
Linda Jones, Ph.D. Research Associate, Univ. of Utah. 1998-1999. Current position, Asst. Prof. Westminster College, Salt Lake City, UT.
Jodi Dufner-Beattie Ph.D. Huntsman Cancer Institute Fellow 1999-2000: Current Position. Senior Scientist, Apath LLC, St. Louis MO.
Jerry Mitchell M.D. Hematology/Oncology Fellow, Wake Forest University. 2001-2003: Current position, physician Cleveland, OH.

Burin Nuchniyom M.D. WFU Cancer Biology Training Grant Postdoctoral fellow. 2001-2002: Current position, physician, Jackson, MS.
Michael Morgan Ph.D. WFU Signal Transduction Training Grant. Postdoctoral Fellow 2001-2003: Current position, Research Fellow, NIH.
Peter E. Clark M.D. Asst. Prof. Dept. of Urology, Wake Forest Univ. 2002-04: Current position Assistant Professor, Vanderbilt University.
Franklin Moore, M.D., Ph.D. WFU Cancer Biology Training Grant Postdoctoral Fellow. 2002-04. Current position, Pathology Resident, Wake Forest University.
Anuradha Rao, Ph.D., Postdoctoral Fellow. 2003-04. Current position, Postdoc, Wake Forest University.
Lianghua Bin, M.D., Ph.D. Postdoctoral Fellow 2005-2007. Current Position, Instructor, National Jewish Research Center
Tanya Goncharov, Ph.D. Postdoctoral Fellow 2005-2008. Current position, Scientist, Genentech, San Francisco, CA.
Sean Kearns, Ph.D. Postdoctoral Fellow 2008-
Lian Zhang, Ph.D., Postdoctoral Fellow 2008-

PhD. Thesis Committees (University of Utah).

Brent McCright (Virshup lab) Dept. of Oncological Sciences.
Deb Necklason (Metherall lab) Dept. of Human Genetics.
Steve Bleyle (Ward lab) Dept. of Oncological Sciences.
Erica Vielhaber (Virshup lab) Dept. of Oncological Sciences.
Xinghi Li (Virshup lab) Dept. of Oncological Sciences.
Mariluz Mojica (Spangrude lab) Dept. of Oncological Sciences.
John Hinz (Meuth lab) Dept. of Oncological Sciences.
Brian Schneider (Meuth lab) Dept. of Oncological Sciences.
Clay Underwood (Noble lab) Dept. of Oncological Sciences.
Annalisa Vanhook (Letsou lab) Dept. of Human Genetics.
Dale Cowley (Graves lab) Dept. of Oncological Sciences.
Sean Davies (McIntyre lab) Dept. of Pathology.
Jianying Dong (Wiley lab) Dept. of Pathology.
Eric Eide (Virshup lab) Dept. of Oncological Sciences.
Tamilla Nechiporuk (Keating lab) Dept. of Human Genetics.
Baird Rusch (Cappechi Lab) Dept. of Human Genetics.
Caroline McKeowan (Beckerle Lab) Dept. of Biology.
Katherine Bates (Letsou lab) Dept. of Human Genetics.

PhD. Thesis Committees (Wake Forest University)

Wendy Wade (Cramer lab) Dept. of Cancer Biology
JoLyn Turner (Torti lab) Dept. of Biochemistry.
Heather Smith (Miller lab) Dept. of Cancer Biology.
Lori Hart (Koumenis lab) Dept. of Cancer Biology.
Arta Monjazebe (Chilton lab) Dept. of Cancer Biology.
Wei Wen (Torti lab) Dept. of Cancer Biology
Jason Newbern (Milligan lab). Dept. of Neurobiology & Anatomy.
Latanya Scott (Berquin lab). Dept. of Pathology
Pameeka Smith (Robbins lab). Dept. of Cancer Biology
Michael Thomas (Ornelles lab). Dept. of Cancer Biology
Diane Fels (Koumenis lab). Dept. of Cancer Biology

PhD. Thesis Committees (University of Colorado)

David Lechtenberg Dept. of Immunology Qualifying Examination Committee.
Jason Neil (Schiemann lab) Dept. of Pharmacology (thesis committee).
Rachel McMahan (Slansky lab) Dept. of Immunology (thesis committee).
Amy Galliher (Schiemann lab) Dept. of Pharmacology (thesis committee).
Sandra Theimann (Potter lab) Dept. of Immunology (thesis committee)
Eric Horne (DellAcqua lab) Dept. of Pharmacology (thesis committee)
Brice McConnel (Gutierrez-Hartmann lab) MSTP Program (thesis committee)
Sunshine Daddario (Nordeen lab) Mol. Biol. Program (thesis committee)
Doug Micalizzi (Ford Lab) MSTP program (thesis committee)

Susan Farabaugh (Ford lab) Dept of Biochemistry (thesis committee)
 Andrea Suarez (VanDyk Lab). Mol. Biol. Program (thesis committee)
 Mathais Cassas (DeGregori Lab), Mol. Biol. Program (thesis committee).

