

Division Details

Division Data Summary

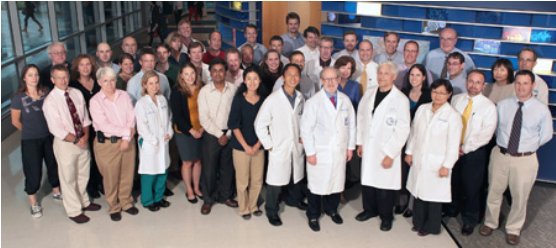
Research and Training Details

Number of Faculty	50
Number of Research Fellows	31
Number of Research Students	12
Number of Support Personnel	232
Direct Annual Grant Support	\$6,639,040
Direct Annual Industry Support	\$59,351
Peer Reviewed Publications	189

Clinical Activities and Training

Number of Clinical Staff	5
Number of Clinical Fellows	13
Inpatient Encounters	1,652
Outpatient Encounters	16,074

Division Photo



Row 1: R Siegel, P Goldenberg, A Lorts, C Castleberry, S Rajan, W Zheng, K Hor, J Towbin, J Robbins, E Purevjav
 Row 2: M Maillet, S Kirk, K Yutzey, B Blaxall, J van Berlo, A Phillips, S Goldstein, H Ippisch, J Cnota, E Urbina, A Divanovic, J Anderson, D Spar
 Row 3: J Gulick, J Waxman, Z Khuchua, S Ware, J Molquentin, C Chin, I Iliopoulos, D Cooper, B Marino, E Michelfelder, B Goldstein C Liu
 Row 4: D Nelson, N Madsen, R Hinton, C Learn, R Czosek, T Knilians, G Webb, M Taylor

Significant Accomplishments

Advanced Cardiomyopathy and Heart Failure Diagnosis and Treatments

The Heart Institute has become an international leader in heart muscle disease (cardiomyopathies) and its associated treatments. We have developed the largest Advanced Pediatric and Young Adult Cardiomyopathy and Heart Failure Program in the US, directed by John Lynn Jefferies, MD, MPH, and Jeffrey Towbin, MD. Our Heart Transplant Program, under the medical direction of Clifford Chin, MD, and surgical leadership of Alistair Phillips, MD, is one of the largest and most successful in the US. We performed 14 transplants in the past year and 10 the previous year, with 100 percent survival. More recently, the Heart Institute has become a leader in mechanical circulatory support with the addition of David Morales, MD, a world-renowned pediatric cardiothoracic surgeon and new chief of cardiothoracic surgery. Eight children with end-stage heart failure received mechanical circulatory support this year; six of whom were successfully transplanted and are doing well. Members of the Heart Institute also published more than 170 manuscripts this year.

Heart Institute Leads an International Research Consortium

Under the leadership of Jeffrey Robbins, PhD, the Heart Institute was awarded one of four grants given worldwide by the Fondation Leducq to study how proteotoxicity – cell malfunctions caused by misfolded proteins – can lead to heart disease and failure. The consortium for this study is led by Cincinnati Children's and includes laboratories at the University of Texas-Southwest, University of North Carolina at Chapel Hill and premier academic medical centers in Germany, Great Britain and Italy. These proteotoxicity studies were recognized by the Leducq Foundation as having the potential to lead to novel treatments for a variety of heart

diseases, with new therapeutic targets being identified in our pediatric population.

Pediatric Heart Network Consortium

The Heart Institute successfully competed for a renewal grant to continue serving as one of nine “core” sites in the Pediatric Heart Network (PHN) through 2016. This national competition was open to academic centers across North America. The National Heart, Lung and Blood Institute created this collaborative network to conduct clinical studies in children with congenital or acquired heart disease. Since its inception, the PHN has completed more than 10 multi-center studies that have had significant impact on the field of pediatric cardiovascular disease. The most recent study, evaluating the use of therapies for individuals with Marfan syndrome, began in 2007 and will have a major impact on how we treat these patients. These complex, randomized trials are the only way of carrying out high quality clinical research in rare diseases. Cincinnati Children’s has been a core site in the PHN since 2006. James Cnota, MD and Catherine Krawczeski, MD, serve as principal investigators.

