## CONTENTS

### ORIGINAL CONTRIBUTIONS

1. **Reactive Oxygen Metabolites Relax the Lamb Ductus Arteriosus by Stimulating Prostaglandin Production**  
   Ronald I. Clyman, Ola D. Saugstad, and Françoise Mauray

2. **Oxygen Consumption and Coronary Reactivity in Postischemic Myocardium**  
   David D. Laxson, David C. Homans, Xue-Zheng Dai, Eugene Sublett, and Robert J. Bache

3. **Patterns of Endothelial Microfilament Distribution in the Rabbit Aorta In Situ**  
   Don W. Kim, B. Lowell Langille, Michael K.K. Wong, and Avrum I. Gotlieb

4. **Characteristics of Flow-Mediated Brachial Artery Vasodilation in Human Subjects**  
   Lawrence I. Sinoway, Clifford V. ndrickson, William R. Davidson Jr., Steven Prophet, and Robert Zelis

5. **Impaired Canine Coronary Vasodilator Response to Acetylcholine and Bradykinin After Occlusion-Reperfusion**  

6. **Cardiovascular Effects of Neuropeptide Y in Rat Brainstem Nuclei**  
   Ching-Jiunn Tseng, Rogelio Mosqueda-Garcia, Martin Appalsamy, and David Robertson

7. **Lipoxygenase Products Induce Neutrophil Activation and Increase Endothelial Permeability After Thrombin-Induced Pulmonary Microembolism**  
   Marc B. Perlman, Arnold Johnson, William Jubiz, and Asrar B. Malik

8. **Load Responsiveness of Protein Synthesis in Adult Mammalian Myocardium: Role of Cardiac Deformation Linked to Sodium Influx**  
   Robert L. Kent, J. Kenneth Hoober, and George Cooper IV

   Karin Przyklenk and Robert A. Kloner

10. **Autoantibodies Against β-Adrenoceptors in Human Idiopathic Dilated Cardiomyopathy**  
    Constantinos J. Limas, Irvin F. Goldenberg, and Catherine Limas

11. **Inotropic Responses to Isoproterenol and Phosphodiesterase Inhibitors in Intact Guinea Pig Hearts: Comparison of Cyclic AMP Levels and Phosphorylation of Sarcoplasmic Reticulum and Myofibrillar Proteins**  
    Stephen T. Rapundalo, R. John Solaro, and Evangelia G. Kranias

12. **Arteriolar Control of Capillary Cell Flow in Striated Muscle**  
    Terrence E. Sweeney and Ingrid H. Sarelius

13. **Comparative Effects of Hypoxia and Ischemia in the Isolated, Blood-Perfused Dog Heart: Evaluation of Left Ventricular Diastolic Chamber Distensibility and Wall Thickness**  

14. **Lesion of the Area Postrema Region Attenuates Hypertension in Spontaneously Hypertensive Rats**  
    Michael L. Mangiapane, Kathleen M. Skoog, Peter Rittenhouse, Martha L. Blair, and Celia D. Sladek

15. **Vascular Responses to Vasopressin Are Tone-Dependent in the Cerebral Circulation of the Newborn Pig**  
    William M. Armstead, Robert Mirro, David W. Busija, and Charles W. Leffler

16. **ATP Regulation of the Slow Calcium Channels in Vascular Smooth Muscle Cells of Guinea Pig Mesenteric Artery**  
    Yusuke Ohya and Nicholas Sperelakis
Electrophysiological and Anatomic Differences Between Canine Hearts With Inducible Ventricular Tachycardia and Fibrillation Associated With Chronic Myocardial Infarction
A. Robert Denniss, David A. Richards, Judith A. Waywood, Teresa Yung, Chin A. Kam, David L. Ross, and John B. Uther

Brief Communications
Measurement of Lung Microvascular Pressure in the Intact Anesthetized Rabbit by the Micropuncture Technique
Sunita Bhattacharya, Matthew R. Glucksberg, and Jahar Bhattacharya

