

CURRICULUM VITAE

Name: Christopher Kane Breuer

Date and Place of Birth: October 7, 1963 / Bethesda, MD

Home Address: 4625 North Gate Road, New Albany, OH 43054

Business Address: 700 Children's Drive-WB 4151, Columbus, OH 43205-2664

Undergraduate and Medical Education:

1982-1986 College of the Holy Cross, Worcester, MA

1986-1990 Brown-Dartmouth Program in Medicine Providence, RI /Hanover, NH

Post Medical School Training

1990-1991 Intern, General Surgery, Brown Medical School Program in Surgery, Rhode Island Hospital, Providence, RI

1991-1992 Resident, General Surgery, Brown Medical School Program in Surgery, Rhode Island Hospital, Providence, RI

1992-1993 Junior Resident, Pediatric Surgery, The Children's Hospital, Boston, MA

1993-1995 Postdoctoral Fellow in Surgical Research, Harvard Medical School, Boston, MA

1995-1996 Resident, General Surgery, Brown Medical School Program in Surgery, Rhode Island Hospital, Providence, RI

1996-1997 Chief Resident, General Surgery, Brown Medical School Program in Surgery, Rhode Island Hospital, Providence RI

1997-1998 Resident, Pediatric Surgery, Brown Medical School Program in Surgery, Hasbro Children's Hospital, Providence, RI

1998-1999 Chief Resident, Pediatric Surgery, Brown Medical School Program in Surgery, Hasbro Children's Hospital, Providence, RI

Specialty Board Certification and Re-Certification

General Surgery, 2/8/1999

Pediatric Surgery, 3/20/2000

Recertified Pediatric Surgery, 10/2/2009

Medical Licensure

Ohio: Medical License Number 35.120045

09/07/2012- 07/01/2015

Connecticut: Medical License Number 41133

02/06/2003- 10/31/2012

Rhode Island Medical License Number MD09952
10/22/1998- 06/30/2006

Prior Academic/Practice Positions

1999-2000 Staff Pediatric Surgeon, Major, United States Air Force, Wilford Hall Medical Center, Lackland AFB, TX
2000-2002 Chief Pediatric Surgery, Major, United States Air Force, Wilford Hall Medical Center, Lackland AFB, TX
2002-2003 Chief Pediatric Surgery, Lieutenant Colonel, United States Air Force, Wilford Hall Medical Center, Lackland AFB, TX
2000-2003 Associate Scientist, Southwest Primate Facility, San Antonio, TX
2003-2009 Assistant Professor, Department of Surgery, Yale University, School of Medicine, New Haven, CT
2009-2012 Associate Professor, Department of Surgery, Yale University, School of Medicine, New Haven, CT
2012-present Professor with Tenure, Department of Surgery, Division of Pediatric Surgery, The Ohio State University, Columbus, OH

Current Position:

Director of Tissue Engineering Program and Surgical Research, Nationwide Children's Hospital, Columbus, OH
Professor Department of Surgery, Division of Pediatric Surgery, The Ohio State University, Columbus, OH

Honors and Awards

1985 Honors Program College of the Holy Cross
1986 Air Force Health Professions Scholarship
2001 Air Force Achievement Medal
2004 American Pediatric Surgical Foundation Award
2005 American Surgical Association Foundation Research Fellowship Award
2006 National Institute of Health Mentored Clinical Scientist Development Award
2007 Doris Duke Charitable Foundation Clinical Scientist Development Award
2008 American College of Surgeons Jacobson Promising Investigator Award
2013 Castle Connolly Top Doctors
2014 Landacre Honors Society Distinguished Researcher of the Year Award
2015 Nationwide Endowed Chair in Surgical Research

Membership in National and International Scientific Organizations

2002-present Tissue Engineering & Regenerative Medicine Society International

2003-present Association for Academic Surgery
2004-present American Academy of Pediatrics
2004-present American Pediatric Surgical Association
Education Committee Member 2006-2008
Publications Committee Member 2005-2007
New Technologies Committee 2009-present (co-chair 2013, chair
2014)
Research Ad Hoc Committee 2016
2005-present American College of Surgeons
2008-present Society of University Surgeons
2012-present Surgical Biology Club II
2015-present American Surgical Association

