

Todd Victor Brennan, MD, MS, FACS

Curriculum Vitae

January 1, 2021

Business Address:

Cedars-Sinai Medical Center

Comprehensive Transplant Center

8900 Beverly Blvd, Ste 281

Los Angeles, CA 90048

(310) 423-7408 (office)

(310) 423-0234 (fax)

Email Address:

todd.brennan@cshs.org

Education:

1989-1994 Bachelor of Science, Biochemistry, *summa cum laude*

University of California Los Angeles, CA

1993-1994 Master of Science, Biochemistry,

University of California Los Angeles, CA

1994-1999 Doctor of Medicine, *cum laude*

Harvard Medical School, Boston, MA

1999-2000 Internship in General Surgery

University of California San Francisco, CA

2000-2006 Residency in General Surgery

University of California San Francisco, CA

2006-2007 Chief Resident in General Surgery

University of California San Francisco, CA

2007-2009 Fellowship in Abdominal Transplantation

University of California San Francisco, CA

Licensure:

Medical Board of California (A75140)

Board Certification:

American Board of Surgery (053346)

Professional Experience:

2007-2009 Clinical Instructor, Division of Abdominal Transplantation

University of California San Francisco

2009-2010 Clinical Instructor, Division of Abdominal Transplantation

Duke University Medical Center

2010-2014 Assistant Professor, Division of Abdominal Transplantation

Duke University Medical Center

2014-2018 Associate Professor, Division Abdominal Transplantation

Duke University Medical Center

2018-2019 Staff Physician II, Cedars-Sinai Medical Center

2019- Professor of Surgery, Director of Pancreas Transplantation

Cedars-Sinai Medical Center

Society memberships:

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| 1992 | Phi Beta Kappa |
| 1999-Present | Massachusetts Medical Society |
| 1999-2013 | American Medical Association (AMA) |
| 2002-Present | American College of Surgeons (ACS) |
| 2004-2012 | American Society of Transplantation (AST) |
| 2007-Present | American Society of Transplant Surgeons (ASTS) |
| 2007-2010 | Howard C. Naffziger Surgical Society |
| 2010-2012 | American Association for the Study of Liver Disease (AASLD) |
| 2010-2018 | Association for Academic Surgery (AAS) |
| 2011-Present | Fellow of the American College of Surgeons (FACS) |
| 2013-Present | Society of University Surgeons (SUS) |
| 2017-Present | American Association of Immunology (AAI) |
| 2018-Present | Fellow of the International College of Surgeons (FICS) |

Committee service:

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| 2011-2013 | Association for Academic Surgery (AAS) Membership Committee |
| 2014-2016 | Association for Academic Surgery (AAS) Executive Councilor Elect |
| 2015-2017 | Association for Academic Surgery (AAS) Nominating Committee |
| 2017-2020 | American Society of Transplant Surgeons (ASTS) Cell Transplant Committee |
| 2017-2020 | Society of University Surgeons (SUS) Publications Committee |
| 2020-2022 | American Society of Transplant Surgeons (ASTS) Cell Transplant Committee |

Professional Activities:

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| 2011-Present | Ad hoc reviewer for <i>American Journal of Transplantation</i> |
| 2011-Present | Ad hoc reviewer for <i>Journal of Clinical Investigation</i> |
| 2012 | CTIL Oversight Committee, Duke University Health System |
| 2012-Present | Ad hoc reviewer for <i>Immunology Letters</i> |
| 2012-Present | Ad hoc reviewer for <i>Expert Opinion on Emerging Drugs</i> |
| 2013-Present | Ad hoc reviewer for <i>Annals of Surgery</i> |
| 2014-Present | Ad hoc reviewer for <i>Transplantation</i> |
| 2014-Present | Ad hoc reviewer <i>Clinical Transplantation</i> |
| 2014-Present | Ad hoc reviewer for <i>International Immunopharmacology</i> |
| 2015 | Reviewer for National Health and Medical Research Council (NHMRC) Research Grants Management |

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| | System (RGMS), Australia |
| 2015-2016 | Grant Reviewer, Duke Translational Research Institute |
| 2016-Present | Ad hoc reviewer for <i>Science Translational Medicine</i> |
| 2016 | Abstract Reviewer, 26 th International Congress of the Transplantation Society |
| 2016 | Reviewer, 1 st Annual Duke University Department of Surgery Resident Research Award |
| 2017 | Abstract Reviewer for the American Transplant Congress 2018 |
| 2017 | Member, Duke Physician-Scientist Retreat Steering Committee Meeting |
| 2017 | Reviewer, Duke Physician-Scientist Strong Start Award |
| 2017 | Reviewer, 2 nd Annual Duke University Department of Surgery Resident Research Award |
| 2017 | Grant Reviewer, Duke Center for AIDS Research, Duke University Medical Center |
| 2017 | Session Moderator, Academic Surgical Congress "Basic Science: Cardiothoracic, Vascular, Transplantation Quickshot" |
| 2018-Present | Ad hoc reviewer for <i>Surgery</i> |
| 2018 | Reviewer, 3 rd Annual Duke University Department of Surgery Resident Research Award |
| 2018 | Session Moderator, American Transplant Congress, "Endothelial Cell Biology" |
| 2018 | Advisor for the National Kidney Foundation |
| 2019 | Grant Reviewer, Society of University Surgeons |
| 2019 | Ad hoc reviewer for <i>Current Molecular Pharmacology</i> |
| 2019 | Abstract Reviewer, American Transplant Congress "Biomarkers, Immune Assessment and Clinical Outcomes" |
| 2020 | Ad hoc reviewer for <i>International Journal of Molecular Sciences</i> |
| 2020 | Abstract Reviewer, American Transplant Congress |

Honors and Awards:

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| 1991 | Geissman Award for Organic Chemistry <i>University of California Los Angeles</i> |
| 1992 | Presidential Fellowship <i>University of California Los Angeles</i> |
| 1992 | Nominated Undergraduate Student of the Year <i>University of California Los Angeles</i> |
| 1992 | Department of Chemistry & Biochemistry, Undergraduate Research Award <i>University of California Los Angeles</i> |

