

## Sunjay Kaushal, Ph.D., M.D.

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### Education:

<b>M. D.</b>	Johns Hopkins School of Medicine Baltimore, Maryland	September 1989-May 1997
<b>Ph.D.</b>	Harvard University Graduate School of Arts and Sciences Cambridge, Massachusetts Major Field of Study –Medical Sciences	September 1992-May 1995
<b>B. Sc.</b>	University of Rochester Rochester, New York Major Field of Study-- Biochemistry	September 1985-May 1989

### Honors:

<b>Residency</b>	Gott Cardiac Surgery Resident Award 2002 Zuidema Resident Research Award 2003 Sarnoff Fellow 2001-2002	
<b>Graduate</b>	Howard Hughes Medical Research Training Fellowship Sarnoff Fellowship for Medical Students	1992 1991-1992

### Positions and Employment:

1997-2004	Internship–Residency, General Surgery, Johns Hopkins Hospital, Baltimore, MD
2004-2006	Residency, Cardiothoracic Surgery, Johns Hopkins Hospital, Baltimore, MD
2005	Fellowship-Pediatric Cardiac Surgery, Great Ormond Street Hospital, London, England

- 2006-2007 Fellowship-Pediatric Cardiovascular Surgery, CS Mott Children's Hospital, Ann Arbor, MI
- 2007- Attending Surgeon, Cardiovascular-Thoracic Surgery, Children's Memorial Hospital, Chicago, IL
- 2007- Assistant Professor of Surgery, Northwestern University Feinberg School of Medicine, Chicago, IL

**Professional Memberships & Honors:**

- 1989 Phi Beta Kappa, Magna Cum Laude
- 1989 Dean's Summer Research Fellowship
- 1991-1992 Sarnoff Fellowship for Medical Students
- 1992 Howard Hughes Medical Research Training Fellowship
- 1997 Rank in Upper Third of Class
- 2001-2002 Sarnoff Fellow
- 2002 Gott Cardiac Surgery Resident Award
- 2003 Zuidema Resident Research Award

**Licensure:** M.D. –State of Maryland (Issued 2004)-894838  
M.D. –State of Michigan (Issued 2005)-4301086979  
M.D. –State of Illinois (Issued 2007)-036-119157

**Certification:** American Board of Surgery-March 16, 2004 (No.49086)  
American Board of Thoracic Surgery-June 1, 2007 (No. 7315)

**Military Service:** None

**Faculty**

**Appointments:** Assistant Professor, Department of Surgery  
Northwestern University Feinberg School of Medicine, Chicago, Illinois

**Administrative**

**Appointments:** Director, Cardiac ECMO Program  
Children's Memorial Hospital

**Professional**

**Organizations:** American Heart Association  
Midwest Pediatric Cardiology Society  
Society of Thoracic Surgeons  
Southern Thoracic Surgical Association  
Old Hands – Johns Hopkins Surgical Association

**Inventions:** Tissue-engineering vascular structures using endothelial cell progenitors.  
**US Serial No:60/244,277 (2000)**



