

This document contains all publications and abstracts related to work accomplished during fellowship, as well as grants from past fellows, for the past four years. The names of the fellows are underlined. Rev 8/6/2020

## JOURNAL ARTICLES

### Original Peer-Reviewed Manuscripts

#### 2019

Chalal LF, Adams-Huet B, Sant'Anna G. J Pediatr. 2019 Jul 10. pii: S0022-3476(19)30720-6. doi: 10.1016/j.jpeds.2019.06.026. [Epub ahead of print] PMID: 31301853

Shankaran S, Bell EF, Laptook AR, Saha S, Newman NS, Kazzi SNJ, Barks J, Stoll BJ, Bara R, Gabrio J, Childs K, Das A, Higgins RD, Carlo WA, Sánchez PJ, Carlton DP, Pavageau L, Malcolm WF, D'Angio CT, Ohls RK, Poindexter BB, Sokol GM, Van Meurs KP, Colaizy TT, Khmour A, Puopolo KM, Garg M, Walsh MC; Eunice Kennedy Shriver National Institute of Child Health, and Human Development Neonatal Research Network. Weaning of Moderately Preterm Infants from the Incubator to the Crib: A Randomized Clinical Trial. J Pediatr. 2019 Jan. pii: S0022-3476(18)31253-8. doi: 10.1016/j.jpeds.2018.08.079. PMID: 30337189

Smithhart W, Wyckoff MH, Kapadia V, Jaleel M, Kakkilaya V, Brown LS, Nelson DB, Brion LP. Delivery room continuous positive pressure and pneumothorax in term and near-term neonates. *Pediatrics*. 2019 Aug 9. doi: 10.1542/peds.2019-0756. PMID: 31399490

Tang A, Rosenfeld C, Mikhael M, McPhaul M, Koch J. Adrenal Insufficiency in Neonates Undergoing Cardiopulmonary Bypass and Postoperative Hypothalamic-Pituitary-Adrenal Function After Prophylactic Glucocorticoids. *Journal of Perinatology*, 2019 Mar 12. doi: 10.1038/s41372-019-0344-7. [Epub ahead of print]. PMID: 30867544

#### 2018

Ahmad KA, Banales J, Henderson CL, Ramos SE, Brandt KM, Powers GC. Intravenous epoprostenol improves oxygenation index in patients with persistent pulmonary hypertension of the newborn refractory to nitric oxide. J Perinatol. 2018 Sep;38(9):1212-1219. doi: 10.1038/s41372-018-0179-7. Epub 2018 Jul 25. PMID: 30046179

Hoge K, Ali N. Apnea and hypotonia in a one-month old infant. NeoReviews, in press

Ibrahim J, Pavageau L, Miller J, Timmons C, Wickiser J, Piper H, Dariya V, Brion LP. A Large Prenatally Undiagnosed Mass in a Preterm Infant, What Could It Be? NeoReviews 2018;19:e413; [www.neoreviews.aappublications.org/content/19/7/e413](http://www.neoreviews.aappublications.org/content/19/7/e413)

Pavageau L, Rosenfeld CR, Heyne R, Brown LS, Whitham J, Brion, LP Valid Serial Length Measurements in Preterm Infants Permit Early Identification and Treatment of Abnormalities of Weight-for-Length Growth With Dietary Correction. Journal of Perinatology, Sep 28. doi: 10.1038/s41372-018-0242-4. . 2018 Dec. PMID: 30267002

Rosenfeld CR, Shafer, G, Scheid L, Brown, LS. Screening and Serial Neutrophil Counts do not Contribute to the Recognition or Diagnosis of Late-Onset Neonatal Sepsis The Journal of Pediatrics 2018 Oct 11. pii: S0022-3476(18)31295-2. doi: 10.1016/j.jpeds.2018.09.024. PMID: 30318373

#### 2017

Cantey, JB, Baird, SD. Ending the Culture of Culture-Negative Sepsis in the Neonatal ICU. 2017 Oct;140(4). pii: e20170044. doi: 10.1542/peds.2017-0044. Epub 2017 Sep 1. PMID: 28928289.