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| 1993 | Arthur Furst Award for Undergraduate Research <i>University of California Los Angeles</i> |
| 1994 | Departmental Scholar <i>University of California Los Angeles</i> |
| 1994 | Departmental Highest Honors <i>University of California Los Angeles</i> |
| 1994 | Merck Index Award for Undergraduate Research <i>University of California Los Angeles</i> |
| 1994 | Medical Scientist Training Program <i>Harvard Medical School</i> |
| 2003 | Resident Research Fellowship <i>American College of Surgeons</i> |
| 2004 & 2008 | Most Outstanding Resident Research Award <i>University of California San Francisco</i> |
| 2004 | Roche Laboratories Scientist Scholarship <i>American Society of Transplant Surgeons</i> |
| 2004 | Young Investigator Award <i>American Transplant Congress</i> |
| 2007 | Novartis Fellowship in Transplantation <i>American Society of Transplant Surgeons</i> |
| 2010 | Vanguard Award <i>American Society of Transplant Surgeons</i> |
| 2010 | Basic Science Faculty Development Grant <i>American Society of Transplantation</i> |
| 2010 | Career Development Award in Liver Transplantation <i>American Association for the Study of Liver Disease</i> |
| 2010-2012 | NIH/NIAID, Loan Repayment Program |
| 2011 | Top 10 Oral Presentation <i>American Surgical Congress</i> |
| 2011 | Poster of Distinction <i>American Transplant Congress</i> |
| 2011 | Surgery Fund Award <i>Duke University Medical Center</i> |
| 2012-2017 | Hartwell Foundation Award <i>"Use of Thymus Transplantation to Induce Tolerance to Liver Transplants Transplant Rejection"</i> |
| 2012-2017 | Career Development Award (NIAID), NIH 1K08AI101263 <i>"Role of Endogenous TLR Ligands in Allospecific T cell Activation"</i> |
| 2012 | Poster of Recognition <i>American Transplant Congress</i> |
| 2013-2015 | Biomarker Foundation Funding Award <i>"Heparan Sulfate as a Serum Biomarker for Kidney Transplant Rejection"</i> |

2014 School of Medicine Core Voucher Award
Duke University Medical Center

2016 Health Scholar Award (\$450,000)
Duke University School of Medicine

2016 Transplant Center Award for Funding of Pilot Projects
Duke University Medical Center

2016 Clarence Gardner, M.D. Award
Duke University Medical Center

Mentor of Trainee Awards:

2011 Presidential Fellowship in Transplantation
American Society of Transplant Surgeons
Awarded to Brandon Baird, Duke Medical Student

2012 URS Grant for Independent Study
Duke University Medical Center
Awarded to Justin Bartholomew, Duke Undergraduate Student

2015 Ethicon Resident Award
Society of University Surgeons
Awarded to Dr. Kannan Samy, Duke General Surgery Resident

2015 Poindexter Scholar in Basic Sciences
Duke University Medical Center
Awarded to Benjamin Parker, Duke Medical Student

2015 Eugene A. Stead Student Research Scholarship
Duke University Medical Center
Awarded to Benjamin Parker, Duke Medical Student

2015 Presidential Fellowship in Transplantation
American Society of Transplant Surgeons
Awarded to Benjamin Parker, Duke Medical Student

Research Grants:

| | <u>PI</u> | <u>%Effort</u> | <u>Purpose</u> | <u>Amount</u> | <u>Duration</u> |
|----------|-----------------------------------|----------------|---|---------------|-----------------|
| a) Past: | Todd Brennan & Sang-Mo Kang | 0% | American College of Surgeons. Tolerogenic Dendritic Cells in Transplantation. | \$60,000 | 2003-2005 |
| | Todd Brennan & | 0% | American Society of Transplant Surgeons. Roche Laboratories | \$70,000 | 2004-2006 |

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| Sang-Mo Kang | | Scientist Scholarship. Development of a New T cell receptor transgenic mouse with direct allospecificity. | | |
| Todd Brennan & Sang-Mo Kang | 0% | American Society of Transplant Surgeons. Novartis Fellowship in Transplantation. Study of immune tolerance at the maternal-fetal barrier. | \$85,000 | 2007-2009 |
| Todd Brennan | 0% | American Society of Transplantation. Basic Scientist Award. Role of the innate immune system in the activation of allospecific T cells. | \$85,000 | 2010-2012 |
| Todd Brennan | 0% | American Association for the Study of Liver Disease. Career Development Award. Role of the innate immune system in the activation of allospecific T cells. | \$90,000 | 2010-2012 |
| Todd Brennan | 0% | Duke University School of Medicine Research Core Facilities Voucher Award | \$10,000 | 2014 |
| Todd Brennan | 5% | Biomarker Foundation. Heparan Sulfate as a Serum Biomarker for Kidney Transplant Rejection | \$535,131 | 2013-2015 |

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| M. Louise Markert & Todd Brennan | 5% | Hartwell Foundation. Use of Thymus Transplantation to Induce Tolerance to Liver Transplants Transplant Rejection | \$300,000 | 2012-2015 |
| Todd Brennan | 10% | A Phase 1, Open Label Study to Evaluate the Effect of Tofacitinib (CP-690,550) Administration and Withdrawal on Immune Cell Function in Healthy Volunteers | \$776,211 | 2015 |
| Todd Brennan | 75% | NIH/NIAID:1K08AI101263 The Innate Immune System in the Regulation of Allospecific T lymphocytes | \$644,085 | 2012-2017 |
| Todd Brennan | 2% | Clarence Gardner, M.D. Award, Duke University Department of Surgery | \$80,000 | 2016-2017 |
| Todd Brennan | 0% | Duke Transplant Center Award for funding of pilot projects | \$15,000 | 2016 |
| Todd Brennan | 0% | Duke Health Scholar Award | \$450,000 | 2016 |
| Todd Brennan | 5% | 1R01AI153274-01 Improving transplant organ survival through the mitigation of donor-derived mitochondrial damage- | 08/17/2020-07/31/2024 | |

associated molecular
patterns

Invited Lectures and Presentations:

1. "Multi-Gene Expression Using Lentivirus." University of California, San Francisco, Department of Surgery Resident Research Day, San Francisco, CA, March 2003.
2. "Early Graft Function after Living Donor Kidney Transplantation Predicts Rejection but Not Outcomes." American Transplant Congress, Washington, DC, May 2003.
3. "Lentiviral-Based Gene Transduction System Capable of Delivering Multiple Genes to Bone Marrow Cells." Federation of Clinical Immunology Societies, Paris, France, May 2003.
4. "Development of a Direct Allogeneic CD4+ T Cell Receptor Transgenic Mouse." University of California, San Francisco, Department of Surgery Resident Research Day, San Francisco, CA, March 2004.
5. "Who is the Better Living Kidney Donor? A Predictive Model Based on Simple Donor- Recipient Demographics." American Transplant Congress, Boston, MA, May 2004.
6. "A New MHC Class II-Restricted TCR Transgenic Mouse Model for the Study of Alloimmunity." American Transplant Congress, Boston, MA, May 2004.
7. "Participation in Clinical Studies Does Not Alter Outcomes after Primary Living Donor Kidney Transplantation." American Transplant Congress, Boston, MA, May 2004.
8. "Tracking the Alloimmune Response Using a New CD4+ T Cell Receptor Transgenic Mouse." FASEB Summer Research Conference in Transplantation Immunology, Snowmass Village, CO, June 2004.
9. "Tracking the Direct Alloimmune Response in vivo Using a New CD4+ T Cell Receptor Transgenic Mouse Model." American College of Surgeons 90th Annual Clinical Congress, New Orleans, LA, October 2004.
10. "A New Model for Tracking the Alloimmune Response in vivo." University of California, San Francisco, Department of Surgery Resident Research Day, San Francisco, CA, March 2005.
11. "Allospecific Regulatory T Cells Can Prolong Allograft Survival." American Transplant Congress, Seattle, WA, May 2005.
12. "Disproportionate Expansion of CD4 Indirect T Cells Relative to CD4 and CD8 Direct T Cells in Acute Allograft Rejection." 9th Basic Science Symposium of the Transplantation Society, La Baule, France, June 2005.
13. "Allospecific Regulatory T Cells Can Prolong Allograft Survival." 9th Basic Science Symposium of the Transplantation Society, La Baule, France, June 2005.
14. "Microlaparoscopic (ML) Placement of Chronic Ambulatory Peritoneal Dialysis (CAPD) Catheters: Comparison to Open Technique (OT)." Society of American Gastrointestinal and Endoscopic Surgeons Annual Meeting, Philadelphia, PA, April 2008.
15. "Simultaneous Liver Kidney Transplantation: Impact on One Year Patient Survival Among Liver Transplant Candidates with Renal Dysfunction." American Association for the Study of Liver Diseases, San Francisco, CA, November 2008.

16. "Regulation of Alloimmunity by Innate Immune Pathways." National Institute of Environmental Health Sciences (NIEHS), Durham, NC, February 2010.
17. "Role of Innate and Adaptive Immune Pathways in Transplantation." Grand Rounds, Department of Surgery, Duke University Medical Center, Durham, NC, July 2010.
18. "Endogenous Innate Immune Activators of Alloimmunity." The Division of General, Vascular, High-Risk Trauma, Transplant, and Surgical Critical Care Medicine (GVTCCM) Anesthesia Conference Series, Durham, NC, October 2010.
19. "Modulation of GVHD by endogenous TLR ligand, heparan sulfate." Hematological Malignancies and Cellular Therapy Retreat, Duke University Medical Center, Durham, NC, February 2011.
20. "Heparan sulfate is a potent stimulator of the alloimmune response." Academic Surgical Congress, Huntington Beach, CA, February 2011.
21. "Modulation of Graft-vs-Host Disease by Endogenous TLR Ligand, Heparan Sulfate." Southern Society of Clinical Surgeons, Durham, NC, March 2011.
22. "Heparan sulfate is a biomarker of rejection and a potent stimulator of allospecific T cells through innate immune pathways." American Transplant Congress 2011, Philadelphia, PA, April 2011.
23. "Liver Transplant Tolerance: A New Look at an Old Puzzle." American Transplant Congress 2011, Philadelphia, PA, April 2011.
24. "Use of Rectus Sheath as a Vascularized Composite Tissue Allograft in Multivisceral Transplantation." American Transplant Congress 2011, Philadelphia, PA, April 2011.
25. "Analysis of Renal Outcomes for Simultaneous Liver Kidney Transplant (SLKT) and Liver Transplant Alone (LTA) Recipients." American Transplant Congress 2011, Philadelphia, PA, April 2011.
26. "Murine Pancreatic Ischemia-Reperfusion Injury Up-Regulates Interleukin-1 beta, Interleukin-6, and CCL-2". American Society of Transplant Surgeons (ASTS) Winter Conference, Miami, FL, January 2012.
27. "Pilot study of contrast-enhanced renal transplant MRA with a nongadolinium-based agent." American Roentgen Ray Society (ARRS) Annual Meeting, Vancouver, BC, Canada, April 2012.
28. "Novel Murine Model of Pancreatic Ischemia Reperfusion Injury Up-Regulates Interleukin-1 Beta, Interleukin-6, and CCL-2." American Transplant Congress 2012, Boston, MA, June 2012.
29. "Reduces Alloreactive T Cell Activation and Decreases Graft-vs-Host Disease Following Hematopoietic Stem Cell Transplantation." American Transplant Congress 2012, Boston, MA, June 2012.
30. "Lymphocyte Regulation by the Innate Immune System." Solid Organ Transplant Translational Research Interdisciplinary Colloquium at Duke University, Durham, NC, December 2012.
31. "Pilot study of contrast-enhanced renal transplant MRA with a nongadolinium-based agent." 113th Annual Meeting of the ARRS, Washington, DC, April 2013.
32. "Long-term persistence of recipient MHC class-II antigen following allogeneic bone marrow transplantation. 10th International Conference on New Trends in Immunosuppression and Immunotherapy. Barcelona, Spain. March 11-12, 2013.
33. "Jak3 Dependent Inhibition of Alloreactive T Cell Proliferation in the Setting of Chronic TLR Stimulation". American Transplant Congress. Seattle, WA. May 2013.
34. "Mitochondrial DNA Can Function as an Endogenous Activator of Alloreactive T Cells" World Transplant Congress. San Francisco, CA. July 2014.

