Anilkumar K. Reddy, Ph.D.

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Education

Graduate Education

- ***Ph.D.*** (Bioengineering) Dec 1996
  Institution: Texas A&M University, College Station, TX
  Dissertation: Nonlinear Analysis of Oculomotor System Using Pseudorandom Stimuli
  - Effect of Alcohol on Eye Movements
  Advisor: Dr. Charles S. Lessard, PhD
- ***M.S.*** (Engineering-Biomedical) May 1991
  Institution: The University of Akron, Akron, OH
  Thesis: Mathematical Modeling of the Peripheral Auditory System of Anurans
  Advisor: Dr. Karen M. Mudry, PhD

Undergraduate Education

- ***B.E.*** (Electronics & Communication Engineering) Aug 1985
  Institution: Osmania University, Hyderabad, India
  Senior Project/Thesis: Radiation Patterns of Aperture Antennas
  Advisor: Dr. Mallikarjuna Rao, PhD

Academic Appointments

Current Positions

- ***Principle Scientist*** 02/2024-present
  Indus Instruments, Webster, TX 77598
- ***Visiting Scientist*** 12/2024-present
  Dept. of Medicine, The Methodist Hospital Research Institute, Houston, TX 77030
- ***Adjunct Professor of Medicine*** 11/2023-05/2025
  Dept. of Medicine (Section of Cardiovascular Research), Baylor College of Medicine (BCM), Houston, TX
- ***Senior Research Scientist*** 11/2023-01/2024
  Dept. of Cardiology (Division of Internal Medicine), U. Texas MD Anderson Cancer Center, Houston, TX
- ***Assistant Professor of Medicine*** (PT:07/2013-08/2018 & 01/2023-11/2023) 07/2005-11/2023
  Dept. of Medicine (DeBakey Heart Center/Section of Cardiovascular Research)
  Graduate School of Biomedical Sciences, Baylor College of Medicine (BCM), Houston, TX
- ***Visiting Research Collaborator (Adjunct Faculty)*** 12/2020-11/2023
  Department of Cardiology (Division of Internal Medicine), M.D. Anderson Cancer Center, Houston, TX

Previous Positions

- ***Adjunct Faculty***, Electronics Dept., Houston Community College, Houston, TX 09/2004-05/2005
- ***Instructor***, Dept. of Medicine, (DeBakey Heart Center/CVS), BCM 03/2001-06/2005
- ***Adjunct Faculty***, School of Physical Therapy, Texas Woman's Univ., Houston, TX 01/2001-05/2001
- ***Postdoctoral Associate***, Dept. of Medicine (DeBakey Heart Center/CVS), BCM 02/1997-02/2001
  Supervisor/Mentor: Dr. Craig J. Hartley
- ***Lecturer***, Department of Electronics & Communication Engineering, 01/1987-07/1987
  Chaitanya Bharathi Institute of Technology, Hyderabad, India

Non-Academic & Other Positions (*all positions part-time only*)

Previous Positions

- ***Scientist Consultant***, Indus Instruments, Webster, TX 03/2001-11/2023
- ***Design Engineer***, Indus Instruments, Webster, TX 05/2000-02/2001
- ***Research Engineer***, Indus Instruments, Webster, TX 02/1997-01/1998
- ***Research and Teaching Assistant*** 01/1992-12/1996
  Depts. of Industrial & Civil Engineering, Texas A&M University, College Station, TX
- ***Research Assistant***, Office of Institutional Res., The University of Akron, Akron, OH 01/1990-12/1990

Honors or Awards

- ***NIH Research Career Development Award*** 04/2005-03/2010
  Department of Medicine (Cardiovascular Research), Baylor College of Medicine, Houston, TX
- ***Institute for Biomedical Engineering Research Scholarship*** 09/1987-08/1989
  Department of Biomedical Engineering, The University of Akron, Akron, OH

Research Support

Active

- **R01** (PI: Cieslik, THMRI); NIH 09/01/2023-08/30/2027
  NIH Research Grant; $482,309 (voluntarily ended Nov 2023)
  Proteomics Based Mapping of Cardiac Extracellular Matrix to Define Sex and Age-Dependent Changes
  Reddy Co-Investigator (currently advisory role)

Pending

- **R42 HD121286-01** (PI: Parikh, U. Houston); NIH -STTR Fast-Track 04/01/2026-03/31/2029
  NIH STTR Fast-Track Grant; $2,446,402
  A Sensorized Developmental Toy for Assessment of Hand Function in Children with Cerebral Palsy.
  Reddy Co-Investigator of Subaward to Indus Instruments