Differential Accumulation of Diacyl and Plasmalogenic Diglycerides During Myocardial Ischemia
David A. Ford and Richard W. Gross

News from the American Heart Association
CONTENTS

ORIGINAL CONTRIBUTIONS

Antibodies to the ADP/ATP Carrier, an Autoantigen in Myocarditis and Dilated Cardiomyopathy, Penetrate Into Myocardial Cells and Disturb Energy Metabolism In Vivo
Karsten Schulze, Bernhard F. Becker, and Heinz P. Schultheiss ........................................ 179

Regional Differences in the In Vivo Synthesis and Degradation of Myosin Subunits in Rabbit Ventricular Myocardium
Allen M. Samarel .......................................................... 193

Electrophysiological Properties of Cultured Dog Myocytes Obtained by Endomyocardial Biopsy
Sunao Sakai, Takayuki Tokimasa, Masatoshi Nohara, Yoshinori Koga, Takashi Akasu, and Hironori Toshima .................................................. 203

Vagally Induced Block and Delayed Conduction as a Mechanism for Circus Movement Tachycardia in Frog Atria
Leonid V. Rosenshtraukh, Alexey V. Zaitsev, Vladimir G. Fast, Arcady M. Pertsov, and Valentin I. Krinsky .................................................. 213

Pharmacokinetics and Distribution of Heparin-Binding Growth Factor I (Endothelial Cell Growth Factor) in the Rat
Todd K. Rosengart, John P. Kuperschmid, Thomas Maciag, and Richard E. Clark .................. 227

Anti-Inflammatory Actions of Emprofylline, a Modified Xanthine, in the Canine Forelimb
David E. Dobbins, Connie Y. Soika, Molly J. Buehn, and Joe M. Dabney .................................. 235

Effect of Reduced Energy Metabolism and Reperfusion on the Permeability and Morphology of the Capillaries of an Isolated Rete Mirabile
Eugenio A. Rasio, Moise Bendayan, and Carl A. Goresky .................................................. 243

Long-term Versus Intrabeat History of Ejection As Determinants of Canine Ventricular End-Systolic Pressure
Seiryo Sugiuara, William C. Hunter, and Kiichi Sagawa .................................................. 255

End-Systolic Pressure As a Balance Between Opposing Effects of Ejection
William C. Hunter .......................................................... 265

Effects of Calcium Channel Antagonists on Carotid Sinus Baroreflex Control of Arterial Pressure and Heart Rate in Anesthetized Dogs
Dean F. Rigel and Ronald W. Millard .................................................. 276

Duration of Ischemia Is Vital for Collateral Development: Repeated Brief Coronary Artery Occlusions in Conscious Dogs
Masahiro Mohri, Hitonobu Tomaiko, Mitsuru Noma, Takeshi Inoue, Katsushi Hisano, and Motoo Rikamura .................................................. 287

Anti-Cholinergic Effects of Quinidine, Disopyramide, and Procainamide in Isolated Atrial Myocytes: Mediation by Different Molecular Mechanisms
Toshiaki Nakajima, Yoshide Suzuki, Hiroyuki Ito, Reiko Takikawa, and Tsuneaki Sugimoto ........ 297

Lipid Alterations in Isolated, Working Rat Hearts During Ischemia and Reperfusion: Its Relation to Myocardial Damage
Marc van Bilsen, Ger J. van der Vusse, Peter H.M. Willemsen, Will A. Coumans, Theo H.M. Roemen, and Robert S. Reneman .................................. 304

Basic Polyamino Acids Rich in Arginine, Lysine, or Ornithine Cause Both Enhancement of and Refractoriness to Formation of Endothelium-Derived Nitric Oxide in Pulmonary Artery and Venu
Louis J. Ignarro, Michele E. Gold, Georgette M. Buga, Russell E. Byrns, Keith S. Wood, Gautam Chaudhuri, and Gerard Frank .................................. 315