35. "The heparan sulfate mimetic, PG545, induces a potent anti-lymphoma effect by enhancing innate immune activation by endogenous nucleic acids". World Transplant Congress. San Francisco, CA. July 2014.
36. Duke University Medical Center Basic Science Day. Oct 2015 "The heparan sulfate mimetic, PG545, induces a potent anti-lymphoma effect by enhancing innate immune activation by endogenous nucleic acids"
37. "Complete Thymectomy in Adult Rats with Non-invasive Endotracheal Intubation." Academic Surgical Congress. Las Vegas, NV. Feb 2015.
38. Radojic V, Chung J, Friedman A, **Brennan TV**, Siebel CW, Maillard I. Evaluating the early effects of Notch blockade on alloantigen-specific T-cells after allogeneic bone marrow transplantation. Autumn Immunology Conference 2014
39. Vedran Radojic, Joocho Chung, Ann Friedman, Pavan Reddy, Bruce Blazar, Leo Luznik, **Todd V. Brennan**, Christian W. Siebel, Ivan Maillard. Early post-transplant Notch signaling activity is critical for the differentiation of pathogenic alloantigen-specific T cells mediating acute graft-versus-host disease. The American Society for Blood and Marrow Transplantation. 2015
40. **Brennan TV**. Surgery Grand Rounds, Duke University, Nov 19, 2014 "Innate Immunity in Graft Injury and Tumor Therapy"
41. **Brennan TV**. 50th Anniversary of Transplantation at Duke University. Feb 2015. "Scientific Growth of the Transplantation Program and the Scientific Future Transplantation Research at Duke University".
42. Samy KP, Lin L, Yang Y, Kirk AD, **Brennan TV**. Endogenous Innate Immune Activation by Free Mitochondria. *Academic Surgical Congress*, Jacksonville FL, 2016.
43. McDade JE, Naqvi J, Lee J, Pisetsky DS, Sullenger BA, **Brennan TV**, White RR. The Role of Circulating DNA in Pancreatic Cancer and Potential for DNA Scavengers as Therapeutics. *Academic Surgical Congress*, Jacksonville FL, 2016.
44. Feng F, Xu H, Lin L, Kirk AD, **Brennan TV**. Mitochondria-Vascular Endothelial Cell Interaction: A Critical Danger Signal Linking Host Immune Responses to Allograft Injury. 1st Annual Duke Surgery Science Day. Durham, NC, 2016.
45. Feng F, Xu H, Lin L, Kirk AD, **Brennan TV**. Vascular Endothelial Cell Activation by Mitochondria Links Innate and Adaptive Immune Responses to Allograft Injury. American Transplant Congress. Boston. June 2016.
46. Reddy J, Rege A, Vikraman D, Collins B, **Brennan T**, Knechtle S, Sudan D, Ravindra K. Use of En-Bloc Vascularized Rectus Sheath Allograft to Achieve Abdominal Closure in Pediatric Liver and Multivisceral Transplantation. American Transplant Congress. Boston. June 2016.
47. **Brennan TV**. "N-Acetyl-beta-D-glucosaminidase (NAG) Assay for the Detection of Renal Allograft Rejection". Promega, Madison Wisconsin. June 2016.
48. MacDonald A, Samy KP, Parker BS, Truong T, Kuchibatia M, Espinosa J, McRae M, Cheeseman J, Kirk AD, **Brennan TV**. Urinary N-acetyl-beta-D-glucosaminidase Activity is Increased in Renal Transplant Rejection. Academic Surgical Congress. Las Vegas, NV, Feb 2017.
49. Lin L, McRae M, MacDonald A, **Brennan TV**. Plasma Heparan Sulfate is a Biomarker of Acute Kidney Allograft Rejection. Academic Surgical Congress. Las Vegas, NV, Feb 2017.

50. **Brennan TV**. Impact of Tissue Injury on Allograft Tolerance. Royal College of London. London, UK March 30, 2017.
51. **Brennan TV**, Lin L, Song M, Feng F, Li QJ, Kirk AD, Xu H. Extracellular Mitochondria Cause B7 Costimulation Blockade Resistant Allograft Rejection in Mice. American Transplant Congress. Chicago, IL. April 2017.
52. **Brennan TV**, Feng F, Lin L, Song M, Li QJ, Kirk AD, Xu H. Uptake of Extracellular Mitochondria Activates Human Endothelial Cells that Stimulate Alloreactive Effector T cell Responses. American Transplant Congress. Chicago, IL. April 2017.
53. **Brennan TV**, Lin L, Pollara J. Circulating Inflammatory Factors in Deceased Organ Donors Result in Innate Immune Activation. American Transplant Congress. Chicago, IL. April 2017.
54. Xu H, **Brennan TV**, Kirk AD. Evaluation of function and TCR signaling profile of CD57+ T cells in allospecific immunity. American Transplant Congress. Chicago, IL. April 2017.
55. Xu H, **Brennan TV**, Kirk AD. IL-7 receptor heterogeneity as a mechanism for repertoire change during post-depletional homeostatic proliferation and its relation to costimulation blockade resistant rejection. American Transplant Congress. Chicago, IL. April 2017.
56. Dredge K, **Brennan TV**, Brown MP, Lickliter J, Bampton D, Hammond E, Lin L, Yang Y, Millward M. An open-label, multi-center phase I study of the safety and tolerability of the novel immunomodulatory agent PG545 in subjects with advanced solid tumors. American Society of Clinical Oncology 2017 Annual Meeting. Chicago, Illinois. June 2017
57. **Brennan TV**, Circulating Mitochondrial DAMPs in Deceased Organ Donors Promote Allograft Rejection. Cedars Sinai Medical Center, Los Angeles, CA. November 7, 2017
58. **Brennan TV**, Circulating Mitochondrial DAMPs in Deceased Organ Donors Promote Allograft Rejection. University of California San Diego, CA. November 27, 2017
59. Lubkin DT, Song M, Pollara J, **Brennan TV**, Kirk AD Link Between Extracellular Mitochondrial DNA and Soluble CD40 Ligand in Post-Traumatic Sterile Inflammation. Duke Surgery Annual Research Day, Durham, NC, April 2018
60. Nash A, **Brennan TV**. Effect of Immunosuppressive Reagents on Mitochondrial Function in Human T cells. Duke Surgery Annual Research Day, Durham, NC, April 2018
61. Nash A, Samoylova ML, **Brennan TV**. Pumping donor kidneys reduces delayed graft function, improves allograft survival, and reduced rates of rejection. Duke Surgery Annual Research Day, Durham, NC, April 2018
62. Zhu M, Samy K, Lin L, Wang J, Cendales L, Kirk AD, Barbas A, **Brennan TV**. Selective loss of RIP3 phosphokinase activity shortens cardiac allograft survival in the setting of costimulation blockade. Oral presentation at the American Transplant Congress, Seattle, June 4, 2018
63. **Brennan TV**. Pancreas Transplantation. Endocrine Grand Rounds. Cedars-Sinai Medical Center. September 2019

