CURRICULUM VITAE

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I. General Information:

Name: Mukesh K. Jain MD FAHA
Ellery Sedgwick Chair & Distinguished Scientist
Professor of Medicine
Founding Director, Case Cardiovascular Research Institute
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Place of Birth: Ambala City, Punjab, India; USA citizen

Education:

1987	BS	*summa cum laude,* University of Buffalo
1991	MD	University of Buffalo School of Medicine

Postdoctoral Training:

Internship and Residency

1991–1992	Medical Intern Beth Israel Hospital, Boston
1992–1994	Medical Resident, Beth Israel Hospital, Boston
1994	Chief Resident, Brockton/West Roxbury Veterans Administration Medical Center

Clinical and Research Fellowships

1994–1997	Research Fellow, Harvard School of Public Health, Boston (Mentor: Edgar Haber MD)

1996–1997	Research Fellow, Brigham and Women's Hospital, Boston (Mentor: Mu-En Lee MD PhD)
1997–1999	Clinical Fellow, Cardiovascular Division, Brigham &Women's Hospital, Harvard Medical School, Boston

Licensure and Certification:

1994	Diplomate, American Board of Internal Medicine
1994- present	Massachusetts Board of Registration in Medicine
2002-present	Diplomate, Cardiovascular Disease
2006-present	Ohio Board of Registration in Medicine

Academic Appointment:

1998–1999	Research Associate, Harvard School of Public Health, Boston.
2000-2004	Instructor in Medicine, Harvard Medical School, Boston.
2004-2006	Assistant Professor, Harvard Medical School, Boston.
2004- 2006	Director, Program in Cardiovascular Transcriptional Biology, Brigham and Women's Hospital, Harvard Medical School, Boston.
2006-present	Ellery Sedgwick Jr. Chair and Distinguished Scientist, Case Western Reserve University & University Hospitals of Cleveland, Case Medical Center, Cleveland, Ohio.
2006-present	Founding Director, Case Cardiovascular Research Institute, Case Western Reserve University, Cleveland, Ohio.
2006-present	Professor of Medicine with tenure, Case Western Reserve University

Hospital Appointments:

2000-2006	Associate Physician, Brigham and Women's Hospital, Boston, MA.
2006-present	Staff Physician, University Hospitals of Cleveland, Cleveland, Ohio.
2006-present	Associate Chief of Research, University Hospitals of Cleveland, Case Medical Center, Cleveland, Ohio.
2007-presnt	Chief Research Officer, Heart & Vascular Institute, Case Medical Center, Cleveland, Ohio.

Major Committee Assignments:

2000-2005	Cardiovascular Fellowship Selection Committee, Brigham and Women's Hospital
2002-2005	Clinical Cardiology Executive Committee, Brigham and Women's Hospital
2003- 2006	Named Fellowship Selection Committee, Brigham and Women's Hospital
2002-2006	Member of FLAMES committee, Brigham and Women's Hospital
2003-2005	Chair, Faculty Recruitment Search Committee, Brigham and Women's Hospital
2006-	Chair, Faculty Recruitment Search Committee, Case Cardiovascular

	Research Institute, Case Western Reserve University
2007-	Research Committee CWRU School of Medicine
2008 -	Scientific Advisory Board, International Society of Thrombosis & Hemostasis
2008-	Dean's Research Advisory Board, Case Research Institute
2008-	Dept. of Medicine Committee on Appointments, Promotions, and Tenure

Professional Societies:

1995-	American Heart Association, member
1997-	The Massachusetts Medical Society, member
1997-present	American Association for the Advancement of Science, member
1997-present	American Heart Association, Basic Science Council, member
2002-present	American Society for Biochemistry and Molecular Biology, member

Community Service Related to Professional Work:

2002-	Abstract Reviewer American Heart Association
2003-	Ad hoc Grant Reviewer, American Heart Association, Northeast Affiliate
2005-present	Ad hoc Grant Reviewer, NHLBI VCMB study section
2005	Wellcome Trust , UK
2007	Permanent member NHLBI, VCMB study section

Editorial Boards:

2002-	Ad hoc Reviewer, *The Journal of Biological Chemistry*
2003-	Ad hoc Reviewer, *Circulation, Oncogene*
2003-	Ad hoc Reviewer, *Molecular and Cellular Biology, Circulation Research*
2004-	Ad hoc Reviewer, *Arteriosclerosis, Thrombosis and Vascular Biology*
2005-	Ad Hoc Reviewer, *Nature, Nature Cell Biology, Nature Medicine, Nature Reviews Microbiology, Blood*
2006-2008	Editorial Board, *Journal of Molecular and Cellular Cardiology*
2006 -	Guest Editor, *Circulation Research* series on Transcriptional Biology
2007-	Ad Hoc Reviewer, *Journal of Clinical Investigation, Journal of Experimental Medicine, American Journal of Pathology, Gene*
2006-	Editorial Board, *Arteriosclerosis, Thrombosis and Vascular Biology*
2007-	Editorial Board, *Circulation Research*
2007-	Ad hoc reviewer *Nature Immunology*
2008-	Consulting Editor, *Journal of Clinical Investigation*

Awards and Honors: (* by election)

1983-1987	University Presidential Honors Scholar
1987	Graduated Summa Cum Laude, University of Buffalo

1990	Alpha Omega Alpha Medical Honor Society
1991	Graduated Summa Cum Laude, University of Buffalo School of Medicine
1995	Young Investigator Award, Vascular Biology Meeting
1997	Bristol Meyers Squibb Award, American Heart Association
2001	Junior Faculty Award, AstraZeneca Pharmaceuticals New England Cardiovascular Research Competition
2005	Elected, American Society Clinical Investigation (ASCI)*
2005	Elected, Fellow of the American Heart Association*
2005-2006	Harvard Medical School Faculty Mentoring Award*
2006	Ellery Sedgwick Chair and Distinguished Scientist, Case Western Reserve University
2007	Study Section Standing Member, Vascular Cell & Molecular Biology(VCMB), NHLBI

II. Research, Teaching, and Clinical Contributions

(A) Report of Research Activities:

(1) Narrative of Research:

My laboratory's main interest is to understand transcriptional mechanisms governing cellular growth and differentiation focusing on cell types relevant to cardiovascular biology. Specifically, we have been focused on a family of factors termed Kruppel –like factors and their roles in endothelial, smooth muscle, macrophage, and cardiac biology. Approaches to the study of these transcriptional regulators range from in vitro to in vivo using gene-targeting approaches in mice. Key aspects of our research efforts are as follows.

(a) Endothelial Biology - The vascular endothelium comprises a dynamic mutable interface that acts as an integrator and transducer of diverse physiologic and pathologic stimuli. Key functions of the endothelium include control of vascular tone and blood flow, modulation of coagulation and thrombosis, and regulation of leukocyte adhesion and diapedesis. Dysfunction of the endothelium as seen in various pro-inflammatory disease conditions such as atherosclerosis is characterized by altered vasoreactivity, enhanced recruitment of mononuclear leukocytes, and alterations in hemostatic/fibrinolytic balance resulting in a pro-thrombotic state. As such, identification of mechanism(s) that can ameliorate endothelial dysfunction is of considerable interest.

We have identified the factor KLF2 as a molecular switch regulating key aspects of endothelial cell biology. KLF2 expression in endothelial cells is induced by laminar flow and inhibited by pro-inflammatory cytokines. Overexpression of KLF2 induces laminar flow induced targets such as endothelial nitric oxide synthase and thrombomodulin – two key factors that confer anti-adhesive, anti-thrombotic properties to the endothelium. In addition, KLF2 inhibits the cytokine-mediated induction of proadhesive (e.g. VCAM-1), pro-thrombotic (tissue factor), and pro-vasoconstrictive factors (endothelin-1). These effects are due principally to KLF2 ability to inhibit the key pro-inflammatory factor NF-kB.

