

# CURRICULUM VITAE

## DANIEL C. BERRY, PhD

Assistant Professor  
Cornell University  
Division of Nutritional Sciences  
Email: [dcb37@cornell.edu](mailto:dcb37@cornell.edu)  
Website: <https://danielberrylab.com/>

526 Campus Rd  
307 Biotechnology Building  
Ithaca, NY 14853-6301  
Phone: 607.255.8857

## FACULTY POSITIONS

### **Assistant Professor** (July 1, 2017-present)

*Cornell University, Division of Nutritional Sciences*

- Investigating white and beige adipose stem cells, their niche and their contribution to adipose tissue development, homeostasis, expansion and thermogenesis

## BACKGROUND

### EDUCATION AND RESEARCH TRAINING

#### **Postdoctoral Fellow**

*UT Southwestern Medical Center, Department of Developmental Biology and Division of Endocrinology Department of Internal Medicine*

Mentor: Dr. Jonathan Graff (June 2012 – July 2017)

- Investigating the roles and origins of adipose stem cells and their contribution to adipose tissue development and homeostasis

*Case Western Reserve University, Department of Pharmacology and Department of Nutrition*

Mentor: Dr. Noa Noy (August 2011 – June 2012)

- Probing the roles of vitamin A and retinoic acid on the transcriptional regulation of obesity and diabetes

#### **Doctorate of Philosophy**

*Case Western Reserve University, Department of Nutrition*

Advisor: Dr. Noa Noy (August 2008 – August 2011)

- Thesis title: "Retinoic Acid in Adipocyte Biology"
- Exploring the roles of vitamin A and retinoic acid on the transcriptional regulation of obesity and diabetes

#### **Bachelor of Science**

*State University of New York (SUNY) at Cortland*

2001 – 2005

- Major: Biology
- Concentration: Environmental Science

## RESEARCH EXPERIENCE

### **Research Assistant**

*Case Western Reserve University, Department of Pharmacology*

PI: Dr. Noa Noy (2007 – 2008)

- Exploring the roles of vitamin A and retinoic acid on the transcriptional regulation of obesity and diabetes

### **Research Assistant**

*Cornell University, Division of Nutritional Sciences*

PI: Dr. Noa Noy (2005 – 2007)

- Examining the roles of retinoic acid on the transcriptional regulation of cancer

### **Research Assistant**

*State University of New York (SUNY) at Cortland*

PI: Dr. Christopher Cirimo (2004 – 2006)

- Wetland vegetation, hydrology and habitat research of the Adirondack Mountains

### **Research Assistant (Intern)**

*Tunison laboratory of Aquatic Science. USGS*

PI: Dr. H. George Ketola (2004)

- Physiological, nutritional and environmental impacts on fish reproduction

## ACADEMIC ACTIVITIES

### TEACHING RESPONSIBILITIES

Seminar in nutritional sciences

NS7030

- Graduate student run seminar series. Graduate students present recent papers related or not to their research interest. Professors provide feedback and constructive critiques on presentation and topic accessibility.

Obesity and body weight management

NS3150

- This is a team-taught course with Dr. David Levitsky. My portion of the course provides a comprehensive overview of adipose tissue biology and its role in regulating systemic metabolism. Further, aspects of metabolic dysfunction such type 2 diabetes, fatty liver disease, hypertension, and atherosclerosis are correlated to normal physiology and pathophysiology. Moreover, this course examines the biomedical and surgical interventions of obesity and associated sequela. This course is lecture based with an emphasize on primary literature. Students also complete a grant or diet book project that is peer graded.