Teaching responsibilities:

- Immunology 310 - Immunopathogenesis - Lecturer, 2012
- Immunology 601 - Immunology of Human Disease – Lecturer, 2013
- Immunology 601 - Immunology of Human Disease – Lecturer, 2014
- Immunology 601 - Immunology of Human Disease – Lecturer, 2015
- Immunology 601 - Immunology of Human Disease – Lecturer, 2016
- Immunology 601 - Immunology of Human Disease – Lecturer, 2017

Surgery Resident Research Conference - Transplant Immunology – Lecturer 2010-2013
 Transplant Surgery Journal Club 2010-2013
 Transplant Surgery Fellow and Resident Education 2010-2013
 2013 - Alpha Omega Alpha 44th Annual Scientific Research Symposium Judge
 2014 - Introductory team-based learning house course on immunology for Duke undergraduate students: Challenges in Contemporary Transplant Immunology
 2013 - American Association of Immunology (AAI) Advanced Immunology Course
 2014 - Association for Academic Surgery (AAS) 24th Annual Fundamentals of Surgical Research Course
 2014 - Association for Academic Surgery (AAS) 9th Annual Career Development Course
 2015 - Society of University Surgeons (SUS) Leadership Development Course
 2016 - American Society of Transplant Surgeons (ASTS) Leadership Development Program
 2017 - Duke 3rd Year Medical Student Surgical Research Advisor
 2018 - Cedars-Sinai Surgery Resident Educational Conference

Mentored Student, Residents and Post-docs:

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| Vunghi Hoang, Medical Student, UCSF, Research Supervisor | 2004-2005 |
| Harras Zaid, Medical Student III, UCSF, Research Supervisor | 2007-2008 |
| Jay Gardner, Medical Student, UCSF, Surgery mentor | 2008-2009 |
| Liwen Lin, Post-Doctorial, Duke, Research Mentor | 2010-2018 |
| Keri Lunsford, Post-Doctorial, Duke, Research Mentor | 2010-2011 |
| Brandon Baird, Medical Student, Duke, Research Mentor | 2011-2012 |
| Alex Bartholemew, Undergraduate, Duke, Research Mentor | 2012-2013 |
| Justin Bartholemew, Undergraduate, Duke, Research Mentor | 2012-2013 |
| Haijing Zhang, Medical Student, Duke, Research Mentor | 2012-2013 |
| Vishnu Kadiyala, Undergraduate, Duke, Research Mentor | 2012-2013 |
| Reena Sudan, High School Student, Durham Academy, Research Mentor | 2013-2013 |
| Victoria Rendall, Medical Student, Duke, Research Mentor | 2013-2014 |
| Kannan Samy, Surgery Resident. Emory University, Research Mentor | 2015-2016 |
| Benjamin Parker, Medical Student, Duke, Research Mentor | 2015-2016 |
| Feifei Feng, Post-Doctorial Researcher, Duke, Research Mentor | 2015-2016 |
| MacKenzie McCrea, BS, Duke, Research Mentor | 2016-2017 |
| Soraya Voigt, M.D. Surgery Resident, East Carolina Univ, Research Mentor | 2017-2018 |
| Amanda Nash, B.S., Duke Medical Student, Research Mentor | 2017-2018 |
| Mariya Samoylova, M.D., Duke Surgery Resident, Faculty Advisor | 2017-2018 |
| Minghua Zhu, Ph.D., Assistant Prof. Immunology, Faculty Advisor | 2017-2018 |
| Muath Bishawi, M.D., Ph.D. Duke Surgery Resident, Faculty collaborator | 2017-2018 |

Publications:

Research Papers – Peer Reviewed (Published)

1. **Brennan TV & Clarke S.** Spontaneous degradation of polypeptides at aspartyl and asparaginyl residues: Effects of the solvent dielectric. Protein Science, 2(3):331-338, Mar 1993. PMID: 8453372
2. **Brennan TV & Clarke S.** Mechanism of Cleavage at Asn 148 during the Maturation of Jack Bean Concanavalin A. Biochem Biophys Res Comm, 193(3):1031-1037, Jun 1993. PMID: 8323528

