

Curriculum Vitae

Paul Andrew Antony, MD

DATE

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CONTACT INFORMATION

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Languages: English, Intermediate Turkish, Latin, Intermediate Hindi and Urdu

EDUCATION AND POST-GRADUATE TRAINING

1994 B.S., Biochemistry
University of Michigan, Literature, Science, and Arts, Ann Arbor, MI

2000 M.D., Medicine, with Distinction in Research
University of Michigan Medical School, Ann Arbor, MI

2000-2006 **Fellow in Immunotherapy of Cancer**
National Cancer Institute
National Institutes of Health, Bethesda, MD.
Mentors: Nicholas P. Restifo, MD, Steven A. Rosenberg, MD, Ph.D.

- Designed immunotherapies of cancer comprising of cell therapies, antibodies, vaccines, and cytokines; designed TCRs and CARs for translation into the clinic.
- Designed the TRP-1 and pmel-1 specific TCR mouse models of cancer immunotherapy using sequencing, cloning, PCR, real-time PCR, and other molecular biology and cell biology techniques.
- Trained over 10 individuals in cancer immunotherapy
- Worked on development of CTLA antibodies for human use including discussion in design of clinical trials for patients
- CAR T cell design, testing, development for human use
- CC Protocol Number: 05-C-0194 A. Participated in and helped design a Phase II clinical trial using interleukin-2 following a lymphodepleting chemotherapy and reinfusion of autologous lymphocytes depleted of T regulatory lymphocytes into metastatic melanoma patients. Study designed after my preclinical work at the NCI. Principle Investigator: Steven A Rosenberg, National Cancer Institute.
- participated in several scientific conferences per year
- published in several scientific journals

EMPLOYMENT HISTORY

2006-2008 **Johns Hopkins University School of Medicine**
Department of Oncology
Research Associate
Designed T cell immunotherapies of cancer.
Studied the role of lymphopenia during cell therapy and its mechanisms.
Worked on the development of PD-1 therapies in humans for clinical trials.

- 2006-2010 **National Institute of Allergy and Infectious Diseases**
 Laboratory of Cellular and Molecular Immunology
 Guest Researcher
Worked on why Measles vaccines fail in newborns in relation to CD46 isoforms.
- Spent 1 month in Lyon France in collaboration with French scientists working on Measles and the CD46 receptor expression in newborn tissue [cord blood]
- Studied the role of lymphopenia during cell therapy and its mechanisms
- showed that lymphopenia alone [i.e. space] is not the sole mechanism but access to cytokines such as IL-2 – *abstract at Keystone Symposia*
- 2008-2012 **Johns Hopkins University** –Advanced Academic Programs
 School of Arts and Sciences
Lecturer/Director of Course – Advanced and Basic Immunology, including Tumor immunobiology.
- Taught graduate level students on the Homewood Campus Advanced Immunology and/or basic immunology which included tumor immunology and cancer immunotherapy. Initially started as a guest lecturer but then became the course director/main lecturer for a number of years, which culminated in the creation of the Advanced Immunology Course, which I created with the permission of AAP.
- 2008-2020 **University of Maryland School of Medicine**
 Department of Pathology.
 Department of Microbiology and Immunology
 Assistant Professor
- Developed T cell-based immunotherapies of cancer, checkpoint therapies, and combinations for translation into patients in a basic research laboratory.
 - Developed PD-L1 and LAG-3 therapies for relapsing cancer
 - Studied combinations with PD-1, CTLA-4, LAG-3
 - Published with Jim Allison discoverer of CTLA-4
 - Showed that T regulatory cells and PD-L1 are involved in recurrence of melanoma
 - Showed that LAG-3 therapy could be better than PD-L1 combination therapy.
 - Developed CAR based therapies and presented data review of CAR T cell-based trials to investors and clients in webinars.
 - Participated in 2 litigations concerning immunological matters: CAR T patent case and putative vaccine injury case
 - case 1: CAR T cell patent claim, 2020-2021
 - Was involved in case preparation and writing the declaration
 - Case was about 1 year
 - case 2: MS and vaccines, 2019-2020
 - Was involved in preparing a major write up and declaration for client
 - Case was about 1 year
 - Investigated the mechanisms of relapsing melanoma and published these findings in multiple journals.
 - Supervised and ran a laboratory for over 12 years.
 - Trained 3 students in immunotherapy of cancer and immunology.
 - Presented at National Meetings, Webinars, and monthly meetings.
 - Wrote and reviewed scientific data. Received over \$2,500,000 in grants from local, international, and national agencies.
 - Received National grants from ACS, DOD, and NCI.
 - Work recognized by Nobel Laureate, Jim Allison, PhD who discovered anti-CTLA-4. Published with him in 1 publication in Journal of Experimental Medicine.