Completed

- **AHA Transformational Project Award** (PI: Martin, U. Texas HSC Houston) 07/01/2023-06/30/2026
  American Heart Association Grant; $300,000 (voluntarily ended Nov 2023)
  Novel sGC Activator Thymol-O-dimethylvaleric Acid as Regulator of Cerebrovascular Blood Flow
  Reddy Co-Investigator
- **BCM BRAIN # 62967-N2** (PI: Reddy); Indus Instruments 01/01/2021-12/31/2024
  Development/testing Grant; $5,000/year (voluntarily ended Nov 2023)
  Testing of Biomedical Devices.
  Reddy PI
- **R21 AG071999** (PI: Sharina, U. Texas HSC Houston); NIH-NIA 01/15/2022-12/31/2024
  NIH Exploratory/Developmental Research Grant; $275,000 (voluntarily ended Nov 2023)
  sGC Oxidative Stress Controls Cerebral Blood Flow and Cognitive Function.
  Reddy Consultant
- **DRTC Pilot & Feasibility Grant** (PI: Hinton, Jr., Vanderbilt U) 12/01/2021-03/31/2022
  Vanderbilt Diabetes Research & Training Center (grant #DK020593 from NIDDK); $31,700
  To Characterize the Role of ERα and ERβ in the Human Amygdala of Alzheimer's Patients
  Reddy Co-Investigator
- **19IPLOI3462007** (PI: Rivera, Texas A&M U); AHA 07/01/2019-06/30/2021
  AHA Innovative Project Award; 200,000
  Regulation of the Endothelial Translatome by Arterial Stiffening in Atherosclerosis.
  Reddy Consultant
- **R43 AG059543** (PI: Madala, Indus); NIH-NIA 09/30/2018-03/31/2020
  SBIR Phase I Grant; 225,000
  Implantable Wireless Telemetric Monitoring Device for Aging Studies in Mice
  Reddy PI of the subaward to Baylor College of Medicine
- **R43 HL142439** (PI: Madala, Indus); NIH-NHLBI 09/21/2018-08/31/2019
  SBIR Phase I Grant; 225,000
  Ultrasonic Telemetric Implantable Pulsed Doppler Blood Flow Velocimeter for Small Animals
  Reddy PI of the subaward to Baylor College of Medicine
- **BCM Cardiovascular Research Institute Award** (PI: Xu, BCM) 09/16/2014-06/30/2015
  Baylor College of Medicine Cardiovascular Research Institute Funding; $25,000
  Steroid Receptor Coactivator-1 and Blood Pressure in Females
  Reddy Co-Investigator
- **BCM Bridge Award** (PI: **Reddy**) 07/01/2013-06/30/2014
  Baylor College of Medicine FY2014 Bridge Funding; $40,000
  Development of Noninvasive Indices of Aortic Impedance in Mice
  Reddy Principal Investigator
- **12GRNT12030299** (PI: Buffenstein, U T San Antonio) AHA Southwest Affiliate 07/01/2012-06/30/2014
  American Heart Association Grant-In-Aid; $140,000
  The Naked Mole-Rat, a Natural Long-lived Animal Model for Cardiac Aging
  Reddy Consultant
- **HHSN268201200027C** (PI: Madala, Indus) NIH-NHLBI 12/12/2011-06/11/2014
  SBIR Phase II Contract to Indus Instruments; $1,329,709
  Implantable Batteryless Pacemaker and Telemetry Device for Small Animals
  Reddy Co-Investigator of BCM subaward from 12/12/11-06/11/14
- **R01 HL022512-35** (PI: Hartley, BCM); NIH-NHLBI 04/01/1978-12/31/2013
  Research Project Grant; 1,000,000
  Ultrasonic Instrumentation for Cardiovascular Studies
  Reddy Co-Investigator from 4/1/'01-12/31/'13 and Post-Doctoral Associate from 2/25/97-3/31/01

- **K25 HL73041-05A2** (PI: **Reddy**); NIH-NHLBI 04/01/2005-03/31/2011
  Mentored Research Career Award; $648,493
  Aortic Input Impedance in Mice
  Reddy Principal Investigator
- **R21 HL102778-01A1** (PI: Bryan, BCM); NIH-NHLBI 07/01/2010-06/30/2012
  Exploratory/Developmental Research Grant; $230,000
  Cerebrovascular Consequences of Sleep Apnea
  Reddy Co-Investigator from 7/1/10-6/30/11
- **R43 HL102958-01** (PI: Madala, Indus); NIH-NHLBI 09/10/2010-06/30/2011
  SBIR Phase I Grant to Indus Instruments; $100,000
  Wearable Sensor for Continuous Noninvasive Monitoring of Pulse Pressure
  Reddy PI of BCM subcontract from 9/10/10-6/30/11
- **HHSN268201000024C** (PI: Madala, Indus); NIH-NHLBI 07/01/2010-12/31/2010
  SBIR Phase I Contract to Indus Instruments; $100,000
  Implantable Battery-less Pacemaker and Telemetry Device for Small Animals
  Reddy Co-Investigator of BCM subaward from 7/1/10-12/31/10
- **R01 AG017899** (PI: Taffet, BCM); NIH-NIA 09/30/2001-07/31/2006
  Research Project Grant; 1,250,000
  Pathogenesis of Age-Related Diastolic Dysfunction
  Reddy Co-Investigator from 9/30/01-7/31/06
- **R41 HL065018-01A1** (PI: Hartley, BCM) NIH-NHLBI 04/01/2001-03/31/2002
  STTR Phase I Grant to Indus Instruments; $91,703
  Ultrasonic Blood Viscometer
  Reddy Co-Investigator from 4/1/01-3/31/02
- **R41 HL076928-01A1** (PI: Madala, Indus); NIH-NHLBI 09/15/2004-03/14/2005
  SBIR Phase I Grant to Indus Instruments; $100,000
  Doppler Instrumentation for Vascular Physiology
  Reddy Co-Investigator of BCM subaward from 9/15/04-3/14/05
- **R44 HL052364-03** (PI: Madala, Indus) NIH-NHLBI 09/11/1996-08/31/1998
  SBIR Phase II Grant to Indus Instruments; $750,000
  Ultrasonic Cardiovascular Measurements in Small Animals
  Reddy Post-Doctoral Associate on BCM subaward from 2/25/97-8/31/98