Membership in Local and Regional Societies

2006-2012 New England Surgical Society

Editorships and Editorial Board Memberships

Ad Hoc Reviewer Nature Medicine
Ad Hoc Reviewer New England Journal of Medicine

Memberships on major national committees, consultant groups, and study sections

2010 American Heart Association (Bioengineering-Clinical) Study Section
2010 NIH Director's Transformative Research Award Special Emphasis
Panel/Scientific Review Group
2010 NIH Fogarty International Research Collaboration Award Program Ad Hoc
Grant Reviewer
2012 NIH Small Business Innovation Research (SBIR)/ Small Business
Technology Transfer (STTR) Ad Hoc Grant Reviewer
2012 California Institute of Regenerative Medicine Study Section
2012-2016 American Board of Surgery Pediatric Surgery In-Training
Examination Exam Developer
2013 International Society for Stem Cell Research, Clinical and Translational
Research Steering Committee
2014 California Institute for Regenerative Medicine Study Section
2014 NIH Director's Transformative Research Awards Special Emphasis
Panel/Scientific Review Group
2016 NIH Biotechnology and Surgical Sciences Study Section

Peer-Reviewed Grants Funded (reverse chronological order)

Agency: NIH/NHLBI
Grant: NIH R01HL128847-01A1
Title: Development of an improved vascular graft for use in congenital heart surgery
PI: Christopher Breuer
Total Costs: \$3,619,581
Project Period: 4/1/2016-3/31/2021

Agency: NIH/NHLBI
Grant: R01HL128602
Title: Computational Model Driven Design of Tissue Engineered Vascular Grafts
PI: Christopher Breuer (MPI)
Total Costs: \$2,046,598
Project Period: 6/1/15-5/31/19

Agency: NIH/NHLBI
Grant: 2 R01HL098228
Title: Investigating the cellular and molecular mechanisms of vascular neotissue formation in tissue engineered vascular grafts
PI: Christopher Breuer
Total Costs: \$1,886,286
Project Period: 5/15/15-4/30/19

Agency: NSF (Nanofiber Solutions)
Grant: Phase II SBIR 1456341
Title: Development of a Tissue Engineered Trachea
PI: Christopher Breuer (MPI)
Total Costs: \$500,000
Project Period: 6/15/15-6/14/17

Agency: Congenital Heart Foundation/ Columbus Crew
Grant: Research Award
Title: Evaluating the use of Losartan to inhibit Tissue Engineered Vascular Graft stenosis
PI: Christopher Breuer
Total Costs: \$100,000
Project Period: 6/1/14-5/30/16

Agency: NIH/NHLBI
Grant: R01HL098228
Title: Investigating the cellular and molecular mechanisms of vascular neotissue formation in tissue engineered vascular grafts
PI: Christopher Breuer, MD
Total Costs: \$2,068,750

Project Period: 1/19/10-12/31/14

Agency: NIH/CTSA

Grant: OSU CTTS Pilot Award

Title: Development of a closed, disposable system for assembling tissue engineered vascular grafts (Part 2: Evaluation of the bioequivalence of cell isolation techniques)

PI: Christopher Breuer, MD

Total Costs: \$50,000

Project Period: 8/17/2012-8/16/2013

Agency: CT Stem Cell Research Grants Program

Grant: Seed Grant Award

Title: Wnt signaling and cardiomyocyte differentiation from human embryonic stem cells

PI: Dan Wu, PhD, Christopher Breuer, MD

Total Costs: \$100,000

Project Period: 6/1/08-5/31/10

Agency: Doris Duke Charitable Foundation

Grant: Clinical Scientist Development Award

Title: Clinical trial investigating the safety of tissue engineered vascular grafts in congenital heart surgery

PI: Christopher Breuer, MD

Total costs for project period: \$405,000

Project period: 7/1/07-10/31/10

Agency: NIH/NHLBI

Grant: P01-HL70295

Title: Evaluation of the role of chronic delayed type hypersensitivity and interferon-gamma in human graft atherosclerosis