Macronutrients

NS6320

- Provide a lecture on obesity and its associated metabolic diseases

## ACADEMIC COMMITTEES

|           |                                                   |
|-----------|---------------------------------------------------|
| 2018-2021 | DNS seminar search committee                      |
| 2018-2021 | Graduate Field of Nutrition nominations committee |
| 2019-2024 | CHE: The Grievance Committee                      |

## VOLUNTEER FACULTY ROLES

### Faculty advisor

*Big Red Thon, Cornell University*

- Dance team to raise money and awareness For the Kids of Upstate Golisano Children's Hospital (a regional Children's Miracle Network Hospital)

## PROFESSIONAL ACTIVITIES

### MEMBERSHIPS

|      |                                               |
|------|-----------------------------------------------|
| 2018 | Member, American Aging Association            |
| 2018 | Member, The Gerontological Society of America |
| 2019 | Member, Society of Developmental Biology      |

### HONORS AND ACTIVITIES

|             |                                                                                         |
|-------------|-----------------------------------------------------------------------------------------|
| 2003 – 2005 | Dean's list of Academic Achievement, SUNY Cortland                                      |
| 2005        | President's List of Academic Achievement, SUNY Cortland                                 |
| 2009 – 2011 | NIDDK T32 Training Grant, Case Western Reserve University-<br>Nutrition                 |
| 2009        | Poster Presentation Honorable Mention, Case Western Reserve<br>University, Pharmacology |
| 2010        | Poster Presentation Honorable Mention, Case Western Reserve<br>University, Pharmacology |
| 2012        | Doctoral Excellence Award, Case Western Reserve University                              |
| 2012 – 2014 | NIHLB T32 Training Grant, UT Southwestern Medical Center<br>Cardiology                  |
| 2014 – 2016 | Postdoctoral Association Treasurer, UT Southwestern Medical<br>Center                   |
| 2014 – 2015 | NRSA F32 Ruth L Kirschstein Individual Postdoctoral Fellow,<br>NIDDK                    |
| 2016 – 2020 | Ko1 Mentored Research Scientist Development Award, NIDDK                                |
| 2019        | K-Awardee NIH-NIDDK workshop                                                            |
| 2019        | NIH Study Section Early Career Reviewer: Molecular and Cellular<br>Endocrinology        |

## RESEARCH ACTIVITES

### RESEARCH ARTICLES

1. Acharya A, **Berry DC**, Zhang H, Jiang Y, Jones BT, Hammer RE, Graff JM, Mendell JT. [miR-26 suppresses adipocyte progenitor differentiation and fat production by targeting \*Fbxl19\*](#). **Genes Dev.** 2019 Sep 5;. doi: 10.1101/gad.328955.119. [Epub ahead of print] PubMed PMID: 31488578.