National Scientific Participation

Journal Editorial Boards

- ***Editorial Board Member***, Clinical Medicine Insights: Geriatrics 06/2008-05/2014
  Libertas Academica, Auckland, New Zealand.
- ***Editor (American)***, Journal of Medical Imaging and Health Informatics 01/2013-12/2014
  American Scientific Publishers, Valencia, CA.

Review Committees

- ***Ad hoc Review Member*** 01/2013-12/2015
  Pennsylvania Department of Health
- ***Member***, Cardiac Bio Regulation & Biological Science 6 11/2012-10/2013
  American Heart Association Peer Review Committee
- ***Ad hoc Member***, Biophotonics, Adv. Imaging & Sensing for Human Health 05/2009-04/2010
  National Science Foundation Peer Review Committee
- ***Ad hoc Member***, SBIR/STTR Study Sections & Special Emphasis Panel Study Sections for K-Awards, R01, U24, & DOD grant applications, NIH Center for Scientific Review 06/2002-present
- ***Ad hoc Manuscript Reviewer*** 05/2003-present
  1. Am J Physiol, 2. IEEE Trans Biomed Eng, 3. Annals Biomed Eng, 4. Comput Methods Programs Biomed, 5. Clin Med: Cardiol, 6. J Med Syst, 7. Eur Surg Res, 8. J Geron: Biol Sci Med Sci, 9. Ultrasound Med Biol, 10. J Med Imag Health Informat, 11. J Vis Exp, 12. Int J Clin Endocrinol Metab, 13. JRSM Cardiovasc Dis, 14. Intl Cardiovasc Forum J, 15. WFUMB Ultrasound Open, 16. Scientific Reports (Nature)

Professional Societies

- ***Professional Member***, The American Heart Association, Dallas, TX 2005-2022
- ***Member***, American Association for Laboratory Animal Science, Memphis, TN 2013-2020
- ***Member***, TX Branch American Association for Laboratory Animal Science 2017-2020
- ***Member***, American Physiological Society, Bethesda, MD 2003-2014
- ***Senior Member***, IEEE Engr. in Medicine and Biology Society, Piscataway, NJ 1991-2014
- ***Member***, American Aging Association, Washington, DC 2014-2015
- ***Member***, Tissue Engr. & Regenerative Medicine International Society, San Ramon, CA 2013-2014
- ***Member***, Houston Society for Engineering in Medicine & Biology, Houston, TX 1997-2009