- Collaborated with multiple individuals on projects regarding melanoma.
- Wrote 2 Clinical Trials.
- Participated in early and late clinical trials.
- Used Next Generation Sequencing to identify neo-antigens in premalignancies for potential development into vaccines to prevent cancer.
- Reviewed and edited the Medscape Case Review Document, based on current ASCO Clinical Practice Guidelines: "Immune-related Adverse Events in Patients with Cancer: Would You Know?"
- Some bioinformatics training.
- Proficient in WORD, EXCEL, POWERPOINT
- Lecturer in Immunology. Taught Graduate students.
- Review IND applications
- Review grants for NIH, NCI study sections

2011-present

Gerson Lehrman Group (GLG)

Consultant - Immuno-oncology

- Consulted 100's of clients in industry and investors on immuno-oncology and the mechanisms of cancer therapies and clinical trials including over 100 on checkpoint therapies PD-1, PD-L1, CTLA-4 and various combos.
- My opinions and advice helped shape investments into the immuno-oncology space.
- Worked with clients in industry to navigate immunotherapy of cancer and to explain the mechanisms and potential uses for each program.
- I discussed over 13 years several hundred biotech companies invested in immunotherapy of cancer.
- Discussed CAR T cell design, therapy, and manufacturing with clients.
- Met with clients to discuss investment potential of several companies.
- Expert Witness on several immunology cases including MS and CAR T cells
- Taught Immunology/tumor immunotherapy through webinars, phone calls, zoom, and in person meetings to clients. Over 500 hrs of teaching over 13 years.
- Hosted teleconferences with several investors teaching Immunology or Immunotherapy of Cancer or a related topic.

2019-2023

Johns Hopkins University

Advanced Academic Programs

School of Arts and Sciences

Lecturer/Adjunct Professor – Stem Cell Biology AS.410.753.81

Taught Stem Cell Biology online and interacted with students on Blackboard. Developed the course over time which was initially developed by a previous lecturer. Taught 2 times with over 15 students each time. Had to answer student questions daily and give assignments as well as check students progress, exams, and quizzes. Had to answer student's emails, questions about material, keep the flow of conversations going on Blackboard as well as check the quality of answers and ask students to comment on previous answers from other students. Write letters of recommendation.

2020-present

Guidepoint Consulting Group

Consultant - Immuno-oncology

- Consulted clients in industry and investors on immuno-oncology and the mechanisms of cancer therapies and clinical trials and checkpoint therapies including PD-1, PD-L1, and CTLA-4 as well as TIGIT and LAG-3.
- My opinions and advice helped shape investments into the immuno-oncology space.
- Worked with clients in industry to navigate immunotherapy of cancer and to explain the mechanisms and potential uses for each program.
- Discussed CAR T cell design, therapy, and manufacturing with clients.