PI: Jordan Pober, MD, PhD

Role on Project: Co-investigator

Total costs for project period: \$2,333,335

Project period: 9/20/06-8/31/11

Agency: NIH/NHLBI

Grant: K08 HL83980

Title: Development of second generation tissue engineered vascular grafts

PI: Christopher Breuer, MD

Total costs for project period: \$625,000

Project period: 6/1/06-5/31/11

Agency: American Surgical Association

Grant: ASA Research Fellowship Award

Title: Evaluation of the growth potential of tissue engineered vascular grafts in a

juvenile lamb model
PI: Christopher Breuer, MD
Total costs for project period: \$150,000
Project period: 7/1/05-6/31/07

Agency: American Pediatric Surgical Association Foundation
Grant: APSA Enrichment Award
Title: Evaluation of the growth potential of tissue engineered vascular grafts in a juvenile lamb model
PI: Christopher Breuer, MD
Total costs for project period: \$10,000
Project period: 6/1/04-5/31/05

Agency: Department of Surgery, Yale University, School of Medicine
Grant: Ohse Award
Title: The application of tissue engineering technology to parathyroid autotransplantation
PI: Christopher Breuer, MD
Total costs for project period: \$10,000
Project period: 1/1/04-12/31/04

Industry Grants (reverse chronological order)

Agency: Gunze Limited
Grant: Industry Sponsored Research
Title: A pilot study investigating the clinical use of tissue engineered vascular grafts in congenital heart surgery
PI: Toshiharu Shinoka, MD/PhD, Christopher Breuer, MD
Total Costs: \$300,000
Project Period: 11/18/2009-11/17/2017

Agency: Pall Corporation
Grant: Gift to Support Research Program
Title: Development of a closed, disposable seeding system for assembling tissue engineered vascular grafts
PI: Christopher Breuer, MD
Total Costs: \$400,000
Project Period: 8/1/2009- (no end date)

Agency: Advanced Technologies and Regenerative Medicine, LLC (ATRM)
Grant: Industry Sponsored Research
Title: In vivo characterization of the ATRM tissue engineered vascular graft
PI: Christopher Breuer, MD
Total Costs: \$30,000
Project Period: 3/1/2010-2/28/2011

Bibliography

- 1) Tissue-engineered cardiac patch seeded with human induced pluripotent stem cell derived cardiomyocytes promoted the regeneration of host cardiomyocytes in a rat model. Sugiura T, Hibino N, **Breuer CK**, Shinoka T. *J Cardiothorac Surg*. 2016 Dec 1;11(1):163.
- 2) Objective characterization of airway dimensions using image processing. Pepper VK, Francom C, Best CA, Onwuka E, King N, Heuer E, Mahler N, Grischkan J, **Breuer CK**, Chiang T. *Int J Pediatr Otorhinolaryngol*. 2016 Dec;91:108-112.
- 3) Fast-degrading bioresorbable arterial vascular graft with high cellular infiltration inhibits calcification of the graft. Sugiura T, Tara S, Nakayama H, Yi T, Lee YU, Shoji T, **Breuer CK**, Shinoka T. *J Vasc Surg*. 2016 Sep 26. pii: S0741-5214(16)30823-0.
- 4) Impaired von Willebrand factor adhesion and platelet response in thrombospondin-2 knockout mice. Kristofik N, Calabro NE, Tian W, Meng A, MacLauchlan S, Wang Y, **Breuer CK**, Tellides G, Niklason LE, Kyriakides TR. *Blood*. 2016 Sep 22;128(12):1642-50.
- 5) Tissue-Engineered Small Diameter Arterial Vascular Grafts from Cell-Free Nanofiber PCL/Chitosan Scaffolds in a Sheep Model. Fukunishi T, Best CA, Sugiura T, Shoji T, Yi T, Udelsman B, Ohst D, Ong CS, Zhang H, Shinoka T, **Breuer CK**, Johnson J, Hibino N. *PLoS One*. 2016 Jul 28;11(7):e0158555.
- 6) Clinical Translation of Tissue Engineered Trachea Grafts. Chiang T, Pepper V, Best C, Onwuka E, **Breuer CK**. *Ann Otol Rhinol Laryngol*. 2016 Nov;125(11):873-885.
- 7) Pilot Mouse Study of 1 mm Inner Diameter (ID) Vascular Graft Using Electrospun Poly(ester urea) Nanofibers. Gao Y, Yi T, Shinoka T, Lee YU, Reneker DH, **Breuer CK**, Becker ML. *Adv Healthc Mater*. 2016 Sep;5(18):2427-36.
- 8) Setting Global Standards for Stem Cell Research and Clinical Translation: The 2016 ISSCR Guidelines. Daley GQ, Hyun I, Apperley JF, Barker RA, Benvenisty N, Bredenoord AL, **Breuer CK**, Caulfield T, Cedars MI, Frey-Vasconcells J, Heslop HE, Jin Y, Lee RT, McCabe C, Munsie M, Murry CE, Piantadosi S, Rao M, Rooke HM, Sipp D, Studer L, Sugarman J, Takahashi M, Zimmerman M, Kimmelman J. *Stem Cell Reports*. 2016 Jun 14;6(6):787-97.
- 9) Novel Bioresorbable Vascular Graft With Sponge-Type Scaffold as a Small-Diameter Arterial Graft. Sugiura T, Tara S, Nakayama H, Kurobe H, Yi T, Lee YU, Lee AY, **Breuer CK**, Shinoka T. *Ann Thorac Surg*. 2016 Sep;102(3):720-7.
- 10) TGF- β receptor 1 inhibition prevents stenosis of tissue-engineered vascular grafts by reducing host mononuclear phagocyte activation. Lee YU, de Dios Ruiz-Rosado J, Mahler N, Best CA, Tara S, Yi T, Shoji T, Sugiura T, Lee AY, Robledo-Avila F, Hibino