Lectures, Presentations, Research Seminars

- Webinar Presentation: A Scintica Instrumentation, Inc Presentation 05/29/2025
  Title: *An Efficient and Reliable Method to Determine SpO2 in Rodents (https://scintica.com/an-efficient-and-reliable-method-to-determine-spo2/)*
- ***Webinar Presentation***: A Scintica Instrumentation, Inc Presentation 03/04/2021
  Title: *Aortic Acceleration as a Non-invasive Index of Ventricular Contractility in the Mouse (www.scintica.com/aortic-acceleration-as-a-noninvasive-index-of-left-ventricular-contractility-in-the-mouse/)*
- ***Invited Lecture*** (virtual)
  The University of Hong Kong, Department of Pharmacology and Pharmacy, Hong Kong SAR 12/22/2020
  Title: *Utilizing Non-invasive Blood Flow Velocity Measurements for CV Phenotyping in Small Animals*
- ***Invited Seminar Speaker***
  Texas A& M University, Department of Veterinary Pathobiology, College Station, TX 04/22/2019
  Title: *Noninvasive Cardiovascular Phenotyping in Mice Using Pulsed Doppler Ultrasound*
- ***Seminar Lecture***
  -Bayer Pharma AG, Wuppertal, Germany 03/01/2018
  Title: *The Role of Blood Flow Velocity Measurements in Small Animals for Translational Research*
  -University of Heidelberg - CBTM Seminar Series, Mannheim, Germany 02/28/2018
  Title: *The Role of Blood Flow Velocity Measurements in Animal Models for Translational Research*
  -Janssen Pharmaceutica, Beerse, Belgium 02/27/2018
  Title: *Noninvasive Assessment of Cardiovascular Function in Small Animals*
- ***Invited Speaker***
  Jagiellonian Centre for Experimental Therapeutics, Kraków, Poland 02/23/2018
  Title: *Noninvasive Assessment of Arterial Stiffness in Small Animals*
- ***Invited Speaker***
  Continuing Education Session, Safety Pharmacology Society Meeting, Berlin, Germany 09/24/2017
  Title: *Tools and Techniques for Blood Flow Velocity Measurements*
- ***Webinar Presentation***: An Inside Scientific Presentation 03/28/2017
  Title: *A Non-invasive Alternative to +dP/dtmax: Peak Aortic Blood Acceleration (https://insidescientifi.com/webinar/noninvasive-alternative-dPdt-max-peak-aortic-blood-acceleration-indus)*
- ***Seminar Lecture***
  -Applied Physiology (Cardiovascular Division), King's College London, United Kingdom 03/02/2017
  -Department of Biomedical Engineering, Maastricht University, The Netherlands 03/06/2017
  -Clinic for Heart Surgery, University Clinical Center, University of Bonn, Germany 03/07/2017
  -Department of Nephrology, University of Reims Champagne-Ardenne, France 03/08/2017
  Title: *The Role of Blood Flow Velocity Measurements in Rodent Models for Translational Research.*
- ***Seminar Lecture***
  -Dept. of Internal Medicine (Cardiology), University of Texas - SWMC, Dallas, TX 02/08/2017
  -Dept. of Medicine (Cardiovascular Sciences), Baylor College of Medicine, Houston, TX 02/10/2017
  Title: *Doppler Flow Velocity Systems and Applications*
- ***Seminar Speaker***
  Cardiovascular Research Center, University of Wisconsin Madison, Madison, WI 01/27/2017
  Title: *Utilizing Non-invasive Blood Flow Velocity Measurements for CV Phenotyping in Small Animals.*
- ***Seminar Presentation***
  -NASA Ames Research Center, Moffett Field, CA 12/15/2016
  -Amgen Inc, South San Francisco, CA 12/16/2016
  Title: *Noninvasive cardiovascular blood flow velocity and telemetry measurements in rodents.*
- ***Webinar Presentation***: An Inside Scientific Presentation 12/01/2016
  Title: *Utilizing Non-invasive Blood Flow Velocity Measurements for Cardiovascular Phenotyping in Small Animals (http://insidescientific.com/webinar/non-invasive-blood-flow-velocity-measurements-cardiovascular-phenotyping-rodents-indus/)*
- ***Seminar Speaker***
  -Chang Gung University, Kwei-Shan Tao-Yuan, Taiwan 09/30/2016
  -The University of Tokyo, Tokyo, Japan 09/29/2016
  -Crown Biosciences, Inc. (Taicang), Jiangsu Province, China 09/27/2016
  -The Affiliated Shanghai No. 10 Hospital, Nanjing Medical University, Nanjing, China 09/26/2016
  Title: *Noninvasive Cardiovascular Phenotyping in Small Animals: Blood Flow Velocity Measurement Using Pulsed Doppler Ultrasound*
- ***Seminar Speaker***: Cardiovascular Center of Excellence 09/01/2016
  Louisiana State University Health Science Center School of Medicine, New Orleans, LA
  Title: *Pulsed Doppler Evaluation of Cardiovascular Function in Small Animals*
- ***Webinar Presentation***: An Inside Scientific Presentation 03/11/2015

Title: *Examining New Research Capabilities and Technology for Preclinical Telemetry in Rodents (http://insidescientific.com/webinar/new-research-capabilities-and-technology-for-preclinical-telemetry-in-rodents-indus/)*

- ***Speaker/ Moderator***: Cardiovascular Section Seminar series 02/03/2011
  Department of Medicine, Baylor College of Medicine, Houston, TX
  Title: *Cardiovascular Measurements in Mice: Problems and Solutions*
  Moderated a seminar series of presentations by graduate students of Cardiovascular Sciences
  Dates: 2/10/2011, 2/17/2011, and 2/24/2011.
- ***Invited Seminar Speaker***: Department of Biomedical Engineering 07/06/2007
  Ngee Ann Polytechnic, Singapore
  Title: *Noninvasive Cardiovascular Phenotyping in mice*
- ***Invited Seminar Speaker***: Department of Cardiac Surgery 08/07/2006
  University of Bonn, Bonn, Germany
  Title: *Cardiovascular Phenotyping in Mice: Doppler Methods*
- ***Speaker/Moderator***: Cardiovascular Section Seminar series 10/11/2005
  Department of Medicine, Baylor College of Medicine, Houston, TX
  Title: *Cardiovascular Phenotyping in Mice*
  Moderated a seminar series of presentations by graduate students of Cardiovascular Sciences
  Dates: 10/18/2005, 10/25/2005, and 11/1/2005.
- ***Invited Seminar Speaker***: Department of Electronics & Communications Engineering 02/10/2005
  Chaitanya Bharathi Institute of Technology, Hyderabad, India
  Title: *Cardiovascular Phenotyping in Mice: Instrumentation and Methods*
- ***Invited Seminar Speaker***: Department of Medicine (Cardiology) 11/30/2004
  National Cheng Kung University Hospital, Tainan, Taiwan
  Title: *Hemodynamics in Apolipoprotein-E Knockout Mice*
- ***Invited Speaker***: Third Int'l Congress on Cardiovascular Disease, Taipei, Taiwan 11/27/2004
  Title: *Physiological Monitoring of Transgenic Mouse Models of Cardiovascular Disease*