- Met with clients to discuss investment potential of several companies.
- Discussed early phase clinical trial design, results
- Expert panel member
- IND application review
- SEC filing review
- Taught immunology/tumor immunotherapy through webinars, zoom, phone calls, and in person meetings to clients. Over 30 hrs of teaching in 2 years.
- Hosted teleconferences with several investors teaching Immunology or Immunotherapy of Cancer or a related topic.
- Part of a committee to determine if a company should be invested in by a Venture Capital Firm – others involved included Jedd Wolchok, MD of MSKCC and many KOLs of Merck and Novartis.

TEACHING SERVICE

Graduate School Teaching

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|--------------|---|
| 2019-2023 | Johns Hopkins University –Advanced Academic Programs
School of Arts and Sciences
Lecturer/Director of Course
Stem Cell Biology
12 hours/wk. 16 students |
| 2008-2012 | Johns Hopkins University –Advanced Academic Programs
School of Arts and Sciences
Lecturer/Director of Course
Principles of Immunology – Basic Immunology (Autumn, Summer, Spring)
3 hours/week. 25 students, plus preparation time of 8 hrs/week.

Taught the basics of immunology and had students present each week a paper of interest to the class relevant to the topic being discussed. |
| 2009-2019 | University of Maryland School of Medicine and Graduate School
<u>Basic (GPLS 702) and Advanced Immunology (GPLS 769) (Director: Martin Flajnik)</u>
Lecturer (3-6 hours/semester) plus preparation time of 15-24 hrs/semester.

Taught tumor immunology and T regulatory cells to graduate students from diverse backgrounds and worked one on one with graduate students to prepare papers from the literature for presentation to the class. |
| 2012 | Johns Hopkins University –Advanced Academic Programs
School of Arts and Sciences
Lecturer/Director of Course
Advanced Immunology (Spring 2012)
3 hours/wk. 8 students, plus preparation time of 8 hrs/week.

Advanced Immunology: discussed topics that were current in the literature and relevant to Biotechnology and clinical research, including: checkpoint therapies, NK cells, cell therapies, and immunotherapy of cancer. Each week one student would also present a paper relevant to the topic being discussed. Students were from various backgrounds. |
| 2013-present | Private tutor in Latin and Ancient Greek
Privately tutor students from middle school to graduate level in Latin or Ancient Greek languages on the Wyzant Platform [www.wyzant.com] or Zoom.
5-9 hrs/week.

Prepared over 100 hrs of lectures for Ancient Greek studies on www.teachable.com for students to access on their own. |

1998-2002 **Princeton Review**
 USMLE Step I trainer and teacher.
 9-12 hrs/week. 10-15 students.
 Taught biochemistry, pathophysiology, pathology, physiology, immunology, microbiology, anatomy, and pharmacology. Detroit, MI, New York, NY, Philadelphia, PA, Miami, FL, San Francisco, CA, Los Angeles, CA, Lawrence, Kansas, and Ann Arbor, MI.

PhD Committees

Completed

Mentee

2010-2015 K. Wilson 4th year MD-PhD Graduate student
 2015-2016 C. Rosinsky, MD-PhD Graduate student

Non-mentee

2012-2016 S. Kaczanowska – 5th year PhD Graduate Student
 2012-2013 Opponent for Kristina Lorvik's PhD in Oslo, Norway, Lab of Bjarne Bogen – CD4 T cell expert in Immunology, reviewed his paper in Immunity
 2010-2014 N. Dorsey, Graduate student, Department of Microbiology and Immunology 2013
 2010-2014 J. Shu, Graduate Student, Department of Microbiology and Immunology 2013

Medical Student Teaching/Mentoring

2009 Host Defense Infectious Diseases Small Group (HDID) for 2nd year medical students
 Lecturer, small group, 2 hours/semester