(b) Cardiac and vascular smooth muscle cell biology – Vascular smooth muscle cells (SMC) are a critical cellular constituent of the blood vessel wall. The primary functions of SMCs is to regulate vessel tone by contraction and relaxation. The SMC is also capable of a multitude of other functions that vary at different developmental stages, during vessel repair, and in vascular disease states. In response to injury to the blood vessel wall, SMC undergo a dramatic change in phenotype—from that of a quiescent/differentiated cell to one that dedifferentiates, proliferates, migrates and elaborates extracellular matrix (ECM). These features contribute to the development of occlusive vascular disease states such as atherosclerosis, restenosis, and transplant arteriopathy.

We have identified KLF15 as a novel factor expressed in both the smooth muscle cells (SMC) and cardiomyocytes (see below). KLF15 expression is induced with cellular quiescence and reduced treatment with PDGF-□, AngII, and other pro-proliferative stimuli. In vivo, KLF15 levels are reduced following injury to the blood vessel wall. Overexpression of KLF15 inhibits SMC proliferation in vitro. To gain insights into the role of KLF15 in vivo, we have generated KLF15 null mice. KLF15-null mice are viable but, in response to injury, exhibit enhanced neointima formation and cellular proliferation. Thus, KFL15 is an essential regulator of the SMCs cells to injury.

KLF15 is also expressed in cardiomyocytes. Myocardial expression of KLF15 is reduced in rodent models of hypertrophy as well as biopsy samples from patients with aortic stenosis. Overexpression of KLF15 in neonatal rat ventricular cardiomyocytes inhibits cell size, protein synthesis, and hypertrophic gene expression. KLF15-null mice are viable but, in response to pressure overload, develop an eccentric form of pathologic hypertrophic remodeling characterized by increased heart weight and hypertrophic gene expression, cavity dilatation with increased myocyte size, and reduced left ventricular systolic function. Mechanistically, a combination of promoter analyses, gel-shift/chromatin immunoprecipitation assays, and GST pull-down/co-immunoprecipitation studies suggest that KLF15 can inhibit GATA4 function. These studies identify KLF15 as part of a heretofore unrecognized pathway regulating the cardiac response to hypertrophic stimuli.

(c) Immune cell biology — The infiltration and accumulation of monocytes/macrophages is a characteristic feature seen in a number of chronic inflammatory disease states including atherosclerosis. Indeed, previous experimental observations have identified macrophages in every phase of the atherosclerotic lesion development – from the earliest lesion termed the fatty streak to the mature and obstructive plaque. As such, identification of the molecular mechanisms regulating pro-inflammatory macrophage activation is of considerable scientific and therapeutic interest.

We have identified two members of the Kruppel-like family that have opposing effects on macrophage activation. KLF4 is expressed in macrophages and levels are induced with pro-inflammatory stimuli. Overexpression of KLF4 in monocytic cell lines induces expression of pro-inflammatory factors such as iNOS, enhances monocytic adhesion to an endothelial monolayer, and increases phagocytic capacity. Conversely, KLF2 expression is reduced following activation of monocytes with cytokines. Overxpression of KLF2 inhibits the expression of pro-inflammatory factors and reduces phagocytic function. Consistent with these observation, KLF4 expression is enhanced in the monocytes of patients with atherosclerosis

while KLF2 levels are reduced. Taken together, these data identify KLF2 and KLF4 as critical regulators of monocytic activation.

(2) Funding:
(a) Past:

7/98–1/03	National Institutes of Health PI (K08) Role of SmLIM in vascular smooth muscle cells.
7/00-6/02	American Heart Association Local Grant-in-Aid PI Smad3 in macrophage biology
1/02-12/04	American Heart National Grant-in-Aid PI KLF15 as a regulator of smooth muscle cell growth and Differentiation
1/03-12/05	American Diabetes Association Junior Faculty Award PI KLF15 as a regulator of GLUT4
9/01-9/06	National Institute of Health RO1 HL69477 PI Smad3 as an inhibitor of atherogenesis

(b) Current:

1/04-12/2008	National Institute of Health RO1 HL072952 PI Jain KLF15, TGFb1 and smooth muscle cell biology
4/04-3/2009	National Institute of Health RO1 HL075427 PI Jain KLF4, monocyte biology, and vascular injury
8/04-7/2013	National Institute of Health 2RO1 HL076754 PI Jain KLF2 as a regulator of endothelial cell biology (renewal received 7.3%)
1/05-12/2008	Alliance for Cancer Gene Therapy PI Jain KLF2 as a novel inhibitor of angiogenesis
4/05-7/2010	National Institute of Health P01 HL48743 PI Jain project 2 (overall PI-T. Michel) Role of KLF2 in diabetic vascular disease
7/07-3/2011	National Institute of Health RO1 HL HL084154 PI Jain KLF15 as a novel regulator of cardiomyocyte biology
7/07-6/2012	National Institute of Health RO1 HL086548 PI Jain KLF2, monocyte biology, and vascular inflammation

(B) Report of Teaching:

(1) Clinical Setting:

(a) Brigham and Women's Hospital/Harvard Medical School:

2000-2006 Clinical Cardiology Service and Cardiac Surgery Service Attending
Oversee and teach 1 medical student; 2-3 interns; 1 resident; 1 cardiology fellow 6-8 weeks/year

2000-2006 Attending Preceptor – Cardiology Fellow Clinic
Oversee 3-5 cardiology fellows
Once/month

2003-2006 Preceptor – Introduction to Clinical Medicine; two medical students per semester; meet bi-weekly for 2 hour sessions.

(b) University Hospitals of Cleveland/Case Western Reserve University:

2006- Clinical Cardiology Service

(2) Research setting:

8/2001-2006 Brigham and Women's Hospital, Boston; PI of cardiovascular biology laboratory comprised of 6 post-doctoral fellows, 1 technician, 1 Harvard undergraduate Honors Thesis Student Daily contact hours (>2400/year)

8/2006- PI of cardiovascular research laboratory and Director of Case Cardiovascular Institute

(a) Past and Current Trainees:

1) Predoctoral

1995–96	Kenji Fujita, AB	Harvard Medical School
2001-	Sarah C. Hull *(Honors Thesis)*	Harvard University

2) Post-doctoral

1998-2000	Frank Werner, MD	Physician, University of Munich, Gemany
2000-2002	Masafumi Watanabe MD	Physician and Research Associate, University

		of Tokyo, Japan
1999-	Mark W. Feinberg, MD	Assistant Professor of Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston (K08 grant recipient 2001-2006; Jain-mentor). Currently independent investigator with R01.
2000-	Susan J. Gray PhD	Instructor in Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston; (K01 grant recipient 2003-2007; Jain-mentor). Currently independent investigator submitting a revised R01.
2001-2006	Sucharita Banerjee PhD	Instructor, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston.
2001-2003	Ana Depinha PhD	Post-doctoral Fellow, National Institute of Health, Boston.
2001-2002	Richard Haspel MD PhD	Clinical Fellow, Department of Pathology, Brigham and Women's Hospital, Boston
2002-	Zhiyong Lin PhD	Assistant Professor, Case Western Reserve University, Cleveland (AHA post-doc grant 2004-2006; Jain-mentor). Currently supported by and independent AHA SGD.
2002-2006	Sudeshna Fisch PhD	Post-doctoral Fellow, Brigham and Women's Hospital, Boston (NRSA recipient 2004-2007; Jain-mentor)
2002-	G. B. Atkins MD PhD	Assistant Professor, Case Western Reserve University, Cleveland (K-grant recipient; Jain – mentor 2007-2012)
2002-2004	Maria Lebedeva	Graduate School, Yale University
2003-2006	Ajay Kumar PhD	Assistant Professor, University of Pittsburgh (NRSA recipient 2004-2007; Jain-mentor)
2003-2007	Baiqui Wang PhD	Instructor, Case Western Reserve University, Cleveland
2003-	Hiranmoy Das PhD	Assistant Professor, Case Western Reserve

