



## Jonathan Maltzman

Associate Professor of Medicine (Nephrology)

Medicine - Nephrology

 NIH Biosketch available Online

### Bio

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#### ACADEMIC APPOINTMENTS

- Associate Professor, Medicine - Nephrology
- Member, Cardiovascular Institute
- Member, Maternal & Child Health Research Institute (MCHRI)

#### ADMINISTRATIVE APPOINTMENTS

- Nephrology Representative, Team Science, (2022- present)
- Director of Basic Research, Division of Nephrology, (2015- present)

#### BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- American Society of Transplantation, Board of Directors (2018 - 2021)
- Federation of Clinical Immunology Societies, Secretary / Treasurer (2017 - present)

#### PROFESSIONAL EDUCATION

- BS, MIT , Biology (1989)
- PhD, University of Pennsylvania School of Medicine , Immunology (1997)
- MD, University of Pennsylvania School of Medicine , Medicine (1997)
- Internship/Residency, University of Chicago Hospitals , Internal Medicine (2000)
- Fellowship, University of Pennsylvania School of Medicine , Nephrology (2003)

### Teaching

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#### COURSES

##### 2023-24

- Translational Immunology: IMMUNOL 209 (Win, Spr)

##### 2022-23

- Translational Immunology: IMMUNOL 209 (Win, Spr)

##### 2021-22

- Translational Immunology: IMMUNOL 209 (Win, Spr)

##### 2020-21

- Translational Immunology: IMMUNOL 209 (Win, Spr)

## STANFORD ADVISEES

### Doctoral Dissertation Reader (AC)

Colin Raposo, Pat Yan

## GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Immunology (Phd Program)
- Nephrology (Fellowship Program)

## Publications

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### PUBLICATIONS

- **Forced Revision Can Still Inform-Lessons and Questions From the "Original" TWO Study.** *Transplantation*  
Maltzman, J. S.  
2024
- **Advancing Mouse Models for Transplantation Research.** *American journal of transplantation : official journal of the American Society of Transplantation and the American Society of Transplant Surgeons*  
Cravedi, P., Riella, L. V., Ford, M., Valujskikh, A., Menon, M. C., Kirk, A. D., Alegre, M. L., Feng, S., Kehn, P., Najafian, N., Hancock, W., Heeger, P. S., Maltzman, et al  
2024
- **Prior viral infection primes cross-reactive CD8+ T cells that respond to mouse heart allografts.** *Frontiers in immunology*  
Khorki, M. E., Shi, T., Cianciolo, E. E., Burg, A. R., Chukwuma, P. C., Picarsic, J. L., Morrice, M. K., Woodlee, E. S., Maltzman, J. S., Ferguson, A., Katz, J. D., Baker, B. M., Hildeman, et al  
2023; 14: 1287546
- **CD8 Tregs SQA-1shing transplant rejection.** *Science immunology*  
Bracey, N. A., Maltzman, J. S.  
2023; 8 (90): eadn0644
- **The Effects of Aging on Solid Organ Transplantation-Characteristics and Consequences of Immunosenescence** *CURRENT TRANSPLANTATION REPORTS*  
Rollenhagen, C., Maltzman, J. S.  
2023
- **TCRward personalized transplant therapies.** *Science immunology*  
Chadha, A., Maltzman, J. S.  
2023; 8 (85): eadj4910
- **Age-related decline in anti-HBV antibodies in vaccinated kidney transplant recipients.** *Transplant infectious disease : an official journal of the Transplantation Society*  
Dadhania, D. M., Cravedi, P., Blumberg, E., Stryniak, G., Montez-Rath, M. E., Maltzman, J. S.  
2023: e14090
- **Humoral and T cell Responses to SARS-CoV-2 Vaccine Booster and Anti-SARS-CoV-2 Monoclonal Antibodies in Patients With End-Stage Kidney Disease.** *Kidney international reports*  
Zaza, G., Stallone, G., Granata, S., Gentile, M., Panico, M., Bin, S., Wang, L., Rollenhagen, C., Maltzman, J. S., Cravedi, P.  
2023
- **CD8 T cells are forever.** *Science immunology*  
Maltzman, J. S.  
2023; 8 (80): eadg8279
- **CD8 T cells are forever** *SCIENCE IMMUNOLOGY*  
Maltzman, J. S.  
2023; 8 (80)

