

Niketa A. Patel, Ph.D.

Professor, University of South Florida and Research Career Scientist, JAH VH

Business address:

3802 Spectrum Blvd., Suites 300 and 303
Tampa, FL 33612
Tel: +1 (813) 972 2000 X 7283
Labs: +1 (813) 972 2000 X 7121; X 7443; X 6964; X 7120
Email: Niketa@usf.edu
Niketa.Patel@va.gov

Education and Training

<u>Year</u>	<u>Degree</u>	<u>Field</u>	<u>Institution and Location</u>
1989	B.S.	Chemistry and Biochemistry	University of Bombay, Bombay, India
1991	M.S.	Biochemistry	University of Bombay, Bombay, India
1998	Ph.D.	Biochemistry and Molecular Biology	University of South Florida, Tampa, FL
1999-2003		Biochemistry and Molecular Biology (Post-doc)	University of South Florida, Tampa, FL

Positions and Honors

Positions and Employment

1991-1993	Lecturer, SNTU University, Bombay, India
1994-1998	Ph.D. student, Department of Biochemistry and Molecular Biology, University of South Florida, Tampa, FL
1999-2003	Post-doctoral fellow, Department of Biochemistry and Molecular Biology, University of South Florida, Tampa, FL
2004-2012	Assistant Professor, Department of Molecular Medicine University of South Florida, Tampa, FL
2013-2019	Associate Professor, Department of Molecular Medicine University of South Florida, Tampa, FL
2005-2019	Scientist, J.A. Haley Veterans Hospital, Tampa, FL
2020-present	Professor, Department of Molecular Medicine University of South Florida, Tampa, FL
2020-present	Research Career Scientist, Veterans' Administration

Professional Awards and Honors

Oct 1998	Outstanding Student Presentation, 10th Annual IBS Conference, Tampa, FL
June 1998	Travel Award, Women in Endocrinology
June 2003	Travel Award, Endocrinology
June 2004	Travel Award, Women in Endocrinology
June 2007	Chair, RNA and Disease Symposia, Endocrine Society Annual Meeting
Sept 2011-present	Outstanding Performance Rating, Office of Veterans Affairs
Oct 2014	Chair, Molecular Medicine Symposia, Athens, Greece
July 2018	Keynote, Splicing conference, Lisbon, Portugal
2020	President, Executive Committee, National Academy of Inventors, USF Chapter

Professional Affiliations and Memberships

1998-present Member, Endocrine Society
2004-present Sigma-Xi full member, Tampa Bay Chapter
2007-2012 Member, Science Advisory Board
2007-present Member, American Association for the Advancement of Science
2008-present Member, Johnnie B. Byrd Alzheimer's Center & Research Institute
2009-present Founding Member, National Academy of Inventors, University of South Florida
2012-present Member, International Inventors Academy of Science, University of South Florida
2019-present Senior Member, National Academy of Inventors
2020-present Biomedical Manufacturing cluster, USF
2020-present Pandemic Response Research Network, USF

Professional Services and Activities

2006-2010 American Heart Association, Southeast Affiliate, Review board
2006-2009 Member, Institutional Animal Care and Use Committee (IACUC), USF and VA
2008-present Judge, USF Health Annual Research Day
2007-2010 Cellular and Molecular Life Sciences, Review board
2007-2014 Research Integrity Officer, JAH VA
2007-present Director, Molecular Analysis and Core Laboratory Facility, JAH VA Research
2008-2009 Member, VA Career Development Review Committee, Washington, D.C.
2007-2011 Member, Subcommittee for Research Safety, JAH VA
2009-present Judge, USF Young Innovators Competition
2011-present Judge, USF Undergraduate Research Symposia, Honors College
2011-present Member, Research Master's program admissions Committee, Dept of Molecular Medicine, USF
2011-2014 Member, VA Endocrine (ENDA) Merit Review Committee, Washington, D.C.
2012-present Member, Research Building Activation Committee, JAH VA
2012-2014 Vice Chair, Subcommittee for Research Safety, JAH VA
2013-present Member, Institutional Animal Care and Use Committee (IACUC), VA and USF
2013-present Member, Subcommittee for Research Safety, JAH VA
2013-present Member, Obesity Research Focus Group, Dept of Molecular Medicine, USF
2014-2017 Search Committee for Obesity Research Faculty Position, Dept of Molecular Medicine, USF
2013-present Judge, Poster competition, Experimental Biology Annual Conference
2013-present Judge, Poster competition, Endocrine Society Annual Conference
2014-present Search Committee for Obesity Research Faculty Position, Dept of Molecular Medicine, USF
2014-2016 Lead PI, JAH VA Research Building Renovation committee
2007-present Member, Research and Development Committee, JAH VA
2013-present VA Supervisor OT/CT
2015-present Chair, Subcommittee for Research Safety, JAH VA
2016-present Executive Committee, National Academy of Inventors, FL Chapter
2015-2019 Lead, Laboratory Animal Welfare Policies and Procedures, Office of Research Oversight, JAH VA
2015-2019 Lead, Research Safety Policies and Procedures, Office of Research Oversight, JAH VA
2015-2019 Lead, Security for BSL-1 and BSL-2 Laboratories, Office of Research Oversight, JAH VA
2016-present Judge, Poster competition, Post-doctoral Research, USF
2017- present Member, VA Endocrine (ENDA) Merit Review Committee, Washington, D.C.
2019-present Ad hoc Member, NIH Cellular Aspects of Diabetes and Obesity (CADO) study section

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2019- Panelist, Exploring Careers, ASBMB Conference
2019 NIH CADO-A (07)S review panel board
2020-2021 President, USF Chapter of National Academy of Inventors
2020-present John Hopkins All Children's Hospital, Scientific Review Subcouncil
2020-present Obesity Cardiovascular Metabolic Health Interdisciplinary Research Group (IRG),
John Hopkins All Children's Hospital