		University, Cleveland (K01 2008-2013; Jain-mentor)
2004-	Anne Hamik MD PhD	Assistant Professor, Case Western Reserve University, Cleveland (K08 grant recipient 2007-2012; Jain-mentor)
2005-	Saptarsi Haldar MD	Assistant Professor, Case Western Reserve University, Cleveland (K08 grant recipient 2007-2012; Jain-mentor)
2006-	Yuan Lu PhD	Research Associate, Case Western Reserve University, Cleveland
2006-	Fehmida Kapadia PhD	Research Associate, Case Western Reserve University, Cleveland (AHA post-doc grant 2007-2009; Jain-mentor)
2006-	Daiji Kawanami MD PhD	Research Associate, Case Western Reserve University, Cleveland (AHA post-doc grant 2007-2009; Jain-mentor)
2006-	Osama Ibrahim MD	Research Fellow, Case Western Reserve University, Cleveland
2006-	Jon Russell BS	Medical Student, Case Western School of Medicine
2006-	Fei Dong BS	Medical Student, Case Western School of Medicine
2007-	Nikunj Sharma PhD	Research Associate, Case Western Reserve University, Cleveland
2007-	Yogen Kanthi MD	Medical Resident, University Hospitals, Case Medical Center
2007-	Hong Shi MD PhD	Research Associate, Case Western Reserve University, Cleveland
2007-	Darwin Jeyaraj MD	Research Fellow, Metrohealth Medical Center, Cleveland (K-grant submitted; Jain mentor)
2007-	Viswanath Natesan MD	Research Associate, Case Western Reserve University, Cleveland
2007-	Ejike Anih B.S.	Research Assistant, Case Western Reserve University, Cleveland
2008-	Ganapathi Mahabelwas PhD	Research Associate, Case Western Reserve

University, Cleveland

(b) Regional, National, or international contributions:

5/96 Cardiovascular Grand Rounds, Beth Israel Deaconess Medical Center, Boston MA.

8/97 Cardiovascular Research Seminar, Brigham and Women's Hospital, Boston MA

7/00 Cardiovascular Research Symposium, Brigham and Women's Hospital, Boston, MA.

4/02 Cardiovascular Research Seminar, University of Virginia, VA.

4/02 Cardiovascular Research Seminar, University of Pennsylvania, PA.

7/02 Cardiovascular Research Seminar. Stanford University, CA.

12/02 Tupper Research Seminar Series. New England Medical Center, MA.

1/03 Gordon Vascular Cell Biology Research Conference, Ventura, CA.

9/03 Cardiovascular Research Seminar. Massachusetts General Hospital, Boston.

3/04 Immunobiology Research Seminar Series, NIH, Bethesda, MD.

3/04 Cardiology Grand Rounds, Vanderbilt University, Nashville, TN.

6/04 Whittaker Research Foundation, Boston University Medical Center, Boston
11/04 Endocrine Research Rounds, University of Indiana, Indianapolis.

1/05 Cardiovascular Research Rounds, Baylor College of Medicine, Houston, TX.

1/05 Research Rounds, University of Texas Health Sciences Center, San Antonio, TX.

2/05 Vascular Biology Seminar Series, Children's Hospital, Boston, MA.

4/05 Research Seminar, Cleveland Clinic Foundation, Cleveland, Ohio.

8/05 Invited Speaker, FASEB Glucose Transporter Meeting.

8/05 Keynote Address, Blood and Vessel Orbis Meeting, University of Tokyo, Japan.

8/05 Distinguished Lecturer, University of Tokyo, Japan.

8/05 Distinguished Speaker, NEMC Annual Retreat, Woods Hole, MA.

10/05 Cardiology Grand Rounds, Weill Medical College of Cornell University.

12/05 Research Grand Rounds, Albany Medical College.

1/06 Cardiology Grand Rounds, Massachusetts General Hospital, MA.

2/06 Research Grand Rounds, Temple University.

3/06 Invited Speaker, Special Session on Transcriptional Biology for the Clinician at the annual American College of Cardiology Meeting 2006.

4/06 Research Seminar, University of Texas, Galveston.

4/06 Research Seminar, St. Elizabeth's Medical Center, Boston, MA.