Importance of Venodilatation in Prevention of Left Ventricular Dilatation After Chronic Large Myocardial Infarction in Rats: A Comparison of Captopril and Hydralazine
Thomas E. Raya, Richard G. Gay, Maria Aguirre, and Steven Goldman .................................. 330

Voltage- and Use-Dependent Modulation of Cardiac Calcium Channels by the Dihydropyridine (+)-202-791
Timothy J. Kamp, Michael C. Sanguinetti, and Richard J. Miller ........................................ 338
Calmodulin Modulation of Single Sarcoplasmic Reticulum Ca\textsuperscript{2+}-Release Channels From Cardiac and Skeletal Muscle
Jeffrey S. Smith, Eric Rousseau, and Gerhard Meissner ............................................ 352

Mechanisms of Differential Growth of Heart Ventricles in Newborn Pigs
Christopher J. Peterson, Victor Whitman, Peter A. Watson, H. Gregg Schuler, and Howard E. Morgan .................................................. 360

Role of Renal Nerves in the Potentiation of Atriopeptin-Induced Natriuresis by Vasopressin
Dale A. Hartupee, Angelo J. Trapani, John P. Koepke, and Edward H. Blaine .................. 370

Heterogeneous Microvascular Coronary \(\alpha\)-Adrenergic Vasoconstriction
William M. Chilian, Susan M. Layne, Charles L. Eastham, and Melvin L. Marcus ............ 376

Late Sodium Current and Its Contribution to Action Potential Configuration in Guinea Pig Ventricular Myocytes
Tatsuto Kiyosue and Makoto Arita .......................................................... 389

Higher Antioxidative Capacity During a Chronic Stable Heart Hypertrophy
Madhu Gupta and Pawan K. Singal .......................................................... 398

BRIEF COMMUNICATION
Collagen-Stimulated Human Platelet Aggregation Is Mediated by Endogenous Calcium-Activated Neutral Protease
Teruhiko Toyo-oka, Wee Soo Shin, Yoko Okai, Yoshiyuki Dan, Minoru Morita, Masahiko Iizuka and Tsuneaki Sugimoto ......................... 407

ACKNOWLEDGMENT TO REVIEWERS ......................................................... 411
NEWS FROM THE AMERICAN HEART ASSOCIATION ........................................ A415
CONTENTS

ORIGINAL CONTRIBUTIONS

Polyamines Mediate Androgenic Stimulation of Calcium Fluxes and Membrane Transport in Rat Heart Myocytes
Harold Koenig, Chien-Chung Fan, Alfred D. Goldstone, Chung Y. Lu, and Jerome J. Trout ... 415

Real-Time and Simultaneous Measurement of Tricuspid Orifice and Tricuspid Anulus Areas in Anesthetized Dogs
Kouichi Tamiya, Masafumi Higashidate, and Sho Kikkawa .............................................. 427

Protection Against Autonomic Denervation Following Acute Myocardial Infarction by Preconditioning Ischemia
Toshihisa Miyazaki and Douglas P. Zipes ........................................................................... 437

Estimating Cardiac Transmembrane Activation and Recovery Times From Unipolar and Bipolar Extracellular Electrograms: A Simulation Study
Bruce M. Steinhaus ........................................................................................................ 449

Effects of Melittin on Endothelium-Dependent Relaxation and Cyclic GMP Levels in Rat Aorta
Robert M. Rapoport, Muhammad Ashraf, and Ferid Murad ............................................... 463

Identification of α1-Adrenergic Receptors on Sarcolemma From Normal Subjects and Patients With Idiopathic Dilated Cardiomyopathy: Characteristics and Linkage to GTP-Binding Protein
Tarcisio Vago, Maurizio Bevilacqua, Guido Norbiato, Gabriella Baldi, E. Chebat, Pierluigi Bertora, Giorgio Baroldi, and Roberto Accinelli ......................................................... 474