Community Services and other Activities

2001-2018 Science advisor, Countryside Montessori
2006-present Founding member, Women in Science (self-governing)
2011-2014 School Advisory Committee, Pine View Middle School
2014-2018 School Board, Countryside Montessori Charter School

Patents

US Patent No. 6,852,529 B1 Glucose-regulated mRNA instability element (Feb 8, 2005).
US Patent No. 8,008,071 B2: Compositions and Methods for Detecting Intracellular Glucose and Analogs Thereof (August 30, 2011)
US Patent No. 9458086 B1 Compositions and Methods for Adipocyte Modulation (October 4, 2016)
US Patent No. 9,822,359 Method of Treating Neurological Disorders Using Long Non-Coding RNAs (November 21, 2017)
US Patent No. 10,196,612 B1 Characterization and Manipulation of Adipose Stem Cell Depots to a Metabolically Healthy State (February 5, 2019)
US Patent No. 10,724,097 Methods and compositions for diagnosis and management of diabetes and metabolic syndrome (July 28, 2020)
US Patent No. 10,849,896 Sortilin-Binding Small Molecules for Increasing Glucose Uptake (December 1, 2020)
US Patent No. 10,857,187 Exosomes from human adipose-derived stem cells for treatment of traumatic brain injury (December 8, 2020)
US Patent No. 11,129,808 PKCdelta (PKC δ) inhibitor formulations and uses thereof (September 28, 2021)

Provisional Patents

2016; Application number: 16/063,077: GAS5-binding small molecule for treatment of diabetes and cancer
2017; Application number: 62/308,335: Small molecule inhibitor of PKC δ 1 as therapeutic application in obesity, diabetes, insulin resistance and metabolic syndrome
2018; Application number: 16/023,366: Clk1 and/or 4 inhibitors for the development of brite or beige fat cells from human and mouse adipose derived stem cells.
2019; Application number: 16/329,448: Adipose derived stem cells and uses thereof
2020; VA ID 2021-025: Extremely high affinity natural product specific for Site 2 of sortilin
2020; VA ID 2021-024: Human adipose-derived stem cells exosomes' and their packaging for use at room temperature.

VA Invention Disclosures

VA ID # 06-094: PKC δ II-specific polyclonal antibody
VA ID # 08-033: Human PKC δ VIII-specific polyclonal antibody
VA ID # 14B512: GAS5 lncRNA biomarker signature for prediction and management of diabetes
VA ID 2021-025: Extremely high affinity natural product specific for Site 2 of sortilin
VA ID 2021-024: Human adipose-derived stem cell exosomes' and their packaging for use at room temperature

Teaching Experience

1991-1993 Lecturer

Niketa A. Patel, Ph.D.

SNDT University, Bombay, India

2002-2008 Methods in Molecular Biology (BCH 6135) - RPA
Department of Biochemistry and Molecular Biology, USF

2004-2010 Proteomics and Functional Genomics (GMS 7930)
Department of Molecular Medicine, USF

2005-2008 Biochemistry, Molecular and Cellular Biology (GMS 6200)
Department of Molecular Medicine, USF

2006-2008 Advanced Gene Regulation Technologies (GMS 7930.022)
Department of Molecular Medicine, USF

2006-2011 Proteomics and Functional Genomics (BCH 6746)
- Interaction Proteomics I (library-based methods)
- Medical proteomics (Biomarkers)
Department of Molecular Medicine, USF

2009-2010 Molecular Medicine
- Processing and Editing of Genetic Information (BMS 6206)
Department of Molecular Medicine, USF

2009-2011 Biomedical Genomics and Genomics (BCH 6411)
- Human Genome Project
- Splicing and Disease
Department of Molecular Medicine, USF

2010-2011 Core Principles & the Musculoskeletal system (BMS 6402)
- Processing and Editing of Genetic Information
Gene expression; mRNA splicing
Department of Molecular Medicine, USF

2011-2012 Basic Medical Genetics (BMS 6012)
- Processing and Editing of Genetic Information
Gene expression; mRNA splicing
Department of Molecular Medicine, USF

2012 Course 1- Musculoskeletal system (BMS 6640)
- Processing and Editing of Genetic Information
Gene expression; mRNA splicing
Department of Molecular Medicine, USF

2013-2016 DPT Course 1- Medical Biochemistry (BMS 6206)
- DNA replication and chromosomes, Transcription
Department of Molecular Medicine, USF

2014 Principles of Molecular Medicine
- RNA Transcription & Post-transcriptional Processing
- mRNA Splicing & RNA Interference
Department of Molecular Medicine, USF

2013-present Cancer Biology (BMS 6816) MD program year 1
- Processing and Editing of Genetic Information
Gene expression; mRNA splicing
- Epigenetics
Department of Molecular Medicine, USF

2016-2017 Basic Medical Biochemistry (GMS 6201)
- Lipoproteins
- Hormone synthesis and Protein hormone Signaling
- Intracellular signal transduction
Department of Molecular Medicine, USF

2017-present Course Director: Master's Program: Basic Medical Biochemistry (GMS 6201)
- Amino Acids
- Reactive oxygen species and Antioxidant defenses
- Membranes and Transport

Niketa A. Patel, Ph.D.