2009 Mentor for Eun-Kyung M. Kwon, 2nd year medical student, Summer Research Rotation

2010 HDID for 2nd year medical students, small group, 2 hours/semester
 Lecturer

2013 HDID for 2nd year medical students, small group, 2 hours/semester
 Lecturer

2016 HDID for 2nd year medical students, small group, 2 hours/semester
 On-call Lecturer

Patents and inventions

2005-present TYRP-1 TCR transgenic mouse, NCI. Deposited at Jackson Laboratories.
 B6.Cg-*Rag1tm1Mom Tyrp1B-w* Tg(Tcra,Tcrb)9Rest/J
 Stock No: 008684

Professional Memberships

2006-2020 American Association of Immunologists
 2008-2020 American Association for the Advancement of Science
 2008-present Society of Biological Therapy of Cancer (SITC)
 2016-present European Academy of Tumor Immunology

HONORS AND AWARDS

1993	Student Biomedical Research Grant
1994	Student Biomedical Research Grant
1995	Student Biomedical Research Grant
1996	Student Biomedical Research Grant
1994	71st Annual Honors Convocation Award
2000	Graduated with Distinction in Research, University of Michigan Medical School
2000	Award for International Travel, University of Michigan Medical School
2003	General Research Loan Repayment Program, NIH (\$35,000/year for three years)
2003	Fellows Award for Research Excellence (FARE) 2003, National Institutes of Health
2003	Award for Research Excellence, Surgery Branch, National Cancer Institute
2005	Cover of the Journal of Immunology, March 1 st , 2005 Issue
2005	Award for Research Excellence, Surgery Branch, National Cancer Institute
2010	Cynthia Chambers Memorial – eBioscience Junior Faculty Award
2010	American Association of Immunologists Travel Award
2012	NIH, NCI Loan repayment program, 2 years
2013	Paper highlighted in Journal of Immunology's IN THIS ISSUE.
2014	NIH, NCI Loan repayment program, renewal, 1 year
2015	Research highlighted in DOD congressional report to Congress
2016	Review Article highlighted in the JITC Digest
2016	NIH, NCI Loan repayment program, renewal, 1 year
2018	Paper from JI on PD-L1 and LAG-3 <i>highlighted by James Allison, Nobel Laureate</i> , in ACIR.

ADMINISTRATIVE SERVICE

National Service

2013-2020	Society of the Immunotherapy of Cancer (SITC) Associate Editor of the Journal of Immunotherapy Basic Tumor Immunology Section
2016-present	Society of the Immunotherapy of Cancer (SITC) <u>Fellowship Review Task Force</u> Reviewer (2016) <u>SITC's Holbrook Kohrt, MD, PhD Cancer Immunotherapy Translational Memorial Fellowship Award</u> Reviewer (2017)

Course Director

The Society of Immunotherapy (SITC) in collaboration with Medscape Education Oncology in its fourth year of developing a comprehensive curriculum on immuno-oncology.

2017

Reviewed and edited the Medscape Case Review Document titled, "*Treatment Algorithms in Metastatic Melanoma: Past, Present, and Future?*" and "**Checkpoint Inhibitors: Confronting Immune-Mediated Side Effects.**"

2018

Reviewed and edited the Medscape Case Review Document, based on current ASCO Clinical Practice Guidelines:

1) **"Immune-related Adverse Events in Patients with Cancer: Would You Know?"**

2) **"From Adjuvant to Metastatic in Melanoma: What Should You Know?"**

AD HOC Reviewer

2000-present	Journal of Immunology, 2x/year
2000-present	Cancer Research, 2-3x/year
2017-present	Cancer Immunology Research 2-3x/year
2002-present	Leukocyte Biology, 1-2x/year
2000-present	JITC- Journal for the Immunotherapy of Cancer, 2-4x/year
2004-present	Immunity 1x/year
2002-present	Journal of Experimental Medicine, 1x/year
2014-present	Oncoimmunology, 2-3x/year
2016-present	JAMA Oncology, 1x/year
2018-present	Journal of Dermatology
2019-present	Nature 1-2x/year