2. Jiang Y, **Berry DC**<sup>†</sup>, Graff JM. [Distinct cellular and molecular mechanisms for  \$\beta\$ 3 adrenergic receptor-induced beige adipocyte formation](#). **Elife**. 2017 Oct 11;6. doi: 10.7554/eLife.30329. PubMed PMID: 29019320; PubMed Central PMCID: PMC5667933 **†Co-corresponding author**
3. Jiang Y\*, **Berry DC**\*<sup>†</sup>, Jo A, Tang W, Arpke RW, Kyba M, Graff JM<sup>†</sup>. [A PPAR \$\gamma\$  transcriptional cascade directs adipose progenitor cell-niche interaction and niche expansion](#). **Nat Commun**. 2017 Jun 26;8:15926. doi: 10.1038/ncomms15926. PubMed PMID: 28649987; PubMed Central PMCID: PMC5490270. **\*Contributed equally. †Co-corresponding author**
4. **Berry DC**<sup>†</sup>, Jiang Y, Arpke RW, Close EL, Uchida A, Reading D, Berglund ED, Kyba M, Graff JM<sup>†</sup>. [Cellular Aging Contributes to Failure of Cold-Induced Beige Adipocyte Formation in Old Mice and Humans](#). **Cell Metab**. 2017 Jan 10;25(1):166-181. doi: 10.1016/j.cmet.2016.10.023. Epub 2016 Nov 23. PubMed PMID: 27889388; PubMed Central PMCID: PMC5226893 **†Co-corresponding author**
  - Research highlight and interview: Geach, T., “Reversing age-related decline in beiging.”, **Nat Rev Endocrinol**. 13 64 (2017). doi:10.1038/nrendo.2016.208
  - Cell Metabolism Preview: Fernandez-Marcos, P.J., and Serrano, M. “Young and Lean: Elimination of senescent cells boosts adaptive thermogenesis.”, **Cell Metab**. 2017 Feb 7; 25(2):226-228.
5. **Berry DC**, Jiang Y, Graff JM. [Mouse strains to study cold-inducible beige progenitors and beige adipocyte formation and function](#). **Nat Commun**. 2016 Jan 5;7:10184. doi: 10.1038/ncomms10184. PubMed PMID: 26729601; PubMed Central PMCID: PMC4728429.
6. Vreeland AC, Levi L, Zhang W, **Berry DC**, Noy N. [Cellular retinoic acid-binding protein 2 inhibits tumor growth by two distinct mechanisms](#). **J Biol Chem**. 2014 Dec 5;289(49):34065-73. doi: 10.1074/jbc.M114.604041. Epub 2014 Oct 15. PubMed PMID: 25320093; PubMed Central PMCID: PMC4256341.
7. Jiang Y\*, **Berry DC**\*, Tang W, Graff JM. [Independent stem cell lineages regulate adipose organogenesis and adipose homeostasis](#). **Cell Rep**. 2014 Nov 6;9(3):1007-22. doi: 10.1016/j.celrep.2014.09.049. Epub 2014 Oct 23. PubMed PMID: 25437556; PubMed Central PMCID: PMC4250841. **\*Contributed equally**
  - Recommended by the Faculty of 1000
8. **Berry DC**, Levi L, Noy N. [Holo-retinol-binding protein and its receptor STRA6 drive oncogenic transformation](#). **Cancer Res**. 2014 Nov 1;74(21):6341-51. doi: 10.1158/0008-5472.CAN-14-1052. Epub 2014 Sep 18. PubMed PMID: 25237067; PubMed Central PMCID: PMC4216741.
9. Marwarha G, **Berry DC**, Croniger CM, Noy N. [The retinol esterifying enzyme LRAT supports cell signaling by retinol-binding protein and its receptor STRA6](#). **FASEB J**. 2014 Jan;28(1):26-34. doi: 10.1096/fj.13-234310. Epub 2013 Sep 13. PubMed PMID: 24036882; PubMed Central PMCID: PMC3868835.
10. **Berry DC**, Jacobs H, Marwarha G, Gely-Pernot A, O'Byrne SM, DeSantis D, Klopfenstein M, Feret B, Deneffeld C, Blaner WS, Croniger CM, Mark M, Noy N, Ghyselinck NB. [The STRA6 receptor is essential for retinol-binding protein-induced insulin resistance but not for maintaining vitamin A homeostasis in tissues other than the eye](#). **J Biol Chem**. 2013 Aug 23;288(34):24528-39. doi: 10.1074/jbc.M113.484014. Epub 2013 Jul 9. PubMed PMID: 23839944; PubMed Central PMCID: PMC3750151.