Division Publications

1. Accornero F, van Berlo JH, Benard MJ, Lorenz JN, Carmeliet P, Molkentin JD. **Placental growth factor regulates cardiac adaptation and hypertrophy through a paracrine mechanism.** *Circulation research*. 2011; 109:272-80.
2. Acharya A, Hans CP, Koenig SN, Nichols HA, Galindo CL, Garner HR, Merrill WH, Hinton RB, Garg V. **Inhibitory role of Notch1 in calcific aortic valve disease.** *PloS one*. 2011; 6:e27743.
3. Ackerman MJ, Priori SG, Willems S, Berul C, Brugada R, Calkins H, Camm AJ, Ellinor PT, Gollob M, Hamilton R, Hershberger RE, Judge DP, Le Marec H, McKenna WJ, Schulze-Bahr E, Semsarian C, Towbin JA, Watkins H, Wilde A, Wolpert C, Zipes DP. **HRS/EHRA expert consensus statement on the state of genetic testing for the channelopathies and cardiomyopathies this document was developed as a partnership between the Heart Rhythm Society (HRS) and the European Heart Rhythm Association (EHRA).** *Heart rhythm : the official journal of the Heart Rhythm Society*. 2011; 8:1308-39.
4. Ackerman MJ, Priori SG, Willems S, Berul C, Brugada R, Calkins H, Camm AJ, Ellinor PT, Gollob M, Hamilton R, Hershberger RE, Judge DP, Le Marec H, McKenna WJ, Schulze-Bahr E, Semsarian C, Towbin JA, Watkins H, Wilde A, Wolpert C, Zipes DP. **HRS/EHRA expert consensus statement on the state of genetic testing for the channelopathies and cardiomyopathies: this document was developed as a partnership between the Heart Rhythm Society (HRS) and the European Heart Rhythm Association (EHRA).** *Europace : European pacing, arrhythmias, and cardiac electrophysiology : journal of the working groups on cardiac pacing, arrhythmias, and cardiac cellular electrophysiology of the European Society of Cardiology*. 2011; 13:1077-109.
5. Adachi I, Krishnamurthy R, Morales DL. **A double aortic arch mimicking a right aortic arch with an aberrant subclavian artery.** *J Vasc Surg*. 2011; 54:1151-3.
6. Alvarez JA, Orav EJ, Wilkinson JD, Fleming LE, Lee DJ, Sleeper LA, Rusconi PG, Colan SD, Hsu DT, Canter CE, Webber SA, Cox GF, Jefferies JL, Towbin JA, Lipshultz SE. **Competing risks for death and cardiac transplantation in children with dilated cardiomyopathy: results from the pediatric cardiomyopathy registry.** *Circulation*. 2011; 124:814-23.
7. Anderson JB, Iyer SB, Beekman RH, 3rd, Jenkins KJ, Klitzner TS, Kugler JD, Martin GR, Neish SR, Rosenthal GL, Lannon CM. **National pediatric cardiology quality improvement collaborative: Lessons from development and early years.** *Progress in Pediatric Cardiology*. 2011; 32:103-109.
8. Anderson JB, Knilans TK. **Syncope.** *Schwartz's Clinical Handbook of Pediatrics*. Baltimore: Lippincott Williams

& Wilkins; 2012:793-798.

