

Curriculum Vitae
Parker Institute for Cancer Immunotherapy

Name: Lisa Helene Butterfield, Ph.D. **Birth Place:** Oakland, California
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Education and Training

Undergraduate:

1982-1986 Rensselaer Polytechnic Institute, Troy, NY, 1986 B.S., Biology, Minor: German

Graduate:

1986-1993 University of California, Los Angeles, CA 1993, Ph.D., Biology, Molecular Biology, Winston A. Salser, Ph.D., advisor

Postgraduate:

1993-1995 Postdoctoral Fellow, Tumor Immunology, Hungyi Shau, Ph.D. and Sidney Golub, Ph.D., advisors
1994 AACR Histopathobiology of Neoplasia Workshop, Keystone, CO
1995-1997 Postdoctoral Fellow, Cancer Gene Therapy, James S. Economou, M.D., Ph.D. advisor

Appointments and Positions

1985-1986 Research Assistant, Rensselaer Polytechnic Institute, Laboratory of H. Roy, Ph.D.
1986-1993 Research Assistant, University of California, Los Angeles, Laboratory of W. Salser, Ph.D.
1986-1989 Teaching Assistant, University of California, Los Angeles, Biology Department.
Courses: Molecular Biology Lab (8L), Cell Biology Lab (158), Genetic Engineering (157) and graduate section (257).
1993-1997 Postdoctoral Fellow, University of California, Los Angeles, Department of Surgery, Division of Surgical Oncology
1997-1999 Assistant Research Oncologist, University of California, Los Angeles, Department of Surgery, Division of Surgical Oncology
1999-2003 Adjunct Assistant Professor, University of California, Los Angeles, Department of Surgery, Division of Surgical Oncology
2003-2004 Visiting Assistant Professor of Medicine and Surgery, University of Pittsburgh School of Medicine, UPCI
2004-2010 Assistant Professor of Medicine and Surgery, University of Pittsburgh School of Medicine, UPCI
2006-2010 Assistant Professor of Immunology, University of Pittsburgh
2004-2018 Member of the Immunology Graduate Program, University of Pittsburgh
2005-2006 Associate Director, UPCI Immunologic Monitoring Laboratory
2006-2008 Director, UPCI Immunologic Monitoring Laboratory

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| 2008-2010 | Director of Operations, UPCI Immunologic Monitoring and Cellular Products Laboratory |
| 2010-2013 | Associate Professor of Medicine, Surgery and Immunology (with tenure), University of Pittsburgh |
| 2010-2018 | Director, UPCI Immunologic Monitoring and Cellular Products Laboratory |
| 2013-2018 | Professor of Medicine, Surgery and Immunology, University of Pittsburgh, Pittsburgh, PA |
| 2015-2018 | Professor of Clinical and Translational Science, University of Pittsburgh, Pittsburgh, PA |
| 2018-Present | Vice President, PICI Research Center, Parker Institute for Cancer Immunotherapy, San Francisco, CA |

Certifications

University of Pittsburgh: Research Integrity; Human Subject Research; HIPAA Researchers Privacy Requirements, Animal Use, Conflict of Interest, Blackboard/Course Web, Good Clinical Practice Course, Manager Training, Biomedical Responsible Conduct of Research, Advanced Leadership Training.

UCLA: Flow Cytometry Course (1997); Human Subjects Protection; Gene-based Therapy Program/GMP (2000), Biosafety Cabinet Use, Hazmat Employee, Dangerous Goods Transport, HIPAA Training (annually, 2000-2003), Biomedical Human Subjects Research Curriculum.

Memberships in Professional and Scientific Societies

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| American Association for the Advancement of Science (AAAS) | 1989-present |
| American Association of Immunologists (AAI) | 1993-present |
| American Association for Cancer Research (AACR) | 1994-present |
| Women in Cancer Research | 1995-present |
| International Society for Biological Therapy of Cancer (iSBTc) | 2004-present |
| [2010 name change: <i>Society for Immunotherapy of Cancer (SITC)</i>] | |
| Member, iSBTc Scientific Program Committee | 2006-2008 |
| Member, iSBTc Board of Directors | 2007-2010 |
| Steering Committee, Biomarker Taskforce | 2008-present |
| Strategic Plan "Goal C" Website Taskforce | 2011 |
| Society Officer: Secretary/Treasurer | 2011-2014 |
| Journal Committee | 2012 |
| Member, Council for Immunotherapy Education | 2013-present |
| Co-Chair, Basic/Translation Research Subcommittee | 2013-2014 |
| Society Officer: Vice-President | 2014-2016 |
| Chair, SITC Bylaws Committee | 2016-2017 |
| Society Officer: President | 2016-2018 |
| Women's Initiatives (networking, leadership events), Chair | 2017-present |
| Sparkathon II Judge | 2018 |
| Member, Finance Committee | 2018-2020 |
| Society Officer: Immediate Past President | 2019-2020 |