11. **Berry DC**, Croniger CM, Ghyselinck NB, Noy N. [Transthyretin blocks retinol uptake and cell signaling by the holo-retinol-binding protein receptor STRA6](#). **Mol Cell Biol**. 2012 Oct;32(19):3851-9. doi: 10.1128/MCB.00775-12. Epub 2012 Jul 23. PubMed PMID: 22826435; PubMed Central PMCID: PMC3457529.
12. **Berry DC**, O'Byrne SM, Vreeland AC, Blaner WS, Noy N. [Cross talk between signaling and vitamin A transport by the retinol-binding protein receptor STRA6](#). **Mol Cell Biol**. 2012 Aug;32(15):3164-75. doi: 10.1128/MCB.00505-12. Epub 2012 Jun 4. PubMed PMID: 22665496; PubMed Central PMCID: PMC3434520.
13. **Berry DC**, DeSantis D, Soltanian H, Croniger CM, Noy N. [Retinoic acid upregulates preadipocyte genes to block adipogenesis and suppress diet-induced obesity](#). **Diabetes**. 2012 May;61(5):1112-21. doi: 10.2337/db11-1620. Epub 2012 Mar 6. PubMed PMID: 22396202; PubMed Central PMCID: PMC3331760.  
**Berry DC**, Jin H, Majumdar A, Noy N. [Signaling by vitamin A and retinol-binding protein regulates gene expression to inhibit insulin responses](#). **Proc Natl Acad Sci U S A**. 2011 Mar 15;108(11):4340-5. doi: 10.1073/pnas.1011115108. Epub 2011 Feb PubMed PMID: 21368206; PubMed Central PMCID: PMC3060239. (Cited 145 times)
  - Editors' Choice in Science Signaling: John F. Foley; Sci. Signal. 4 (165), ec83. [DOI: 10.1126/scisignal.4165ec83]
14. **Berry DC**, Soltanian H, Noy N. [Repression of cellular retinoic acid-binding protein II during adipocyte differentiation](#). **J Biol Chem**. 2010 May 14;285(20):15324-32. doi: 10.1074/jbc.M110.110635. Epub 2010 Mar 12. PubMed PMID: 20228061; PubMed Central PMCID: PMC2865280.
15. **Berry DC**, Noy N. [All-trans-retinoic acid represses obesity and insulin resistance by activating both peroxisome proliferation-activated receptor beta/delta and retinoic acid receptor](#). **Mol Cell Biol**. 2009 Jun;29(12):3286-96. doi: 10.1128/MCB.01742-08. Epub 2009 Apr 13. PubMed PMID: 19364826; PubMed Central PMCID: PMC2698724. (Cited 273 times)
  - Showcased Review: Wolf, G. "Retinoic acid activation of peroxisome proliferation-activated receptor delta represses obesity and insulin resistance." *Nutr Rev*. 2010 68(1): 67-70.
16. Schug TT\*, **Berry DC\***, Toshkov IA, Cheng L, Nikitin AY, Noy N. [Overcoming retinoic acid-resistance of mammary carcinomas by diverting retinoic acid from PPARbeta/delta to RAR](#). **Proc Natl Acad Sci U S A**. 2008 May 27;105(21):7546-51. doi: 10.1073/pnas.0709981105. Epub 2008 May 21. PubMed PMID: 18495924; PubMed Central PMCID: PMC2396692. \*Contributed equally.
17. Schug TT, **Berry DC**, Shaw NS, Travis SN, Noy N. [Opposing effects of retinoic acid on cell growth result from alternate activation of two different nuclear receptors](#). **Cell**. 2007 May 18;129(4):723-33. doi: 10.1016/j.cell.2007.02.050. PubMed PMID: 17512406; PubMed Central PMCID: PMC1948722. (Cited 571 times)
  - Preview in Cell: Michalik, L and Wahli, W. (2007). "Guiding ligands to nuclear receptors." *Cell* 129(4): 649-651.
  - Recommended by the Faculty of 1000

## REVIEW ARTICLES

1. **Berry DC**, Jiang Y, Graff JM. [Emerging Roles of Adipose Progenitor Cells in Tissue Development, Homeostasis, Expansion and Thermogenesis](#). **Trends Endocrinol Metab**. 2016 Aug;27(8):574-585. doi: 10.1016/j.tem.2016.05.001. Epub 2016 Jun

1. Review. PubMed PMID: 27262681.
2. **Berry DC**, Stenesen D, Zeve D, Graff JM. [The developmental origins of adipose tissue. Development.](#) 2013 Oct;140(19):3939-49. doi: 10.1242/dev.080549. Review. PubMed PMID: 24046315; PubMed Central PMCID: PMC3775412. (Cited 178 times)
3. **Berry DC**, Noy N. [Signaling by vitamin A and retinol-binding protein in regulation of insulin responses and lipid homeostasis. Biochim Biophys Acta.](#) 2012 Jan;1821(1):168-76. doi: 10.1016/j.bbali.2011.07.002. Epub 2011 Jul 12. Review. PubMed PMID: 21782034; PubMed Central PMCID: PMC3204314.
4. **Berry DC**, Noy N. [Is PPARbeta/delta a Retinoid Receptor?. PPAR Res.](#) 2007;2007:73256. doi: 10.1155/2007/73256. PubMed PMID: 18274629; PubMed Central PMCID: PMC2233979.