- Purine and Pyrimidine Metabolism
- Lipoproteins
- Peptide and amino acid hormones metabolic pathways
- Steroid hormones metabolic pathways
- Signal transduction

Department of Molecular Medicine, USF

2019-present GI, Endocrine, Renal & Reproductive Systems (BMS 6639); MD program year 2

- Steroid Hormone Biosynthesis
- Steroid Hormone Receptors

Department of Molecular Medicine, USF

2006- present Informal, ad-hoc training scientists and investigators in JAHVA and USF on RNA splicing assays, cloning heterogenous splicing minigenes

2016-present Informal, ad-hoc training scientists and clinicians in JAHVA and USF on isolation and characterization of adipose-derived stem cells and its secreted exosomes

Book Review

Cell transplantation (2005)

Stem Cells in Endocrinology;
Linda B. Lester, M.D., Editor (Totowa, NJ: Humana Press, 273 pp.;
ISBN 1588294072)

Chapters

1. **Patel, N.A.** Nomenclature of Vitamin A and related metabolites. Food and Nutritional Components in Focus, Vitamin A and Carotenoids; Editor Victor Reedy; DOI: 10.1039/ISBN; Publisher: Royal Society of Chemistry. 2012.
2. D.R. Cooper and **Patel, N.A.** Manipulation of splicing events: Changing signals to the spliceosome. Alternative pre-mRNA Splicing; Editors: Stefan Stamm, Chris Smith, Reinhard Luhrmann. Publisher: Wiley-Blackwell, 2012.

Editorial Board

2006-2009 Asian Journal of Cell Biology

2013-present Stem Cell Investigation

2018-present Journal of Obesity

Invited Speaker

1. Byrd Alzheimer's Institute, December 2020
2. Keynote Speaker, Nutri-Talk, September 2020 – Virtual
3. Keystone, March 2020- cancelled
4. Speaker, ENDO Annual Conference, March 2019
5. Speaker, Experimental Biology (EB/ASBMB) Annual Conference, April 2019
6. Plenary Speaker, Stem Cells, April 2019
7. VA Research Day, Tampa, FL 2019
8. Keynote Speaker; Splicing Conference, Lisbon, Portugal July 2018
9. CMMB, USF, Tampa, FL, October 2017
10. VA Research Day, Tampa, 2017
11. TBI therapeutics, ASNTR. Clearwater, 2017
12. Obesity Summit, London UK April 2016
13. SBP, Orlando, FL, April 2016
14. Experimental Biology (EB/ASBMB) Annual Conference, Boston, March 2015
15. 16th International Symposium on Molecular Medicine, Athens, Greece, October 2014

16. Obesity Conference, Orlando, September 2014
17. Endocrine Society and ICE, Annual Conference, Chicago, June 2014
18. Molecular Medicine, University of South Florida, May 2014
19. Brooks Debartolo, May 2013
20. Current Topics in Pathology & Cell Biology, USF, February 2013
21. Chemistry Colloquim, USF, October 2012
22. Florida Clinical Ligand Assay Society, Tampa, June 2012
23. Gene Expression Conference, Montreal, Canada, November 2011
24. St. Leo University, Florida, October 2011
25. Molecular Medicine, University of South Florida, September 2011
26. Molecular Medicine, University of South Florida, November 2010
27. Experimental Biology, ASBMB, Anaheim, CA, April 2010
28. International Congress of Endocrinology, Japan, March 2010
29. Gifu University, Japan, March 2010
30. University of South Florida, College of Medicine, August 2009EN
31. Ehrlich II, World Conference, Germany, October 2008
32. Endocrine Society, Annual Conference, San Francisco; June 2008
33. Endocrine Society, Annual Conference, Toronto, Canada; June 2007
34. Endocrine Society, Session Chair, Annual Conference, Toronto, Canada; June 2007
35. Tata Institute of Fundamental Research and Bombay Hospital, Mumbai, India. June 2006
36. Tata Institute of Fundamental Research, Mumbai, India. June 2006
37. ISIS Pharmaceuticals, Carlsbad, CA; June 2005
38. Department of Biochemistry and Molecular Biology, USF, Tampa, FL; Jan 2005
39. Endocrine Society, Annual Conference, Philadelphia, June 2004
40. Endocrine Society, Annual Conference, New Orleans, June 2003

Post-doc Mentor

2006-2007	Nilanjan Ghosh	Currently practicing MD in New York
2008-2010	Kun Jiang	Currently faculty in Moffitt Cancer
2010-2012	Pengfei Li	Currently Research Associate in Byrd Alzheimer's institute
2011-2014	Abhishek Mathur	Surgery resident, JAH VAMC
2014-2018	Charles Guterrez	Currently Neurorespiratory Care Specialist JAH VA
2015-2017	Ghattas El Bassit	Currently in United Healthcare
2020-2021	Robert Sparks	Molecular Medicine, USF

Student Mentor

2004-2006	Quinton Yeldell	Undergraduate, McNair Scholar
2009-2014	Andre Apostolatos	Undergraduate, USF
2010-2012	Jaqueline Romero	Undergraduate, USF Honors College
2010-2011	Mishka Peart	Undergraduate, USF Honors College
2011-2012	Audrey Shor	St. Leo University
2011-2012	Amanda Reno	St. Leo University, CREST national program
2011-2012	Chelsey Ellingson	St. Leo University, CREST national program
2011-2012	Vasty Souffrant	St. Leo University, CREST national program
2011-2012	Cassy Anselme	St. Leo University, CREST national program
2011-2012	Megan Nemeth	St. Leo University, CREST national program
2011-2012	Neihmei Nelcidor	St. Leo University, CREST national program
2012-2014	Rina Bhalani	NOVA, pre-med
2013-2014	Amanda Morris	Undergraduate, St. Leo University
2014-2016	Amanda Morris	Graduate student, College of Public Health, USF
2013-2014	Joshua Womrath	Undergraduate, USF