#### 2016

Cantey JB, Wozniak PS, Pruszynski JE, Sánchez PJ. Reducing unnecessary antibiotic use in the neonatal intensive care unit (SCOUT): a prospective interrupted time-series study. Lancet Infect Dis. 2016 Oct;16(10):1178-84. PMID: 27452782

Duncan A, Frankfurt J, Heyne R, Rosenfeld C. Biomarkers of Adiposity Are Elevated in Preterm Very-Low-Birth-Weight Infants at 1,2, and 3 Years of Age. Pediatric Research. January 2016. PMID: 28099428

Halling C, Malone FD, Breathnach FM, Stewart MC, McAuliff FM, Morrison JJ, Dicker P, Manning F, Cocoran JD, on behalf of the Perinatal Ireland Research Consortium. Neuro-developmental outcome of a large cohort of growth discordant twins. *Eur J Pediatrics*, March 2016, Volume 175, Issue 3, pp 381-389. PMID: 26490567

Ibrahim J, Sher I, Coren C, Nayak A: Secondary structural cause of tachypnea following CDH repair in a full term neonate. *Neoreviews* 2016, 17 (11) e667-e670

Lee DD, Lal CV, Persad EA, Lowe W, Schwarz AM, Awasthi N, Schwarz RE, Schwarz MA. EMAP II Mediates Macrophage Migration in the Development of Hyperoxia-Induced Lung Disease of Prematurity. *AJRCMB*, 2016 Oct;55(4):602-612. PMID: 27254784

Mineo C, Lanier L, Jung E, Sengupta S, Ulrich V, Sacharidou A, Tarango C, Osunbunmi O, Shen YM, Salmon JE, Brekken RA, Huang X, Thorpe PE, Shaul PW. Identification of a Monoclonal Antibody That Attenuates Antiphospholipid Syndrome-Related Pregnancy Complications and Thrombosis. *PLoS One*. 2016 Jul 27;11(7):e0158757.

Ofman G, Vasco N, Cantey JB. Risk of Early-Onset Sepsis following Preterm, Prolonged Rupture of Membranes with or without Chorioamnionitis. *Am J Perinatol*. 2016 Mar;33(4):339-42. PMID: 26469992

Sheehan JW, Pritchard MA, Heyne RJ, Brown LS, Jaleel MA, Engle WD, Burchfield PJ, Brion LP. Severe intraventricular hemorrhage and withdrawal of support in preterm Infants. *J Perinatology*, 2017 Apr;37(4):441-447. PMID: 27977011

Wortham JM, Hansen NI, Schrag SJ, Hale E, Van Meurs K, Sánchez PJ, Cantey JB, Faix R, Poindexter B, Goldberg R, Bizzarro M, Frantz I, Das A, Benitz WE, Shane AL, Higgins R, Stoll BJ; Eunice Kennedy Shriver NICHD Neonatal Research Network. Chorioamnionitis and Culture-Confirmed, Early-Onset Neonatal Infections. *Pediatrics*. 2016 Jan;137(1). PMID: 26719293

### Reviews

#### 2018

Ibrahim J, Mir I, Chalak L. Brain imaging in preterm infants <32 weeks gestation: a clinical review and algorithm for the use of cranial ultrasound and qualitative brain MRI. *Pediatr Res*. 2018 Dec;84(6):799-806. PMID: 30315272

### Chapters

#### 2020

Hoge, MK, Dowtin LL, Horwitz SM, Shaw, RJ, Horwitz SM. Vulnerable Child Syndrome: A Review, Evaluation, and NICU Intervention. *Treatment of Psychological Distress in Parents of Premature Infants: PTSD in the NICU*. Ed. Shaw RJ, Ed. Horwitz SM. Washington D.C.: American Psychiatric Association Publishing, Due for Print in July 2020.

#### 2019

Johnson K, Maple B, Brion LP. In: Campbell, D (ed.). *Neonatology for Primary Care*, 2nd edition; Chapter 18: Neonatal Jaundice. American Academy of Pediatrics, 2019, in press

#### 2018

Cantey, JB., (ed) Baird, S. Neonatal Infections: Pathophysiology, Diagnosis and Management Chapter 27; Springer; 2018

### PRESENTED ABSTRACTS

#### 2020

Baird, S., Brannon, T., Yallapragada, S., Mir, I. Usage and Impact of Bronchopulmonary Dysplasia on the Problem List in a Neonatal Intensive Care Unit, Accepted for Platform Presentation at PAS, Philadelphia, PA, May 2020 (Cancelled due to COVID-19)