6/06 Invited Speaker, International Society for Heart Research, Toronto

6/06 Keynote Speaker, Tokyo Bay Conference, Tokyo, Japan

7/06 Speaker, Research Seminar, Case Physiology Retreat

11/06 Invited Speaker, Blood Club Seminar, CWRU

11/06 Cardiology Grand Rounds, MetroHealth, Cleveland

1/07 Invited Speaker, Dept of Biochemistry, CWRU

2/07 Invited Speaker, University of Toronto, Ontario, Canada

4/07 Invited Speaker, Case Western Reserve University, Pharmacology Department

4/07 Invited Speaker, New Faculty Seminar, Case Western Reserve University

5/07 Invited Speaker, Cardiovascular Grand Rounds Cardiovascular Division, Case Western Reserve University

6/07 Invited Speaker, Department of Physiology & Biophysics, Case Western Reserve University

9/07 Distinguished Speaker, Rammelkamp Center Annual Retreat, MetroHealth Center, Cleveland, Ohio

3/08 Invited Speaker, International KLF Symposium, U. of Tokyo, Japan

3/08 Invited Speaker, RIKEN Center for Developmental Biology, Kobe, Japan

4/08 Invited Speaker, Experimental Biology Meeting 2008; San Diego CA.

4/08 Invited Speaker, ATVB Annual Meeting 2008; Atlanta Gerogia.

C. Report of Clinical Activities:

(a) Clinical responsibilities.

As an Attending cardiologist, considerable effort is dedicated to the teaching of Cardiology Fellows, medical interns/residents, and medical Students. From 2003-2005 I have served as a Preceptor for HMS Introduction to Clinical Medicine Course. Finally, I served on the Clinical Cardiology Executive Committee which oversees many aspects of Cardiovascular Division's clinical activities. This Committee examines all aspects of clinical activities and is particularly focused on developing novel strategies to improve patient care.

Currently, I attend on the General Cardiology Service and Cardiology Consult Service at the University Hospitals of Cleveland (6-8 weeks/year). My responsibilities include teaching of cardiology fellows, medical interns and residents, and medical students. In addition, my clinical responsibilities include serving as ECG reader, serving on the Clinical Cardiology Executive Committee, and Clinical Cardiology Fellowship Committee. I also serve on the Case Research Advisory Board that provides feedback to the Dean of the SOM on all research activities.

(b) Description of Clinical Practice

2000-	Attending Physician, General Cardiology Service
2000-	Consult Attending, Cardiac Surgery Service
2000-	Preceptor, Cardiology Fellow's Clinic
2000-	Attending ECG reader
2003-	Preceptor, Introduction to Clinical Medicine course for Harvard Medical Students
2004-	Preceptor, Introduction to Clinical Medicine course for Harvard Medical Students
2006-	Attending Physician, General Cardiology Service, CWRU

(c) Patient Load

The General Cardiology Service and Cardiac Consult Services include management of complex patients with coronary artery disease, congestive heart failure, valvular heart disease, myocardial/pericardial diseases, aortic pathology, and peripheral vascular disease. At any given time the service consists of 10-15 patients.

III. Bibliography:

Original Reports:

1. Jain RK, **Jain MK**, Bachenheimer L, Visner M, Tracy C, Gillis RA. Factors determining whether cocaine will potentiate the cardiac effects of neurally released norepinephrine. *J Pharmacol Exp Therap* 1990; 252:147-153.

2. Rossiter C, Norman W, **Jain MK**, Hornby P, Benjamin S, Gillis RA. Control of lower esophageal sphincter and intragastric pressures by two sites in the dorsal motor nucleus of the vagus in cats. *Am J Physiol* 1991; 259:G899-906.

3. **Jain MK**, Dai HB, Carrozza J, Sellke F, Morgan K. Intrinsic tone as potential vascular reserve in conductance and resistance vessels. *Circulation* 1996; 94:1083-1088.

4. **Jain MK**, He Q, Lee W-S, Kashiki S, Foster LC, Tsai J-C, Lee M-E, Haber E. Role of CD44 in the reaction of vascular smooth muscle cells to arterial wall injury. *J Clin Invest* 1996; 97:596-603.

5. Tsai J-C, **Jain MK**, Hsieh C-M, Lee W-S, Yoshizumi M, Patterson C, Perrella MA, Cooke C, Wang H, Haber E, Schlegel R, Lee M-E. Induction of apoptosis by pyrrolidinedithiocarbamate and *N*-acetylcysteine in vascular smooth muscle cells. *J Biol Chem* 1996; 271:3667-3670.