- **Endothelial Cell-Specific Molecule-1 Inhibits Albuminuria in Diabetic Mice.** *Kidney360*  
Zheng, X., Higdon, L., Gaudet, A., Shah, M., Balistieri, A., Li, C., Nadai, P., Palaniappan, L., Yang, X., Santo, B., Ginley, B., Wang, X. X., Myakala, et al  
2022; 3 (12): 2059-2076
- **Analysis of Cross-sectional and Longitudinal HLA and Anti-viral Responses After COVID Infection in Renal Allograft Recipients: Differences and Correlates.** *Transplantation*  
Girnit, A. L., Wang, L., Colovai, A. I., Ahearn, P., Azzi, Y., Menon, M. C., Fernandez-Vina, M., Gebel, H. M., Steve Woodle, E., Cravedi, P., Maltzman, J. S., Akalin, E.  
2022
- **A SPARC-link link to inflammaging.** *Science immunology*  
Maltzman, J. S.  
2022; 7 (75): eade5698
- **Blood Transcriptomes of SARS-CoV-2-Infected Kidney Transplant Recipients Associated with Immune Insufficiency Proportionate to Severity.** *Journal of the American Society of Nephrology : JASN*  
Sun, Z., Zhang, Z., Banu, K., Azzi, Y. A., Reghuvaran, A., Fredericks, S., Planoutene, M., Hartzell, S., Kim, Y., Pell, J., Tietjen, G., Asch, W., Kulkarni, et al  
2022
- **Infection, Rejection, and the Connection.** *Transplantation*  
Higdon, L. E., Tan, J. C., Maltzman, J. S.  
2022
- **Chimeric Antigen Receptor Regulatory T Cell in Transplantation: TheFuture of Cell Therapy?** *Kidney international reports*  
Lamarche, C., Maltzman, J. S.  
2022; 7 (6): 1149-1152
- **The Tabula Sapiens: A multiple-organ, single-cell transcriptomic atlas of humans.** *Science (New York, N.Y.)*  
Jones, R. C., Karkania, J., Krasnow, M. A., Pisco, A. O., Quake, S. R., Salzman, J., Yosef, N., Bulthaupt, B., Brown, P., Harper, W., Hemenez, M., Ponnusamy, R., Salehi, et al  
2022; 376 (6594): eabl4896
- **Cell types of origin of the cell-free transcriptome.** *Nature biotechnology*  
Vorperian, S. K., Moufarrej, M. N., Tabula Sapiens Consortium, Quake, S. R., Jones, R. C., Karkania, J., Krasnow, M., Pisco, A. O., Quake, S. R., Salzman, J., Yosef, N., Bulthaupt, B., Brown, P., et al  
2022
- **Differences in Humoral and Cellular Vaccine Responses to SARS-CoV-2 in Kidney and Liver Transplant Recipients.** *Frontiers in immunology*  
Furian, L., Russo, F. P., Zaza, G., Burra, P., Hartzell, S., Bizzaro, D., Di Bello, M., Di Bella, C., Nuzzolese, E., Agnolon, C., Florman, S., Rana, M., Lee, et al  
2022; 13: 853682
- **CMV-Responsive CD4 T Cells Have a Stable Cytotoxic Phenotype Over the First Year Post-Transplant in Patients Without Evidence of CMV Viremia.** *Frontiers in immunology*  
Higdon, L. E., Ahmad, A. A., Schaffert, S., Margulies, K. B., Maltzman, J. S.  
2022; 13: 904705
- **Mitochondria-More than just ATP for CTLs.** *Science immunology*  
Maltzman, J. S.  
2021; 6 (65): eabn0249
- **Functional Consequences of Memory Inflation after Solid Organ Transplantation.** *Journal of immunology (Baltimore, Md. : 1950)*  
Higdon, L. E., Schaffert, S., Cohen, R. H., Montez-Rath, M. E., Lucia, M., Saligrama, N., Margulies, K. B., Martinez, O. M., Tan, J. C., Davis, M. M., Khatri, P., Maltzman, J. S.  
2021
- **Evolution of Cytomegalovirus-Responsive T Cell Clonality following Solid Organ Transplantation.** *Journal of immunology (Baltimore, Md. : 1950)*  
Higdon, L. E., Schaffert, S., Huang, H., Montez-Rath, M. E., Lucia, M., Jha, A., Saligrama, N., Margulies, K. B., Martinez, O. M., Davis, M. M., Khatri, P., Maltzman, J. S.  
2021
- **RNA splicing programs define tissue compartments and cell types at single-cell resolution** *ELIFE*