N, Pober JS, Shinoka T, Partida-Sanchez S, **Breuer CK**. FASEB J. 2016 Jul;30(7):2627-36.

11) Rational design of an improved tissue-engineered vascular graft: determining the optimal cell dose and incubation time. Lee YU, Mahler N, Best CA, Tara S, Sugiura T, Lee AY, Yi T, Hibino N, Shinoka T, **Breuer C**. Regen Med. 2016 Mar;11(2):159-67.

12) Long-Term Functional Efficacy of a Novel Electrospun Poly(Glycerol Sebacate)-Based Arterial Graft in Mice. Khosravi R, Best CA, Allen RA, Stowell CE, Onwuka E, Zhuang JJ, Lee YU, Yi T, Bersi MR, Shinoka T, Humphrey JD, Wang Y, **Breuer CK**. Ann Biomed Eng. 2016 Aug;44(8):2402-16.

13) Cardiovascular Tissue Engineering: Preclinical Validation to Bedside Application. Best C, Onwuka E, Pepper V, Sams M, Breuer J, **Breuer C**. Physiology (Bethesda). 2016 Jan;31(1):7-15.

14) 3D-Printed Biodegradable Polymeric Vascular Grafts. Melchiorri AJ, Hibino N, Best CA, Yi T, Lee YU, Kraynak CA, Kimerer LK, Krieger A, Kim P, **Breuer CK**, Fisher JP. Adv Healthc Mater. 2016 Feb 4;5(3):319-25.

15) Effect of cell seeding on neotissue formation in a tissue engineered trachea. Clark ES, Best C, Onwuka E, Sugiura T, Mahler N, Bolon B, Niehaus A, James I, Hibino N, Shinoka T, Johnson J, **Breuer CK**. J Pediatr Surg. 2016 Jan;51(1):49-55.

16) A mouse model of endocardial fibroelastosis. Clark ES, Pepper VK, Best CA, Onwuka EA, Yi T, Tara S, Cianciolo R, Baker P, Shinoka T, **Breuer CK**. Cardiovasc Pathol. 2015 Nov-Dec;24(6):388-94.

17) Influence of Posttransplant Lymphoproliferative Disorder on Survival in Children After Heart Transplantation. Hayes D Jr, **Breuer CK**, Horwitz EM, Yates AR, Tobias JD, Shinoka T. Pediatr Cardiol. 2015 Dec;36(8):1748-53.

18) Cilostazol, Not Aspirin, Prevents Stenosis of Bioresorbable Vascular Grafts in a Venous Model. Tara S, Kurobe H, de Dios Ruiz Rosado J, Best CA, Shoji T, Mahler N, Yi T, Lee YU, Sugiura T, Hibino N, Partida-Sanchez S, Breuer CK, Shinoka T. Arterioscler Thromb Vasc Biol. 2015 Sep;35(9):2003-10.