**Publications:**

1. Doshi P, Kaushal S, Benyajati C, Wu CI: Molecular analysis of the responder satellite DNA in *Drosophila melanogaster*: DNA bending, nucleosome structure, and Rsp-binding proteins. *Mol Biol Evol* 1991;8(5):721-741.
2. Gu W, Schneider JW, Condorelli G, Kaushal S, Mahdavi V, Nadal-Ginard B: Interaction of myogenic factors and the retinoblastoma protein mediates muscle cell commitment and differentiation. *Cell* 1993;72:309-324.
3. Kaushal S, Schneider JW, Nadal-Ginard B, Mahdavi V: Activation of the myogenic lineage by MEF2A, a factor that induces and cooperates with MyoD. *Science* 1994;266:1236-1240.
4. Gong X, Kaushal S, Ceccarelli E, Bogdanova N, Neville C, Nguyen T, Clark H, Khatib ZA, Valentine M, Look AT, Rosenthal N: Developmental regulation of Zbu1, a DNA binding member of the SWI2/SNF2 family. *Dev Biol* 1997;183(2):166-182.
5. Lillemoe KD, Martin SA, Cameron JL, Yeo CJ, Talamani MA, Kaushal S, Coleman J, Venbrux AC, Savader SJ, Osterman FA, Pitt HA: Major bile duct injuries during laparoscopic cholecystectomy. Follow-up after combined surgical and radiologic management. *Ann Surg* 1997;225 (5):459-468.
6. Lillemoe KD, Kaushal S, Cameron JL, Sohn TA, Pitt HA, Yeo CJ: Distal pancreatectomy: indications and outcomes in 235 patients. *Ann Surg* 1999;229:693-698.
7. Hoerstrup SP, Sodian R, Daebritz S, Wang J, Bacha EA, Martin DP, Moran AM, Guleserian KJ, Sperling JS, Kaushal S, Vacanti JP, Schoen FJ, Mayer JE Jr: Functional living trileaflet heart valves grown in vitro. *Circulation* 2000;102(19 Suppl 3):III-44-III-49.
8. Sohn TA, Yeo CJ, Cameron JL, Koniaris L, Kaushal S, Abrams RA, Sauter PK, Coleman J, Hruban RH, Lillemoe KD: Resected adenocarcinoma of the pancreas-616 patients: results, outcomes, and prognostic indicators. *J Gastrointest Surg* 2000;4:567-79.
9. Kaushal S, Amiel GE, Guleserian KJ, Shapira OM, Perry T, Sutherland FW, Rabkin E, Moran AM, Schoen FJ, Atala A, Soker S, Bischoff J, Mayer JE Jr: Functional small-diameter neovessels created using endothelial progenitor cells expanded ex vivo. *Nat Med* 2001;7:1035-1040.
10. Paranya G, Vineberg S, Dvorin E, Kaushal S, Roth SJ, Rabkin E, Schoen FJ, Bischoff J: Aortic valve endothelial cells undergo transforming growth factor-beta-mediated and non-transforming growth factor-beta-mediated transdifferentiation in vitro. *Am J Pathol* 2001;159:1335-1343.

11. Perry TE, Kaushal S, Nasserri B, Sutherland FW, Wang J, Guleserian K, Bischoff J, Vacanti JP, Sacks M, Mayer JE Jr: Peripheral blood as a cell source for tissue engineering heart valves. *Surgical Forum* 2001;52:99-101.
12. Sutherland FW, Perry TE, Nasserri BA, Wang J, Kaushal S, Guleserian KJ, Martin DP, Vacanti JP, Mayer JE Jr: Advances in the mechanisms of cell delivery to cardiovascular scaffolds: comparison of two rotating cell culture systems. *ASAIO J* 2002;48:346-349.
13. Johnson EN, Lee YM, Sander TL, Rabkin E, Schoen FJ, Kaushal S, Bischoff J: NFATc1 mediates vascular endothelial growth factor-induced proliferation of human pulmonary valve endothelial cells. *J Biol Chem* 2003;278:1686-1692.
14. Perry TE, Kaushal S, Sutherland FW, Guleserian KJ, Bischoff J, Sacks M, Mayer JE Jr: Thoracic Surgery Directors Association Award. Bone marrow as a cell source for tissue engineering heart valves. *Ann Thorac Surg* 2003;75:761-767.
15. Dvorin EL, Wylie-Sears J, Kaushal S, Martin DP, Bischoff J: Quantitative evaluation of endothelial progenitors and cardiac valve endothelial cells: proliferation and differentiation on poly-glycolic acid/ poly-4-hydroxybutyrate scaffold in response to vascular endothelial growth factor and transforming growth factor beta 1. *Tissue Eng* 2003;9(3):487-493.
16. Kaushal S, Shake JG, Yuh DD: Mycotic innominate artery pseudoaneurysm presenting as an embolic stroke. *J Thorac Cardiovasc Surg* 2005;129: 945-946.
17. Tsang V, Kaushal S: Coarctation aortoplasty: repair for coarctation and arch hypoplasia with resection and extended end-to-end anastomosis. *Oper Tech Thorac Cardiovasc Surg* 2005; 10(3):200-208.
18. Amiel GE, Komura M, Shapira O, Yoo JJ, Yazdani S, Berry J, Kaushal S, Bischoff J, Atala A, Soker S: Engineering of blood vessels from acellular collagen matrices coated with human endothelial cells. *Tissue Eng* 2006;12(8):2355-2365.
19. Mavroudis C, Backer CL, Kaushal S. Aortic stenosis and aortic insufficiency in children: impact of valvuloplasty and modified Ross-Konno procedure. *Semin Thorac Cardiovasc Surg Pediatr Card Surg Annu* 2009: 76-86.
20. Backer CL, Kelle AM, Mavroudis C, Rigsby CK, Kaushal S, Holinger LD. Tracheal reconstruction in children with unilateral lung agenesis or severe hypoplasia. *Ann Thorac Surg* 2009;88:624-30.
21. Kaushal S, Backer CL, Patel JN, Patel S, Walker BL, Weigel TJ, Randolph G, Wax D, Mavroudis C. Coarctation of the aorta: midterm outcomes of resection with extended end-to-end anastomosis. *Ann Thorac Surg* 2009;88:1932-1938.
22. Backer CL, Kaushal S, Mavroudis C. Modified single patch technique for repairing atrioventricular septal defect: How I do it. *Ann Pediatr Cardiol* 2008 (In Press).