## BOOK CHAPTERS

**Berry, D.C**, and Noy, N. [Vitamin A and retinol-binding protein 4 in insulin responses and cancer. Adipocytokines, Energy Balance and Cancer.](#) Chapter 5 Volume 12. Springer. Nov, 2016. DOI: 10.1007/978-3-319-41677-9\_5

## LINKS TO RESEARCH ARTICLES

[Berry DC NCBI publication list](#)

[Berry DC Google Scholar](#)

## FUNDING

### Current

#### **NIDDK – R03 Small Grant Program**

**R03-DK122193** (\$75,000.00 direct cost)

Title: Pdgfr $\beta$ , a mediator of the adipose lineage

Project period: August 18, 2018-May 31, 2021

Goals: The major goal of this project is to examine the role of Pdgfrb in specifying the adipose lineage.

Role: PI

#### **Cornell Stem Cell Seed Grant Program:**

Title: m<sup>6</sup>A mRNA Modifications in Skeletal Muscle Regeneration

Project period: April 2019-March 2020 (\$15,000.00)

Goals: The major goals are to identify transcripts that are differentially marked by m<sup>6</sup>A modifications which regulate muscle stem cell proliferation and differentiation, and to determine the *in vivo* role of *Mettl3* in skeletal muscle regeneration.

Role: PI

#### **American Federation for Aging Research (AFAR)**

Pending \$50,000/year

Title: Age-dependent decline of beige adipocyte induction and its metabolic consequences

Project period: July 1, 2018- June 30, 2020

Goals: The major goal of this project is to identify and define genes that regulate beige adipocyte formation in aging.

Role: PI

#### **NIDDK – K01 Mentored Research Scientist Development Award**

**K01-DK109027** (\$395,260 total)

Title: Regulators of the adipose tissue niche control adiposity and metabolism

Project Period: 04/01/2016 to 03/31/2020

Goals: The major goal of this project is to identify and define genes that regulate adipose stem cell niche interaction, adipose niche formation and adipose niche expansion.

Role: PI

## Completed

### **Postdoctoral funding:**

#### **Ruth L. Kirschstein Individual Postdoctoral Fellowship-F32-NIH-NIDDK F32-DK101153** (\$55,094 direct)

Title: Cell cycle regulators control adiposity and metabolism

Project Period: 09/01/2014 to 08/31/2015

Goals: The major goal of this project was to define how cell cycle regulatory genes, specifically Ink4a/Arf, control adipose stem cell proliferation and the effect on adiposity and systemic metabolism.

#### **NHLBI- Institutional Training Grant –T32**

#### **T32-HL007360-34 and 5T32HL007360-35** (\$90,000 total)

Title: Adipose tissue development and homeostasis

Project Period: 09/01/2012 to 08/31/2014

Goals: The major goal of this project was to identify adipose stem cells required for adipose tissue development and adipose tissue homeostasis

## CONFERENCE PRESENTATIONS

### **The involvement of Pdgfr $\beta$ in age dependent decline in cold-induced beige adipocyte**

American Federation of Aging Research- Awardee symposium  
Santa Barbara, California; June 2019 • Poster

### **Cellular aging contributes to failure of cold-induced beige adipocyte formation**

1<sup>st</sup> International Conference on Precision Nutrition and Metabolism in Public Health and Medicine