19) C-Cell Neoplasia in Asymptomatic Carriers of RET Mutation in Extracellular Cysteine-Rich and Intracellular Tyrosine Kinase Domain. Abi-Raad R, Virk RK, Dinauer CA, Prasad A, Morotti RA, **Breuer CK**, Sosa JA, Udelsman R, Rivkees SA, Prasad ML. Hum Pathol. 2015 Aug;46(8):1121-8.

20) Hemodynamic Characterization of a Mouse Model for Investigating the Cellular and Molecular Mechanisms of Neotissue Formation in Tissue-Engineered Heart Valves. James IA, Yi T, Tara S, Best CA, Stuber AJ, Shah KV, Austin BF, Sugiura T, Lee YU, Lincoln J, Trask AJ, Shinoka T, **Breuer CK**.

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- 21) Development of small diameter nanofiber tissue engineered arterial grafts. Kurobe H, Maxfield MW, Tara S, Rocco KA, Bagi PS, Yi T, Udelsman B, Zhuang ZW, Cleary M, Iwakiri Y, **Breuer CK**, Shinoka T. PLoS One. 2015 Apr 1;10(4):e0120328.
- 22) The innate immune system contributes to tissue-engineered vascular graft performance. Hibino N, Mejias D, Pietris N, Dean E, Yi T, Best C, Shinoka T, **Breuer C**. FASEB J. 2015 Jun;29(6):2431-8.
- 23) Biomechanical diversity despite mechanobiological stability in tissue engineered vascular grafts two years post-implantation. Khosravi R, Miller KS, Best CA, Shih YC, Lee YU, Yi T, Shinoka T, **Breuer CK**, Humphrey JD. Tissue Eng Part A. 2015 May;21(9-10):1529-38.
- 24) TGF β R1 inhibition blocks the formation of stenosis in tissue-engineered vascular grafts. Duncan DR, Chen PY, Patterson JT, Lee YU, Hibino N, Cleary M, Naito Y, Yi T, Gilliland T, Kurobe H, Church SN, Shinoka T, Fahmy TM, Simons M, **Breuer CK**. J Am Coll Cardiol. 2015 Feb 10;65(5):512-4.
- 25) Contrasting biofunctionalization strategies for the enhanced endothelialization of biodegradable vascular grafts. Melchiorri AJ, Hibino N, Yi T, Lee YU, Sugiura T, Tara S, Shinoka T, **Breuer C**, Fisher JP. Biomacromolecules. 2015 Feb 9;16(2):437-46.
- 26) Well-organized neointima of large-pore poly(L-lactic acid) vascular graft coated with poly(L-lactic-co- ϵ -caprolactone) prevents calcific deposition compared to small-pore electrospun poly(L-lactic acid) graft in a mouse aortic implantation model. Tara S, Kurobe H, Rocco KA, Maxfield MW, Best CA, Yi T, Naito Y, **Breuer CK**, Shinoka T. Atherosclerosis. 2014 Dec;237(2):684-91.
- 27) Comparison of the biological equivalence of two methods for isolating bone marrow mononuclear cells for fabricating tissue-engineered vascular grafts. Kurobe H, Tara S, Maxfield MW, Rocco KA, Bagi PS, Yi T, Udelsman BV, Dean EW, Khosravi R, Powell HM, Shinoka T, **Breuer CK**. Tissue Eng Part C Methods. 2015 Jun;21(6):597-604.
- 28) A hypothesis-driven parametric study of effects of polymeric scaffold properties on tissue engineered neovessel formation. Miller KS, Khosravi R, **Breuer CK**, Humphrey JD. Acta Biomater. 2015 Jan;11:283-94.
- 29) Transplantation of pulmonary valve using a mouse model of heterotopic heart transplantation. Lee YU, Yi T, James I, Tara S, Stuber AJ, Shah KV, Lee AY, Sugiura T, Hibino N, Shinoka T, **Breuer CK**. J Vis Exp. 2014 Jul 23;(89).
- 30) Implantation of inferior vena cava interposition graft in mouse model. Lee YU, Yi T, Tara S, Lee AY, Hibino N, Shinoka T, **Breuer CK**. J Vis Exp. 2014 Jun 4;(88).