9. Anderson JB, Marino BS, Irving SY, Garcia-Espana JF, Ravishankar C, Stallings VA, Medoff-Cooper B. **Poor post-operative growth in infants with two-ventricle physiology.** *Cardiology in the young.* 2011; 21:421-9.
10. Azhar M, Brown K, Gard C, Chen H, Rajan S, Elliott DA, Stevens MV, Camenisch TD, Conway SJ, Doetschman T. **Transforming growth factor Beta2 is required for valve remodeling during heart development.** *Developmental dynamics : an official publication of the American Association of Anatomists.* 2011; 240:2127-41.
11. Bainbridge MN, Wang M, Wu Y, Newsham I, Muzny DM, Jefferies JL, Albert TJ, Burgess DL, Gibbs RA. **Targeted enrichment beyond the consensus coding DNA sequence exome reveals exons with higher variant densities.** *Genome biology.* 2011; 12:R68.
12. Barsheshet A, Goldenberg I, J OU, Moss AJ, Jons C, Shimizu W, Wilde AA, McNitt S, Peterson DR, Zareba W, Robinson JL, Ackerman MJ, Cypress M, Gray DA, Hofman N, Kanter JK, Kaufman ES, Platonov PG, Qi M, Towbin JA, Vincent GM, Lopes CM. **Mutations in cytoplasmic loops of the KCNQ1 channel and the risk of life-threatening events: implications for mutation-specific response to beta-blocker therapy in type 1 long-QT syndrome.** *Circulation.* 2012; 125:1988-96.
13. Barsheshet A, Moss AJ, McNitt S, Polonsky S, Lopes CM, Zareba W, Robinson JL, Ackerman MJ, Benhorin J, Kaufman ES, Towbin JA, Vincent GM, Qi M, Goldenberg I. **Risk of syncope in family members who are genotype-negative for a family-associated long-QT syndrome mutation.** *Circulation. Cardiovascular genetics.* 2011; 4:491-9.
14. Barsheshet A, Peterson DR, Moss AJ, Schwartz PJ, Kaufman ES, McNitt S, Polonsky S, Buber J, Zareba W, Robinson JL, Ackerman MJ, Benhorin J, Towbin JA, Vincent GM, Zhang L, Goldenberg I. **Genotype-specific QT correction for heart rate and the risk of life-threatening cardiac events in adolescents with congenital long-QT syndrome.** *Heart rhythm : the official journal of the Heart Rhythm Society.* 2011; 8:1207-13.
15. Bassett AS, McDonald-McGinn DM, Devriendt K, Digilio MC, Goldenberg P, Habel A, Marino B, Oskarsdottir S, Philip N, Sullivan K, Swillen A, Vorstman J. **Practical guidelines for managing patients with 22q11.2 deletion syndrome.** *The Journal of pediatrics.* 2011; 159:332-9 e1.
16. Bedard JE, Haaning AM, Ware SM. **Identification of a novel ZIC3 isoform and mutation screening in patients with heterotaxy and congenital heart disease.** *PloS one.* 2011; 6:e23755.
17. Beebe DW, Miller N, Kirk S, Daniels SR, Amin R. **The association between obstructive sleep apnea and dietary choices among obese individuals during middle to late childhood.** *Sleep medicine.* 2011; 12:797-9.
18. Bennett BL, Mahabee-Gittens M, Chua MS, Hirsch R. **Elevated cardiac troponin I level in cases of thoracic nonaccidental trauma.** *Pediatric emergency care.* 2011; 27:941-4.
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- microemboli in two extracorporeal life support circuits.** *The Journal of extra-corporeal technology.* 2011; 43:123-9.
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Grants, Contracts, and Industry Agreements