6. **Jain MK**, Fujita KP, Hsieh C-M, Endege WO, Sibinga NES, Yet S-F, Kashiki S, Lee W-S, Perrella MA, Haber E, Lee M-E. Molecular cloning and characterization of SmLIM, a developmentally regulated LIM protein preferentially expressed in aortic smooth muscle cells. *J Biol Chem* 1996; 271:10194-10199.

7. Hsieh C-M, Yoshizumi M, Endege WO, Kho C-J, **Jain MK**, Kashiki S, de los Santos R, Lee W-S, Perrella MA, Lee M-E. *APEG-1*, a novel gene preferentially expressed in aortic smooth muscle cells, is down-regulated by vascular injury. *J Biol Chem* 1996; 271:17354-17359.

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9. Kho C-J, Huggins GS, Endege WO, Patterson C, **Jain MK**, Lee M-E, Haber E. The polymyositis-scleroderma autoantigen interacts with the helix-loop-helix proteins E12 and E47. *J Biol Chem* 1997; 272:13426-13431.

10. Yet SF, McA'Nulty MM, Folta SC, Yen H-W, Yoshizumi M, Hsieh C-M, Layne MD, Chin MT, Wang H, Perrella MA, **Jain MK**, Lee M-E. Human EZF, a Krüppel-like zinc finger protein, is expressed in vascular endothelial cells and contains transcriptional activation and repression domains. *J Biol Chem*.1998;273:1026-1031.

11. **Jain MK**, Layne MD, Watanabe M, Chin MT, Feinberg MW, Hsieh C-M, Sibinga NES, Yet S-F, Stemple D, Lee M-E. In vitro system for differentiating pluripotent neural crest cells into smooth muscle cells. *J. Biol. Chem.*1998;273:5993-5996.

12. Yet S-F, Folta SC, **Jain MK**, Hsieh C-M, Maemura K, Layne MD, Zhang D, Marria PB, Yoshizumi M, Chin MT, Perrella MA, Lee M-E. Molecular cloning, characterization, and promoter analysis of the mouse CRP2/SmLIM gene: preferential expression of its promoter in the vascular smooth muscle cells of transgenic mice. *J. Biol. Chem.*1998; 273:10530-10537.

13. Layne MD, Endege WO, **Jain MK**, Yet S-F, Hsieh C-M, Perrella MA, Blanar MA, Haber E, Lee M-E. ACLP, a novel protein with discoidin and carboxypeptidase-like domains, is upregulated during vascular smooth muscle cell differentiation. *J. Biol. Chem.* 1998; 273:15654-15660.

14. Chin MT, Pellacani A, Wang H, Lin S, **Jain MK**, Perrella MA, Lee M-E. Enhancement of serum-response factor-dependent transcription and DNA binding by the architectural factor HMG-I(Y). *J. Biol. Chem.* 1998; 273:9755-9760.

15. **Jain MK***, Lee WS, Arkonac BM, Zhang D, Shaw S-Y, Kashiki S, Maemura K, Lee S-L, Hollenberg NK, Lee M-E, Haber E. Thy-1, a novel marker for angiogenesis upregulated by inflammatory cytokines. *Circulation Research . 1998;* 82(8):845-851. * co-first author.

16. **Jain MK**, Kashiki S, Hsieh C-M, Layne MD, Yet S-F, Sibinga NES, Chin MT, Feinberg MW, Woo I, Maas RL, Haber E, Lee M-E. CRP2/SmLIM is an early marker for the developing cardiovascular system. *Circulation Research 1998. 83:908-985.*

17. Maemura K, **Jain MK**, Decarie LA, Liu Y, Kourembanas S, Milstone DS, Yet S-F, Lee S-L, Perrella MA, Haber E, Lee M-E. Activation of the KDR/flk-1 promoter by endothelial PAS protein 1. *Journal of Biological Chemistry; 1999 ;274(44):31565-31570.*