- 31) Targeted imaging of matrix metalloproteinase activity in the evaluation of remodeling tissue-engineered vascular grafts implanted in a growing lamb model. Stacy MR, Naito Y, Maxfield MW, Kurobe H, Tara S, Chan C, Rocco KA, Shinoka T, Sinusas AJ, **Breuer CK**. *J Thorac Cardiovasc Surg*. 2014 Nov;148(5):2227-33.
- 32) Comparison of a closed system to a standard open technique for preparing tissue-engineered vascular grafts. Kurobe H, Maxfield MW, Naito Y, Cleary M, Stacy MR, Solomon D, Rocco KA, Tara S, Lee AY, Sinusas AJ, Snyder EL, Shinoka T, **Breuer CK**. *Tissue Eng Part C Methods*. 2015 Jan;21(1):88-93.
- 33) In vivo applications of electrospun tissue-engineered vascular grafts: a review. Rocco KA, Maxfield MW, Best CA, Dean EW, **Breuer CK**. *Tissue Eng Part B Rev*. 2014 Dec;20(6):628-40. Review.
- 34) Evaluation of remodeling process in small-diameter cell-free tissue-engineered arterial graft. Tara S, Kurobe H, Maxfield MW, Rocco KA, Yi T, Naito Y, **Breuer CK**, Shinoka T. *J Vasc Surg*. 2015 Sep;62(3):734-43.
- 35) Characterization of evolving biomechanical properties of tissue engineered vascular grafts in the arterial circulation. Udelsman BV, Khosravi R, Miller KS, Dean EW, Bersi MR, Rocco K, Yi T, Humphrey JD, **Breuer CK**. *J Biomech*. 2014 Jun 27;47(9):2070-9.
- 36) Regenerative implants for cardiovascular tissue engineering. Lee AY, Mahler N, Best C, Lee YU, **Breuer CK**. *Transl Res*. 2014 Apr;163(4):321-41. Review.
- 37) Vessel bioengineering. Tara S, Rocco KA, Hibino N, Sugiura T, Kurobe H, **Breuer CK**, Shinoka T. *Circ J*. 2014;78(1):12-9. Review.
- 38) Tissue engineering in the vasculature. Naito Y, Rocco K, Kurobe H, Maxfield M, **Breuer C**, Shinoka T. *Anat Rec (Hoboken)*. 2014 Jan;297(1):83-97. Review.
- 39) Computational model of the in vivo development of a tissue engineered vein from an implanted polymeric construct. Miller KS, Lee YU, Naito Y, **Breuer CK**, Humphrey JD. *J Biomech*. 2014 Jun 27;47(9):2080-7.
- 40) Beyond burst pressure: initial evaluation of the natural history of the biaxial mechanical properties of tissue-engineered vascular grafts in the venous circulation using a murine model. Naito Y, Lee YU, Yi T, Church SN, Solomon D, Humphrey JD, Shin'oka T, **Breuer CK**. *Tissue Eng Part A*. 2014 Jan;20(1-2):346-55.
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- 42) Tissue engineering of blood vessels in cardiovascular disease: moving towards clinical translation. Udelsman BV, Maxfield MW, **Breuer CK**. *Heart*. 2013

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43) Effect of patient Age on surgical outcomes for Graves' disease: a case-control study of 100 consecutive patients at a high volume thyroid surgical center. **Breuer CK**, Solomon D, Donovan P, Rivkees SA, Udelsman R. *Int J Pediatr Endocrinol*. 2013 Jan 25;2013(1):1.

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46) Pediatric thyroid disease: when is surgery necessary, and who should be operating on our children? **Breuer C**, Tuggle C, Solomon D, Sosa JA. *J Clin Res Pediatr Endocrinol*. 2013;5 Suppl 1:79-85. Review.

47) Current advances in the translation of vascular tissue engineering to the treatment of pediatric congenital heart disease. Dean EW, Udelsman B, **Breuer CK**. *Yale J Biol Med*. 2012 Jun;85(2):229-38. Review.

48) Vascular tissue engineering: the next generation. Cleary MA, Geiger E, Grady C, Best C, Naito Y, **Breuer C**. *Trends Mol Med*. 2012 Jul;18(7):394-404. Review.

49) Tissue-engineered vascular grafts for use in the treatment of congenital heart disease: from the bench to the clinic and back again. Patterson JT, Gilliland T, Maxfield MW, Church S, Naito Y, Shinoka T, **Breuer CK**. *Regen Med*. 2012 May;7(3):409-19. Review.