Grant review

2009-2012	Neuroblastoma Panel, Department of Defense (DOD), Fairfax, Virginia, USA.
2013	The Dutch Cancer Society (KWF Kankerbestrijding): The leading funding agency for cancer research in the Netherlands.
2017	ASC pilot grant reviewer – University of Maryland School of Medicine
2017	The Dutch Cancer Society (KWF Kankerbestrijding): The leading funding agency for cancer research in the Netherlands.
2018	The Dutch Cancer Society (KWF Kankerbestrijding): The leading funding agency for cancer research in the Netherlands.
2019	CII study section NCI/NIH June 20 th -21 st , 2019

Institutional service

2008-2020	Cancer Center Member, TII program <i>Contribute to the University's cancer program.</i>
2009-2011	Graduate Research Conference (GRC) Judge (UMB)
2015-2016	Graduate Research Conference (GRC) Judge (UMB)
2010-2020	Medical Scientist Training Program (MSTP) member <i>Contribute to the training of MD-PhD students (Achsah Keegan, PhD Co-director)</i>
2011-2013	University of Maryland School of Medicine Council, alternate member
2012-2020	Veterinary Resources Advisory Committee <i>Advise on veterinary matters (Director, Louis DeTolla, PhD)</i>
2013-2020	Selection Committee for the Cancer Biology T32 Training Grant <i>Reviewer for T32 training grants, (Toni Antalis, PhD and Curt Civin, MD Directors)</i>
2013-2020	Cancer Biology Program member <i>Contribute to the training of new students</i>
2016-2020	GPILS MMI Education Committee <i>Advise on student education in MMI</i>

2018-2020 Selection Committee for Mary Kay Innovative/Translation Cancer Research Award. The award is for *innovative grants for translation research* in ovarian, uterine, breast, or cervical cancer.

GRANTS

Available upon request; received over 2.5 million in awards; some received scores of #1

PUBLICATIONS

COMPLETE LIST OF PUBLISHED SCIENTIFIC WORKS IN MY BIBLIOGRAPHY: [SEE BELOW]

<https://www.ncbi.nlm.nih.gov/myncbi/paul.antony.1/bibliography/public/>

Published on Amazon.com [Multi-language books]

2020 *Seneca, Epistulae Morales*, Book I: With an Introduction to Stoicism. An Interlinear Latin and English Text, ISBN: 978-1656214850

2023 *Bollywood Hindi Film Songs Translated into English, Volume I-V*: 108 Bollywood Hindi Songs from the 1970's to the Early 2000's with Vocabulary and Commentary): HINDI, URDU, and ENGLISH, ISBN: 979-8848622737

SCIENTIFIC PUBLICATIONS

Goding SR, Wilson KA, Rosinsky C, **Antony PA**. [PD-L1-Independent Mechanisms Control the Resistance of Melanoma to CD4⁺ T Cell Adoptive Immunotherapy](#). J Immunol. 2018 May 1;200(9):3304-3311. doi: 10.4049/jimmunol.1701617. Epub 2018 Mar 30. PubMed PMID: 29602773.

Joshi SS, Jiang S, Unni E, Goding SR, Fan T, **Antony PA**, Hornyak TJ. [17-AAG inhibits vemurafenib-associated MAP kinase activation and is synergistic with cellular immunotherapy in a murine melanoma model](#). PLoS One. 2018;13(2):e0191264. doi: 10.1371/journal.pone.0191264. eCollection 2018. PubMed PMID: 29481571; PubMed Central PMCID: PMC5826531.

Rus V, Nguyen V, Tatomir A, Lees JR, Mekala AP, Boodhoo D, Tegla CA, Luzina IG, **Antony PA**, Cudrici CD, Badea TC, Rus HG. [RGC-32 Promotes Th17 Cell Differentiation and Enhances Experimental Autoimmune Encephalomyelitis](#). J Immunol. 2017 May 15;198(10):3869-3877. doi: 10.4049/jimmunol.1602158. Epub 2017 Mar 29. PubMed PMID: 28356385; PubMed Central PMCID: PMC6197070.