3. **Brennan TV**, Anderson JW, Jia Z, Waygood EB, & Clarke S. Repair of spontaneously deamidated HPr phosphocarrier protein catalyzed by the L-isoaspartate-(D-aspartate) O-methyltransferase. J Biol Chem, 269(40):24586-24595, Oct 1994. PMID: 7929130
4. **Brennan TV** & Clarke S. Effect of adjacent histidine and cysteine residues on the spontaneous degradation of asparagine and aspartic acid containing peptides. Int J Peptide Protein Res, 45(6):547-553, Jun 1995. PMID: 7558585
5. Xavier R*, **Brennan T***, Li Q, McCormack C, Seed B. Membrane Compartmentation is Required for Efficient T Cell Activation. Immunity, 8(6):723-732, Jun 1998. PMID: 9655486
**Co-First Authorship*
6. **Brennan TV**, Rodefeld MD, Tacy TA, Reddy VM, Hanley FL. Late Thrombosis of the Native Aortic Root after Norwood Reconstruction for Hypoplastic Left Heart Syndrome. J Thorac Cardiovasc Surg, 121(3):580-2, Mar 2001. PMID: 11241094
7. **Brennan TV**, Lipshutz GS, Gibbs VC, Norton JA. Total Mesenteric Excision in the Treatment of Rectal Carcinoma: Methods and Outcomes. Surg Oncol, 10(4):171-6, May 2002. PMID: 12020671
8. **Brennan TV**, Horn JK, Stollman N. Laparoscopic Treatment of Acute Mesenteric Torsion. Surg Endosc, 16(6):1004, Jun 2002. PMID: 12163972
9. Lipshutz GS, **Brennan TV**, Warren RS. Thorotrast-Induced Liver Neoplasia: A Collective Review. J Am Coll Surg, 195(5):713-8, Nov 2002. PMID: 12437262
10. Yun EJ, Meng MV, **Brennan TV**, McAninch JW, Santucci RA, Rogers SJ. Novel Microlaparoscopic Technique for Peritoneal Dialysis Catheter Placement. Urology, 61(5):1026-8, May 2003. PMID: 12736031
11. **Brennan TV**, Lipshutz GS, Posselt AM, Horn JK. Congenital Cleft Spleen with CT Scan Appearance of High-Grade Splenic Laceration after Blunt Abdominal Trauma. J Emerg Med, 25(2):139-42, Aug 2003. PMID: 12901998
12. Lal G, **Brennan TV**, Hambleton J, Clark OH. Coagulopathy, Marantic Endocarditis and Cerebrovascular Accidents as Paraneoplastic Features in Medullary Thyroid Cancer--Case Report and Review of the Literature. Thyroid, 13(6):601-5, Jun 2003. PMID: 12930605
13. Vincenti F, **Brennan TV**, Fuller TF, Feng S. Optimizing the Use of Cyclosporine (Neoral) for Recipients of Living Donor Kidneys. Transplant Proc, 36(2 Suppl):50S-53S, Mar 2004. PMID: 15041306
14. **Brennan TV**, Freise CE, Fuller TF, Bostrom A, Tomlanovich SJ, Feng S. Early Graft Function after Living Donor Kidney Transplantation Predicts Rejection but not Outcomes. Am J Transplant, 4(6):971-9, Jun 2004. PMID: 15147432
15. Fuller TF, Feng S, **Brennan TV**, Tomlanovich S, Bostrom A, Freise CE. Increased Early Rejection in Living Unrelated vs. Living Related Kidney Transplants does not Affect Graft Function and Survival. Transplantation, 78(7):1030-5, Oct 15, 2004. PMID: 15480170
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38. Steggerda JA, Bloom MB, Todo T, **Brennan TV**, Malinoski D, Klein AS, Kim IK. It Is Safe to Use Liver Allografts with Macrosteatosis >30% in Recipients with MELD Scores <35. *American Transplant Congress*, Boston, MA 2019
39. Kim IK, Wu G, Chai NN, **Brennan TV**, Klein AS, Jordan SC. Neutralization of Interlukin-6 by ALD518-P18 (Murine Claza) Attenuates Donor Specific Antibody Responses in a Mouse Model of Allogeneic Sensitization: *American Transplant Congress*, Boston, MA 2019
40. Perkey E, Carrington L, Dils A, Granadier D, **Brennan T**, Ludewig B, Kock U, Radtke F, Siebel C, Labrecque N, Maillard I. Notch ligands and peptide antigens derive from distinct cellular sources during in vivo T cell activation. 2019 Notch Conference in Athens, Greece
41. Steggerda JA, Bloom MB, **Brennan TV**, Nouredin M, Todo T, Nissen NN, Klein AS, Kim IK. A Simple Scoring System for Risk Stratification in Liver Transplantation After Donor Liver Biopsy. Submitted: *American Surgical Congress*. Orlando FL, Feb 2020
42. Steggerda JA, Nouredin M, **Brennan TV**, Bloom MB, Todo T, Nissen NN, Klein AS, Kim IK. From Marginal to Meaningful: Donor Liver Biopsy May Improve Donation Rates Amongst Elderly Donors. Submitted: *American Surgical Congress*. Orlando FL, Feb 2020

43. Mahendraraj K, Del Rosal M, Ramos T, Nissen N, Kosari K, Todo T, **Brennan T**, Klein A, Voidonikolas G, Kim I. Smoking History Alone Does Not Result in Worse Outcomes After Lung Transplantation: A 15-Year Review. Submitted: *American Surgical Congress*. Orlando FL, Feb 2020
44. Mahendraraj K, Del Rosal M, Ramos T, Nissen N, Kosari K, Todo T, **Brennan T**, Klein A, Voidonikolas G, Kim I. Are Suicide Victims an Acceptable Source of Organs for Transplantation? Submitted: *American Surgical Congress*. Orlando FL, Feb 2020

Major invited lectures (since November 2002)

1. "Multi-Gene Expression Using Lentivirus." University of California, San Francisco, Department of Surgery Resident Research Day, San Francisco, CA, March 2003.
2. "Early Graft Function after Living Donor Kidney Transplantation Predicts Rejection but Not Outcomes." American Transplant Congress, Washington, DC, May 2003.
3. "Lentiviral-Based Gene Transduction System Capable of Delivering Multiple Genes to Bone Marrow Cells." Federation of Clinical Immunology Societies, Paris, France, May 2003.
4. "Development of a Direct Allogeneic CD4+ T Cell Receptor Transgenic Mouse." University of California, San Francisco, Department of Surgery Resident Research Day, San Francisco, CA, March 2004.
5. "Who is the Better Living Kidney Donor? A Predictive Model Based on Simple Donor-Recipient Demographics." American Transplant Congress, Boston, MA, May 2004.
6. "A New MHC Class II-Restricted TCR Transgenic Mouse Model for the Study of Alloimmunity." American Transplant Congress, Boston, MA, May 2004.
7. "Participation in Clinical Studies Does Not Alter Outcomes after Primary Living Donor Kidney Transplantation." American Transplant Congress, Boston, MA, May 2004.
8. "Tracking the Alloimmune Response Using a New CD4+ T Cell Receptor Transgenic Mouse." FASEB Summer Research Conference in Transplantation Immunology, Snowmass Village, CO, June 2004.
9. "Tracking the Direct Alloimmune Response in Vivo Using a New CD4+ T Cell Receptor Transgenic Mouse Model." American College of Surgeons 90th Annual Clinical Congress, New Orleans, LA, October 2004.
10. "A New Model for Tracking the Alloimmune Response in Vivo." University of California, San Francisco, Department of Surgery Resident Research Day, San Francisco, CA, March 2005.
11. "Allospecific Regulatory T Cells Can Prolong Allograft Survival." American Transplant Congress, Seattle, WA, May 2005.
12. "Disproportionate Expansion of CD4 Indirect T Cells Relative to CD4 and CD8 Direct T Cells in Acute Allograft Rejection." 9th Basic Science Symposium of the Transplantation Society, La Baule, France, June 2005.
13. "Allospecific Regulatory T Cells Can Prolong Allograft Survival." 9th Basic Science Symposium of the Transplantation Society, La Baule, France, June 2005.