2013-2015	Robert Sparks	Undergraduate, USF
2014-2015	Michelle Wilde	Undergraduate, USF
2014-2015	Joanne Majerczyk	Undergraduate, St. Leo University
2014-2016	Daniel Capote	M.S. graduate student, College of Medicine, USF
2015-2017	Vyshakh Shibu	Undergraduate, Honors College, USF
2016-2019	Gearta Kraja	Graduate student, USF
2016-2017	Claudia Hanak	Undergraduate, USF
2017-2018	Tradd Dobbins	Undergraduate, USF
2017-2018	Sajan Parag	Graduate student, Molecular Medicine, USF
2017-2020	Rea Rupani	Undergraduate, Honors College, USF
2018-present	Shivani Saini	Undergraduate, Honors College, UF
2020-present	Alyssa Sloan	Research Mentor, USF

USF Student Committee

2006-2010	Eden Kleiman	Doctoral candidate
2008-2010	Mitchel Ruzek	Doctoral candidate
2009-2010	Hercules Apostolatos	Co-Major Professor, Doctoral candidate
2010-2011	Shraddha Desai	Doctoral candidate
2010-2011	Prajit Pillai	Doctoral candidate
2016-2019	Udoka Okaro	Doctoral candidate
2016-2019	Jacob Sherwood	Doctoral candidate
2017-present	Ashley Lui	Major Professor, Doctoral candidate
2018-present	Aya G. Elmarsafawi	Doctoral candidate
2018-present	Chetna Thawani	MD SELECT, Research Major Professor
2019-present	Nana Adjoa Ben-Crentsil	Doctoral candidate
2021-present	Anna Kharatinova	Co-Major Professor, Doctoral candidate
2021-present	Niat Gebru	Doctoral candidate
2021-present	Jianxiang Xue	Doctoral candidate

Recent Ad Hoc Reviewer

Gene
PLOS One
Brain Research
Journal of Obesity
Stem Cell Investigations
Journal of Cellular and Molecular Medicine
Molecular and Cellular Biology
Biology of the Cell
Nucleic Acids Research
Endocrinology
Cellular Physiology and Biochemistry
Central European Journal of Biology
Biochimica et Biophysica Acta
Biochem Biophys Res Comm
Cellular and Molecular Life Sciences
Journal of Pediatrics
Journal Biological Chemistry
Endocrine Connections
Ohio University- NIH grants pre-submission
JAHVA- VA Merit Review grants pre-submission
Endocrine Annual Meeting Oral and Poster Abstracts review
EB Annual Meeting Oral and Poster Abstracts review

Publications

1. Patel, R.P., Rupani, R., Impreso, S., Lui, A., **Patel, N.A.** Role of alternatively spliced, pro-survival Protein Kinase C delta VIII (PKC δ VIII) in ovarian cancer. FASEB BioAdvances 2021
2. Lui, A., Sparks, R.P., Patel, R.S., Patel, N.A. Identification of sortilin alternatively spliced variants in mouse 3T3L1 adipocytes. International Journal of Molecular Sciences 2021, 22(3):983. PMID 33498179
3. Bader, D., Patel, R.S., Lui, A., Thawani, C., Rupani, R., Vidyarthi, G. and **Patel, N.A.** Multi-level regulation of PKC δ alternative splicing by lithium chloride. Molecular and Cellular Biology 2020 PMID 33288642 *** *This is high-impact extensive publication culminating from 2 years of research*
4. Jorge, J.M., Golas, A., Patel, N.A., Gonzalvo, J.P., Murr, M.M. Management of nonalcoholic fatty liver disease and the role of bariatric surgery: a brief review for surgeons. Surg Obes Relat Dis 2020, 16(5)699-703. PMID 32151552
5. Shi, Y., **Patel, N.A.** and Cai, J. Discovery of a macrocyclic γ -AApeptide binding to lncRNA GAS5 and its therapeutic implication in Type 2 diabetes. Editorial. Future Medicinal Chemistry 2019 11(19) 2233
6. Sparks, R.P., Lui, A., Bader, D., Patel, R., Murr, M., Guida, W., Fratti, R.A. and **Patel, N.A.** A specific small-molecule inhibitor of Protein Kinase C δ I activity improves metabolic dysfunction in human adipocytes from obese individuals. J. Biol. Chem. 2019 doi:10.1074/jbc.RA119.008777. PMID 31413114*** *This is high-impact extensive publication culminating from 2 years of research*
7. Shi, Y., Parag, S., Patel, R., Lui, A., Murr, M., Cai, J. and **Patel, N.A.** Stabilization of lncRNA GAS5 by a small molecule and its implications in diabetic adipocytes. Cell Chemical Biology 2019; 26 (1) ePub Jan 2019 PMID 30661991*** *This is high-impact extensive publication with highly innovative design culminating from 3 years of research with tremendous impact in the field.*
8. **Patel, N.A.**, Moss, L.D., Lee, J-L., Tajiri, N., Acosta, S., Hudson, C., Parag, C., Cooper, D.R. Borlongan, C.V. and Bickford, P.C. Long noncoding RNA MALAT1 in exosomes drives regenerative function and modulates inflammation-linked networks following traumatic brain injury. Journal of Neuroinflammation 2018; 15(1):204 PMID: 30001722****High-impact extensive publication using exosomes from ASC with RNAseq analysis and data*
9. Cooper D.R., Wang C., Patel R., Trujillo A., **Patel N. A.**, Prather J., Gould L.J., and Wu M.H. Human Adipose-Derived Stem Cell Conditioned Media and Exosomes containing MALAT1 Promote Human Dermal Fibroblast Migration and Ischemic Wound Healing. Advances in Wound Care 2018 Sep 1;7(9):299-308 PMID 30263873
10. Sava, V., Song, S., Kong, X., El Bassit, G., **Patel, N.A.**, Kenyon, D., Sebti, S., Sanchez-Ramos, J. Small Molecules that Mimic or Antagonize Actions of Granulocyte Colony- Stimulating Factor (G-CSF) J Drug Res Dev 3(2). 2017
11. El Bassit G, Patel RS, Carter G, Shibu V, Patel A, Song S, Murr M, Cooper DR, Bickford PC, **Patel, N.A.** MALAT1 in human adipose stem cells modulates survival and alternative splicing of PKC δ II in HT22 cells. Endocrinology. 2017 Jan 1;158(1):183-195 PubMed PMID: 27841943. ****High-impact extensive publication using exosomes from ASC and determining the role of lncRNA MALAT1 contained in ASC exosomes.*
12. Patel, R., Carter, G., El Bassit, G., Patel, A.A., Cooper, D.R., Murr, M. and **Patel, N.A.** Adipose-derived stem cells from lean and obese humans show depot specific differences in their stem cell markers, exosome contents and senescence: Role of Protein Kinase C delta (PKC δ) in adipose stem cell niche. Stem Cell Investigation 3:2, 2016 doi: 10.3978/j.issn.2306-9759.2016.01.02 PMID: 27358894 PMCID: PMC4923648