Formal Faculty Mentoring (University of Colorado).

M. Spillman MD Womens Research Health Initiative. Asst. Prof. Dept of Ob/Gyn 2007-
 Cheng Hu, Ph.D. Asst. Prof. Dept of Craniofacial Biology 2007-
 Stephen Leong M.D. Asst. Prof. Med. Oncology 2007-
 Ross Camidge, M.D., Ph.D. Asst. Prof. Med. Oncology 2008-

Wake Forest University Administration.

2003- 2004 Director, Comprehensive Cancer Center Cell Growth & Survival Program
 2003- 2004. Comprehensive Cancer Center Internal Advisory Board
 2002- 2004. Intramural Research Committee
 2002- 2003. Deans Advisory Committee
 2000- 2004. Cancer Biology Department Graduate Program Executive Committee
 2003- 2004. Cancer & Aging Program Internal Advisory Committee
 2002- 2004. Signal Transduction Training Program Executive Committee
 2004 Pathology Dept. Research Funding Committee

University of Colorado Administration.

2004- Associate Director for Basic Research, University of Colorado Comprehensive Cancer Center.
 2004- Dept. of Craniofacial Biology NIDCR U24 Internal Advisory Committee.
 2004- Medical Scientist Training Program Admissions Committee.
 2004- Chair, University of Colorado Cancer Center Space Committee.
 2005- Oversight Committee Transgenic and Knockout Core
 2005- Oversight Committee Proteomics Core.
 2005-07 School of Medicine, Promotions & Tenure Committee
 2007-08 School of Medicine, Promotions and Tenure Committee, co-Chair
 2005- Dept. of Pharmacology, Departmental Advisory Committee
 2005- Chair, Dept. of Pharmacology, space committee.
 2005- Vice Chair, Dept. of Pharmacology
 2005- Cancer Biology Training Program Steering Committee
 2008- Chair, Consortium for Comparative Genomics Advisory Board

Competitive Grant Funding.

Active.

1RO1 CA111421 (PI. A. Thorburn)	2/22/05-1/31/10
NIH/NCI	\$987,000 direct costs
Apoptosis by FADD in normal and cancerous epithelial cells.	
Adelson Foundation Research Grant (PI. P. Bunn/A. Thorburn)	8/25/07-12/31/08
Adelson Foundation	\$136,994 direct (Thorburn project)
Ovarian Cancer Demonstration Project.	
1RO1 CA124545 (PI. A. Thorburn/ K. Behbakht/ H. Ford)	08/01/08-05/31/12
NIH/NCI	\$1,119,690 direct costs.
TRAIL receptor signaling in human tumors.	

Pending.

1RO1 CA133586 (PI. A. Thorburn)	04/01/08-03/31/13
NIH/NCI	\$1,933,250 total costs requested
EGFR and TRAIL receptor therapeutic targeting in glioblastoma. 28 percentile, resubmission Spring 2009	
KG090602 (PI. A. Thorburn)	02/01/09-01/31/12
Susan G. Komen Investigator-initiated Research Grant	\$600,000 total costs requested

Manipulation of autophagy to improve breast cancer treatment
Awaiting score and funding decision.

Previous.

American Cancer Society, Institutional Research Grant;
"Analysis of p21 Ras Signaling Pathways leading to changes in Gene Expression and Cellular Morphology" PI A. Thorburn
04/01/94- 07/01/95, \$14,987 direct costs.

American Heart Association, Utah Affiliate 9406279S;
"Role of the Raf-1 kinase in Cardiac Cell Hypertrophy" PI A. Thorburn
07/01/94- 06/09/95, \$25,000 direct costs.

American Health Assistance Foundation, National Heart Foundation Grant;
"MAP kinase kinase in Cardiac Cell Hypertrophy" PI A. Thorburn
04/01/95- 03/31/95, \$14,969 direct costs.