14. "Microlaparoscopic (ML) Placement of Chronic Ambulatory Peritoneal Dialysis (CAPD) Catheters: Comparison to Open Technique (OT)." Society of American Gastrointestinal and Endoscopic Surgeons Annual Meeting, Philadelphia, PA, April 2008.
15. "Simultaneous Liver Kidney Transplantation: Impact on One Year Patient Survival Among Liver Transplant Candidates with Renal Dysfunction." American Association for the Study of Liver Diseases, San Francisco, CA, November 2008.
16. "Regulation of Alloimmunity by Innate Immune Pathways." National Institute of Environmental Health Sciences (NIEHS), Durham, NC, February 2010.
17. "Role of Innate and Adaptive Immune Pathways in Transplantation." Grand Rounds, Department of Surgery, Duke University Medical Center, Durham, NC, July 2010.
18. "Endogenous Innate Immune Activators of Alloimmunity." The Division of General, Vascular, High-Risk Trauma, Transplant, and Surgical Critical Care Medicine (GVTCCM) Anesthesia Conference Series, Durham, NC, October 2010.
19. "Modulation of GVHD by endogenous TLR ligand, heparan sulfate." Hematological Malignancies and Cellular Therapy Retreat, Duke University Medical Center, Durham, NC, February 2011.
20. "Heparan sulfate is a potent stimulator of the alloimmune response." Academic Surgical Congress, Huntington Beach, CA, February 2011.
21. "Modulation of Graft-vs-Host Disease by Endogenous TLR Ligand, Heparan Sulfate." Southern Society of Clinical Surgeons, Durham, NC, March 2011.
22. "Heparan sulfate is a biomarker of rejection and a potent stimulator of allospecific T cells through innate immune pathways." American Transplant Congress 2011, Philadelphia, PA, April 2011.
23. "Liver Transplant Tolerance: A New Look at an Old Puzzle." American Transplant Congress 2011, Philadelphia, PA, April 2011.
24. "Use of Rectus Sheath as a Vascularized Composite Tissue Allograft in Multivisceral Transplantation." American Transplant Congress 2011, Philadelphia, PA, April 2011.
25. "Analysis of Renal Outcomes for Simultaneous Liver Kidney Transplant (SLKT) and Liver Transplant Alone (LTA) Recipients." American Transplant Congress 2011, Philadelphia, PA, April 2011.
26. "Murine Pancreatic Ischemia-Reperfusion Injury Up-Regulates Interleukin-1 beta, Interleukin-6, and CCL-2". American Society of Transplant Surgeons (ASTS) Winter Conference, Miami, FL, January 2012.
27. "Pilot study of contrast-enhanced renal transplant MRA with a nongadolinium-based agent." American Roentgen Ray Society (ARRS) Annual Meeting, Vancouver, BC, Canada, April 2012.
28. "Novel Murine Model of Pancreatic Ischemia Reperfusion Injury Up-Regulates Interleukin-1 Beta, Interleukin-6, and CCL-2." American Transplant Congress 2012, Boston, MA, June 2012.
29. "Reduces Alloreactive T Cell Activation and Decreases Graft-vs-Host Disease Following Hematopoietic Stem Cell Transplantation." American Transplant Congress 2012, Boston, MA, June 2012.

30. "Lymphocyte Regulation by the Innate Immune System." Solid Organ Transplant Translational Research Interdisciplinary Colloquium at Duke University, Durham, NC, December 2012.
31. "Pilot study of contrast-enhanced renal transplant MRA with a nongadolinium-based agent." 113th Annual Meeting of the ARRS, Washington, DC, April 2013.
32. "Long-term persistence of recipient MHC class-II antigen following allogeneic bone marrow transplantation. 10th International Conference on New Trends in Immunosuppression and Immunotherapy. Barcelona, Spain. March 11-12, 2013.
33. "Jak3 Dependent Inhibition of Alloreactive T Cell Proliferation in the Setting of Chronic TLR Stimulation". American Transplant Congress. Seattle, WA. May 2013.
34. "Mitochondrial DNA Can Function as an Endogenous Activator of Alloreactive T Cells" World Transplant Congress. San Francisco, CA. July 2014.
35. "The heparan sulfate mimetic, PG545, induces a potent anti-lymphoma effect by enhancing innate immune activation by endogenous nucleic acids". World Transplant Congress. San Francisco, CA. July 2014.
36. Duke University Medical Center Basic Science Day. Oct 2015 "The heparan sulfate mimetic, PG545, induces a potent anti-lymphoma effect by enhancing innate immune activation by endogenous nucleic acids"
37. "Complete Thymectomy in Adult Rats with Non-invasive Endotracheal Intubation." Academic Surgical Congress. Las Vegas, NV. Feb 2015.
38. Radojic V, Chung J, Friedman A, **Brennan TV**, Siebel CW, Maillard I. Evaluating the early effects of Notch blockade on alloantigen-specific T-cells after allogeneic bone marrow transplantation. Autumn Immunology Conference 2014
39. Vedran Radojic, Jooho Chung, Ann Friedman, Pavan Reddy, Bruce Blazar, Leo Luznik, **Todd V. Brennan**, Christian W. Siebel, Ivan Maillard. Early post-transplant Notch signaling activity is critical for the differentiation of pathogenic alloantigen-specific T cells mediating acute graft-versus-host disease. The American Society for Blood and Marrow Transplantation. 2015
40. **Brennan TV**. Surgery Grand Rounds, Duke University, Nov 19, 2014 "Innate Immunity in Graft Injury and Tumor Therapy"
41. **Brennan TV**. 50th Anniversary of Transplantation at Duke University. Feb 2015. "Scientific Growth of the Transplantation Program and the Scientific Future Transplantation Research at Duke University"
42. Samy KP, Lin L, Yang Y, Kirk AD, **Brennan TV**. Endogenous Innate Immune Activation by Free Mitochondria. *Academic Surgical Congress*, Jacksonville FL, 2016.
43. McDade JE, Naqvi J, Lee J, Pisetsky DS, Sullenger BA, **Brennan TV**, White RR. The Role of Circulating DNA in Pancreatic Cancer and Potential for DNA Scavengers as Therapeutics. *Academic Surgical Congress*, Jacksonville FL, 2016.
44. Feng F, Xu H, Lin L, Kirk AD, **Brennan TV**. Mitochondria-Vascular Endothelial Cell Interaction: A Critical Danger Signal Linking Host Immune Responses to Allograft Injury. 1st Annual Duke Surgery Science Day. Durham, NC, 2016.
45. Feng F, Xu H, Lin L, Kirk AD, **Brennan TV**. Vascular Endothelial Cell Activation by Mitochondria Links Innate and Adaptive Immune Responses to Allograft Injury. American Transplant Congress. Boston. June 2016.