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| Eastern Cooperative Oncology Group – American College of Radiologic Imaging Network (ECOG-ACRIN) | 2005-2018 |
| Immunology Core Laboratory Director | 2007-2018 |
| Lab Science Liaison of the Melanoma Committee | 2008-2018 |
| Member: Biomarkers Committee | 2013-2018 |
| Member: Immune Strategies Biomarker Committee | 2014-2018 |
| Dendritic Cell & Vaccine Science | 2010-present |
| Cancer Immunotherapy Consortium (CIC) | 2014-present |
| Member, NCI Immune Response Modifier Subgroup (Pilot Prioritization Project) | 2008-2009 |
| Member, NCI Immune Response Modifier Pathway Prioritization Working Group | 2009-2010 |
| Member, AACR Cancer Immunology Working Group (CIMM) | 2010-present |
| Chair, CIMM Nominating Committee | 2014, 2016 |
| Member, NIH Cancer Immunopathology and Immunotherapy (CII) Study Section | 2010-2014 |
| Member, NIH Cancer Immunotherapy Trials Network (CITN) | |
| Correlative Science Committee (CSC) | 2011-present |
| Co-chair, AAI Abstract Programming “Immunotherapy and Vaccines” | 2012-2015 |
| Member, NIAID/CIC Luminex Steering Committee | 2012-2018 |
| Member, International Society for Cellular Therapy (ISCT) | 2013 –present |
| Member, ISCT Immunotherapy Committee | 2013-2016 |
| Member, ISCT Immuno-Gene Therapy Scientific Committee | 2017- present |
| Member, NCI Cancer Steering Committee Immunotherapy Working Group | 2015-2018 |
| Member, IUIS Immunotherapy Committee | 2015–2017 |
| Member, EATI | 2016-present |
| Member, AACR-Cancer Research Institute Lloyd J. Old Award in Cancer Immunology Committee | 2016-2017 |
| Member, Food and Drug Administration Cellular, Tissues and Gene Therapies Advisory Committee | 2016-present |
| Chair, Food and Drug Administration Cellular, Tissues and Gene Therapies Advisory Committee | 2018-present |
| Member, FNIH Drug Selection Committee for the Lung-MAP Clinical Trial | 2017-2020 |
| Member, AACR Education Committee for the 2018 Annual Meeting | 2017-2018 |

Honors

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| 1983-1986 | C. Sheldon Roberts Scholarship |
| 1986-1987 | California Graduate Fellowship |
| 1995-1997 | Jonsson Cancer Center Postdoctoral Fellowship |

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| 2003-2006 | American Heart Association Scientist Development Award |
| 2004-2006 | Henry L. Hillman Foundation Award/Hillman Fellow |
| 2006-2007 | 2006 Hillman Fellow for Innovative Cancer Research Award |
| 2007-2008 | 2007 Hillman Fellow for Innovative Cancer Research Award |
| 2008-2009 | 2008 Hillman Fellow for Innovative Cancer Research Award |
| 2008 | UPCI Junior Scholar Award in Basic Cancer Research |
| 2010 | iSBTc Team Science Recognition Award – <i>“For individual contribution of energy, activity and intellect to the team at University of Pittsburgh, whose leadership has fostered success in the field of immunotherapy/biological therapy of cancer.”</i> |
| 2011 | University of Pittsburgh – Faculty Honoree – <i>“For dedication and talent in the areas of teaching, research and public service.”</i> |
| 2014-2015 | 2014 Hillman Fellow for Innovative Cancer Research Award |
| 2016 | AAI Travel Award to the International Congress on Immunology, Melbourne, Australia |
| 2016-2017 | 2016 Hillman Fellow for Innovative Cancer Research Award |

Publications

Refereed Articles:

