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| BIOGRAPHICAL SKETCHProvide the following information for the Senior/key personnel and other significant contributors.Follow this format for each person.  **DO NOT EXCEED FOUR PAGES.** |
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| NAME**Beverly A. Rothermel, PhD** | POSITION TITLE**Associate Professor** |
| eRA COMMONS USER NAME**BROTHERMEL** |
| EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)* |
| INSTITUTION AND LOCATION | DEGREE*(if applicable)* | YEAR(s) | FIELD OF STUDY |
| Cornell University, Ithaca, NY | BS | 1982 | Biology/Biochemistry |
| Yale University, New Haven, CT | MS | 1986 | Biology |
| Yale University, New Haven, CT | MPhil | 1987 | Biology |
| Yale University, New Haven, CT | PhD | 1991 | Cellular & Development |

**A. Personal Statement**

My laboratory has a long-standing interest in metabolic and structural remodeling of cardiac and skeletal muscle during development and disease. Studies center on calcium-regulated signal transduction pathways with a focus on the calcium/calmodulin activated protein phosphatase calcineurin. My lab identified the protein RCAN1.4 as a feed back inhibitor of calcineurin activity and demonstrated RCAN1’s ability to influence remodeling of both heart and skeletal muscle. Experiments in my lab are designed to better understand the biochemistry of the RCAN/calcineurin interaction, identify transcriptional and post-transcriptional mechanisms controlling RCAN levels, and determine the biological consequences of RCAN regulation of the calcineurin signaling cascade in the heart and other organs.

**B. Positions and Honors**

### Professional Appointments and Positions

1981-1982 Research Assistant, Dr. Ruth Alscher; Boyce Thompson Institute, Ithaca, NY

1982-1983 Research Assistant, Dr. LE Anderson; University of Illinois, Chicago, IL

1984 Research Assistant, Dr. Ruth Satter; University of Connecticut, Storrs, CT

1991-1996 Postdoctoral Fellow, Biochemistry; UT Southwestern Medical Center, Dallas, TX

1996-2000 Postdoctoral Fellow, Cardiology; UT Southwestern Medical Center, Dallas, TX

2000-2012 Assistant Professor, Internal Medicine; UT Southwestern Medical Center, Dallas, TX

2012-present Associate Professor, Departments of Internal Medicine and Molecular Biology, UTSW

**Honors**

1991-1992 NIH Cardiology Fellowship (#GM31480)

1992-1995 American Cancer Society Postdoctoral Fellowship (#PF-3678)

1996-1997 Freelance Editor for Current Protocols (John Wiley and Sons, NY)

1983-present American Association for the Advancement of Science

1993-present American Genetics Society

2001-present American Heart Association

2002-present Texas Genetics Society

2004-present AHA Western Peer Review Committee Member

2005-present AHA National Peer Review Committee Member

2009-present Director of Cardiac Surgery and Physiology Core Facility; AHA DeHaan Cardiac Myogenesis

 Research Center; UT Southwestern Medical Center, Dallas, TX

C. Peer-Reviewed Publications

1. **Rothermel BA**, Alscher A (1985) A light-enhanced metabolism of sulfite in cells of *Cucumis sativus* L. cotyledons. *Planta* 166: 105-110.

2. Langdale JA, **Rothermel BA,** Nelson T (1988) Cellular patterns of photosynthetic gene expression in developing maize leaves.  *Genes and Dev.* 2: 106-115.

3. Metzler MC, **Rothermel** **BA,** Nelson T (1989) Maize NADP-malate dehydrogenase: cDNA cloning, sequence, and mRNA characterization. *Plant Mol Bio.* 12: 713-722.

4. **Rothermel BA,** Nelson T (1989) The primary structure of the maize NADP-dependent malic enzyme. *J. Biol Chem.*  264: 19587-19592.

5. Chelstowska A, Jia Y, **Rothermel B,** Butow RA (1995) Retrograde regulation: a Novel Path of communication between mitochondria, the nucleus and peroxisomes in yeast. *Can. J. of Bot*. 73(suppl. 1): S205-S207.

6. **Rothermel BA**, Shyjan A, Etheredge JL, Butow RA (1995) Transactivation by Rtg1p, a basic helix-loop-helix protein that functions in communication between mitochondria and the nucleus in yeast. *J. Biol Chem.*  270: 29476-29482.