13. Carter, G., Miladinovic, B., Patel, A. A., Deland, L., Mastorides, S. and **Patel, N.A.** Circulating long noncoding RNA GAS5 levels are correlated to diabetes mellitus. *BBA Clinical*, 2015 (4) PMID: PMC4661729****First in the field to demonstrate clinical implications*
14. Patel, R., Carter, G., Cooper, D.R. Apostolatos, H., and **Patel, N.A.** Transformer 2 beta homolog (*Drosophila*) (TRA2B) regulates Protein Kinase C delta (PKC δ) splice variant expression during 3T3L1 pre-adipocyte cell cycle *J. Biol. Chem.* 289:31662-31672, 2014. PMID: PMC4231647
15. Cooper, D.R. Carter, G., Li, P., Patel, R., Watson, J. and **Patel, N.A.** Long non-coding RNA NEAT1 sequesters SRp40 to temporally regulate PPAR γ splicing during adipogenesis in 3T3-L1 cells. *Genes*, 5(4):1050-1063, 2014.
16. Carter, G., Patel, R., Apostolatos, A., Murr, M., Cooper, D.R. and **Patel, N.A.** PKC δ splice variants modulate senescence via hTERT in adipose-derived stem cells. *Stem Cell Investigation* 1:3, 2014.
17. Tajiri, N., Acosta, S.A., Shahaduzzaman, M., Ishikawa, H., Shinozuka, K., Pabon, M., Hernandez-Ontiveros, D, Kim, D.W., Metcalf, C., Staples, M., Dailey, T., Vasconcellos, J. Franyuti, G., Gould, L., **Patel, N.A.**, Kaneko, Y., Cooper, D.R., Borlongan, C.V., Bickford, P.C., Intravenous transplants of human adipose-derived stem cell protect the brain from TBI-induced neurodegeneration and motor and cognitive impairments: Cell graft bio-distribution and soluble factors in young and aged rats. *Journal of Neuroscience*, 34(1):313-326; 2014. PMID: PMC3866490.
18. Watson JE, **Patel, N.A.**, Carter, G., Moor, A., Patel, R., Ghansah, T., Mathur, A., Murr, M., Bickford, P., Gould, L., Cooper, D.R. Comparison of markers and functional attributes of human adipose derived stem cells and dedifferentiated adipocyte cells from subcutaneous fat of an obese diabetic donor. *Advances in Wound Care*. 3(3): 219-228, 2014.
19. Pennington-Rowe, A., Sava, V., Song, S., **Patel, N.A.** and Sanchez-Ramos, J. Direct Actions of Granulocyte-Colony Stimulating Factor on Human Neuronal and Monocytic Cell Lines. *J of Alzheimer's Disease and Parkinsonism* 3:121. doi: 10.4172/2161-0460.1000121; 2013
20. Patel RS, Apostolatos A, Carter G, Ajmo JM, Gali M, Cooper DR, You,M., Bisht, K. and **Patel, N. A.** Protein kinase C delta splice variants modulate apoptosis pathway in 3T3L1 cells during adipogenesis: Identification of PKC δ inhibitor. *J Biol Chem*, 288(37):26834-46; 2013. PMID PMC3772230
21. Carter, G., Apostolatos, A., Patel, R., Mathur, A., Cooper, D.R., Murr, M., **Patel, N.A.** Dysregulated alternative splicing pattern of PKC δ during differentiation of human preadipocytes represents distinct differences between lean and obese adipocytes. *ISRN Obesity*, vol. 2013, Article ID 161345, 9 pages, 2013. doi:10.1155/2013/161345., 2013. PMID: 24533217
22. Li, P., Carter, G., Romero, J., Gower, K. M., Watson, J., **Patel, N. A.**, and Cooper, D. R. Clk/STY (cdc2-Like kinase 1) and Akt regulate alternative splicing and adipogenesis in 3T3-L1 pre-adipocytes. *PLoS one* 8, e53268, 2013
23. Apostolatos, A., Song, S., Acosta, S., Peart, M., Watson, J.E., Bickford, P., Cooper, D.R., **Patel, N.A.** Insulin promotes neuronal survival via the alternatively spliced protein kinase C delta II (PKC δ II) isoform. *Journal of Biological Chemistry*, 287: 9299-9310, 2012.
24. **Patel, N.A.** Nomenclature of Vitamin A and related metabolites. *Food and Nutritional Components in Focus, Vitamin A and Carotenoids*; Editor Victor Reedy; DOI: 10.1039/ISBN; Publisher: Royal Society of Chemistry. March, 2012.
25. D.R. Cooper and **Patel, N.A.** Manipulation of splicing events: Changing signals to the spliceosome. *Alternative pre-mRNA Splicing*; Editors: Stefan Stamm, Chris Smith, Reinhard Luhrmann. Publisher: Wiley-Blackwell, February 2012.
26. Apostolatos, H., Apostolatos, A., Vickers, T., Watson, J.E., Song, S., Vale, F., Cooper, D.R., Sanchez-Ramos, J. and **Patel, N.A.** Vitamin A metabolite, all-trans retinoic acid mediates alternative splicing of PKC δ VIII isoform via the splicing factor SC35. *Journal of Biological Chemistry*, 285: 25987-25995, 2010.
27. Kleiman, E., Carter, G., Ghansah, T., **Patel, N.A.**, Cooper, D. R. Developmentally spliced PKC β II provides a possible link between mTORC2 and Akt kinase to regulate 3T3-L1 adipocyte insulin-stimulated glucose transport. *Biochem Biophys Res Comm* Oct 23; 388(3):554-9, 2009.
28. Chappell, D.S., **Patel, N. A.**, Jiang, K., Li, P., Watson, J. E., Byers, D. M., Cooper, D. R. Functional involvement of protein kinase C- β II and its substrate, myristoylated alanine-rich C-kinase substrate