Pressor Hormones Regulate Atrial-Stretch-Induced Release of Atrial Natriuretic Peptide in the Pithed Rat
Heikki Ruskoaho, Olli Vakkuri, Olli Arjamaa, Olli Vuolteenaho, and Juhani Leppaluoto ...... 482

Differentiation of Adult Rat Cardiac Myocytes in Cell Culture
Lawrence B. Bugaisky and Radovan Zak ........................................................................... 493

Cardiac Gap Junctions and Gap Junction-Associated Vesicles: Ultrastructural Comparison of In Situ Negative Staining With Conventional Positive Staining
Li Chen, Gwendolyn E. Goings, Judy Upshaw-Earley, and Ernest Page ................................ 501

Role of Vagusympathetic Fibers in the Control of Adrenocorticotrophic Hormone, Vasopressin, and Renin Responses to Hemorrhage in Fetal Sheep
Charles E. Wood, Hong-Gen Chen, and M. Elizabeth Bell .................................................. 515

Renin-Angiotensin II Response to the Hemodynamic Pathology of Ovines With Ventricular Septal Defect
Mark M. Boucek, Richard Chang, and David P. Synhorst .................................................... 524

Effect of Oxygen Withdrawal on Active and Passive Electrical Properties of Arterially Perfused Rabbit Ventricular Muscle
Christoph B. Rieger, Gabriel Alperovich, and André G. Kliber .......................................... 532

Contraction Modulates the Capacity for Protein Synthesis During Growth of Neonatal Heart Cells in Culture
Paul J. McDermott and Howard E. Morgan ..................................................................... 542

Cardiac Sympathetic Afferent Cell Bodies Are Located in the Peripheral Nervous System of the Cat
Zeljko J. Bosnjak and John P. Kambine ........................................................................... 554

Distribution and Three-Dimensional Structure of Intercellular Junctions in Canine Myocardium
Robert H. Hoyt, Mark L. Cohen, and Jeffrey E. Saffitz ....................................................... 563

Role of Thromboxane A2 in the Control of Myocardial O2 Supply/Consumption Balance and Severity of Ischemia During Pacing-Induced Ischemia
Gary J. Grover and Charles S. Parham ............................................................................. 575

Simultaneous Measurements of Action Potential Duration and Intracellular ATP in Isolated Ferret Hearts Exposed to Cyanide
A.C. Elliott, G.L. Smith, and D.G. Allen ............................................................................. 583
Stimulation of Renal Sympathetic Activity by Static Contraction: Evidence for Mechanoreceptor-Induced Reflexes From Skeletal Muscle
Ronald G. Victor, Diane M. Rotto, Susan L. Pryor, and Marc P. Kaufman 592

Alan Chu, Adrienne Stakely, Chang-Chyi Lin, and Frederick R. Cobb 600

Molecular Basis of Complement Activation in Ischemic Myocardium: Identification of Specific Molecules of Mitochondrial Origin That Bind Human C1q and Fix Complement
Akihiro Kagiyama, Howard E. Savage, Lloyd H. Michael, Gretchen Hanson, Mark L. Entman, and Roger D. Rossen 607

Significance of the Transmural Diminution in Regional Hydrogen Ion Production After Repeated Coronary Artery Occlusions

LETTER TO THE EDITOR

Left Ventricular Time Varying Elastance Behavior Does Not Reflect a Basic Property of Cardiac Muscle
G. Elzinga, F. Mast, N. Westerhof
RESPONSE BY: George Cooper, IV 629

NEWS FROM THE AMERICAN HEART ASSOCIATION A9
CONTENTS

ORIGINAL CONTRIBUTIONS

Two Components of Transient Outward Current in Canine Ventricular Myocytes
Gea-Ny Tseng and Brian F. Hoffman .............................................. 633