23. Kaushal S, Bouchard CP, Wold LE. Myocardial oxygenation is critical for improving regeneration capacity. [editorial] *Am J Physiol Heart Circ Physiol* 2009;296: (In Press).
24. Vijayan K, Colletti E, Harrington DA, Goh SK, Backer CL, Kaushal S. Characterization of human cardiac progenitor populations derived from young congenital heart patients. *Circulation*; 2009. In preparation
25. Kelle AM, Young L, Kaushal S, Duffy E, Anderson RH, Backer CL. The Gerbode defect: the significance of a left ventricular to right atrial shunt. *Cardiol Young* 2009; 19(Suppl. 2):96-99.
26. Kaushal S, Jacobs JP, Gossett JG, Steele A, Steele P, Davis CR, Pahl E, Vijayan K, Asante-Korang A, Boucek R, Backer CL, Wold LE. Innovation in basic science: stem cells and their role in the treatment of paediatric cardiac failure - Opportunities and challenges. *Cardiol Young*; 2009 (Suppl 2):74-84.
27. Kaushal S, Rigsby C, Edirmanasinghe D. Subclavian pseudoaneurysm after a modified Blalock-taussig shunt placement. *New England Journal of Medicine*. Submitted
28. Kaushal S, Backer CL, Patel S, Gossett JG, Mavroudis C. Mid-term outcomes in supra-avalvular aortic stenosis demonstrate the superiority of multi-sinus aortoplasty. *Ann Thorac Surg*. Submitted.
29. Kaushal S, Patel S, Sood A, Walker BL, Backer CL. The utility of a bioresorbable polymeric film and expanded polytetrafluoroethylene to prevent pericardial adhesions and provide a protective barrier after cardiac surgery. *Ann Thorac Surg*, In preparation.
30. Sharma S, Zampino M, Walker BL, Patel J, Young L, Fernandez R, Kaushal S. Celastrol protects against doxorubicin induced cardiac injury. *Nat Med*. In preparation.

### Book Chapters:

1. Schneider JW, Kaushal S, Gu W, Tam S, Wang J, Mahdavi N, Nadal-Ginard B: Retinoblastoma pocket proteins and the terminally differentiated state in muscle cells. In: Clark EB, Markwald RR, Takao A (eds): *Developmental Mechanisms of Heart Disease*. Armonk, NY: Futura, 1995, pp 29-45.
2. Kaushal S, Salazar JD: Cardiac procedures. In: Chen H, Sonnenday CJ, Lillemoe KD (eds): *Manual of Common Bedside Surgical Procedures/by the Halsted Residents of the Johns Hopkins Hospital*. Philadelphia, PA: Lippincott Williams & Wilkins, c2000, pp 86-110.
3. Backer CL, Kaushal S, Mavroudis C. Coarctation of the Aorta. In: Mavroudis C, Backer CL (eds) *Pediatric Cardiac Surgery*, 4<sup>th</sup> ed. Oxford, Blackwell Publishing, 2010. Submitted