Rosinsky C, **Antony PA**. [A role for pre-mNK cells in tumor progression](#). J Immunother Cancer. 2016;4:16. doi: 10.1186/s40425-016-0120-6. eCollection 2016. PubMed PMID: 26981246; PubMed Central PMCID: PMC4791770.

Wilson KA, Goding SR, Neely HR, Harris KM, **Antony PA**. [Depletion of B220⁺NK1.1⁺ cells enhances the rejection of established melanoma by tumor-specific CD4⁺ T cells](#). Oncoimmunology. 2015 Aug;4(8):e1019196. doi: 10.1080/2162402X.2015.1019196. eCollection 2015 Aug. PubMed PMID: 26405570; PubMed Central PMCID: PMC4570124.

Church SE, Jensen SM, **Antony PA**, Restifo NP, Fox BA. [Tumor-specific CD4⁺ T cells maintain effector and memory tumor-specific CD8⁺ T cells](#). Eur J Immunol. 2014 Jan;44(1):69-79. doi: 10.1002/eji.201343718. Epub 2013 Nov 21. PubMed PMID: 24114780; PubMed Central PMCID: PMC4283993.

Goding SR, Wilson KA, **Antony PA**. Combination of adoptive cell transfer, anti-PD-L1 and anti-LAG-3 antibodies for the treatment of recurrent tumors: Better with more. *Oncoimmunology*. 2013 August; 2(8).

Goding SR, Wilson KA, Xie Y, Harris KM, Baxi A, Akpinarli A, Fulton A, Tamada K, Strome SE, **Antony PA**. [Restoring immune function of tumor-specific CD4+ T cells during recurrence of melanoma](#). *J Immunol*. 2013 May 1;190(9):4899-909. doi: 10.4049/jimmunol.1300271. Epub 2013 Mar 27. PubMed PMID: 23536636; PubMed Central PMCID: PMC3633733.

Paper was highlighted by Jim Allison on the ACIR website

Jensen SM, Twitty CG, Maston LD, **Antony PA**, Lim M, Hu HM, Petrausch U, Restifo NP, Fox BA. [Increased frequency of suppressive regulatory T cells and T cell-mediated antigen loss results in murine melanoma recurrence](#). *J Immunol*. 2012 Jul 15;189(2):767-76. doi: 10.4049/jimmunol.1103822. Epub 2012 Jun 20. PubMed PMID: 22723522; PubMed Central PMCID: PMC3552612.

Muranski P, Borman ZA, Kerkar SP, Klebanoff CA, Ji Y, Sanchez-Perez L, Sukumar M, Reger RN, Yu Z, Kern SJ, Roychoudhuri R, Ferreyra GA, Shen W, Durum SK, Feigenbaum L, Palmer DC, **Antony PA**, Chan CC, Laurence A, Danner RL, Gattinoni L, Restifo NP. [Th17 cells are long lived and retain a stem cell-like molecular signature](#). *Immunity*. 2011 Dec 23;35(6):972-85. doi: 10.1016/j.immuni.2011.09.019. Epub 2011 Dec 15. PubMed PMID: 22177921; PubMed Central PMCID: PMC3246082.

Rausch MP, Irvine KR, Antony PA, Restifo NP, Cresswell P, Hastings KT. [GILT accelerates autoimmunity to the melanoma antigen tyrosinase-related protein 1](#). *J Immunol*. 2010 Sep 1;185(5):2828-35. doi: 10.4049/jimmunol.1000945. Epub 2010 Jul 28. PubMed PMID: 20668223; PubMed Central PMCID: PMC3060054.