Mechanisms of Automaticity in Subsidiary Pacemakers From Cat Right Atrium
Donald S. Rubenstein and Stephen L. Lipsius .................................... 648

Role of Molecular Charge in Disruption of the Blood-Brain Barrier During Acute Hypertension
William G. Mayhan, Frank M. Faraci, Jon L. Siems, and Donald D. Heistad ....... 658

Effect of Superoxide Dismutase on Myocardial Infarct Size in the Canine Heart After 6 Hours of Regional Ischemia and Reperfusion: A Demonstration of Myocardial Salvage
Liguo Chi, Yasuo Tamura, Paul T. Hoff, Mahender Macha, Kim P. Gallagher, M. Anthony Schork, and Benedict R. Lucchesi ......... 665

The pH of Spontaneously Beating Cultured Rat Heart Cells Is Regulated by an ATP-Calmodulin-Dependent Na⁺/H⁺ Antport
Peter L. Weissberg, Peter J. Little, Edward J. Cragoe Jr., and Alex Bobik .............................................. 676

Differential Control of Adrenal and Renal Sympathetic Nerve Activity During Hemorrhagic Hypotension in Rats
Ronald G. Victor, Peter Thorén, Donald A. Morgan, and Allyn L. Mark ........ 686

High-Salt Diet Elevates Baroreceptor Pressure Thresholds in Normal and Dahl Rats
Michael C. Andresen .............................................................. 695

Circulatory Assistance by Intrathoracic Pressure Variations: Optimization and Mechanisms Studied by a Mathematical Model in Relation to Experimental Data
Rafael Beyar, Henry R. Halperin, Joshua E. Tsitlik, Alan D. Guerci, David Kass, Myron L. Weisfeldt, and Nisha C. Chandra ......... 703

Regional Left Ventricular Epicardial Deformation in the Passive Dog Heart
Andrew D. McCulloch, Bruce H. Smaill, and Peter J. Hunter ...................... 712

Longitudinal Propagation of Contraction in the Isolated Conduit Coronary Arteries of Humans and Pigs
Haruo Araki, Naritsugu Sakaino, Nobuyuki Furasho, and Katsuhide Nishi .......... 734

Hypoxia-Induced Acute Changes in Capillary and Fiber Density and Capillary Red Cell Distribution in the Rat Heart
Friedrich Vetterlein, Hartmut Hemeling, Jürgen Sammler, Atila Pethö, and Gerhard Schmidt ......... 742

Calcium Current Is Increased in Isolated Adult Myocytes From Hypertrophied Rat Myocardium
Edmund C. Keung .............................................................. 753

Time-Invariant Oxygen Cost of Mechanical Energy in Dog Left Ventricle: Consistency and Inconsistency of Time-Varying Elastance Model With Myocardial Energetics
Yoshio Yasumura, Takashi Nozawa, Shio Futaki, Nobuaki Tanaka, and Hiroyuki Suga ......... 764

High Molecular Weight Proteins Purified From Cardiac Junctional Sarcoplasmic Reticulum Vesicles Are Ryanodine-Sensitive Calcium Channels
David P. Rardon, Dominic C. Cefali, Robert D. Mitchell, Steven M. Seiler, and Larry R. Jones ...... 779

Pressure-Dependent Contraction of Rat Juxtaglomerular Afferent Arterioles
Carlos F. Sanchez-Ferrer, Richard J. Roman, and David R. Harder .......... 790

Chronotropic Stimulation: A Primary Effector for Release of Atrial Natriuretic Factor
Glenda E. Bilder, Peter K. S. Siegl, Timothy L. Schofield, and Paul A. Friedman .......... 799

Stimulation of Aortic Smooth Muscle Prostacyclin by Serotonin: Role of Distinct Receptors in Contractile and Synthetic States
Dominique Demolle, Anne Van Coevorden, and Jean-Marie Boeynaems .......... 806