1. Shau, H., **Butterfield, L.H.**, Chiu, R., and Kim, A. Cloning and sequence analysis of candidate human natural killer enhancing factor genes. *Immunogenetics*, 40:129-134, 1994. PMID: 8026862
2. Sauri, H., **Butterfield, L.H.**, Kim, A., and Shau, H. Antioxidant function of recombinant human natural killer enhancing factor. *Biochem. Biophys. Res. Commun.*, 208: 964-969, 1995. PMID: 7702627
3. Arthur, J.F., **Butterfield, L.H.**, Kiertscher, S.M., Roth, M.D., Bui, L.A., Lau, R., Dubinett, S.M., Glaspy, J., and Economou, J.S. A comparison of gene transfer methods in human dendritic cells. *Cancer Gene Ther.*, 4: 17-25, 1997. PMID: 9012447
4. **Butterfield, L.H.**, Stoll, T.C., Lau, R., and Economou, J.S. Cloning and analysis of MART-1/Melan-A human melanoma antigen promoter regions. *Gene*, 191:129-134, 1997. PMID: 9218710
5. Bui, L.A., **Butterfield, L.H.**, Seu, P., Kim, J., Ribas, A., Lau, R., Glaspy, J.A., McBride, W.H., and Economou, J.S. In vivo therapy of hepatocellular carcinoma with a tumor-specific adenoviral vector expressing interleukin-2. *Hum. Gene Ther.*, 8: 2173-2182, 1997. PMID: 9449371
6. Ribas, A., **Butterfield, L.H.**, McBride, W.H., Jilani, S., Bui, L.A., Vollmer, C.M., Lau, R., Dissette, V.B., Hu, W., Chen, A., Glaspy, J., and Economou, J.S. Genetic Immunization for the melanoma antigen MART-1/Melan-A using recombinant adenovirus-transduced murine dendritic cells. *Cancer Res.*, 57: 2865-2869, 1997. PMID: 9230191

7. Vollmer, C.M., **Butterfield, L.H.**, Ribas, A., Jilani, S., Glaspy, J., McBride, W.H., and Economou, J.S. An E1B attenuated adenovirus selectively inhibits growth of a p53 deficient hepatocellular carcinoma. *Surgical Forum*, 48: 838-841, 1997.
8. **Butterfield, L.H.**, Jilani, S., Chakraborty, N.G., Bui, L.A., Ribas, A., Dissette, V., Lau, R., Gamradt, S., Glaspy, J.A., McBride, W.H., Mukherji, B., and Economou, J.S. Generation of melanoma-specific cytotoxic T lymphocytes by dendritic cells transduced with a MART-1 adenovirus. *J. Immunol.*, 161: 5607-5613, 1998. PMID: 9820539
9. Perez-Diez, A., **Butterfield, L.H.**, Li, L., Chakraborty, N.G., Economou, J.S., and Mukherji, B. Generation of CD8⁺ and CD4⁺ T cell response to dendritic cells genetically engineered to express the MART-1/Melan-A gene. *Cancer Res.*, 58: 5305-5309, 1998. PMID: 9850054.
10. Ribas, A., **Butterfield, L.H.**, McBride, W.H., Dissette, V.B., Koh, A., Vollmer, C.M., Hu, B., Chen, A., Eilber, F.C., Andrews, K.J., Glaspy, J.A., and Economou, J.S. Characterization of antitumor immunization to a defined melanoma antigen using genetically engineered murine dendritic cells. *Cancer Gene Ther.*, 6: 523-536, 1999. PMID: 10608349
11. Ribas, A., Bui, L.A., **Butterfield, L.H.**, Vollmer, C.M., Jilani, S., Dissette, V.B., Glaspy, J.A., McBride, W.H., and Economou, J.S. Antitumor protection using murine dendritic cells pulsed with acid-eluted peptides from *in vivo* grown tumors of different immunogenicities. *Anticancer Res.*, 19: 1165-1170, 1999. PMID: 10368670
12. Vollmer, C.M., Eilber, F.C., **Butterfield, L.H.**, Ribas, A., Dissette, V.B., Koh, A., Montejo, L., Andrews, K.J., McBride, W.H., Glaspy, J.A., and Economou, J.S. Alpha-fetoprotein-specific genetic immunotherapy for hepatocellular carcinoma. *Cancer Res.*, 59: 3064-3067, 1999. PMID: 10397245
13. **Butterfield, L.H.**, Koh, A., Meng, W., Vollmer, C.M., Ribas, A., Dissette, V.B., Lee, E., Glaspy, J.A., McBride, W.H., and Economou, J.S. Generation of human T cell responses to an HLA-A2.1-restricted peptide epitope derived from alpha-fetoprotein. *Cancer Res.*, 59: 3134-3142, 1999. PMID: 10397256
14. Vollmer, C.M., Ribas, A., **Butterfield, L.H.**, Dissette, V.B., Andrews, K.J., Eilber, F.C., Montejo, L.D., Chen, A.Y., Hu, B., Glaspy, J., McBride, W.H., and Economou, J.S. p53 selective and non-selective replication of an E1B-deleted adenovirus in hepatocellular carcinoma. *Cancer Res.*, 59: 4369-4374, 1999. PMID: 10485485
15. Ribas, A., **Butterfield, L.H.**, Hu, B., Dissette, V.B., Chen, A.Y., Koh, A., Glaspy, J.G., McBride, W.H., and Economou, J.S. Generation of T cell immunity to a murine melanoma using MART-1 engineered dendritic cells. *J. Immunother.*, 23: 59-66, 2000. PMID: 10687138
16. Miller, P.W., Sharma, S. Stolina, M., **Butterfield, L.H.**, Luo, J., Lin Y., Dohadwala, M., Batra, R., Wu, L., Economou, J.S., and Dubinett, S.M. Intratumoral administration of adenoviral interleukin-7 gene-modified dendritic cells augments specific antitumor immunity and achieves tumor eradication. *Hum. Gene Ther.*, 11: 53-65, 2000. PMID: 10646639
17. Ribas, A., **Butterfield, L.H.**, Hu, B., Dissette, V.B., Koh, A., Lee, M.C., Andrews, K.J., Meng, W., Glaspy, J.G., McBride, W.H., and Economou, J.S. Immune deviation and Fas-mediated deletion limit antitumor activity after multiple dendritic cell vaccinations in mice. *Cancer Res.*, 60: 2218-2224, 2000. PMID: 10786687
18. Andrews, K.J., Ribas, A., **Butterfield, L.H.**, Vollmer, C.M., Eilber, F.C., Dissette, V.B., Nelson, S., Shintaku, P., Mekhoubad, S., Nakayama, T., Taniguchi, M., Glaspy, J.A., McBride, W.H., and Economou, J.S. Adenovirus-interleukin-12-mediated tumor regression in a murine hepatocellular carcinoma model is not dependent on CD1-restricted natural killer-T cells. *Cancer Res.*, 60: 6457-6464, 2000. PMID: 11103813