7. Jia, Y, **Rothermel BA,** Thornton J, Butow RA (1997) A basic helix-loop-helix zipper transcription complex in yeast functions in a signaling pathway from mitochondria to the nucleus. *Mol Cell Biol.* 17:1110-1117

8. **Rothermel BA,** Thornton J, Butow RA (1997) Rtg3p, a basic helix-loop-helix/leucine zipper protein, contains independent activation domains involved in mitochondrial-induced changes in gene expression. *J. Biol Chem.* 272:19801-19807.

9. Yang Q, Kong Y, **Rothermel B**, Garry DJ, Fernandez E, Bassel-Duby R, Williams RS (2000) The winged helix/forkhead protein MNF-B forms a co-repressor competes with mSin3B. *Biochem J.* 345:335-343.

10. **Rothermel B**, Vega RB, Yang J, Wu H, Bassel-Duby R, Williams RS. (2000) A protein encoded within the Down syndrome critical region is enriched in striated muscles and inhibits calcineurin signaling. *J Biol Chem* **275:**8719-25. PMID: 10722714

11. Yang J, **Rothermel BA**, Vega RB, Frey N, McKinsey TA, Olson EN, Bassel-Duby R, Williams RS. (2000) Independent signals control expression of the calcineurin inhibitory proteins MCIP1 and MCIP2 in striated muscles. *Circ Res* **87:**e61-e68. PMID: 11110780

12. **Rothermel BA**, McKinsey TA, Vega RB, Nicol RL, Mammen P, Yang J, Antos CL, Shelton JM, Bassel-Duby R, Olson EN, Williams RS. (2001) Myocyte-enriched calcineurin interacting protein, MCIP1, inhibits cardiac hypertrophy *in vivo*. *Proc Natl Acad Sci* **98:**3328-3333. PMID: 11248078

13. Kong Y, Shelton JM, **Rothermel B**, Li X, Richardson JA, Bassel-Duby R, Williams RS. (2001) Cardiac-specific LIM protein FHL2 modifies the hypertrophic response to beta-adrenergic stimulation. *Circulation* **103:**2731-8. PMID: 11390345

14. Chang C, Gonzalez F, **Rothermel B**, Sun L, Johnston SA, Kodadek T. (2001) Physical and functional interactions between the Gal4 acidic activation domain and the Sug2 protein, a proteasome component *J Biol Chem* **276**:30956-63. PMID: 11418596

15. Wu H, **Rothermel BA**, Kanatous S, Rosenberg P, Naya FJ, Shelton JM, Hutcheson K, DiMaio MJ, Olson EN, Bassel-Duby R, Williams RS. (2001) Activation of MEF2 by muscle activity is mediated through a calcineurin-dependent pathway. *EMBO* **20**:6414-23. PMID: 11707412

16. Tausta SL, Coyle HM, Rothermel B, Stiefel V, Nelson T. (2002) Maize C4 and non-C4 NADP-dependent malic enzymes are encoded by distinct genes derived from a plastid-localized ancestor. *Plant Mol Biol*. **50**:635-52. PMID: 12374297

17. Hill JA, **Rothermel B**, Yoo KD, Cabuay B, Demetroulis E, Weiss RM, Kutschke W, Bassel-Duby R, Williams RS. (2002) Targeted Inhibition of Calcineurin in Pressure-overload Hypertrophy: Preservation of Systolic Function. *J Biol Chem* **277**:10251-5. PMID: 11786544

18. Vega RB, Yang J, **Rothermel BA**, Bassel-Duby R, Williams RS. (2002) Multiple domains of MCIP1 contribute to inhibition of calcineurin activity.  *J Biol Chem* **277**:30401-7. PMID: 12063245

19. Vega RB, Yang J, **Rothermel BA**, Weinheimer CJ, Kovacs A, Bassel-Duby R, Williams RS, Olson EN. (2003) Dual roles of the calcineurin inhibitory protein Modulatory Calcineurin Interacting Protein 1, MCIP1, in cardiac hypertrophy. *Proc Natl Acad Sci U S A* **100**:669-674. PMID: 12515860

20. **Rothermel BA,** Vega RB, Williams RS. (2003) The role of modulatory calcineurin-interacting proteins, MCIPs, in calcineurin signaling. (invited review) *Trends in Cardiovascular Med.* 13:15-21. PMID: 12554096