SC-39026, a Serine Elastase Inhibitor, Prevents Muscularization of Peripheral Arteries, Suggesting a Mechanism of Monocrotaline-Induced Pulmonary Hypertension in Rats
Roma Ilkiv, Livia Todorovich-Hunter, Kazuo Maruyama, John Shin, and Marlene Rabinovitch ......... 814

NEWS FROM THE AMERICAN HEART ASSOCIATION .................................................. A826
Circulation Research

Subscription Rates

Annual subscriptions accepted at any time. Subscription rates for Japan and Europe are available through respective exclusive agents. All orders for Japan must be sent to Nankodo Co., Ltd., 42-6 Hongo 3-chome, Bunkyo-ku, Tokyo 113, Japan. All orders for Europe must be sent to Harcourt Brace Jovanovich Ltd., Foots Cray High Street, Sidcup, Kent, DA14 5HP England.

Individuals may subscribe to Circulation Research for their personal use at the following rates: $109.00 in the United States; $143.00 outside the United States, Japan, or Europe. Interns, residents, medical students, and research fellows (United States, Canada, or Mexico only) are eligible for a reduced rate if payment is accompanied by a letter from the department head verifying post held and completion date. Special reduced rates are $54.50 in the United States, $71.50 in Canada and Mexico. Subscriptions for libraries, reading rooms, and other multiple-use institutions are available at special rates; contact the AHA for details. Remittances for subscriptions outside Japan and Europe must be made by check, draft, post office or express money order in U.S. dollars drawn on a U.S. bank payable to the American Heart Association with Circulation Research on the face of the check. Payment can also be made by VISA or MasterCard if account number, expiration date, and name as it appears on the card are furnished. Issues will be mailed after payment is received. Prices are subject to change without notice. Single copy rates are available on request.

Harry A. Fozzard, MD, Box 440, Room M603, University of Chicago Hospitals, 5841 South Maryland, Chicago, IL 60637.

Publishing Director, American Heart Association, 7320 Greenville Avenue, Dallas, TX 75231.

Second class postage paid at Dallas, Texas, and additional mailing offices. POSTMASTER: Send address changes to Circulation Research, American Heart Association, 7320 Greenville Avenue, Dallas, TX 75231.

The Customer Service Manager should be advised of change of address 30 days before date of issue. Provide both old and new addresses.


Advertising copy must be approved by a special committee of the American Heart Association. Advertising forms close 45 days before the first day of publication month. Advertising rates and page sizes are available on request.

Information about manuscripts for Circulation Research, including format, submission, review, and editing, appear in the first number of each volume (January and July).

The author bears the cost of color in illustrations, as well as the cost of any reprints.

Copyright 1989, American Heart Association
7320 Greenville Avenue, Dallas, TX 75231
CONTENTS

BRIEF REVIEW

Determinants of Left Ventricular Filling and of the Diastolic Pressure-Volume Relation
John C. Gilbert and Stanton A. Glantz ......................................................... 827

ORIGINAL CONTRIBUTIONS

Digital Angiographic Impulse Response Analysis of Regional Myocardial Perfusion: Linearity,
Reproducibility, Accuracy, and Comparison With Conventional Indicator Dilution Curve Parame-
ters in Phantom and Canine Models
Neal L. Eigler, J. Martin Pfaff, Andreas Zeiher, James S. Whiting, and James S. Forrester .... 853

On the Mechanism of Drug-Induced Blockade of Na⁺ Currents: Interaction of Antiarrhythmic
Compounds With DPI-Modified Single Cardiac Na⁺ Channels
M. Kohlhardt, H. Fichtner, U. Fröbe, and J.W. Herzig ........................................ 867

Neuropeptide Y as a Putative Modulator of the Vagal Effects on Heart Rate
Margaret R. Warner and Matthew N. Levy .................................................. 882

Mechanisms Underlying Atriopetin-Induced Increases in Hematocrit and Vascular Permeation in Rats
Joseph R. Williamson, Sandra W. Holmberg, Katherine Chang, Joyce Marvel, Salvatore P.
Sutera, and Philip Needleman ................................................................. 890