- Olivieri, J., Dehghannasiri, R., Wang, P. L., Jang, S., de Morree, A., Tan, S. Y., Ming, J., Wu, A., Consortium, T., Quake, S. R., Krasnow, M. A., Salzman, J. 2021; 10
- **SARS-CoV-2 Vaccination and Antibody Testing in Immunosuppressed Populations: You Can't Tell the Players Without a Scorecard.** *Transplantation*  
Woodle, E. S., Gebel, H. M., Montgomery, R. A., Maltzman, J. S.  
2021
  - **SARS-CoV-2 Vaccination, Immune Responses, and Antibody Testing in Immunosuppressed Populations: Tip of the Iceberg.** *Transplantation*  
Woodle, E. S., Gebel, H. M., Montgomery, R. A., Maltzman, J. S.  
2021
  - **It's good to have Gremlins in the zone.** *Science immunology*  
Gustafson, C. E., Maltzman, J. S.  
2021; 6 (60)
  - **Association of Premature Immune Aging and Cytomegalovirus After Solid Organ Transplant** *FRONTIERS IN IMMUNOLOGY*  
Higdon, L. E., Gustafson, C. E., Ji, X., Sahoo, M. K., Pinsky, B. A., Margulies, K. B., Maecker, H. T., Goronzy, J., Maltzman, J. S.  
2021; 12
  - **Association of Premature Immune Aging and Cytomegalovirus After Solid Organ Transplant.** *Frontiers in immunology*  
Higdon, L. E., Gustafson, C. E., Ji, X., Sahoo, M. K., Pinsky, B. A., Margulies, K. B., Maecker, H. T., Goronzy, J., Maltzman, J. S.  
2021; 12: 661551
  - **Transplantation and CMV promote premature aging of CD8 T cells**  
Higdon, L. E., Gustafson, C. E., Ji, X., Maecker, H. T., Maltzman, J. S.  
AMER ASSOC IMMUNOLOGISTS.2021
  - **Immunological yin-yang after pregnancy.** *Science immunology*  
Maltzman, J. S.  
2021; 6 (57)
  - **The ONE Study: One Small Step for Patient Care, a Giant Leap for Cell Therapy** *AMERICAN JOURNAL OF KIDNEY DISEASES*  
Lamarche, C., Maltzman, J. S.  
2021; 77 (2): 297-99
  - **Anti-HLA and anti-SARS-CoV2 Antibodies in Kidney Transplant Recipient with COVID-19.** *Transplant international : official journal of the European Society for Organ Transplantation*  
Gandolfini, I. n., Zanelli, P. n., Palmisano, A. n., Salvetti, D. n., Parmigiani, A. n., Maltzman, J. S., Labate, C. n., Fiaccadori, E. n., Cravedi, P. n., Maggiore, U. n.  
2021
  - **Delayed Kinetics of IgG, but not IgA, Anti-spike Antibodies in Transplant Recipients following SARS-CoV-2 Infection.** *J Am Soc Nephrol.*  
Cravedi, P.  
2021
  - **Aging Tregs need DCAFinating.** *Science immunology*  
Dong, D., Maltzman, J. S.  
2020; 5 (52)
  - **Sestrins teach old T cells new tricks.** *Science immunology*  
Maltzman, J. S.  
2020; 5 (47)
  - **Development and Validation of a Multiplex, Bead-Based Assay to Detect Antibodies Directed Against SARS-CoV-2 Proteins.** *Transplantation*  
Bray, R. A., Lee, J. H., Brescia, P. n., Kumar, D. n., Nong, T. n., Shih, R. n., Woodle, E. S., Maltzman, J. S., Gebel, H. M.  
2020
  - **The ONE Study: One Small Step for Patient Care, a Giant Leap for Cell Therapy.** *American journal of kidney diseases : the official journal of the National Kidney Foundation*  
Lamarche, C. n., Maltzman, J. S.  
2020