- (MARCKS), in insulin-stimulated glucose transport in L6 rat skeletal muscle cells. *Diabetologia* 52(5):901-11, 2009.
29. Jiang, K., **Patel, N.A.**, Watson, J.E., Apostolatos, H., Kleiman, E., Hanson, O., Hagiwara, M., Cooper, D. R. Akt2 regulation of Cdc2-like kinases (Clk/Sty), serine/arginine-rich (SR) protein phosphorylation, and insulin-induced alternative splicing of PKC β II mRNA. *Endocrinology* 150(5):2087-97, 2009.
 30. Jiang, K., Apostolatos, A., Ghansah, T., Watson, J.E., Vickers, T., Cooper, D.R., Burnette, P.K. and **Patel, N.A.** Identification of a novel anti-apoptotic human Protein Kinase C (PKC) δ isoform, PKC δ VIII in human NT2 cells. *Biochemistry* 47:787-797, 2008.
 31. Ghosh N., **Patel, N.A.**, Jiang, K., Watson, J.E., Cheng, J., Chalfant, C.E. and Cooper, D.R. Ceramide-Activated Protein Phosphatase Involvement in Insulin resistance via Akt, serine/arginine-rich protein 40 and ribonucleic acid splicing in L6 skeletal muscle cells. *Endocrinology* 148 (3): 1359-66, 2007.
 32. **Patel, N.A.**, Song, S., Cooper, D.R. PKC δ alternatively spliced isoforms modulate cellular apoptosis in retinoic acid induced differentiation of human NT2 cells and mouse embryonic stem cells. *Gene Expression*, 13(2): 73-84, 2006.
 33. Miriam Horovitz-Fried, Cooper, D.R., **Patel, N.A.**, Tennenbaum, T., Sampson, S.R. Insulin rapidly upregulates protein kinase C δ gene expression in skeletal muscle. *Cellular Signaling* Feb;18(2):183-93, 2006.
 34. **Patel, N.A.** and Cooper, D.R. Signal to splice: Insulin regulates alternative splicing through a PI3K pathway. *Journal of Clinical Ligand Assay*, 28 (2): 75-81, 2005.
 35. **Patel, N.A.**, Kaneko, S., Apostolatos, H.S., Bae, S.S., Watson, J.E., Davidowitz, K., Chappell, D., Birnbaum, M.J., Cheng, J.Q., Cooper, D.R. Molecular and Genetic Studies Imply Akt-mediated Signaling Promotes PKC β II Alternative Splicing via Phosphorylation of SRp40. *JBC* Apr 8; 280(14): 14302-9, 2005.
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Selected Abstracts