Impaired Endothelium-Dependent Relaxation to Aggregating Platelets and Related Vasoactive Sub-
stances in Porcine Coronary Arteries in Hypercholesterolemia and Atherosclerosis
Hiroaki Shimokawa and Paul M. Vanhoutte ................................................... 900

Relation Between Longitudinal, Circumferential, and Oblique Shortening and Torsional Deforma-
tion in the Left Ventricle of the Transplanted Human Heart
Alderman, and D. Craig Miller .................................................................... 915

Mechanism of Calcium Channel Block by D600 in Single Smooth Muscle Cells From Rabbit Ear Artery
S. Hering, T.B. Bolton, D.J. Beech, and S.P. Lim ............................................. 928

Nonsynchronous Accumulation of α-Skeletal Actin and β-Myosin Heavy Chain mRNAs During Early
Stages of Pressure-Overload–Induced Cardiac Hypertrophy Demonstrated by In Situ Hybridization
Rappaport, and K. Schwartz ..................................................................... 937

Effects of Malnutrition on Rat Myocardial β-Adrenergic and Muscarinic Receptors
Lennart Ransnäs, Christier Drott, Kent Lundholm, Åke Hjalmarson, and Bo Jacobsson .... 949

Role of LDL Receptors in the In Vitro Uptake and Degradation of LDL in the Media of Rabbit
Thoracic Aorta
Patrick A. Curmi, Guy Renaud, Lucienne Juan, Brigitte Chiron, and Alain Tedgui .......... 957

Response of Myocardial Metabolites to Graded Regional Ischemia: 31P NMR Spectroscopy of Porcine
Myocardium In Vivo
Saul Schaefer, S. Albert Camacho, Joel Gober, Richard G. Obregon, Michael A. DeGroot, Elias
H. Botvinick, Barry Massie, and Michael W. Weiner ....................................... 968

Early Afterdepolarizations: Mechanism of Induction and Block. A Role for L-Type Ca²⁺ Current
Craig T. January and Janet M. Riddle .......................................................... 977

Cerebral and Peripheral Circulatory Responses to Intracranial Hypertension in Fetal Sheep
Andrew P. Harris, Raymond C. Koehler, Christine A. Gleason, M. Douglas Jones Jr., and
Richard J. Traysman ................................................................................ 991

Subcellular Calcium Content in Cardiomyopathic Hamster Hearts In Vivo: An Electron Probe Study
Meredith Bond, Abdul-Rahman Jaraki, Candis H. Disch, and Bernadine P. Healy ........... 1001

Role of Prostaglandins in Proximal Tubule Sodium Reabsorption: Response to Elevated Renal
Interstitial Hydrostatic Pressure
Yoshikazu Kinoshita and Franklyn G. Knox ................................................. 1013

Downloaded from http://circres.ahajournals.org/ by guest on October 19, 2017
CONTENTS

ORIGINAL CONTRIBUTIONS

Fibrillar Collagen and Myocardial Stiffness in the Intact Hypertrophied Rat Left Ventricle

Chronotropic Responsiveness of Developing Sinoatrial and Ventricular Rat Myocytes to Autonomic Agonists Following Adrenergic and Cholinergic Innervation In Vitro
Dianne L. Atkins and William J. Marvin, Jr ................................................................................. 1051

Inhibition of Na-K Pump Current in Guinea Pig Ventricular Myocytes by Dihydroouabain Occurs at High- and Low-Affinity Sites
David J. Mogul, Helge H. Rasmussen, Donald H. Singer, and Robert E. Ten Eick ...................... 1063

Release of Different Relaxing Factors by Cultured Porcine Endothelial Cells
C. Boulanger, H. Hendrickson, R.R. Lorenz, and P.M. Vanhoutte ........................................... 1070