46. Reddy J, Rege A, Vikraman D, Collins B, **Brennan T**, Knechtle S, Sudan D, Ravindra K. Use of En-Bloc Vascularized Rectus Sheath Allograft to Achieve Abdominal Closure in Pediatric Liver and Multivisceral Transplantation. American Transplant Congress. Boston. June 2016
47. **Brennan TV**. "N-Acetyl-beta-D-glucosaminidase (NAG) Assay for the Detection of Renal Allograft Rejection". Promega, Madison Wisconsin. June 2016.
48. MacDonald A, Samy KP, Parker BS, Truong T, Kuchibatia M, Espinosa J, McRae M, Cheeseman J, Kirk AD, **Brennan TV**. Urinary N-acetyl-beta-D-glucosaminidase Activity is Increased in Renal Transplant Rejection. Academic Surgical Congress. Las Vegas, NV, Feb 2017.
49. Lin L, McRae M, MacDonald A, **Brennan TV**. Plasma Heparan Sulfate is a Biomarker of Acute Kidney Allograft Rejection. Academic Surgical Congress. Las Vegas, NV, Feb 2017.
50. **Brennan TV**. Impact of Tissue Injury on Allograft Tolerance. Royal College of London. London, UK March 30, 2017.
51. **Brennan TV**, Lin L, Song M, Feng F, Li QJ, Kirk AD, Xu H. Extracellular Mitochondria Cause B7 Costimulation Blockade Resistant Allograft Rejection in Mice. American Transplant Congress. Chicago, IL. April 2017.
52. **Brennan TV**, Feng F, Lin L, Song M, Li QJ, Kirk AD, Xu H. Uptake of Extracellular Mitochondria Activates Human Endothelial Cells that Stimulate Alloreactive Effector T cell Responses. American Transplant Congress. Chicago, IL. April 2017.
53. **Brennan TV**, Lin L, Pollara J. Circulating Inflammatory Factors in Deceased Organ Donors Result in Innate Immune Activation. American Transplant Congress. Chicago, IL. April 2017.
54. Xu H, **Brennan TV**, Kirk AD. Evaluation of function and TCR signaling profile of CD57+ T cells in allo-specific immunity. American Transplant Congress. Chicago, IL. April 2017.
55. Xu H, **Brennan TV**, Kirk AD. IL-7 receptor heterogeneity as a mechanism for repertoire change during post-depletional homeostatic proliferation and its relation to costimulation blockade resistant rejection. American Transplant Congress. Chicago, IL. April 2017.
56. Dredge K, **Brennan TV**, Brown MP, Lickliter J, Bampton D, Hammond E, Lin L, Yang Y, Millward M. An open-label, multi-center phase I study of the safety and tolerability of the novel immunomodulatory agent PG545 in subjects with advanced solid tumors. American Society of Clinical Oncology 2017 Annual Meeting. Chicago, Illinois. June 2017
57. **Brennan TV**, Circulating Mitochondrial DAMPs in Deceased Organ Donors Promote Allograft Rejection. Cedars Sinai Medical Center, Los Angeles, CA. November 7, 2017
58. **Brennan TV**, Circulating Mitochondrial DAMPs in Deceased Organ Donors Promote Allograft Rejection. University of California San Diego, CA. November 27, 2017
59. Lubkin DT, Song M, Pollara J, **Brennan TV**, Kirk AD Link Between Extracellular Mitochondrial DNA and Soluble CD40 Ligand in Post-Traumatic Sterile Inflammation. Duke Surgery Annual Research Day, Durham, NC, April 2018
60. Nash A, **Brennan TV**. Effect of Immunosuppressive Reagents on Mitochondrial Function in Human T cells. Duke Surgery Annual Research Day, Durham, NC, April 2018

61. Nash A, Samoylova ML, **Brennan TV**. Pumping donor kidneys reduces delayed graft function, improves allograft survival, and reduced rates of rejection. Duke Surgery Annual Research Day, Durham, NC, April 2018
62. Zhu M, Samy K, Lin L, Wang J, Cendales L, Kirk AD, Barbas A, **Brennan TV**. Selective loss of RIP3 phosphokinase activity shortens cardiac allograft survival in the setting of costimulation blockade. American Transplant Congress, Seattle, June 2018
63. **Brennan TV**. Circulating Mitochondrial DAMPs in Deceased Organ Donors Promote Allograft Rejection. Renal Grand Rounds. University of California Los Angeles, CA. June 2019

Patents:

WO 2013/166163 "COMPOSITIONS AND METHODS FOR HEPARAN-SULFATE AS A BIOMARKER FOR TRANSPLANT REJECTION".

Consultant appointments:

2013 Qiagen. Advisory Board for "The potential use of new standardized immune monitoring assays within a transplant setting"