Bautista, L., Mir, I. A History of Opioid Use, Accepted for Poster Symposium at PAS, (Cancelled due to COVID-19), Presented at The Texas Children's Hospital and University of Alabama's 2020 Virtual Regional Neonatal Research Conference, May 2020

Natique, K., Chalak, L., Savani, R., Muncy-Thomas, J. Doppler Ultrasonography to Stratify the Spectrum of NE in Infants

## Neonatal-Perinatal Fellows Scholarship

with Perinatal Academia Who Do Not Classify for Cooling Therapy. Accepted for Poster Presentation at PAS, Philadelphia, PA, May 2020 (Cancelled due to COVID-19)

Natique, K., Chalak, L., Savani, R., Muncy-Thomas, J., Doppler Ultrasonography to Stratify the Spectrum of NE in Infants with Perinatal Academia Who Do Not Classify for Cooling Therapy. American Academy of Pediatrics 41st Western Conference on Perinatal Research, January 2020

Reis, J., Brion, L., Heyne, R., Does Reducing Weight-For-Length Disproportion at Discharge in Very Preterm Neonates Alter Neurodevelopmental Outcomes? Accepted for Poster Presentation at PAS, Philadelphia, PA, May 2020 (Cancelled due to COVID-19) Oral Presentation at the Texas Children's Hospital and University of Alabama's 2020 Virtual Regional Neonatal Research Conference. May 2020.

Reis J, Brion LP. Nutrition and the Developing Brain. Invited platform presentation at the Parkland Health and Hospital System 2020 Neonatal Brain Matters Conference. Dallas, TX, February 2020

Reis J., Brion, L., Heyne, R., Does Reducing Weight-For-Length Disproportion at Discharge in Preterm Neonates Alter Neurodevelopmental Outcomes? Oral presentation at the American Academy of Pediatrics 41st Western Conference on Perinatal Research, January 2020.

Wickland J, Kehring A, Wade C, Micetic B, Martin G., A retrospective analysis of the effects of an exclusively human milk protein diet on the incidence of necrotizing enterocolitis. Accepted for Poster Presentation at PAS, Philadelphia, PA, May 2020 (Cancelled due to COVID-19)

### 2019

Baird, S., Brannon, T., Neonatal Respiratory Distress Problem List Resolution – A Quality Improvement Project – NeoResp-QuIP, Oral Presentation at SWAN Conference, Temple, TX, September 2019

Maple, B., Wyckoff, M., Kapadia, V., Impact of the 7th Edition NRP Guideline Changes on Outcomes of Meconium-Exposed Newborns, Oral Presentation at Pediatric Research Retreat, Dallas, TX 6/8/2019

Maple, B., Wyckoff, M., Kapadia, V., Impact of the 7th Edition NRP Guideline Changes on Outcomes of Meconium-Exposed Newborns, Oral Presentation at Senior Fellows' Research Day, Dallas, TX 5/28/2019

Maple, B., Wyckoff, M., Kapadia, V., Impact of the 7th Edition NRP Guideline Changes on Outcomes of Meconium-Exposed Newborns, Poster Symposium presentation at PAS, Baltimore, MD, April 2019

Natique, K., Chalak, L., Savani, R., Muncy-Thomas, J., Doppler Ultrasonography to Stratify the Spectrum of NE in Infants with Perinatal Academia Who Do Not Classify for Cooling Therapy. SWAN Conference, Temple, TX, September 2019

Nguyen, A., Chu, H., Sacharidou, A., Lo, J., Natale, D., Shaul, P., Mineo, C., Molecular Mechanisms and Novel Therapy for Pregnancy Complications in the Antiphospholipid Syndrome, Oral Presentation at Senior Fellows' Research Day, Dallas, TX 5/28/2019

Reis J, Sisman J., A Preterm Infant with Intrauterine Growth Restriction: Don't Let Cognitive Bias Influence Clinical Decisions. Oral presentation at the Dallas Children's Multidisciplinary Rounds Conference. November 2019.