Other Activities

- ***Session Chair***, Houston Society for Engineering in Medicine and Biology Annual Meeting, Houston, TX
  (Meetings held at the University of Houston Hilton Hotel)

Small Animal Research II; Cardiovascular Physiology, 20th Annual Meeting	04/04/2003
Cardiovascular II; Vascular Mechanics, 21st Annual Meeting	02/13/2004
Blood Flow Dynamics, 22nd Annual Meeting	02/11/2005
Vascular Mechanics & Function; Vascular Function & Flow, 23rd Annual Meeting	02/09/2006
Cardiovascular Sensors: Sounds, Magnetics & Optics, 24th Annual Meeting	02/08/2007
Pressure and Volume Measurements; Lymphatics, 25th Annual Meeting	02/07/2008
Cardiovascular Mechanics, 26th Annual Meeting	03/19/2009

Publications

Peer Reviewed Publications

- **Reddy AK**, Lessard CS. Analysis of the effect of alcohol on eye movement responses using nonlinear techniques. *Innovation Et Technologie En Biologie Et Medicine* 19(2):113-121, 1998.
- Jeffrey JS, Martinez-Lemus LA, **Reddy AK**, Lessard CS, Odom TW. Application of phonocardiography for detecting hypoxia-induced cardiovascular adaptation in the chicken. *Avian Diseases* 43(3):359-66, 1999.
- Hartley CJ, **Reddy AK**, Madala S, Martin-McNulty B, Vergona R, Sullivan ME, Halks-Miller M, Taffet GE, Michael LH, Entman ML, Wang Y-X. Hemodynamics changes in apolipoprotein E-knockout mice. *American Journal of Physiology, Heart Circulatory Physiology* 279:H2326-H2334, 2000.
- Hartley CJ, Taffet GE, **Reddy AK**, Entman ML, Michael LH. Noninvasive cardiovascular phenotyping in mice. *Institute for Laboratory Animal Research* 43(3):147-158, 2002.
- **Reddy AK**, Taffet GE, Madala S, Michael LH, Entman ML, Hartley CJ. Noninvasive blood pressure measurement in mice using pulsed Doppler ultrasound. *Ultrasound in Medicine and Biology* 29(3):379-385, 2003.
- Li Y-H, **Reddy AK**, Taffet GE, Michael LH, Entman ML, Hartley CJ. Peripheral vascular adaptations to transverse aortic banding in mice. *Ultrasound in Medicine and Biology*, 29(9):1281-1289, 2003.
- **Reddy AK**, Li Y-H, Pham TT, Ochoa LN, Treviño MT, Hartley CJ, Michael LH, Entman ML, Taffet GE. Measurement of aortic input impedance in mice: Effect of age on aortic stiffness. *American Journal of Physiology, Heart and Circulatory Physiology*, 285:H1464-H1470, 2003.
- Li Y-H, **Reddy AK**, Ochoa LN, Pham TT, Hartley CJ, Michael LH, Entman ML, Taffet GE. Effect of age on peripheral vascular response to transverse aortic banding in mice. *Journal of Gerontology Biological Sciences*, 58A (10):895-899, 2003.