21. van Rooij E, Doevendans PA, Heeneman S, Willemsen PHM, van Bilsen M, Williams RS, Olson EN, Bassel-Duby R, **Rothermel** **BA,** de Windt LJ. (2004) MCIP1 suppresses left ventricular remodeling and sustains cardiac function following myocardial infarction. *Circ Res.* **94**:e18-26*.* PMID: 14739160

22. Frey N, Barrientos T, Shelton JM, Frank D, Rutten H, Gehring D, Kuhn C, Lutz M, **Rothermel BA**, Bassel-Duby R, Richardson JA, Katus HA, Hill JA, Olson EN. (2004) Mice lacking calsarcin-1 are sensitized to calcineurin signaling and show accelerated cardiomyopathy in response to pathological biomechanical stress. *Nat Med.* **10**:1336-1343. PMID: 15543153

23. Lange AW, **Rothermel** **BA**, Yutzey KE. (2005) Restoration of *DSCR1* to disomy in Trisomy 16 mouse model of Down syndrome does not correct cardiac or craniofacial development anomalies. *Dev Dyn.***233**:954-963*.* PMID: 15906378

24. Berenji K, Drazner MH, **Rothermel** **BA**, Hill JA. (2005) Does ventricular hypertrophy progress to systolic heart failure? *Am. J. Physiol-Heart Circ Physiol.* **289**:H8-H16*.* PMID: 15961379

25. **Rothermel BA**, Berenji K, Tannous P, Kutschke W, Dey A, Nolan B, Yoo KD, Demetroulis E, Gimbel M, Cabuay B, Karimi M, Hill JA (2005) Differential Activation of Stress-Response Signaling in Load-Induced Cardiac Hypertrophy and Failure. *Physiol Genomics.* 23:18-27. PMID16033866

26. Oh M, Rybkin I, Copeland V, Czubryt MP, Shelton J, Richardson JA, Hill JA, de Windt LJ, Bassel-Duby R, Olson EN, **Rothermel BA**. (2005) Calcineurin is necessary for the maintenance but not embryonic development of slow muscle fibers. *Mol Cell Biol.***25**:6629-6638*.* PMID: 16024798

27. Park SY, Cho YR, Kim HJ, Higashimori T, Hong EG, Lee MK, Danton C, Deshmukh S, Cline GW, Wu JJ, Bennett AM, **Rothermel B,** Kalinowski A, Russell KS, Kim YB, Kelly DP, Kim JK. (2005) Cardiac-selective overexpression of PPAR causes insulin resistance in heart and liver. *Diabetes.* ***54****:2514-24.* PMID: 16123338

28. Park SY, Cho YR, Kim HJ, Higashimori T, Danton C, Lee MK, Dey A, **Rothermel B**, Kim YB, Kalinowski A, Russell KS, Kim JK. (2005) Unraveling the Temportal pattern of Diet-Induced Insulin Resistance in Individual Organs and Cardiac Dysfunction in C57BL/6 Mice. *Diabetes.* ***54****:3530-3540.* PMID: 16306372

29. Richardson KE, Tannous P, Berenji K, Nolan B, Bayless KJ, Davis GE, **Rothermel BA**, Hill JA. (2005) Guanosine triphosphatase activation occurs downstream of calcineurin in cardiac hypertrophy. *J Investig Med.* **53**:414-24. PMID: 16354580

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31. Ni YG, Berenji K, Wang N, Oh M, Sachan N, Dey A, Cheng J, Lu G, Morris DJ, Castrillon D, Gerard RD, **Rothermel BA**, Hill JA. (2006) Foxo Transcription Factors Blunt Cardiac Hypertrophy by Inhibiting Calcineurin Signaling. *Circulation.* **114**:1159-68. PMID: 16952979

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KT](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Min%20KT%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Fox DS](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Fox%20DS%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Cunningham KW](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Cunningham%20KW%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Bassel-Duby R](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Bassel-Duby%20R%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Olson EN](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Olson%20EN%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Zhang Z](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Zhang%20Z%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Williams RS](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Williams%20RS%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Gerber HP](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Gerber%20HP%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Pérez-Riba M](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22P%C3%A9rez-Riba%20M%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Seo H](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Seo%20H%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Cao X](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Cao%20X%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Klee CB](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Klee%20CB%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Redondo JM](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Redondo%20JM%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Maltais LJ](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Maltais%20LJ%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Bruford EA](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Bruford%20EA%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Povey S](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Povey%20S%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Molkentin JD](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Molkentin%20JD%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [McKeon FD](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22McKeon%20FD%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Duh EJ](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Duh%20EJ%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Crabtree GR](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Crabtree%20GR%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Cyert MS](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Cyert%20MS%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [de la Luna S](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22de%20la%20Luna%20S%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus), [Estivill X](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=Search&Term=%22Estivill%20X%22%5BAuthor%5D&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus). (2007) Renaming the DSCR1/Adapt78 gene family as RCAN: regulators of calcineurin. *FASEB J.* **21**:3023-8. PMID: 17595344