Shah, K., Chalak, L., Mirpuri, J., Brown, L., Development of Anemia in Preterm Infants Alters the Microbiome, Poster presentation at PAS, Baltimore, MD, April 2019

Wickland, J, Heyne, R, Brown, LS, Turer, CB, Rosenfeld, CR. Preterm Very-Low-Birthweight (PT-VLBW) Infants Continue to Exhibit High Systolic Blood Pressure (SBP) and Altered Renal Function at Preadolescence. Presentation at AAP 94th Perinatal & developmental medicine symposium, Snow Mass, CO, June 2019

### 2018

Abbey, N., Mashruwala, V., Ramon, E., Ibrahim, J., Weydig, H., Mir, I., Wyckoff, M., Kapadia, V., Heart Rate Evaluation and Resuscitation Trial in Preterm Neonates (HEART) – A Randomized Trial". Poster presentation at PAS, Toronto, Canada,

May 2018

Hoge, M.K., Hoop, E., Clark, H., Walker, K., Fevrier, J., Bollers, L., Ramon, E., Fink, M., Lee, D., Frost, M., (2018) A Quality Improvement Project to Improve Assessment of Parental Stress in NICU. Poster presentation presented at PAS 2018 in Toronto, Canada.

Ibrahim, J., Frost, M., How baby side-shows in fairs and amusement parks helped warm our “weaklings”. Poster Symposium at PAS, Toronto, Canada, May 2018

Ibrahim, J., Liao, J. Cheong, N., Longoria, C., Grayck, E., Savani, R., EC-SOD KO mice have worse alveolarization, inflammation and cytokine elaboration after neonatal hyperoxia exposure. Poster presentation at PAS, Toronto, Canada, May 2018.

Nguyen, A., Chu, H., Sacharidou, A., Natale, D., Mineo, C. Selective Trophoblast Deletion of APO E Receptor 2 Protects Pregnant Mice from Antiphospholipid Antibody-induced Pregnancy Complications. Presented at 92nd AAP Perinatal and Developmental Medicine Symposium, 2018.

Smithhart W., Wyckoff M, Kapadia V, Kakkilaya V, Brown LS, Nelson D, Brion LP. (2018) Association of Symptomatic Pneumothorax in Term and Late-Preterm Infants with Continuous Positive Airway Pressure (CPAP) in the Delivery Room. Poster presented at Pediatric Academic Societies 2018 Meeting in Toronto, Canada.

### 2017

Blanco, VM. Brown, LS, Rosenfeld, CR. Blood Pressure Measurements in Preterm Infants in the NICU: Reliability and Effects of Feeding and State. 38th annual Western Conference on Perinatal Research, sponsored by the American Academy of Pediatrics Section on Neonatal-Perinatal Medicine. Indian Wells, California, 1/11-13/2017

Blanco, VM. Renfro S, Martinez A, Metoyer G, Brown C, Wharton M, Kakkilaya V. Decreasing Nasal Breakdown in Infants Receiving Nasal Continuous Positive Airway Pressure (nCPAP). 2017 Pediatric Academic Societies Meeting, San Francisco, California, 5/6-5/9/2017

Ibrahim, J., Mir, I., Maggots: History from being ‘just insects’ to FDA approved medical devices”. PAS, San Francisco, May 2017

Pavageau, L., Jaleel, M., Brion, L., Rosenfeld, C., Brown, L. “The Impact of Pulmonary Hypertension in Preterm Infants with severe BPD: A Multi-Center Comparison of NICU and Readmission Outcomes” PAS, San Francisco, May 2017

Pavageau L., Rosenfeld C, Heyne R, Brown LS, DeLeon M, Chacko S, Caraig M, Brion LP. Validation of Serial Length Measurements in Preterm Infants in the Neonatal Intensive Care Unit (NICU). Presentation at Western Conference on Perinatal Research, American Academy of Pediatrics Section on Neonatal-Perinatal Medicine. Indian Wells, California, 01/11-13/17

Scheid L. Rosenfeld CR, Brion LP. Are Data Extracted from the Electronic Medical Record Valid for Research Purposes? 2017 Pediatric Academic Societies Meeting, San Francisco, California, 5/6-5/9/2017

Scheid L., Brown LS, Clark C, Rosenfeld C. Are data extracted from the electronic medical record valid for research purposes? Presentation at 2017 Southern Regional Meetings, New Orleans, Louisiana, February 11-13, 2017

### 2016

Blanco V. Mir I. "Whom Ought We Deem to Be Dead?" The Never-Ending Dilemma About When to Diagnose Death. Poster Symposium presentation at Pediatric Academic Societies Annual Meeting, Baltimore Maryland, 5/3/2016