- **To debug or not to debug, a question worth asking.** *Science immunology*  
Higdon, L. E., Maltzman, J. S.  
2019; 4 (41)
- **To debug or not to debug, a question worth asking.** *Science immunology*  
Higdon, L. E., Maltzman, J. S.  
2019; 4 (41)
- **Transplantation Alters Function and Clonality of Cytomegalovirus-Responsive T Cells**  
Higdon, L. E., Schaffert, S., Saligrama, N., Davis, M. M., Khatri, P., Maltzman, J. S.  
LIPPINCOTT WILLIAMS & WILKINS.2019
- **Duel(ling) precursors in thymic Treg development.** *Science immunology*  
Maltzman, J. S.  
2019; 4 (36)
- **Single cell immune profiling in transplantation research** *AMERICAN JOURNAL OF TRANSPLANTATION*  
Higdon, L. E., Schaffert, S., Khatri, P., Maltzman, J. S.  
2019; 19 (5): 1278–87
- **Optimization of single-cell plate sorting for high throughput sequencing applications** *JOURNAL OF IMMUNOLOGICAL METHODS*  
Higdon, L. E., Cain, C. J., Colden, M. A., Maltzman, J. S.  
2019; 466: 17–23
- **Single cell immune profiling in transplantation research.** *American journal of transplantation : official journal of the American Society of Transplantation and the American Society of Transplant Surgeons*  
Higdon, L. E., Schaffert, S., Khatri, P., Maltzman, J. S.  
2019
- **Duel(ling) precursors in thymic Treg development.** *Science immunology*  
Maltzman, J. S.  
2019; 4 (36)
- **Optimization of single-cell plate sorting for high throughput sequencing applications.** *Journal of immunological methods*  
Higdon, L. E., Cain, C. J., Colden, M. A., Maltzman, J. S.  
2018
- **Inflammatory macrophage-associated 3-gene signature predicts subclinical allograft injury and graft survival.** *JCI insight*  
Azad, T. D., Donato, M. n., Heylen, L. n., Liu, A. B., Shen-Orr, S. S., Sweeney, T. E., Maltzman, J. S., Naesens, M. n., Khatri, P. n.  
2018; 3 (2)
- **The outstanding questions in transplantation: It's about time...** *AMERICAN JOURNAL OF TRANSPLANTATION*  
Azzi, J., Raimondi, G., Mas, V., Riella, L. V., Elfadawy, N., Safa, K., Wojciechowski, D., Kanak, M., Nog, R., Maltzman, J. S., Ford, M. L., Poher, J. S., Luo, et al  
2018; 18 (1): 271–72
- **Expanding the Toolkit for the Study of Allospecific B and T Cell Responses** *TRANSPLANTATION*  
Higdon, L. E., Maltzman, J. S.  
2017; 101 (11): 2661–62
- **T cells expand after solid organ transplantation in the absence of CMV disease.** *American journal of transplantation*  
Higdon, L. E., Trofe-Clark, J., Liu, S., Margulies, K. B., Sahoo, M. K., Blumberg, E., Pinsky, B. A., Maltzman, J. S.  
2017
- **Virtual Global Transplant Laboratory Standard Operating Procedures for Blood Collection, PBMC Isolation, and Storage.** *Transplantation direct*  
Higdon, L. E., Lee, K., Tang, Q., Maltzman, J. S.  
2016; 2 (9)
- **Differentially Expressed Gene Transcripts Using RNA Sequencing from the Blood of Immunosuppressed Kidney Allograft Recipients** *PLOS ONE*  
Dorr, C., Wu, B., Guan, W., Muthusamy, A., Sanghavi, K., Schladt, D. P., Maltzman, J. S., Scherer, S. E., Brott, M. J., Matas, A. J., Jacobson, P. A., Oetting, W. S., Israni, et al