- Hartley CJ, **Reddy AK**, Madala S, Entman ML, Michael LH, Taffet GE. Noninvasive ultrasonic measurement of arterial wall motion in mice – Innovative Methodology. *American Journal of Physiology Heart Circulatory Physiology*, 287: H1426-H1432, 2004.
- Schillinger KJ, Tsai SY, Taffet GE, **Reddy AK**, Marian AJ, Entman ML, Oka K, Chan L, O'Malley BW. Regulatable atrial natriuretic peptide gene therapy for hypertension. *Proceedings of National Academy of Sciences*, 102(39): 13789-13794, 2005.
- **Reddy AK**, Jones AD, Martono C, Caro WA, Madala S, Hartley CJ. Pulsed Doppler signal processing for use in mice: Design and evaluation. *IEEE Transactions on Biomedical Engineering*, 52 (10): 1764-1770, 2005.
- **Reddy AK**, Taffet GE, Li, Y-H, Lim S-W, Pham TT, Pocius JS, Entman ML, Michael LH, Hartley CJ. Pulsed Doppler signal processing for use in mice: Applications. *IEEE Transactions on Biomedical Engineering*, 52(10):1771-1783, 2005.
- Zhang YM, Bo J, Taffet GE, Chang J, Shi J, **Reddy AK**, Michael LH, Schneider MD, Entman ML, Schwartz RJ, Wei L. Targeted deletion of ROCK1 protects the heart against pressure overload by inhibiting reactive fibrosis. *FASEB Journal*, 20(7):916-925, 2006.
- Thakker G, Frangogiannis N, Bujak M, Zymek P, Gaubatz J, **Reddy AK**, Taffet G, Michael L, Entman M, Ballantyne C. Effects of diet-induced obesity on inflammation and remodeling after myocardial infarction. *American Journal of Physiology Heart Circulatory Physiology,* 291(5):H2504-H2514, 2006.
- Hartley CJ, **Reddy AK**, Madala S, Michael LH, Entman ML, Taffet GE. Effects of isoflurane on coronary blood flow velocity in young, old, and ApoE$^{-/-}$ mice measured by Doppler ultrasound. *Ultrasound in Medicine and Biology*, 33(4):512-521, 2007.
- **Reddy AK**, Amador-Noguez D, Darlington GJ, Scholz BA, Michael LH, Hartley CJ, Entman ML, Taffet GE. Cardiac function in young and old *Little* mice. *Journal of Gerontology-Biological Sciences,* 62A(12):1319-1325, 2007.
- Bujak M, Ren G, Chatila K, Dobaczewski M, **Reddy AK**, Taffet GE, Wang X-F, and Frangogiannis NG. Smad3 null mice exhibit attenuated ventricular remodeling following myocardial infarction. *Circulation*, 116: 2127-2138, 2007.
- Hartley CJ, **Reddy AK**, Madala S, Michael LH, Entman ML, Taffet GE, Doppler estimation of reduced coronary flow reserve in mice with pressure overload cardiac hypertrophy. *Ultrasound in Medicine and Biology*, 34(6):892-901, 2008.
- Bujak M, Dobaczewski M, Chatila K, Mendoza LH, Li N, **Reddy AK**, Frangogiannis NG. Interleukin-1 receptor type I signaling critically regulates infarct healing and cardiac remodeling. *The American Journal of Pathology* 173: 57-67, 2008.
- **Reddy AK**, Textbook of in vivo imaging in vertebrates, Book Review. *Ultrasound in Medicine and Biology* 35(7): 1231, 2009.
- Eberth JF, Gresham VC, **Reddy AK**, Popovic N, Wilson E, Humphrey JD. Importance of pulsatility in hypertensive carotid artery growth and remodeling. *Journal of Hypertension*, 27(10): 2010-2021, 2009.
- **Reddy AK**, Madala S, Jones AD, Caro WA, Eberth JF, Pham TT, Taffet GE, Hartley CJ. Multi-channel pulsed Doppler signal processing for vascular measurements in mice. *Ultrasound in Medicine and Biology*, 35(12):2042-2054, 2009.
- Chintalgattu V, Ai D, Langley RR, Zhang J, Bankson JA, Shih TL, **Reddy AK**, Coombes KR, Daher IN, Pati S, Patel SS, Pocius JS, Taffet GE, Buja LM, Entman ML, Khakoo AY. Cardiomyocyte PDGFR-β signaling is an essential component of the cardiac response to load induced stress. *Journal of Clinical Investigation*, 120(2):472-484, 2010.
- Namiranian K, Lloyd E, Crossland R, Marrelli S, Taffet GE, **Reddy AK**, Hartley CJ, Bryan RM Jr. Cerebrovascular responses in mice deficient in the potassium channel, TREK-1. *American Journal of Physiology: Regulatory, Integrative and Comparative Physiology*, 299(2):R461-R469, 2010.
- Hartley CJ, **Reddy AK**, Madala S, Entman ML, Taffet GE. Feasibility of Doppler velocity measurements to estimate volume pulsations of an arterial segment. *Ultrasound in Medicine and Biology*, 36(7):1169-1175, 2010.
- Erez A, Chen Y, Shchelochkov OA, Nagamani SCS, Premkumar MH, Campeau PM, Garg HK, Mian A, Bertin TK, Black JO, Zeng H, Tang Y, **Reddy AK**, Summar M, O'Brien WE, Mitch WE, Aschner JL, Marini JC, Bryan NS, Lee B. Argininosuccinate lyase is essential for systemic nitric oxide production. *Nature Medicine*, 17: 1619-1626, 2011.
- Hartley CJ, **Reddy AK**, Madala S, Entman ML, Michael LH, Taffet GE. Doppler velocity measurements from large and small arteries of mice. *American Journal of Physiology, Heart and Circulatory Physiology*, 301: H269-H278, 2011.
- Lloyd EE, Crossland RF, Phillips SC, Marrelli SP, **Reddy AK**, Taffet GE, Hartley CJ, Bryan Jr RM. Disruption of K_{2P}6.1 produces vascular dysfunction and hypertension in mice. *Hypertension*, 58(4):672-678, 2011.
- Nagamani SC, Campeau PM, Shchelochkov OA, Premkumar MH, Guse K, Brunetti-Pierri N, Chen Y, Sun Q, Tang Y, Palmer D, **Reddy AK**, Li L, Slesnick TC, Feig DI, Caudle S, Harrison D, Salviati L, Marini JC, Bryan NS,