Heart Institute

Grant and Contract Awards

Annual Direct

ACCORNERO, F

PGF Role in Regulating Cardiac Remodeling

American Heart Association

11POST7530035 07/01/11-06/30/13

\$43,000

ANDERSON, J

Nutritional Deficiencies in Infants with Single Ventricle

Thrasher Research Fund

10/01/10-09/30/12

\$12,500

BHUIYAN, S

Functional Significance and Regulation of cMyBP-C Binding to Actin

American Heart Association

11POST7590181 07/01/11-06/30/13

\$43,000

COLE, C

Myocardial Protection during Fetal Bypass: Role of Calcium Cycling

National Institutes of Health

F32 HL 103054 07/01/10-06/30/12

\$53,042

COOPER, D

Outcomes in Patients Requiring More Than a Single Course of ECMO Therapy

Extracorporeal Life Support Organization

04/01/12-03/31/13

\$5,000

CORRELL, R

Regulation of Cardiac Gene Expression by the L-type Calcium Channel, CaV1.2

National Institutes of Health

F32 HL 097551 09/07/09-01/06/12

\$18,989

CNOTA, J

Pediatric Heart Network Prairieland Consortium

National Institutes of Health

U01 HL 109673 09/01/11-06/30/16

\$367,500

GUPTA, M

Role of Myosin Binding Protein-C Phosphorylation in Cardiac Function

American Heart Association

11POST7590026 07/01/11-06/30/13

\$43,000

HOR, K

Early Treatment with Aldosterone Antagonism Attenuates Cardiomyopathy in Duchenne Muscular Dystrophy

Parent Project Muscular Dystrophy

06/01/12-05/31/14

\$29,811

Early Treatment with Aldosterone Antagonism Attenuates Cardiomyopathy in Duchenne Muscular Dystrophy - Supplement Funds

Ohio State University

06/01/12-05/31/14

\$10,000

HORN, M

Differential Twist1 Dimer Function and Gene Regulation in Valve Progenitor Cells

American Heart Association

11PRE7240023	07/01/11-06/30/13	\$23,000
IPPISCH, H		
Cardiovascular Effects of Dietary Fat and Exercise Challenges in Obese Children		
National Institutes of Health		
K23 HL 091174	09/01/08-07/31/13	\$126,135
KARCH, J		
The Role of Bax and Bak in Necrotic Cell Death		
American Heart Association		
	07/01/10-06/30/12	\$23,000
KHUCHUA, Z		
A Mouse Model of Barth Syndrome, a Mitochondrial Cardiolipin Disorder		
National Institutes of Health		
R01 HL 108867	07/07/11-03/31/15	\$250,000
KIMBALL, T		
Chronic Kidney Disease in Children		
National Institutes of Health(Children's Mercy Hospital)		
U01 DK 066143	08/01/08-07/31/13	\$55,222
KRISHNAMURTHY, V		
Aortic Root Structure-Function Relationships in a Mouse Model of Aortic Valve Disease and Aortopathy		
American Heart Association		
11PRE7210044	07/01/11-06/30/12	\$23,000
LATTIN, B		
Weight Management Program for Pre-school Children: A Feasibility Study for Group Treatment		
Aramark(Academy of Nutrition and Dietetics)		
	06/01/12-05/31/13	\$10,000
MARINO, B		
Do Biochemical, Hematopoietic, and Stool Biomarkers Predict Low Cardiac Index in Patients with Fontan Physiology		
Children's Heart Foundation		
	01/01/12-12/31/13	\$100,000
Understanding Mechanisms of Fontan Failure and Key Predictors for Patient Outcome		
National Institutes of Health(Georgia Tech Research Corp)		
R01 HL 098252	02/01/10-01/31/14	\$16,667
MCLENDON, P		
The Role of Impaired Protein Degradation Pathways in CryABR120G-Mediated Desmin-R		
National Institutes of Health		
F32 HL 112558	01/11/12-01/10/14	\$51,326
MICHELFELDER, E		
Hypoplastic Left Heart Syndrome: Expression of RHD in the Fetus?		
National Institutes of Health(Washington University)		
	05/15/11-12/31/14	\$33,848
MOLKENTIN, J		
Calcium as a Molecular Signal in the Heart		
National Institutes of Health(Temple University School of Medicine)		
R01 HL 089312	08/15/07-06/30/12	\$239,303
Cardiac Hypertrophic Intracellular Signaling Pathways		
National Institutes of Health		