Load Regulation of the Properties of Adult Feline Cardiocytes: Growth Induction by Cellular Deformation
Douglas L. Mann, Robert L. Kent, and George Cooper IV ......................................................... 1079

Aortic Impedance and Hydraulic Power in the Chick Embryo From Stages 18 to 29
Kenneth G. Zahka, Norman Hu, Kenneth P. Brin, Frank C.P. Yin, and Edward B. Clark ............... 1091

β-Adrenergic Receptor Distribution Among Muscle Fiber Types and Resistance Arterioles of White, Red, and Intermediate Skeletal Muscle
Wade H. Martin III, Sidney S. Murphree, and Jeffrey E. Saffitz ............................................... 1096

ATPase Activity of the Cross-linked Complex Between Cardiac Myosin Subfragment I and Actin in Several Models of Chronic Overloading: A New Approach to the Biochemistry of Contractility
Bemward Lauer, Nguyen Van Thiem, and Bernard Swynghedauw ........................................... 1106

Consequences of Regional Inotropic Stimulation of Ischemic Myocardium on Regional Myocardial Blood Flow and Function In Anesthetized Swine
Rainer Schulz, Shunichi Miyazaki, Mark Miller, Erik Thaulow, Gerd Heusch, John Ross Jr., and Brian D. Guth ................................................................. 1116

Vascular Remodeling and Improvement of Coronary Reserve After Hydralazine Treatment in Spontaneously Hypertensive Rats
Peter G. Anderson, Sanford P. Bishop, and Stanley B. Digerness ........................................... 1127

Right Ventricular Concentric Hypertrophy and Left Ventricular Dilatation by Ductal Constriction in Fetal Rats
Kazuo Momma and Atsuyoshi Takao .......................................................................................... 1137

Transendothelial Transport and Metabolism of Adenosine and Inosine in the Intact Rat Aorta
Keith Kroll, Malte K.M. Kelm, K.-F. Bürrig, and Jürgen Schrader ........................................... 1147

Low Ca++ Reperfusion and Enhanced Susceptibility of the Postischemic Heart to the Calcium Paradox
J. Hans Kerkels, Tom J.C. Ruigrok, Cees J.A. Van Echteld, and Frits L. Meijler ......................... 1158

Reflex Modulation of Lymphatic Pumping in Sheep
N.G. McHale and T.H. Adair ....................................................................................................... 1165

Improved Safety Factor for Triphasic Defibrillator Waveforms
Janice L. Jones and Ronald E. Jones ........................................................................................... 1172

Thromboxane A, Mediates Increased Pulmonary Microvascular Permeability Following Limb Ischemia
Joseph M. Klausner, Ian S. Paterson, Gideon Goldman, Lester Kobezk, C. Robert Valeri, David Shepro, and Herbert B. Hechtman .......................................... 1178

A New Protocol for Removal of the Endothelium From the Perfused Rat Hind-Limb Preparation
Vera Ralevic, Frantisek Kristek, Olga Hudlicka, and Geoffrey Burnstock ................................... 1190

Angiotensin Converting Enzyme inhibition and the Upper Limit of Cerebral Blood Flow Autoregulation: Effect of Sympathetic Stimulation
Beneficial Effect of Chronic Bradycardial Pacing on Capillary Growth and Heart Performance in Volume Overload Heart Hypertrophy
Andrew J.A. Wright, Olga Hudlicka, and Margaret D. Brown ................................. 1205

Macromolecular Transport Within Heart Valves
Ronald G. Tompkins, Jay J. Schnitzer, and Martin L. Yarmush ................................. 1213

BRIEF COMMUNICATION

Angiotensin II Causes Formation of Platelet Activating Factor in Cultured Rat Mesangial Cells
R. Neuwirth, J.A. Satriano, S. DeCandido, K. Clay, and D. Schlondorff ........................ 1224

NEWS FROM THE AMERICAN HEART ASSOCIATION ........................................... A1230