National Institutes of Health 1R01 HL 52010-01
"Signal Transduction in Cardiac Growth and Hypertrophy" PI A. Thorburn
07/01/95- 06/30/99, \$639,336 direct costs.

National Institutes of Health 3P30 CA 42014-09, Pilot Project grant
"Microinjection Analysis of Mxi1 function in Primary Prostate Cells" PI A. Thorburn
10/01/95- 09/30/96, \$48,260, direct costs.

Primary Childrens Medical Center, Research Grant
"Role of the Neurofibromatosis type 1 Protein in the Regulation of Cardiac Muscle Cell Growth" PI A. Thorburn,
02/01/95- 12/31/96, \$12,000, direct costs.

Huntsman Cancer Institute at the University of Utah, Pilot Project Grant.
" Identification and Characterization of Regulators of Prostate Carcinogenesis in Primary Human Cells." PI A. Thorburn
07/01/96- 06/30/98, \$80,000 direct costs.

National Institutes of Health 1R21 RR 12790-01
"In situ measurement of protein kinase activity" PI D. Blumenthal, A. Thorburn Co-Investigator. 09/01/97- 08/31/99,
\$150,000 direct costs.

University of Utah Research Foundation. Funding Initiative Seed Grant
" Automated Screening of Recombinant Protein Libraries for Protein Kinase Substrates." PI A. Thorburn
04/01/98- 03/31/99, \$33,127 direct costs.

Huntsman Cancer Institute. Investigator Award.
"Signaling in normal and cancerous prostate cells" PI A. Thorburn
07/01/99-06/30/00, \$400,000 direct costs.

01597U Grant-in-Aid (PI. A. Thorburn) 7/1/01-6/30/03. Relinquished 12/01.
American Heart Association Mid-Atlantic States affiliate, \$120,000 direct costs
Apoptosis signaling by the tumor necrosis factor receptor protein TRADD.

2001-IDG-1002 Faculty Recruitment Grant (PI. A. Thorburn) 8/1/00 – 1/31/02.
North Carolina Biotechnology Center \$149,987 direct costs.
Molecular Mechanisms Controlling Cell Survival in Apoptosis.

1R21 DK60876-01 (PI. A. Thorburn) 9/30/01-8/31/03.
NIH/NIDDK \$200,000 direct costs.
Prostate cell apoptosis by androgen receptor proteolysis

1R21 NS42662-01 (PI. A. Thorburn) NIH/NINDS Apoptosis induction by nuclear-localized TRADD	12/15/01-12/14/03. \$361,246 total costs.
DISS0100737 (PI. A. Thorburn) Komen Foundation Dissertation award (L. Thomas) Regulation of apoptosis in normal and cancerous breast cells.	10/15/01-1/31/04 \$30,000 total costs.
BC010211 (PI. L. Thomas, A. Thorburn, mentor) US Army Medical Research & Materiel Command Mechanism of FADD-DN-induced apoptosis in normal breast cells	4/1/02-3/31/05 \$61,060 total costs.
BC020720 (PI. A. Thorburn) US Army Medical Research & Materiel Command Gene targeting in normal human breast epithelial cells.	5/15/03-11/14/04 \$214,445 total costs.
BC010333 (PI. A. Thorburn) US Army Medical Research & Materiel Command A novel apoptosis pathway that is defective in early breast cancer	4/1/02-3/31/05 Relinquished 8/04 \$432,145 total costs.
DAMD 17-03-0049 (PI. A. Thorburn) US Army Medical Research & Materiel Command Co-operation between FADD and Bin1 in prostate cancer apoptosis.	4/1/03-3/31/06 \$538,567 total costs.
1RO1 NS046353-01 (PI. A. Thorburn) NIH/NINDS Nuclear signaling by TRADD.	7/1/03-6/30/07 \$1,227,993 total costs