DeVries LB. Jaleel MA, Kapadia VS, Brown LS, Heyne R, Brion LP. "Relationship Between Pulmonary Hypertension and Outcomes among Infants with Bronchopulmonary Dysplasia Who Undergo Surgery." Poster presentation at the Southern Society for Pediatric Research, New Orleans, LA. 2/18/16

DeVries LB. Jaleel MA, Kapadia VS, Brown LS, Heyne R, Brion LP. "Relationship Between Pulmonary Hypertension and Outcomes among Infants with Bronchopulmonary Dysplasia Who Undergo Surgery. Poster presentation at Pediatric Academic Societies Annual Meeting, Baltimore, MD, 5/3/2016

Sen S. The Role of Cyclin Dependent Kinase Inhibitor p27Kip1 in Regulation of Neonatal Cardiomyocyte Proliferation. Platform presentation at PAS, Baltimore, MD, 5/03/2016

Sen S. The Role of Cyclin Dependent Kinase Inhibitor p27Kip1 in Regulation of Neonatal Cardiomyocyte Proliferation. Oral Presentation at: UT Southwestern Pediatrics' Senior Fellows' Research Day, Dallas, TX 5/24/2016

Weydig, H.M. Creation of a Team to Reduce Blood Culture Contaminants in the NICU. Poster presentation at Pediatric Academic Societies Annual Meeting, Baltimore Maryland, May 3, 2016

Weydig HM, Simcik V, McGuire G, Ramon E, Marshall M Nguyen J, Renfro S, Stewart A, Jaleel M, Kakkilaya V "Improving the Golden Hour Care of Extremely Low Gestational Age Neonates"; VON Annual Quality Conference, September 10th, 2016; Chicago

## INVITED PRESENTATIONS AND WORKSHOPS

### 2018

Maple, B. NRP Current Issues Seminar; AAP National Conference, Orlando FL, November 2018

### 2016

Weydig H, Simcik V, McGuire G, Ramon E, Marshall M, Nguyen J, Renfro S, Stewart A, Jaleel M, and Kakkilaya V, "Improving the Golden Hour Care of Extremely Low Gestational Age Neonates"; VON Annual Quality Conference, September 10<sup>th</sup>, 2016; Chicago

Sen S, Garbi L, Prendergast M, Slaw K. "Leadership in Neonatal-Perinatal Medicine: A Glimpse Through the Looking Glass." AAP Workshop on Perinatal Practice Strategies, Scottsdale, AZ, April 2016.

Weydig H, Frost M. Making QI count twice. Presented at PAS-SPR, Baltimore, MD, 5/3/16

## UTSW COMMITTEES

### Heather Weydig:

2014-16 Representative of the subspecialty trainees in the Department of Pediatrics on the GME Residency Advisory Committee (RAC)

### Lindsay DeVries

2015-16 Housestaff Wellness and Health Initiative 2015-16

### Valerie Blanco

2015-16 Complement and Addition in Program (CAP) Subcommittee of the GMEC

## EXTRAMURAL COMMITTEES

### Hoge, Margaret:

2019-2020 TECaN National Advocacy Campaign Committee Member: Mental Health in the NICU

### Shawndip Sen:

2014-16 District VII Fellow TECaN Representative

2014-16 Participation in the AAP Section on Young Physicians Leadership Alliance (YPLA )

## EDITORIAL RESPONSIBILITIES

### Joseph B Cantey:

Contributing Editor,  
Neonatal section

*Nelson's Pediatric Antimicrobial Therapy.* American Academy of Pediatrics, JS Bradley, Editor; JD Nelson, Emeritus. 20<sup>th</sup> edition to present.

Board member Pediatric Infectious Disease Society – Publications Committee

**AWARDS, HONORS AND GRANTS**

**Awards:**

- 2016: Parkland Health & Hospital System 2016 Fellow Award of Excellence in Patient Care: Lisa Scheid
- 2016: American Academy of Pediatrics (AAP) Young Physicians’ Leadership Alliance (YPLA) through the Section on Early Career Physicians (SOECP): Heather Weydig
- 2016 David G. Nathan Research Award, SPR: Shawndip Sen from the SPR for his work on “The role of cyclin dependent kinase inhibitor p27-kip1 in regulation of cardiomyocyte proliferation”
- *Travel Awards:*
  - Katie Hoge AAP 2020 Travel Award
  - Katie Hoge 2019 TeCAN AAP Travel Award
  - Katie Hoge 2019 SWAN Conference Travel Grant
  - Katie Hoge 2019 AAP Travel Award
  - Lara Pavageau 2018 WISMALC Travel Award
  - John Ibrahim: 2018 PAS Travel Award:
  - Lisa Scheid 2017: SSPR Trainee Travel Award:
  - Shawndip Sen: 2016 SSPR/APA Trainee Travel Award:

**SCHOLARSHIP AFTER GRADUATION:**

**Postgraduate training**

- *Duke University’s Fuqua School of Business, Masters in Business Administration, Health Sector Management Certificate: Olutoye Osunbunmi*
- *Fellowship in Pediatric Cardiology: Shawndip Sen, Lucile Packard Children’s Hospital at Stanford, 2016-2018*

**Previous Graduates: Promotion to senior rank**

**Vivek Lal, MD, FAAP:** Promoted to Associate Professor September 2019

**Tara Dupont, MD:** Promoted to Associate Professor July 2017

**Leadership Positions:**

**Lina Chalak, MD:** Associate Fellowship Director of Fetal and Neonatal Neurology Program, 2018

**Arpitha Chiruvolu:** Medical Director, Baylor Medical Center at McKinney, McKinney, TX

**Andrea Duncan, MD:** Medical Director, Neonatal High Risk Clinic & Tiny Tot Neurodevelopmental & Behavioral Health Clinic, UT Houston

**Tara Dupont, MD:** Medical Director, Neonatal Outreach Program & Neonatal Follow-up Program, Univ New Mexico, 2013

**Becky Ennis, MD:** Medical Director, Clements NICU

**Natalie Frost, MD:** Director, FETAL Program, UT Southwestern Medical Center, until 2018

**Charitharth Vivek Lal, MD:** Director, Golden Week Program (Extremely Preterm Infant), UAB, Alabama

**Myra Wyckoff, MD:**

- International Liaison Committee on Resuscitation, Newborn Subsection: co-chair of the Neonatal Task Force
- Director, Newborn Resuscitation Services at Parkland Memorial

**Grants obtained by graduates**

<b>Name</b>	<b>Sponsor</b>	<b>Support years</b>	<b>Title</b>	<b>Amount</b>
Maple (PI)	NRP Steering Committee	1/1/2019-12/31/2019	Impact of the 7th Edition NRP Guidelines on Outcomes of Meconium-Exposed Newborns	\$3,000

## Neonatal-Perinatal Fellows Scholarship

DuPont (PI)	Clinical Translational and Science Award	11/1/2017-6/30/2018	Mild Encephalopathy of the Neonate treated with Darbepoetin (MEND)	\$29,404
Duncan (PI)	NRN	4/1/2016-3/31/2021	1 UG1 HD087229-01	\$1,454,115
Wyckoff (Site PI)	NICHD Cooperative Multicenter NRN: 8 U10 HD040689-12	4/1/2016 - 3/31/2021	-	\$1,000,000 (2016-21)
Kapadia (PI)	NICHD/NIH 1K23HD083511-01A1	5/1/16-5/1/20	Low versus High Transitional Oxygen Saturation Targets for Preterm Resuscitation in the Delivery Room: A Randomized Controlled Trial	\$132,300
DuPont (PI)	New Mexico Department of Health	1/4/2015-6/30/2016	Developmental Care Continuity Program FIT Focus Project	\$45,000
DuPont (PI)	American Academy of Pediatrics	9/1/2014-3/30/2016	Neonatal Passport for Follow-up Care	\$12,000
DuPont (PI)	New Mexico Department of Health	6/30/2014-6/30/2018	Developmental Care Continuity Program	\$754,560
Chalak (PI) Wyckoff (PI)	NICHD Cooperative Multicenter Neonatal Research Network 5 U10 HD040689	7/1/2017-6/30/2022	A Randomized Trial of Targeted Temperature Body Hypothermia for Moderate and Severe Neonatal Encephalopathy in Premature Infants 33-35 wks Gestational Age-Bayesian Study	\$1,468,079
Chalak (PI)	NIH/NINDS	7/1/2017-6/30/2022	A Novel Wavelet Neurovascular Bundle for Real Time Detection of Injury in Neonatal Encephalopathy	\$1,974,140