19. Meng, W.S., **Butterfield, L.H.**, Ribas, A., Dissette, V.B., Glaspy, J.A., McBride, W.H., and Economou, J.S. Fine specificity analysis of an HLA-A2.1-restricted immunodominant T cell epitope derived from human alpha-fetoprotein. *Mol. Immunol.*, 37: 943-950, 2000. PMID: 11395133
20. Frost, P., **Butterfield, L.H.**, Dissette, V.B., Economou, J.S., and Bonavida, B. Immunosenitization of melanoma tumor cells to non-MHC Fas-mediated killing by MART-1-specific CTL cultures. *J. Immunol.*, 166: 3564-3573, 2001. PMID: 11207317
21. **Butterfield, L.H.**, Meng, W., Koh, A., Vollmer, C.M., Ribas, A., Dissette, V.B., Faull, K., Glaspy, J.A., McBride, W.H., and Economou, J.S. T cell responses to HLA-A*0201-restricted peptides derived from human alpha fetoprotein. *J. Immunol.*, 166: 5300-5308, 2001. PMID: 11290817
22. Ribas, A. **Butterfield, L.H.**, Amarnani, S., Kim, D., Dissette, V.B., Meng, W.S., Miranda, G.A., Wang, H.-J., McBride, W.H., Glaspy, J.A., and Economou, J.S. CD40 cross-linking bypasses the absolute requirement for CD4 T-cells during immunization with melanoma antigen gene-modified dendritic cells. *Cancer Res.*, 61: 8787-8793, 2001. PMID: 11751400
23. Meng, W.S., **Butterfield, L.H.**, Ribas, A., Dissette, V.B., Heller, J.B., Miranda, G.A., Glaspy, J.A., McBride, W.H., and Economou, J.S. Alpha-fetoprotein-specific tumor immunity induced by plasmid prime-adenovirus boost genetic vaccination. *Cancer Res.*, 61: 8782-8786, 2001. PMID: 11751399
24. Ribas, A, Amarnani, S.N., Buga, G.M., **Butterfield, L.H.**, Dissette, V.B., McBride, W.H., Glaspy, J.A., Ignarro, L.J., and Economou, J.S. Immunosuppressive effects of interleukin-12 co-expression in melanoma antigen gene-modified dendritic cell vaccines. *Cancer Gene Ther.*, 9, 875-883, 2002. PMID: 12386826
25. **Butterfield, L.H.**, Ribas, A., Dissette, V.B., Amarnani, S., Vu, H., Oseguera, D., Wang, H.-J., Elashoff, R.M., McBride, W.H., Mukherji, B., Cochran, A., Glaspy, J.A., and Economou, J.S. Determinant spreading associated with clinical response in dendritic cell-based immunotherapy for malignant melanoma. *Clin. Cancer Res.*, 9: 998-1008, 2003. PMID: 12631598
26. **Butterfield, L.H.**, Ribas, A., Meng, W.S., Dissette, V.B., Amarnani, S., Vu, H., Seja, E., Todd, K., Glaspy, J.A., McBride, W.H., and Economou, J.S. T cell responses to HLA-A*0201 immunodominant peptides derived from alpha-fetoprotein in patients with hepatocellular cancer. *Clin. Cancer Res.*, 9: 5902-5908, 2003. PMID: 14676113
27. Mehrotra, S., Stevens, R., Zengou, R., Chakraborty, N.G., **Butterfield, L.H.**, Economou, J.S., Dorsky, D.I., and Mukherji, B. Regulation of melanoma epitope-specific cytolytic T lymphocyte response by immature and activated dendritic cells, *in vitro*. *Cancer Res.*, 63: 5607-5614, 2003. PMID: 14500402
28. Ribas, A., Wargo, J., Comin-Andruix, B., Sanetti, S., Schumacher, L.Y., McLean, C, Dissette, V.B., Glaspy, J.A., McBride, W.H., **Butterfield, L.H.**, and Economou, J.S. Enhanced tumor responses to dendritic cell vaccines in the absence of CD8-positive cells. *J. Immunol.*, 172: 4762-4769, 2004. PMID: 15067052
29. Schumacher, L.Y, Ribas, A., Dissette, V.B., McBride, W.H., Mukherji, B., Economou, J.S., and **Butterfield, L.H.** Human dendritic cell maturation by adenovirus transduction enhances tumor antigen-specific T cell responses. *J. Immunother.*, 27: 191-200, 2004. PMID: 15076136
30. Ribas, A., Glaspy, J.A., Lee, Y., Dissette, V.B., Seja, E., Vu, H., Tchekmedyian, N.S., Oseguera, D., Comin-Andruix, B., Wargo, J.A., Amarnani, S.N., McBride, W.H. Economou, J.S., and **Butterfield, L.H.** Role of dendritic cell phenotype, determinant spreading and negative costimulatory blockade in dendritic cell-based melanoma immunotherapy. *J. Immunother.*, 27: 354-367, 2004. PMID: 15314544