1. Lui, A., Sparks, R.P, and **Patel N.A** *Role of Intrinsic Disorder in Alternatively Spliced Sortilin Variants in 3T3L1 Adipocytes*. Experimental Biology 2021, April 2021 (Virtual).
2. Lui, A., Patel, R.S., and **Patel N.A**. *Identification of Sortilin Alternatively Spliced Variants in 3T3L1 Adipocytes*. ENDO 2021 Conference, February 2021 (Virtual).
3. Lui, A. and **Patel N.A**. *GLP1 responsive novel truncated sortilin splice variant in human diabetic adipocytes*. USF Research Day, Tampa Fl. February 2021 (Virtual).
4. Lui, A., Bader, D., Thawani, C., Rupani, R., Parag, S., Kraja, G., Saini, S., Shi, Y., Cai, J. and **Patel N.A**. *Therapeutic Advances in Type 2 Diabetes Mellitus*. James A Haley Veteran's Hospital and Clinics Research Day, Tampa Fl. May 2019.
5. Lui, A. and **Patel N.A**. *GLP1 targets lncRNA Gas5 in diabetic adipocytes*. ASBMB Conference, Orlando Fl. April 2019.
6. Lui, A. and **Patel N.A**. *Glucose homeostasis: Role of GLP1 in sortilin alternative splicing*. Molecular Medicine Retreat 2019, Morsani College of Medicine, University of South Florida.
7. **Patel N.A.**, Murr, M., Lui, A., Shi, Y., and Cai, J. *LncRNA GAS5 Directed Therapeutic Increases Insulin Receptor Expression in Adipocytes*. ENDO 2019 Conference, New Orleans LA. March 2019.
8. Lui, A. and **Patel N.A**. *Glucagon-Like Peptide-1 regulates Glucose Uptake via lncRNA NEAT1 in human obese adipocytes*. USF Research Day, Tampa Fl. February 2019.
9. **Patel N.A.**, Human adipose stem cell derived exosomes drive recovery in traumatic brain injury via lncRNA MALAT1. Keystone 2020
10. Vidyarthi G. and **Patel, N.A**. Long noncoding RNAs (lncRNAs) are different in polyps of obese and lean suggesting different pathophysiology. ACG 2019.
11. Lui, A. and **Patel. N.A**. GLP1 targets lncRNA GAS5 in diabetic adipocytes. EB/ASBMB 2019 (**Speaker**).
12. **Patel. N.A.**, Murr, M., Lui, A. Shi, Y. Cai, J. *LncRNA GAS5 Directed Therapeutic Increases Insulin Receptor Expression in Adipocytes*. Endocrine Annual Meeting 2019 (**Speaker**)
13. **Patel. N.A.**, Lui, A., Sparks, R. Guida, W. Role of PKC δ I in mediating inflammation in adipose stem cells in obesity. Keystone Conference 2019.
14. **Patel, N.A**. LncRNA MALAT1 in human adipose stem cell derived exosomes drives recovery in traumatic brain injury. Splicing 2018 (**Keynote Speaker**)
15. **Patel, N.A**. Obesity alters stem cell niche. Obesity Summit 2016 (**Speaker**)
16. El Bassit, M. Murr, **Patel, N.A**. Decreased GAS5 levels, the result of adipose tissue genetic modification in type 2 diabetic patients. FCACS 2016
17. **Patel, N.A**, Morris, A., Carter, G, Patel, R., Murr, M., Cooper, D. Obesity influences ovarian cancer survival through NEAT1 lncRNA effects mediated by PKC δ VIII and Bcl2 secreted by adipose-derived stem cells. EB 2015 (**Oral presentation**).

18. **Patel, N.A.**, Carter, G, Apostolatos, A., Patel, R., Cooper, D., Murr, M. Alternative splicing of PKC δ during adipogenesis program provides clues for susceptibility to obesity. International Symposium in Molecular Medicine 2014 (**Oral presentation**).
19. **Patel, N.A.**, Morris, A., Carter, G, Patel, R., Murr, M., Cooper, D. lncRNA NEAT1 secreted by obese ADSC increases ovarian cancer survival via PKC δ VIII and Bcl2. ENDO 2014 (**Oral presentation**).
20. **Patel, N.A.**, Carter, G, Apostolatos, A., Patel, R., Cooper, D., Murr, M. Splicing Cues of PKC δ modulate adipogenesis and susceptibility to obesity. ENDO 2013
21. **Patel, N.A.**, Yoder, S. Ghansah, T., Cooper, D., Watson, J Alternative splicing of key survival genes during adipogenesis. ASBMB 2012
22. **Patel, N.A.**, Apostolatos, A., Yoder, S. Ghansah, T., Cooper, D., Watson, J; Li, **P.** Developmentally regulated alternative splicing of anti-apoptotic proteins during adipogenesis. ASBMB, March 2011.
23. Li,P., Romero, J., Gower, K., Watson, J., Apostolatos, H., Carter,G., Ghansah, T., **Patel, N.A.**, Cooper, D. Adipogenesis and the regulation of alternative splicing in 3T3-L1 cells: Experimental Biology 2011 (ASBMB) (**Oral Presentation**)
24. Ghansah, T., Murr, M., Watson, J., Yoder, S., Fleming, D., Nelson, N., Peng,Y., Apostolatos, A., Gower, K., **Patel, N.A.**, Cooper, D., Mesenteric and omental depot differences in fat tissue from diabetic and normal obese humans. Experimental Biology 2011 (ASBMB)
25. Patel, N.A, Apostolatos, A., Cooper, D., Watson, J. Insulin signaling via PKC δ isoform promotes cognitive function. ICE, Kyoto, Japan, March 2010 (**Oral presentation**).
26. Patel, N.A, Apostolatos, A., Cooper, D., Watson, J. Insulin signaling via PKC δ isoform promotes cognitive function. ASBMB, April 2010 (**Oral presentation**).
27. Apostolatos, H., Apostolatos, A.H., Watson, J.E., Cooper, D.R. and **Patel, N.A.** Regulation of PKC δ VIII Expression, a Pro-Survival Protein, by Retinoic Acid in Human NT2 Cells. Endocrine Society, June, 2009.
28. **Patel, N.A.**, Cooper, D.R Involvement of nuclear splicing factor SC35 in alternative splicing of PKC δ VIII mRNA mediated by retinoic acid in human NT2 cells. Endocrine Society, 2008. (**Oral Presentation**)
29. Apostolatos H., Watson J. E., Kleiman E., Cooper, D. R. and **Patel, N.A.** SRp55 increases PKC β I exon inclusion in L6 skeletal muscle cells. Endocrine Society, 2008.
30. **Patel, N.A.**, Cooper, D.R Alternative 5' Splice Site Usage Generates a Novel Human PKC δ Isoform, PKC δ VIII in Human NT2 Cells upon Differentiation with Retinoic Acid. Endocrine Society 2007. (**Oral Presentation**)
31. Kleiman, E., Watson, J., **Patel, N.A.**, Jiang, K., Cooper, D.R. TZDs Enhance Co-Transcriptionally Spliced PKC β II When PPAR γ Is above a Threshold Level. Endocrine Society, 2007.
32. Jiang, K., **Patel, N.A.**, Kleiman, E., Watson, J., Hagiwara, M., Cooper, D.R. Involvement of SR Protein Kinase, SRPK, in Insulin Stimulated Exon Inclusion: Identification of SRp30b/SC35 as a Substrate. Endocrine Society, 2007.
33. **Patel, N.A.**, Cooper, D.R, Sanchez-Ramos, J. Central Roles of PKC δ Alternatively Spliced Isoforms, δ I and δ II, in Retinoic Acid-Induced Differentiation of Human NT2 Cells and Mouse Embryonic Stem Cells into Neuronal Phenotype. Endocrine Society, 2006.
34. **Patel, N.A.**, Jiang, K., Watson, J.E., Cooper, D.R. Dual Role of Nuclear Splicing Factor SRp55 in Insulin-Regulated PKC β II Alternative Splicing in L6 Skeletal Muscle Cells. Endocrine Society, 2006. (Oral Presentation)
35. Jiang, K., **Patel, N.A.**, Watson, J.E., Masatoshi Hagiwara, Cooper, D.R. Central Role of Akt in Regulating Clk/Sty, Serine/Arginine-Rich Protein Phosphorylation and Alternative Splicing. Endocrine Society, 2006.
36. Kleiman, E., **Patel, N.A.**, Jiang, K., Watson, J.E., Cooper, D.R. Promoter Coupling of Transcription and Splicing by Thiazolidinediones: Novel Mechanism Proposed to Circumvent the Insulin Signaling Cascade in L6 Myotubes and A10 Vascular Smooth Muscle Cells. Endocrine Society, 2006.
37. **Patel, N.A.**, Sanchez-Ramos, J., Cooper, D.R. Retinoic Acid, a Transcriptional Regulator, Regulates the Expression of the Alternatively Spliced PKC δ Isoforms in Human NT2 Cells and Mouse Embryonic Stem Cells. Endocrine Society, 2005.