R01 HL 062927	02/01/09-12/31/13	\$222,750
Molecular Pathways Controlling Cardiac Gene Expression		
National Institutes of Health		
R37 HL 060562	07/01/08-06/30/13	\$250,000
Mechanisms of TGF Regulated Fibrosis in Muscular Dystrophy: Project 3		
National Institutes of Health(The University of Chicago)		
P01 NS 072027	07/01/11-06/30/16	\$225,000
Thrombospondin 4 Regulates Adaptive ER Stress Response		
National Institutes of Health		
R01 HL 105924	01/01/11-12/31/11	\$315,000
Ca Signaling Domains Programming Cardiac Hypertrophy		
National Institutes of Health(University of California - Davis)		
2P01 HL 080101	08/01/11-05/31/16	\$274,517

RAJAN, S

Translational and Post-translational Regulation of Tropomyosin in Normal and Cardiomyopathic Hearts		
American Heart Association		
11SDG4980029	08/01/11-12/31/14	\$102,083

ROBBINS, J

Cardiac Myosin Binding Protein-C: Structure, Function and Regulation		
National Institutes of Health(University of Vermont)		
P01 HL 059408	02/01/10-01/31/15	\$349,278
Proteotoxicity: An Unappreciated Mechanism of Heart Disease		
Fondation Leducq		
	10/01/11-09/30/16	\$168,182
Signaling Processes Underlying Cardiovascular Function		
National Institutes of Health		
P01 HL 069779	01/11/08-12/31/12	\$1,219,260

SENGUPTA, A

FOXO Function in Cardiomyocytes During Development and Disease		
American Heart Association		
11POST7210026	07/01/11-06/30/13	\$43,000

SIEGEL, R

Collaborative Community Based Initiative to Improve the Health of Overweight and Obese Children in Cincinnati		
Anthem Blue Cross and Blue Shield Foundation, LLC(Wellpoint)		
	01/01/11-12/31/12	\$76,223

URBINA, E

Accelerated CV Aging in Youth Related to CV Risk Factor Clusters		
National Institutes of Health		
R01 HL 105591	01/01/11-12/31/15	\$379,410
Modifying Dietary Behavior in Adolescents with Elevated Blood Pressure		
National Institutes of Health(University of Cincinnati)		
R01 HL 088567	02/01/08-01/31/13	\$38,672

VAN BERLO, J

Functional Relevance and Extent of Endogenous Cardiac Regeneration by C-Kit Positive Stem Cells		
National Institutes of Health		
K99 HL 112852	06/04/12-06/03/17	\$121,660
GATA-6 Function is Crucial for Cardiac Hypertrophy to Prevent Heart Failure		
American Heart Association		
	07/01/10-06/30/12	\$45,000

WARE, S

Genetic causes of congenital heart defects

March of Dimes National	06/01/10-05/31/13	\$79,590
Role of the Embryonic Node in Cardiac Development and Congenital Heart Disease		
National Institutes of Health		
R01 HL 088639	04/01/07-03/31/12	\$250,000
Uncovering Novel Genetic Causes and Risk in Congenital Heart Disease Patients		
Burroughs Wellcome Foundation(University of Cincinnati)		
BWF #1008496	07/01/09-06/30/15	\$150,000

WAXMAN, J

Elucidation of Molecular Networks Required to Limit Cardiac Cell Number		
National Institutes of Health		
R00 HL 091126	07/15/10-05/31/13	\$162,745
Illumination of Mechanisms Controlling Atrial Cell Formation		
March of Dimes National		
	02/01/11-01/31/13	\$69,327

YUTZEY, K

Student Undergraduate Research Fellowship		
American Heart Association		
12UFEL9990000	02/01/12-01/31/14	\$20,000
Twist 1 Regulation of Valve Progenitors		
National Institutes of Health		
R01 HL 082716	07/01/10-05/31/15	\$250,000
Wnt Signaling in Heart Valve Development and Disease		
National Institutes of Health		
R01 HL 094319	04/15/12-02/28/16	\$250,000

Current Year Direct \$6,639,040**Industry Contracts****BEEKMAN**

JHU	\$2,229
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CHIN

Hoffman-LaRoche Inc	\$10,372
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HIRSCH

AGA Medical , LLC	\$22,372
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KRAWCZESKI