Publications

- 1. Thorburn, A.,** Moore, R. and Knowland, J. (1988). "Attachment of transcriptionally active DNA sequences to the nucleoskeleton under isotonic conditions." *Nucleic Acid Research* **14**, 7138-7184.
- 2. Thorburn, A.** and Knowland, J. (1988). "A novel nuclear transcription system which responds correctly to cloned estrogen receptor." *Nucleic Acid Research* **14**, 10469-10476.
- 3. Kingsman, A.J.,** Braddock, M., **Thorburn, A.,** Chambers, A. and Kingsman, S.M. (1990). "Expression in *Xenopus* oocytes." *Current Opinion on Biotechnology* **1**, 82-86.
- 4. Braddock, M., Thorburn, A.,** Chambers, A., Elliot, G.D., Anderson, G., Kingsman, A.J. and Kingsman, S.M. (1990). "A nuclear translation block imposed by the HIV U3 region is relieved by the Tat/TAR interaction." *Cell* **62**, 1123-1133.
- 5. Braddock, M., Thorburn, A.,** Kingsman, A.J. and Kingsman, S.M. (1991). "Blocking of Tat-dependant HIV-1 RNA modification by an inhibitor of RNA polymerase II processivity." *Nature* **350**, 439-441.
- 6. Thorburn, A.,** Thorburn, J., Chen, S-Y., Powers, S., Shubeita, H.E., Feramisco, J.R. and Chien, K.R. (1993). "HRas dependant pathways can activate morphological and genetic markers of cardiac muscle hypertrophy." *J. Biol. Chem.* **268**, 2244-2249.
- 7. Alberts, A.S., Thorburn, A.,** Shenolikar, S. Mumby, M. and Feramisco, J.R. (1993). "Regulation of cell cycle progression and nuclear affinity of the retinoblastoma protein by protein phosphatases." *Proc. Natl. Acad. Sci. U.S.A.* **90**, 388-392 .
- 8. Thorburn, A.** and Alberts, A.S. (1993). "Efficient expression of miniprep plasmid DNA after needle microinjection into somatic cells. *BioTechniques*, **14**, 356-358.
- 9. Thorburn, A.** and Knowland J.(1993). Attachment of vitellogenin genes to the nucleoskeleton accompanies their activation." *Biochem. & Biophys. Res. Comm.* **191**,308-313.

10. **Thorburn, A.** and Feramisco, J.R. (1993). "Microneedle injection of macromolecules into somatic cells." in *Cell & Tissue Culture: Laboratory Procedures*, Ed. J. B. Griffiths, A. Doyle & D. G. Newell. Wiley and Sons, London.
11. **Thorburn, A.**, Walton, P.A. and Feramisco, J.R. (1993)"MyoD induced cell cycle arrest is associated with increased nuclear affinity of the Rb protein." *Mol. Biol. of the Cell* **4**, 705-713
12. Alberts, A.S., Frost, J. and **Thorburn, A.** (1993). "Rapid microinjection assay for the expression of two specific reporter genes in single cells." *DNA & Cell Biology* **12**, 935-943.
13. Thorburn, J., Frost, J.A. and **Thorburn, A.** (1994) "Mitogen-activated protein kinases mediate changes in gene expression, but not cytoskeletal organization associated with cardiac muscle cell hypertrophy." *J. Cell Biology*, **126**, 1565-1572.
14. Thorburn, J. and **Thorburn, A.** (1994) "The tyrosine kinase inhibitor, genistein, prevents α -adrenergic-induced cardiac myocyte hypertrophy by inhibiting activation of the Ras-MAP kinase signaling pathway." *Biochem. & Biophys. Res. Comm.* **202**, 1586-1591.
15. Thorburn, J., McMahon, M. and **Thorburn, A.** (1994) "Raf-1 activity is necessary and sufficient for gene expression changes but not sufficient for cellular morphology changes associated with cardiac myocyte hypertrophy." *J. Biol. Chem.* **269**, 30580-30586
16. **Thorburn, A.** "Ras activity is required for phenylephrine-induced activation of mitogen-activated protein kinase in cardiac muscle cells." (1994) *Biochem & Biophys Res. Comm.* **205**, 1417-1422.
17. Braddock, M., Muckenthaler, M., White, M. R. H., **Thorburn, A. M.**, Sommerville, J., Kingsman, A. J. and Kingsman, S. M. (1994) "Intron-less RNA injected into the nucleus of Xenopus oocytes accesses a regulated translation control pathway." *Nucleic Acid Research*, **22**, 5255-5264.
18. Gunkel, N., Braddock, M., **Thorburn, A. M.**, Muckenthaler, M, Kingsman, A. J. and Kingsman, S. M. (1995) "Promoter control of translation in Xenopus oocytes." *Nucleic Acid Research*, **23**, 405-412.
19. Thorburn, J., Carlson, M., Mansour, S., Chein, K. R., Ahn, N. and **Thorburn, A.** (1995) "Inhibition of a signaling pathway in cardiac muscle cells by active mitogen-activated protein kinase kinase." *Mol. Biol. of the Cell*, **6**, 1479-1490.
20. Thorburn, J., Xu, S. and **Thorburn, A.** (1997) "MAP kinase and Rho-dependent signals interact to regulate gene expression but not actin morphology in cardiac muscle cells." *EMBO J.* **16**, 1888-1900.
21. Hines, W. A. and **Thorburn, A.** (1998) "Ras and Rho are required for $G_{\alpha q}$ -induced hypertrophic gene expression in neonatal rat cardiac myocytes" *J. Mol. & Cell. Cardiol.* **30**, 485-494.
22. Dell'Acqua, M. L., Faux, M. C. Thorburn, J., **Thorburn, A.**, and Scott, J. D. (1998) "Membrane targeting sequences on AKAP79 bind phosphatidylinositol-4,5-bisphosphate." *EMBO J.* **17**, 2246-2260.
23. Hines, W. A., Thorburn, J and **Thorburn, A.** (1999) "A Low Affinity Serum Response Element Allows other Transcription Factors to Activate Inducible Gene Expression in Cardiac Myocytes." *Molecular & Cellular Biology* **19**, 1841-1852.
24. Montessuit, C and **Thorburn, A.** (1999) "Transcriptional activation of the glucose transporter GLUT1 in ventricular cardiac myocytes by hypertrophic agonists." *J. Biol. Chem.* **274**, 9006-9012.
25. Hines, W. A., Thorburn, J., and **Thorburn, A.** (1999) "Cell density and contraction regulate p38 MAP kinase-dependent responses in neonatal rat ventricular cardiac myocytes." *American Journal of Physiology* **277** (*Heart & Circulatory Physiol.* 46), H331-H341.