Niketa A. Patel, Ph.D.

The project analyzes the regenerative response and mobilization of bone marrow derived cells in recovery of traumatic brain injury in response to cannabinoids in a mouse model. Molecular mechanisms of cannabinoid receptors will be studied.

NIH NIA-R01 AG064906 07/01/2019 – 12/30/2022

Role: Co-Investigator (PI: Bickford/Abisambra MPI)

Title: Exosomes from Adipose derived stem cells modulate age-dependent progression of tauopathies.

The major goals of this proposal are to study progression of tau pathology and tau spreading with age in an AAV9-hTau model of ADRD.

VA Merit 6/2020-6/2024

Role: Co-Investigator (PI: Dr. Bickford)

Title: Role of inflammation and oxidative stress in Parkinson's disease

The project elucidates the role of aging as an important factor involved in disease progression and response to therapeutics.

VA Merit JIT in progress 11/2021-11/2025

Role: Co-Investigator (PI: Dr. Bickford)

Title: Aging and Innate immune system resilience in TBI

The project elucidates the role of immune system in an aging environment and its response to traumatic brain injury.

Completed:

VA ShEEP 10/2017-5/2019

Role: Principal Investigator

Title: Confocal Microscopy

This grant supports purchase of a confocal microscope and applied to image the association of splice factors with lncRNA using FRET; live imaging of glucose transporters and their trafficking in response to the novel PKC δ I drug; treatment of traumatic brain injury with ASC exosomes.

FITG 03/16-03/17

Title: Obesity changes adipose stem cell niche

Alternative splicing events are elucidated which change the adipose stem cell niche in obesity.

TVAREF 6/15-6/17

Role: Principal Investigator

Title: Mechanisms of alternative splicing in sortilin.

This project examines mechanisms of alternatively splicing of sortilin in human adipocytes and their role in glucose uptake.

VA Merit Review 12/11-12/16

Role: Principal Investigator

Title: Apoptosis pathways underlying adipogenesis.

This project examines mechanisms of alternatively spliced proteins affecting adipogenesis and the role of PKC δ in adipocyte survival.

VA Merit Review 10/09-09/14

Role: Co-Investigator (PI: Dr. Sanchez-Ramos)

Title: "Mechanisms of Action of Filgrastim in a Mouse Model of Alzheimer's Disease

The overall goal is to elucidate the mechanisms of action of filgrastim (GCSF). The approach is multi-disciplinary ranging from behavioral studies to investigation of intracellular signaling triggered by GCSF.

Niketa A. Patel, Ph.D.

VA Merit Review Entry Program (MREP)

7/05-7/08

Role: Principal Investigator

Title : Anti-Apoptotic Effects of Alternative Splicing in Human NT2 Cells.

This project examines alternative splicing of PKC δ I and - δ II isoforms in human NT2 cells.

SIPIN, Neuroscience Seed grant

2/11-2/12

Role: Principal Investigator

Title: Insulin promotes cognitive effects via PKC δ .

This project evaluates the effect of insulin on cognition in an aging mouse model with simultaneous evaluation of PKC δ isoforms. This seed money is used towards generating pilot data for grant applications.

Neuroscience collaborative grant, University of South Florida

5/10-5/12- NCE 12/2013

Role: Principal Investigator

Title: Interactions of alternatively spliced variants of cdk7 with PKC-iota during glioma cell cycle and proliferation

This project examines the functions of newly discovered cdk_7 long form and short form. It further explores their roles in cell cycle progression in gliomas.

NIH (DK 54393-05)

1/08-1/12

Role: Co-Investigator

(PI: Dr. Cooper)

Title: Insulin signaling pathways regulating PKC β splicing

This project examines the role of Clk kinase in PKC β splicing in insulin-mediated glucose uptake skeletal muscle cells.

VA Merit Review

4/08-03/12

Role: Co-Investigator

(PI: Dr. Cooper)

Title: "Regulation of PKC β II splicing

This proposal examines co-transcriptional splicing in muscle cells and adipocytes