Asklepiion Pharmaceuticals, LLC	\$24,378
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Current Year Direct Receipts \$59,351**Total \$6,698,391****Cardiology****Grant and Contract Awards Annual Direct****ANDERSON, J**

Nutritional Deficiencies in Infants with Single Ventricle		
Thrasher Research Fund		
	10/01/10-09/30/12	\$12,500

CNOTA, J / KRAWCZESKI, C		
Pediatric Heart Network Prairieland Consortium		
National Institutes of Health		
U01 HL 109673	09/01/11-06/30/16	\$367,500
COOPER, D		
Outcomes in Patients Requiring More Than a Single Course of ECMO Therapy		
Extracorporeal Life Support Organization		
	04/01/12-03/31/13	\$5,000
HOR, K		
Early Treatment with Aldosterone Antagonism Attenuates Cardiomyopathy in Duchenne Muscular Dystrophy		
Parent Project Muscular Dystrophy		
	06/01/12-05/31/14	\$29,811
Early Treatment with Aldosterone Antagonism Attenuates Cardiomyopathy in Duchenne Muscular Dystrophy - Supplement Funds		
Ohio State University		
	06/01/12-05/31/14	\$10,000
IPPISCH, H		
Cardiovascular Effects of Dietary Fat and Exercise Challenges in Obese Children		
National Institutes of Health		
K23 HL 091174	09/01/08-07/31/13	\$126,135
KIMBALL, T		
Chronic Kidney Disease in Children		
National Institutes of Health(Children's Mercy Hospital)		
U01 DK 066143	08/01/08-07/31/13	\$55,222
LATTIN, B		
Weight Management Program for Pre-school Children: A Feasibility Study for Group Treatment		
Aramark(Academy of Nutrition and Dietetics)		
	06/01/12-05/31/13	\$10,000
MARINO, B		
Do Biochemical, Hematopoietic, and Stool Biomarkers Predict Low Cardiac Index in Patients with Fontan Physiology		
Children's Heart Foundation		
	01/01/12-12/31/13	\$100,000
Understanding Mechanisms of Fontan Failure and Key Predictors for Patient Outcome		
National Institutes of Health(Georgia Tech Research Corp)		
R01 HL 098252	02/01/10-01/31/14	\$16,667
MICHELFELDER, E		
Hypoplastic Left Heart Syndrome: Expression of RHD in the Fetus?		
National Institutes of Health(Washington University)		
	05/15/11-12/31/14	\$33,848
URBINA, E		
Accelerated CV Aging in Youth Related to CV Risk Factor Clusters		
National Institutes of Health		
R01 HL 105591	01/01/11-12/31/15	\$379,410
Modifying Dietary Behavior in Adolescents with Elevated Blood Pressure		
National Institutes of Health(University of Cincinnati)		
R01 HL 088567	02/01/08-01/31/13	\$38,672
Current Year Direct		\$1,184,765

Industry Contracts

BEEKMAN, R

JHU	\$2,229
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CHIN, C

Hoffman-LaRoche, Inc	\$10,372
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HIRSCH, R

AGA Medical, LLC	\$22,372
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KRAWCZESKI, C

Asklepiion Pharmaceuticals, LLC	\$24,378
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Current Year Direct Receipts	\$59,351
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Total	\$1,244,116
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Cardiothoracic Surgery

Grant and Contract Awards	Annual Direct
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COLE, C

Myocardial Protection during Fetal Bypass: Role of Calcium Cycling

National Institutes of Health

F32 HL 103054	07/01/10-06/30/12	\$53,042
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Current Year Direct	\$53,042
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Total	\$53,042
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Molecular Cardiovascular Biology

Grant and Contract Awards	Annual Direct
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ACCORNERO, F

PGF Role in Regulating Cardiac Remodeling

American Heart Association

11POST7530035	07/01/11-06/30/13	\$43,000
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BHUIYAN, S

Functional Significance and Regulation of cMyBP-C Binding to Actin

American Heart Association

11POST7590181	07/01/11-06/30/13	\$43,000
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CORRELL, R