26. Zhang, H., Richards, B., Wilson, T., Lloyd, M. Cranston, A., **Thorburn, A.**, Fishel, R. and Meuth, M. (1999) "Apoptosis induced by overexpression of hMSH2 or hMLH1." *Cancer Research*. **59**, 3021-3027.
27. Montessuit, C and **Thorburn, A.** (1999) "Activation of Ras by phorbol esters in cardiac myocytes: role of guanine-nucleotide exchange factors." *FEBS Letters*. **460**, 57-60.
28. Montessuit, C. and **Thorburn, A.** (1999). "MAP kinase signaling pathways in cardiac myocyte hypertrophy." *Current Topics in Biochemical Research*. **1**, 145-156.
29. Jette, C. and **Thorburn, A.** (2000) "A Raf-Induced, MEK-Independent Signaling Pathway Regulates Atrial Natriuretic Factor Gene Expression in Cardiac Muscle Cells." *FEBS Letters*. **467**, 1-6.
30. Singleton, J. R., Baker, B. L. and **Thorburn, A.** (2000) "Dexamethasone inhibits insulin like growth factor signaling and potentiates myoblast apoptosis" *Endocrinology*, **141**, 2945-2950.
31. Litwin, S., **Thorburn, A.** and Barry, W.H. (2000) "Cardiac Hypertrophy: Physiologic and Clinical considerations" in "Cardiovascular Medicine, Second Edition. Editors J.T. Willerson and J. N. Cohn. Harcourt Health Sciences, Philadelphia, PA.
32. Morgan, M. J. and **Thorburn, A.** (2001). "Measurement of caspase activity in individual cells reveals differences in the kinetics of caspase activation between cells." *Cell Death & Differentiation*., **8**, 38-43.
33. Morgan, M. J., Thorburn J., Thomas, L., J. Maxwell, T., Brothman, A. R. and **Thorburn, A.** (2001) "An apoptosis signaling pathway induced by the death domain of FADD selectively kills normal but not cancerous prostate epithelial cells." *Cell Death & Differentiation*. **8**, 696-705.
34. Dufner-Beattie, J., Lemons, R. S., and **Thorburn, A.** (2001) "Retinoic acid-induced expression of autotaxin in N-myc-amplified neuroblastoma cells." *Molecular Carcinogenesis*, **30**, 181-189.
35. Morgan, M.J., Thorburn, J., Pandolfi, P.P., and **Thorburn A.** (2002). "Nuclear and cytoplasmic shuttling of TRADD induces apoptosis via different mechanisms." *J. Cell Biology*, **157**, 975-984.
36. Greene, B.T., Thorburn, J., Willingham, M.C., **Thorburn, A.**, Planalp, R. P., Brechbiel, M.W., Jennings-Gee, J., Wilkinson IV, J., Torti, F.M. and Torti, S.V. (2002). "Activation of caspase pathways during iron chelator-induced apoptosis." *J. Biol. Chem.* **277**, 25568-25575.
37. Liu, J., Yao, F., Wu, R., Morgan, M., **Thorburn, A.**, Finley, R. L., and Chen, Y.Q. (2002). "Mediation of the DCC apoptotic signal by DIP13alpha." *J. Biol. Chem.* **277**, 26281-26285.
38. Thomas, L.R., Stillman, D.J. and **Thorburn, A.** (2002). "Regulation of Fas-associated death domain interactions by the death effector domain identified by a modified reverse two hybrid screen." *J. Biol. Chem.* **277**, 34343-34348.
39. Frankel, A.E., Beran, M., Hogge, D.E., Powell, B.L., **Thorburn, A.**, Chen, Y.Q., and Vallera, D.A. (2002). "Malignant progenitors from patients with CD87 positive acute myeloid leukemia are sensitive to a diphtheria toxin-urokinase fusion protein." *Experimental Hematology*, **30**, 1316-1323.
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Major Administrative Responsibilities.