18. Chin MT, Pellacani A, Hsieh CM, **Jain MK**, Perrella MA, Lee ME. Upregulation of the architectural factor HMG-I(Y) after injury to the blood vessel wall. *Journal of Molecular and Cellular Cardiology1999; 31:2199-2205.*

19. Chin MT, Maemura K, Fukumoto S, **Jain MK**, Layne MD, Watanabe M, Hsieh CM, Lee ME. Cardiovascular basic helix-loop-helix factor 1, a novel transcriptional repressor expressed preferentially in the developing and adult cardiovascular system*. Journal of Biological Chemistry 2000;275(9):6381-6387.*

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21. Werner F, **Jain MK***, Feinberg MW, Sibinga NES, Pellacani A, Weisel P, Perrella MA, Topper J, Lee ME. TGF-b1 inhibition of macrophage activation is mediated via Smad 3. *Journal of Biological Chemistry 2000; 275(47):36653-36658.* *corresponding author.

22. Sun J, Kamei CN, Layne MD, **Jain MK**, Liao JK, Lee ME, Chin MT. Regulation of myogenic differentiation by the Hairy-related Transcription Factor CHF2. *Journal of Biological Chemistry 2001; 276(21):18591-18596.*

23. Sibinga NES, Feinberg MW, Yang H, Werner F, **Jain MK**. Macrophage restricted and interferon inducible expression of the allograft inflammatory factor-1 gene is mediated through Pu.1. *Journal of Biological Chemistry 2002; 277(18):16202-10*.

24. Watanabe M, Layne M, Gray S, Lee ME, **Jain MK**. Regulation of smooth muscle cell differentiation by AT-rich interacting domain transcription factor Mrf2a and Mrf2b. *Circulation Research 2002; 91(5):382-9.*

25. Gray S, Feinberg MW, Hull S, Kuo CT, Watanabe M, SenBanerjee S, **Jain MK**. The Kruppel-like Factor KLF15 regulates the insulin-sensitive glucose transporter GLUT4. *Journal of Biological Chemistry 2002; 277(37):34322-8.*

26. Sen-Banerjee S, Feinberg MW, Watanabe M, Gray S, Haspel R, Denkinger DK, Kawahara R, Hauner H, **Jain MK**. The Kruppel-like Factor KLF2 inhibits PPARg and adipogenesis. *Journal of Biological Chemistry 2003; 278(4):2581-4.*

27. Feinberg MW, Shimizu K, Lebedeva M, Haspel R, Takayama K, Chen Z, Frederick JP, Wang XF, Simon DI, Libby P, Mitchell RN, **Jain MK**. An essential role for Smad3 in regulating MCP-1 expression and vascular inflammation. *Circulation Research 2004; 94(5): 601-608.*

28. Feinberg MW, Watanabe M, Lebedeva MA, Depina AS, Hanai J, Mammoto T, Frederick JP, Wang XF, Sukhatme VP, **Jain MK**. Transforming growth factor beta-1 inhibition of vascular smooth muscle cell activation is mediated via Smad3. *Journal of Biological Chemistry 2004: 279(16): 16388-16393.*

29. SenBanerjee S, Lin Z, Atkins GB, Grief DM, Rao RM, Kumar A, Feinberg MW, Chen Z, Simon DI, Luscinskas FW, Michel TM, Gimbrone MA, Garcia-Cardena G, **Jain MK**. KLF2 is a novel transcriptional regulator of endothelial proinflammatory activation. *Journal of Experimental Medicine 2004: 199(10):1305-1315.*

30. Otteson DC, Liu Y, Lai H, Wang CW, Gray S, **Jain MK**, Zack DJ. KLF15, a zinc-finger transcriptional regulator, is a repressor of the rhodopsin and interphotoreceptor retinoid binding protein promoters. *Invest. Opthhal & Visual Science*, 2004; 45(8):2522-30.

31. Shi C, Zhang, X, Chen Z, Sulaiman K, Feinberg MW, Ballantyne CM, **Jain MK**, Simon DI. Integrin Engagement Regulates Monocyte Differentiation through the Forkhead Transcription Factor Foxp1. *Journal of Clinical Investigation* 2004;114(3):408-18.

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