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52) Evaluation of the use of an induced pluripotent stem cell sheet for the construction of tissue-engineered vascular grafts. Hibino N, Duncan DR, Nalbandian A, Yi T, Qyang Y, Shinoka T, **Breuer CK**. *J Thorac Cardiovasc Surg*. 2012 Mar;143(3):696-703.

- 53) Challenges in translating vascular tissue engineering to the pediatric clinic. Duncan DR, **Breuer CK**. Vasc Cell. 2011 Oct 14;3(1):23.
- 54) Characterization of the natural history of extracellular matrix production in tissue-engineered vascular grafts during neovessel formation. Naito Y, Williams-Fritze M, Duncan DR, Church SN, Hibino N, Madri JA, Humphrey JD, Shinoka T, **Breuer CK**. Cells Tissues Organs. 2012;195(1-2):60-72.
- 55) The treatment of differentiated thyroid cancer in children: emphasis on surgical approach and radioactive iodine therapy. Rivkees SA, Mazzaferri EL, Verburg FA, Reiners C, Luster M, **Breuer CK**, Dinauer CA, Udelsman R. Endocr Rev. 2011 Dec;32(6):798-826. Review.
- 56) A critical role for macrophages in neovessel formation and the development of stenosis in tissue-engineered vascular grafts. Hibino N, Yi T, Duncan DR, Rathore A, Dean E, Naito Y, Dardik A, Kyriakides T, Madri J, Pober JS, Shinoka T, **Breuer CK**. FASEB J. 2011 Dec;25(12):4253-63.
- 57) Resistance to thyroid hormone associated with a novel mutation of the thyroid β receptor gene in a four-year-old female. Canadas KT, Rivkees SA, Udelsman R, **Breuer CK**. Int J Pediatr Endocrinol. 2011;2011(1):3.
- 58) Determining the fate of seeded cells in venous tissue-engineered vascular grafts using serial MRI. Harrington JK, Chahboune H, Criscione JM, Li AY, Hibino N, Yi T, Villalona GA, Kobsa S, Meijas D, Duncan DR, Devine L, Papademetri X, Shin'oka T, Fahmy TM, **Breuer CK**. FASEB J. 2011 Dec;25(12):4150-61.
- 59) Comparison of human bone marrow mononuclear cell isolation methods for creating tissue-engineered vascular grafts: novel filter system versus traditional density centrifugation method. Hibino N, Nalbandian A, Devine L, Martinez RS, McGillicuddy E, Yi T, Karandish S, Ortolano GA, Shin'oka T, Snyder E, **Breuer CK**. Tissue Eng Part C Methods. 2011 Oct;17(10):993-8.
- 60) Tissue-engineered vascular grafts form neovessels that arise from regeneration of the adjacent blood vessel. Hibino N, Villalona G, Pietris N, Duncan DR, Schoffner A, Roh JD, Yi T, Dobrucki LW, Meijas D, Sawh-Martinez R, Harrington JK, Sinusas A, Krause DS, Kyriakides T, Saltzman WM, Pober JS, Shin'oka T, **Breuer CK**. FASEB J. 2011 Aug;25(8):2731-9.
- 61) Serial nonrigid vascular registration using weighted normalized mutual information. Suh JW, Scheinost D, Qian X, Sinusas AJ, **Breuer CK**, Papademetris X. Proc IEEE Int Symp Biomed Imaging. 2010 Apr 14;2010:25.
- 62) Vascular tissue engineering: towards the next generation vascular grafts. Naito Y, Shinoka T, Duncan D, Hibino N, Solomon D, Cleary M, Rathore A, Fein C, Church S,

Breuer C. Adv Drug Deliv Rev. 2011 Apr 30;63(4-5):312-23. Review.

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65) American Pediatric Surgical Association New Technology Committee review on video-assisted thoracoscopic surgery for childhood cancer. Gow KW, Chen MK; New Technology Committee., Barnhart D, **Breuer C,** Brown M, Calkins C, Ford H, Harmon C, Hebra A, Kane T, Keshen T, Kokoska ER, Lawlor D, Pearl R. J Pediatr Surg. 2010 Nov;45(11):2227-33.

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