Associate Director for Basic Research, University of Colorado Cancer Center (UCCC). As Associate Director for Basic Science, I oversee the laboratory-based research in our NCI-designated Comprehensive Cancer Center, which has over 200 full faculty members with annual peer-reviewed cancer research funding ~ \$120 million. We have eight research programs and 17 Core facilities that serve the needs of UCCC members at the University of Colorado Denver, the University of Colorado Boulder, Colorado State University, The National Jewish Medical and Research Center and the Denver VA. Approximately half the members are laboratory-based researchers falling within my responsibility. My main role in the Cancer Center is to work with the Director, Deputy Director and the Associate Directors for Clinical and Population Research along with the Program Directors to promote interdisciplinary, collaborative cancer research. I also distribute pilot funding for new initiatives, co-ordinate relationships between our consortium institutions and am involved in community outreach and education, and fund raising. I oversee various core facilities, which are located primarily at the UCD Anschutz Medical Campus but also include satellite facilities at the National Jewish Research Center, University of Colorado, Boulder and Colorado State University, Fort Collins and include: Gene Expression, DNA sequencing, Proteomics, FLOW cytometry, Cytogenetics, Tissue Culture/ monoclonal antibodies, Structural Biology, Laboratory Animals & Tumor testing, Small Animal Imaging, MRS spectroscopy, Radiation Sciences. The directors and managers of these facilities report to me and I am responsible for financial oversight, recruitment and strategic planning for these facilities.

Vice Chair, Dept. of Pharmacology. The Dept. of Pharmacology has 19 primary faculty at the rank of Assistant Professor and above, approximately 50 Ph.D. students and 35 postdoctoral fellows. Research strengths are focused in neuroscience and addiction research, signaling and cancer biology, proteomics, structural biology, lipid biochemistry and computational biology. Total NIH funding (2008 figures) exceeds \$19 million ranking our department amongst the top Pharmacology departments in the country in this respect. As Vice Chair, I work with the Chair to promote the teaching (Medical, Dental and Graduate students) and research missions of the department.

Research Program.

My laboratory studies the regulation of cell death and the interaction between apoptosis and autophagy as it relates to the development of cancer, the response of cancer cells to therapy and the activation of other aspects of the anti-tumor response such as development of an effective immune response to dying tumor cells. We have a particular focus on studying new therapeutics that target the TRAIL receptor signaling pathways and on the development and use of targeted toxins, which are recombinant proteins consisting of a targeting domain fused to a bacterial toxin. Collaborative translational projects with medical oncologists Art Frankel (Scott & White Memorial Hospital, Texas), Anthony Elias (University of Colorado) and Tom Flaig (University of Colorado) along with a basic scientist John Ohlfest (Univ. of Minnesota) focus on the use of targeted toxins in tissue culture to treat glioblastoma, breast cancer, bladder cancer and acute myeloid leukemia (AML). Human clinical trials in bladder and breast cancer are being planned; clinical trials in AML are ongoing. Work on the TRAIL pathway involves collaborations with basic scientists (Heide Ford and Christine Wu, Univ. of Colorado) and clinical investigators (Kian Behbakht and Ross Camidge, Univ. of Colorado) and focuses on ovarian, breast and lung cancer using in vitro and animal models together with translational studies in humans.