Regulation of Cardiac Gene Expression by the L-type Calcium Channel, CaV1.2

National Institutes of Health

F32 HL 097551	09/07/09-01/06/12	\$18,989
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GUPTA, M

Role of Myosin Binding Protein-C Phosphorylation in Cardiac Function

American Heart Association

11POST7590026	07/01/11-06/30/13	\$43,000
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HORN, M

Differential Twist1 Dimer Function and Gene Regulation in Valve Progenitor Cells

American Heart Association		
11PRE7240023	07/01/11-06/30/13	\$23,000
KARCH, J		
The Role of Bax and Bak in Necrotic Cell Death		
American Heart Association		
	07/01/10-06/30/12	\$23,000
KHUCHUA, Z		
A Mouse Model of Barth Syndrome, a Mitochondrial Cardiolipin Disorder		
National Institutes of Health		
R01 HL 108867	07/07/11-03/31/15	\$250,000
KRISHNAMURTHY, V		
Aortic Root Structure-Function Relationships in a Mouse Model of Aortic Valve Disease and Aortopathy		
American Heart Association		
11PRE7210044	07/01/11-06/30/12	\$23,000
MCLENDON, P		
The Role of Impaired Protein Degradation Pathways in CryABR120G-Mediated Desmin-R		
National Institutes of Health		
F32 HL 112558	01/11/12-01/10/14	\$51,326
MOLKENTIN, J		
Calcium as a Molecular Signal in the Heart		
National Institutes of Health(Temple University School of Medicine)		
R01 HL 089312	08/15/07-06/30/12	\$239,303
Cardiac Hypertrophic Intracellular Signaling Pathways		
National Institutes of Health		
R01 HL 062927	02/01/09-12/31/13	\$222,750
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National Institutes of Health		
R37 HL 060562	07/01/08-06/30/13	\$250,000
Mechanisms of TGF Regulated Fibrosis in Muscular Dystrophy		
National Institutes of Health(The University of Chicago)		
P01 NS 072027	07/01/11-06/30/16	\$225,000
Thrombospondin 4 Regulates Adaptive ER Stress Response		
National Institutes of Health		
R01 HL 105924	01/01/11-12/31/11	\$315,000
Ca Signaling Domains Programming Cardiac Hypertrophy		
National Institutes of Health(The Regents of the University of California)		
PO1 HL 080101	08/01/11-05/31/16	\$271,987
RAJAN, S		
Translational and Post-Translational Regulation of Tropomyosin in Normal and Cardiomyopathic Hearts		
American Heart Association		
11SDG4980029	08/01/11-12/31/14	\$76,370
ROBBINS , J		
Cardiac Myosin Binding Protein-C: Structure, Function and Regulation		
National Institutes of Health(University of Vermont)		
P01 HL 059408	02/01/10-01/31/15	\$349,278
Proteotoxicity: An Unappreciated Mechanism of Heart Disease		
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	10/01/11-09/30/16	\$168,182
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P01 HL 069779	01/11/08-12/31/12	\$1,219,260
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American Heart Association		
11POST7210026	07/01/11-06/30/13	\$43,000
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	06/01/10-05/31/13	\$79,590
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R01 HL 088639	04/01/07-03/31/12	\$250,000
Uncovering Novel Genetic Causes and Risk in Congenital Heart Disease Patients		
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BWF #1008496	07/01/09-06/30/15	\$150,000
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Illumination of Mechanisms Controlling Atrial Cell Formation		
March of Dimes National		
	02/01/11-01/31/13	\$69,327
YUTZEY, K		
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American Heart Association		
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National Institutes of Health		
R01 HL 082716	07/01/10-05/31/15	\$250,000
Wnt Signaling in Heart Valve Development and Disease		
National Institutes of Health		
R01 HL 094319	04/15/12-02/28/16	\$250,000
Current Year Direct		\$5,296,767
Total		\$5,296,767