Chania, Crete, Greece; Sept 2018 • Invited Talk

### **The involvement of Pdgfr $\beta$ in the white and beige adipose lineage**

Keystone symposia: Bioenergetics and metabolic disease

Keystone, Colorado; Jan 2018 • Poster

### **Modulators of the adipose stem cells and their niche**

Field Seminar Genetic, Genomics, and Development, Cornell University

Ithaca, New York; Oct 2017 • Invited Talk

### **Modulators of the adipose stem cells and their niche**

Lerner Research Institute Cleveland Clinic

Cleveland, Ohio; Feb 2017 • Invited Talk

### **Modulators of the adipose stem cells and their niche**

Division of Nutritional Sciences, Cornell University

Ithaca, New York; Feb 2017 • Invited Talk

### **A PPAR $\gamma$ transcriptional cascade directs adipose progenitor-niche interaction and niche expansion**

Keystone Symposia: Obesity and Adipose Tissue Biology

Keystone, Colorado; Jan 2017 • Poster

**Modulators of the adipose stem cells and their niche**

Department of Developmental Biology and Department of Endocrinology  
Cincinnati Children's Hospital  
Cincinnati, Ohio; Nov 2016 • Invited Talk

**Modulators of the adipose stem cells and their niche**

Department of Nutrition and Physiology  
School of Medicine, University of Utah  
Salt Lake City, Utah; Oct 2016 • Invited Talk

**Rejuvenating dormant beige adipose progenitors activates metabolism**

Keystone Symposia: Beige and Brown Fat: Basic Biology and Novel Therapeutics.  
Snowbird, Utah; Apr 2015 • Poster

**Retinoic acid transcriptionally regulates inhibitors of adipogenesis to prevent obesity**

Keystone Symposia: Genetic and Molecular Basis of Obesity and Body Weight Regulation  
Santa Fe, NM; Jan 2012 • Poster

**Cross-talk between STRA6 mediated vitamin A uptake and signaling**

Case Western Reserve University, Department of Pharmacology Retreat  
Cleveland, OH; Nov 2011 • Poster

**Vitamin A signaling in oncogenic transformation**

Case Comprehensive Cancer Center Retreat  
Cleveland, OH; Jul 2011 • Poster

**Mechanism by which retinoic acid inhibits adipogenesis**

Case Western Reserve University, Department of Pharmacology Retreat  
Cleveland, OH; Nov 2010 • Poster • Honorable Mention

**Vitamin A signaling in oncogenic transformation**

Case Comprehensive Cancer Center Retreat  
Cleveland, OH; Jul 2010 • Poster

**Signaling by vitamin A and retinol binding protein in regulation of insulin responses and lipid homeostasis**

FASEB Retinoids Conference  
Carefree, AZ; Jun 2010 • Oral Presentation

**Repression of cellular retinoic acid-binding protein II during adipocyte differentiation**

FASEB Retinoids Conference  
Carefree, AZ; Jun 2010 • Poster

**Mechanism by which retinoic acid inhibits adipogenesis**

Case Western Reserve University, Department of Pharmacology Retreat



Cleveland, OH, Nov 2009 • Poster • Honorable Mention

**All-trans-retinoic acid represses obesity and insulin resistance by activating both PPAR $\beta$ / $\delta$  and RAR**

Jensen Symposium University of Cincinnati  
Cincinnati, OH; Oct 2009 • Poster

**All-trans-retinoic acid represses obesity and insulin resistance by activating both peroxisome proliferator-activated receptor beta/delta and retinoic acid receptor**

3rd International Congress on Prediabetes and the Metabolic Syndrome  
Nice, France; Apr 2009 • Poster

**All-trans-retinoic acid represses obesity and insulin resistance by activating both peroxisome proliferator-activated receptor beta/delta and retinoic acid receptor**

Case Western Reserve University, Department of Pharmacology Retreat  
Cleveland, OH; Nov 2008 • Oral Presentation

**All-trans-retinoic acid represses obesity and insulin resistance by activating both peroxisome proliferator-activated receptor beta/delta and retinoic acid receptor**

FASEB Retinoids Conference  
New Haven, CT; Jun 2008. • Poster