Erez A, Lee B. Nitric-Oxide Supplementation for Treatment of Long-Term Complications in Argininosuccinic Aciduria. *American Journal of Human Genetics*, 90: 836-846, 2012.

- Gurha P, Abreu-Goodger C, Wang T, Ramirez MO, Drumond AL, van Dongen S, Chen Y, Bartonicek N, Enright AJ, Lee B, Kelm RJ Jr, **Reddy AK**, Taffet GE, Bradley A, Wehrens XH, Entman ML, Rodriguez A. Targeted deletion of microRNA-22 promotes stress-induced cardiac dilation and contractile dysfunction. *Circulation*, 125: 2751-2761, 2012.
- Christia P, Bujak M, Gonzalez-Quesada C, Chen W, Dobaczewski M, **Reddy AK**, Frangogiannis NG. Systematic characterization of cardiac inflammation, repair, and remodeling in a mouse model of reperfused myocardial infarction. *Journal of Histochemistry and Cytochemistry*, 61(8):555-570, 2013. (***Editor's Choice Article***).
- Crossland RF, Durgan DJ, Lloyd EE, Phillips SC, **Reddy AK**, Marrelli SP, Bryan RM Jr. A new rodent model for obstructive sleep apnea: Effects on ATP-mediated dilations in cerebral arteries. *American Journal of Physiology, Regulatory, Integrative, and Comparative Physiology*, 305:R334-R342, 2013.
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- **Reddy AK**, van Wyk S, Caro W, Marelli S, Ward C, Madala S. An efficient and reliable method to measure/determine SpO_2 in rodents. *World Molecular Imaging Conference*, Anchorage, AK, Aug 29-Sep 3, 2025 (*Finalist-Commercial Innovation of the Year Competition*).

Book Chapter

- Michael LH, **Reddy AK**, Taffet GE, Frangogiannis NG, Entman ML, Hartley CJ. The Cardiovascular System. In: Hans J. Hedrich, *The Laboratory Mouse (In: Peter Petrusz, The Handbook of Experimental Animals)*. 2nd ed. London: Elsevier Academic Press. pp 241-270, 2012.

Manuals

- Manuals written: 1. Doppler Flow Velocity System, 2017; 2. Rodent Surgical Monitor+ System, 2018; 3. Solid-State Pressure Catheter Guide, 2019; 4. Fluid-Filled Pressure Catheter Guide, 2021. 5. Doppler Probe Micropositioner with RSM+, 6. Rodent Surgical Monitor *oX* System, 2025. 7. PulSAR System Auto Analysis Program 2026.

Other Duties

- ***Principal Investigator***, AN-124 Mouse 2011-23, AN-6494 Rat Protocols 2012-23;
- ***Surgical Training Ambassador***, at DeBakey Heart Center Murine laboratory under protocols AN-124 & AN-6494 (PI: Reddy), AN-2122 (PI: Taffet), and AN-5443 (PI: Cieslik)
- ***Investigator*** on several other BCM animal protocols: AN-4776,7365,7379,7801 (PI: Taffet); AN-5110,6486 (PI: Wehrens); AN-6659 (PI: Pi); AN-7259 (PI: Li); and *currently (2024-) on AN-4101 (PI: Ward)*.