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34. **Rothermel BA,** Hill JA. (2007) Myocyte autophagy in heart disease: Friend or Foe? *Autophagy* **3**:632-4. PMID: 17786025

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36. Ni YA, Wang N, Cao D, Sachan N, Morris DJ, Gerard RD, Kuro-o M, **Rothermel** **BA**, Hill JA. (2007) Foxo Transcription Factors Activate Akt and Attenuate Insulin Signaling through Inhibition of Protein Phosphatases. *Proc Natl Acad Sci U S A* **104**:20517-22*.* PMID: 18077353

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38. Tannous P, Zhu H, Nemchenko A, Berry JM, Johnstone JL, Shelton JM, Miller FJ, **Rothermel BA**, Hill JA. (2008) Intracellular protein aggregation is a proximal trigger of cardiomyocyte autophagy. *Circulation* ***117****:3070-78.* PMID: 18541737

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48. Oh M, Dey A, Gerard RD, Hill JA, **Rothermel BA** (2010) The CCAAT/enhancer binding protein beta (C/EBPb) cooperates with NFAT to control expression of the calcineurin regulatory protein RCAN1-4. *J Biol Chem. 2010 Apr 6.*

49. Gurda GT, Crozier SJ, Ji B, Ernst SA, Logsdon CD, **Rothermel BA**, Williams JA. (2010) Regulator of calcineurin 1 (Rcan1) controls growth plasticity of adult pancreas. *Gastroenterology.2010 Apr 30.*

50. Ferdous A, Battiprolu PK, Ni YG, **Rothermel BA**, Hill JA. (2010) FoxO, autophagy, and cardiac remodeling. *J Cardiovasc Transl Res. 2010 Aug;3(4):355-64*

51. Iglewski M, Hill JA, Lavandero S, **Rothermel BA**. (2010) Mitochondrial Fission and Autophagy in the Normal and Diseased Heart. *Curr Hypertens Rep. 2010* ***12****:418-25.* PMID: 20865352

52. Sachan N, Dey A, Rotter D, Grinsfelder B, Battiprolu PK, Sikder D, Copeland V, Oh M, Bush E, Shelton JM, Bibb A, Hill A, **Rothermel BA**. (2011) Sustained hemodynamic stress disrupts normal circadian rhythms in calcineurin-dependent signaling and protein phosphorylation in the heart. *Circ Research.* ***108****:437-45.* PMID: 21233454

53. Parra V, Verdejo H, Del Campo A, Pennanen C, Kuzmicic J, Iglewski M, Hill JA, **Rothermel BA**, Lavandero S. (2011) The complex interplay between mitochondrial dynamics and cardiac metabolism. *J Bioenerg Biomembr.* ***43****:47-51.* PMID: 21258852

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###### D. Research Support

###### Ongoing Research Support

NIH RO1 HL072016 Rothermel (PI) 12/13/2002 - 06/30/2013

Modulating Calcineurin Signaling Pathways in Muscle

The goal of this project is to decipher the mechanisms through which modulatory calcineurin-interacting proteins (MCIPs/RCANs) influence calcineurin signaling in heart and skeletal muscle.

Role: PI

NIH R01 HL097768 Rothermel (PI) 09/01/2009 - 08/31/2013

Calcineurin's role in circadian regulation of cardiac function and remodeling

The goal of this grant is to study circadian regulation of signaling pathways that control cardiac function.

Role: PI

NIH RO1 HL090842 Hill (PI) 04/01/2009 - 08/31/2013

FoxO: Negative regulator of Cardiac Hypertrophy

Role: Co-PI

AHA DeHaan Cardiac Myogenesis Research Center Olson (PI) 04/01/2009 - 12/31/2012

Chemical Regulation of Cardiac Regeneration and Repair (PI:Olson)

Role: Director of Cardiac Surgery and Physiology Core