2015; 10 (5)

- **Regulatory T Cells Require TCR Signaling for Their Suppressive Function** *JOURNAL OF IMMUNOLOGY*  
Schmidt, A. M., Lu, W., Sindhava, V. J., Huang, Y., Burkhardt, J. K., Yang, E., Riese, M. J., Maltzman, J. S., Jordan, M. S., Kambayashi, T.  
2015; 194 (9): 4362-4370
- **AST Cutting Edge of Transplantation 2013 Meeting Report: A Comprehensive Look at B Cells and Antibodies in Transplantation** *AMERICAN JOURNAL OF TRANSPLANTATION*  
Mengel, M., Chong, A., Rothstein, D. M., Zorn, E., Maltzman, J. S.  
2014; 14 (3): 524-530
- **T-Cell Costimulatory Blockade in Organ Transplantation** *COLD SPRING HARBOR PERSPECTIVES IN MEDICINE*  
Maltzman, J. S., Turka, L. A.  
2013; 3 (12)
- **An obligate cell-intrinsic function for CD28 in Tregs** *JOURNAL OF CLINICAL INVESTIGATION*  
Zhang, R., Huynh, A., Witcher, G., Chang, J., Maltzman, J. S., Turka, L. A.  
2013; 123 (2): 580-593
- **Homeostatic Division Is Not Necessary for Antigen-Specific CD4(+) Memory T Cell Persistence** *JOURNAL OF IMMUNOLOGY*  
Corbo-Rodgers, E., Wiehagen, K. R., Staub, E. S., Maltzman, J. S.  
2012; 189 (7): 3378-3385
- **Foxp4 Is Dispensable for T Cell Development, but Required for Robust Recall Responses** *PLOS ONE*  
Wiehagen, K. R., Corbo-Rodgers, E., Li, S., Staub, E. S., Hunter, C. A., Morrisey, E. E., Maltzman, J. S.  
2012; 7 (8)
- **Cutting Edge: IL-2 Signals Determine the Degree of TCR Signaling Necessary To Support Regulatory T Cell Proliferation In Vivo** *JOURNAL OF IMMUNOLOGY*  
Zou, T., Satake, A., Corbo-Rodgers, E., Schmidt, A. M., Farrar, M. A., Maltzman, J. S., Kambayashi, T.  
2012; 189 (1): 28-32
- **Site-specific accumulation of recently activated CD4+Foxp3+ regulatory T cells following adoptive transfer** *EUROPEAN JOURNAL OF IMMUNOLOGY*  
Lieberman, S. M., Kim, J. S., Corbo-Rodgers, E., Kambayashi, T., Maltzman, J. S., Behrens, E. M., Turka, L. A.  
2012; 42 (6): 1429-1435
- **Oral ivermectin as an unexpected initiator of CreT2-mediated deletion in T cells** *NATURE IMMUNOLOGY*  
Corbo-Rodgers, E., Staub, E. S., Zou, T., Smith, A., Kambayashi, T., Maltzman, J. S.  
2012; 13 (3): 197-198
- **Probucol ameliorates renal and metabolic sequelae of primary CoQ deficiency in Pdss2 mutant mice** *EMBO MOLECULAR MEDICINE*  
Falk, M. J., Polyak, E., Zhang, Z., Peng, M., King, R., Maltzman, J. S., Okwuego, E., Horyn, O., Nakamaru-Ogiso, E., Ostrovsky, J., Xie, L. X., Chen, J. Y., Marbois, et al  
2011; 3 (7): 410-427
- **Conditional deletion of SLP-76 in mature T cells abrogates peripheral immune responses** *EUROPEAN JOURNAL OF IMMUNOLOGY*  
Wu, G. F., Corbo, E., Schmidt, M., Smith-Garvin, J. E., Riese, M. J., Jordan, M. S., Laufer, T. M., Brown, E. J., Maltzman, J. S.  