Teaching Information

Didactic Teaching & Facilitation

- **Problem Based Learning** BCM MS1 course, Facilitator 07/2023-11/2023
- **Determinants, Disparities & Social Health of Populations** BCM-MS3 course, Facilitator 03/2023-11/2023
- **Advanced Topics in Cardiac Pathophysiology & Disease: Cardiac Hemodynamics** 01/2020-11/2023
  Graduate School of Biomedical Sciences, Baylor College of Medicine, Houston, TX
  (***Overall teaching effectiveness*** (OTE): 6.67/7.00 (2020-21), 5.67/7.00 (2021-22)
- **Advanced Topics in Cardiovascular Physiology** 01/2019-12/2019
  Graduate School of Biomedical Sciences, Baylor College of Medicine, Houston, TX
  (OTE: 6.00/7.00 in AY2019-20)
- **Critical Thinking and Problem Solving (CTAPS)**, Facilitator 01/2018-12/2020
  First Year Medical School Students, Baylor College of Medicine, Houston, TX
  (OTE: 5.86/7.00 in AY2018-19 & 6.60/7.00 in AY2019-20)
  Note: Attended Team Based Learning (TBL) Facilitator Training Workshop – July 24, 2018
- **Cardiovascular Physiology: Control Theory, Fluid Dynamics, Measurement Technology**, Graduate School of Biomedical Sciences, Baylor College of Medicine, Houston, TX 01/2011-12/2018
  (OTE range: 5.5−7.0 with average OTE: 6.23/7.00 from 2011-2018)
- **Integrated Problem Solving I & II,** BCM MS1 Facilitator 01/2011-06/2018
  Baylor College of Medicine, Houston, TX
  (OTE range: 5.29−7.00; average OTE: 6.24/7.00 over 32 sessions)
- **Applied Biomedical Equipment Technology and Clinical Instrumentation** 09/2004-05/2005
  Dept. of Electronic Engineering Technology, Houston Community College, Houston, TX
- **Biomedical Instrumentation** 01/2001-05/2001
  School of Physical Therapy, Texas Woman's University, Houston, TX
- **Medical Instrumentation** 05/1999-06/1999
  Department of Anesthesiology, Baylor College of Medicine, Houston, TX
- **Clinical Engineering & Hospital Management, Numerical Methods in Engr.**, and **Engineering Problem Solving & Computing** 01/1992-12/1996
  Dept. of Industrial and Civil Engineering, Texas A&M University, College Station, TX
- **Network Theory & Transmission Lines**; **Integrated Electronic Circuits** 01/1987-07/1987
  Dept. of Electronics & Comm. Eng., Chaitanya Bharathi Institute of Technology, Hyderabad, India

Other Teaching

- Trained numerous investigators, post-doctoral fellows, graduate students, and technicians in the operation of Doppler Flow Velocity System used for the measurement, acquisition, and analysis of blood flow velocities in mice and rats. Also provided surgical training in the cannulation of arteries for pressure measurements in mice and rats. Conducted workshops on the noninvasive cardiovascular measurements using pulsed Doppler ultrasound system.

Students & Mentoring

Ph.D. Committee Member

- **David Durgan** (Baylor College of Medicine; mentor: Dr. Martin Young - currently at U. Alabama Birmingham), served as committee member when David was at Baylor College of Medicine. Dr. Durgan is currently an Assistant Professor at Baylor College of Medicine, Houston, Texas.
- **Randy Crossfield** (Baylor College of Medicine; mentor: Dr. Sean Marrelli -currently at U. Texas Med Branch Galveston). Dr. Crossfield is currently a Senior Clinical Research Specialist at Medtronic Vascular, Minneapolis, Minnesota.
- **Betsy Salazar** (University of Houston; mentor: Dr. Ravi Birla – currently at Texas Heart Institute). Dr. Salazar is currently a post-doc at the Houston Methodist, Houston, Texas.

Bench mentor

- **Antentor O. Hinton, Jr.** (served as bench mentor, Baylor College of Medicine). Dr. Hinton, Jr. is currently an Asst. Professor at Vanderbilt School of Medicine Basic Sciences, Nashville, Tennessee.
- **Larry Scott, Jr.** (served as bench mentor, Baylor College of Medicine). Dr. Scott, Jr. is currently a Product Development Engineer at PolyVascular, Houston, Texas.

Summer intern mentor

- **Emily Nomberg** (2019 UG Summer Intern from the University of Georgia).
- **Rithvik Bommareddy** (2019 UG Summer Intern from the University of Texas at Dallas, Dallas, TX).
- **Karishma Reddy** (2021 UG Summer Intern from the University of Texas at Dallas, Dallas TX).
- **Rahul Chauhan** (2021 UG Summer Intern from Texas A&M University, College Station, TX).
- **Sahithi Puvvala** (2021-2023 UG Intern from Rice University, Houston, TX).
- **Aparajita Verma** (2021 Doppler System Trainee, Scintica Instrumentation, Inc., Webster, Texas)
- **Megan Lewno** (2022 Doppler System Trainee, Scintica Instrumentation, Inc., Webster, Texas)
- **Katrina Wong** (2022 Rice University BS graduate, Spring/Summer Intern, Houston, TX).
- **Chloe Westerman** (2023 Memorial High School graduate, Summer Intern, Houston, TX).

Service Assignments

- ***Member***, BCM Medical School Admissions Committee, 2022-2023 (part of 3-year term)
- ***Member***, BCM Medical School Admissions Interviewing Sub Committee, 2008 & 2018-2023
- ***Member***, BCM Medical School Scholarship Committee, March 2023
- ***Poster Professor***, BCM Cardiovascular Research Institute Annual Symposia, 2018-2022
- ***Supervisor***, DeBakey Heart Center Murine & Instrumentation Laboratories, 07/2013-11/2023
- ***Member***, Carnegie Vanguard High School Senior Scholarship Committee, 01/2026-Present
- ***Member***, University of Houston Biomedical Engineering External Advisory Board, 01/2025-Present