Xie Y, Akpinarli A, Maris C, Hipkiss EL, Lane M, Kwon EK, Muranski P, Restifo NP, **Antony PA**. [Naive tumor-specific CD4\(+\) T cells differentiated in vivo eradicate established melanoma](#). *J Exp Med*. 2010 Mar 15;207(3):651-67. doi: 10.1084/jem.20091921. Epub 2010 Feb 15. PubMed PMID: 20156973; PubMed Central PMCID: PMC2839147.

Quezada SA, Simpson TR, Peggs KS, Merghoub T, Vider J, Fan X, Blasberg R, Yagita H, Muranski P, **Antony PA**, Restifo NP, Allison JP. [Tumor-reactive CD4\(+\) T cells develop cytotoxic activity and eradicate large established melanoma after transfer into lymphopenic hosts](#). *J Exp Med*. 2010 Mar 15;207(3):637-50. doi: 10.1084/jem.20091918. Epub 2010 Feb 15. PubMed PMID: 20156971; PubMed Central PMCID: PMC2839156.

Dual publications in JEM with Jim Allison who won Nobel Prize in 2018 for checkpoints.
First JEM article, with Dr. Antony as PI, referenced over 476 times.

Muranski P, Boni A, **Antony PA**, Cassard L, Irvine KR, Kaiser A, Paulos CM, Palmer DC, Touloukian CE, Ptak K, Gattinoni L, Wrzesinski C, Hinrichs CS, Kerstann KW, Feigenbaum L, Chan CC, Restifo NP. [Tumor-specific Th17-polarized cells eradicate large established melanoma](#). *Blood*. 2008 Jul 15;112(2):362-73. doi: 10.1182/blood-2007-11-120998. Epub 2008 Mar 19. PubMed PMID: 18354038; PubMed Central PMCID: PMC2442746.

Paulos CM, Kaiser A, Wrzesinski C, Hinrichs CS, Cassard L, Boni A, Muranski P, Sanchez-Perez L, Palmer DC, Yu Z, **Antony PA**, Gattinoni L, Rosenberg SA, Restifo NP. [Toll-like receptors in tumor immunotherapy](#). *Clin Cancer Res*. 2007 Sep 15;13(18 Pt 1):5280-9. doi: 10.1158/1078-0432.CCR-07-1378. Review. PubMed PMID: 17875756; PubMed Central PMCID: PMC2131730.

Paulos CM, Wrzesinski C, Kaiser A, Hinrichs CS, Chieppa M, Cassard L, Palmer DC, Boni A, Muranski P, Yu Z, Gattinoni L, **Antony PA**, Rosenberg SA, Restifo NP. [Microbial translocation augments the function of adoptively transferred self/tumor-specific CD8+ T cells via TLR4 signaling](#). *J Clin Invest*. 2007 Aug;117(8):2197-204. doi: 10.1172/JCI32205. PubMed PMID: 17657310; PubMed Central PMCID: PMC1924500.

Ahmadzadeh M, **Antony PA**, Rosenberg SA. [IL-2 and IL-15 each mediate de novo induction of FOXP3 expression in human tumor antigen-specific CD8 T cells](#). J Immunother. 2007 Apr;30(3):294-302. doi: 10.1097/CJI.0b013e3180336787. PubMed PMID: 17414320; PubMed Central PMCID: PMC2174606.

Gattinoni L, Ranganathan A, Surman DR, Palmer DC, **Antony PA**, Theoret MR, Heimann DM, Rosenberg SA, Restifo NP. [CTLA-4 dysregulation of self/tumor-reactive CD8+ T-cell function is CD4+ T-cell dependent](#). Blood. 2006 Dec 1;108(12):3818-23. doi: 10.1182/blood-2006-07-034066. Epub 2006 Aug 1. PubMed PMID: 16882704; PubMed Central PMCID: PMC1679662.