2011; 41 (7): 2064-2073
- **T cell receptor signal strength in T-reg and iNKT cell development demonstrated by a novel fluorescent reporter mouse** *JOURNAL OF EXPERIMENTAL MEDICINE*  
Moran, A. E., Holzapfel, K. L., Xing, Y., Cunningham, N. R., Maltzman, J. S., Punt, J., Hogquist, K. A.  
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- **Antiviral memory CD8 T-cell differentiation, maintenance, and secondary expansion occur independently of MyD88** *BLOOD*  
Rahman, A. H., Zhang, R., Blosser, C. D., Hou, B., DeFranco, A. L., Maltzman, J. S., Wherry, E. J., Turka, L. A.  
2011; 117 (11): 3123-3130
- **Loss of tonic T-cell receptor signals alters the generation but not the persistence of CD8(+) memory T cells** *BLOOD*  
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- **Ablation of SLP-76 signaling after T cell priming generates memory CD4 T cells impaired in steady-state and cytokine-driven homeostasis** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Bushar, N. D., Corbo, E., Schmidt, M., Maltzman, J. S., Farber, D. L.  
2010; 107 (2): 827-831
- **Conditional gene expression: A new tool for the transplantologist** *AMERICAN JOURNAL OF TRANSPLANTATION*  
Maltzman, J. S., Turka, L. A.  
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- **Conditional deletion reveals a cell-autonomous requirement of SLP-76 for thymocyte selection** *JOURNAL OF EXPERIMENTAL MEDICINE*  
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- **Role of EGR1 in regulation of stimulus-dependent CD44 transcription in B lymphocyte** *MOLECULAR AND CELLULAR BIOLOGY*  
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- **Transcriptional regulation of the Icam-1 gene in antigen receptor- and phorbol ester-stimulated B lymphocytes: Role for transcription factor EGR1** *JOURNAL OF EXPERIMENTAL MEDICINE*  
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- **MOLECULAR EVIDENCE FOR THE EXPRESSION OF NICOTINIC ACETYLCHOLINE-RECEPTOR ALPHA-CHAIN IN MOUSE THYMUS** *JOURNAL OF IMMUNOLOGY*  
Wheatley, L. M., Urso, D., TUMAS, K., Maltzman, J., Loh, E., Levinson, A. I.  
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- **EXPRESSION OF THE V-BETA-5.1 GENE BY MURINE PERIPHERAL T-CELLS IS CONTROLLED BY MHC GENES AND SKEWED TO THE CD8+ SUBSET** *JOURNAL OF IMMUNOLOGY*  
Liao, N. S., Maltzman, J., Raulet, D. H.  
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- **POSITIVE SELECTION DETERMINES T-CELL RECEPTOR V-BETA-14 GENE USAGE BY CD8+ T-CELLS** *JOURNAL OF EXPERIMENTAL MEDICINE*  
Liao, N. S., Maltzman, J., Raulet, D. H.  
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