Antony PA, Paulos CM, Ahmadzadeh M, Akpinarli A, Palmer DC, Sato N, Kaiser A, Hinrichs CS, Klebanoff CA, Tagaya Y, Restifo NP. [Interleukin-2-dependent mechanisms of tolerance and immunity in vivo](#). J Immunol. 2006 May 1;176(9):5255-66. doi: 10.4049/jimmunol.176.9.5255. PubMed PMID: 16621991; PubMed Central PMCID: PMC1473163.

Gattinoni L, Finkelstein SE, Klebanoff CA, **Antony PA**, Palmer DC, Spiess PJ, Hwang LN, Yu Z, Wrzesinski C, Heimann DM, Surh CD, Rosenberg SA, Restifo NP. [Removal of homeostatic cytokine sinks by lymphodepletion enhances the efficacy of adoptively transferred tumor-specific CD8+ T cells](#). J Exp Med. 2005 Oct 3;202(7):907-12. doi: 10.1084/jem.20050732. PubMed PMID: 16203864; PubMed Central PMCID: PMC1397916.

Klebanoff CA, Gattinoni L, Torabi-Parizi P, Kerstann K, Cardones AR, Finkelstein SE, Palmer DC, **Antony PA**, Hwang ST, Rosenberg SA, Waldmann TA, Restifo NP. [Central memory self/tumor-reactive CD8+ T cells confer superior antitumor immunity compared with effector memory T cells](#). Proc Natl Acad Sci U S A. 2005 Jul 5;102(27):9571-6. doi: 10.1073/pnas.0503726102. Epub 2005 Jun 24. PubMed PMID: 15980149; PubMed Central PMCID: PMC1172264.

Antony PA, Piccirillo CA, Akpinarli A, Finkelstein SE, Speiss PJ, Surman DR, Palmer DC, Chan CC, Klebanoff CA, Overwijk WW, Rosenberg SA, Restifo NP. [CD8+ T cell immunity against a tumor/self-antigen is augmented by CD4+ T helper cells and hindered by naturally occurring T regulatory cells](#). J Immunol. 2005 Mar 1;174(5):2591-601. doi: 10.4049/jimmunol.174.5.2591. PubMed PMID: 15728465; PubMed Central PMCID: PMC1403291.

Paper was featured on the cover of JI. Referenced over 1000 times.

Antony PA, Restifo NP. [CD4+CD25+ T regulatory cells, immunotherapy of cancer, and interleukin-2](#). J Immunother. 2005 Mar-Apr;28(2):120-8. doi: 10.1097/01.cji.0000155049.26787.45. Review. PubMed PMID: 15725955; PubMed Central PMCID: PMC1242172.

Klebanoff CA, Khong HT, **Antony PA**, Palmer DC, Restifo NP. [Sinks, suppressors and antigen presenters: how lymphodepletion enhances T cell-mediated tumor immunotherapy](#). Trends Immunol. 2005 Feb;26(2):111-7. doi: 10.1016/j.it.2004.12.003. Review. PubMed PMID: 15668127; PubMed Central PMCID: PMC1388277.

Finkelstein SE, Heimann DM, Klebanoff CA, **Antony PA**, Gattinoni L, Hinrichs CS, Hwang LN, Palmer DC, Spiess PJ, Surman DR, Wrzesinski C, Yu Z, Rosenberg SA, Restifo NP. [Bedside to bench and back again: how animal models are guiding the development of new immunotherapies for cancer](#). J Leukoc Biol. 2004 Aug;76(2):333-7. doi: 10.1189/jlb.0304120. Epub 2004 May 20. PubMed PMID: 15155774; PubMed Central PMCID: PMC1484508.

Yang H, **Antony PA**, Wildhaber BE, Teitelbaum DH. [Intestinal intraepithelial lymphocyte gamma delta-T cell-derived keratinocyte growth factor modulates epithelial growth in the mouse](#). J Immunol. 2004 Apr 1;172(7):4151-8. doi: 10.4049/jimmunol.172.7.4151. PubMed PMID: 15034027.

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