31. Gordon, L.K., Ribas, A, Nusinowitz, S., **Butterfield, L.H.**, Glaspy, J.A., Economou, J.S., and Straatsma, B.R. Surveillance of the eye and vision in a clinical trial of MART1-transformed dendritic cells for metastatic melanoma. *Control. Clin. Trials*, 25: 400-407, 2004. PMID: 15296814
32. Mehrotra, S., Chabra, A., Chakraborty, A., Chattopadhyay, S., Stevens, R., Zengou, R., **Butterfield, L.H.**, Dorsky, D.I., Economou, J.S., Mukherji, B., and Chakraborty, N.G. Antigen presentation by MART-1 adenovirus-transduced interleukin-10-polarized human monocyte derived dendritic cells. *Immunol.*, 113: 472-481, 2004. PMID: 15554925
33. Liao, Y-P., Wang, C-C., **Butterfield, L.H.**, Economou, J.S., Ribas, A., Meng, W.S., Iwamoto, K.S., and McBride, W.H. Ionizing radiation affects human MART-1 melanoma antigen processing and presentation by dendritic cells. *J. Immunol.*, 173: 2462-2469, 2004. PMID: 15294960
34. Wargo J.A., Schumacher, L.Y., Comin-Anduix, B., Dissette, V.B., Glaspy, J.A., McBride, W.H., **Butterfield, L.H.**, Economou, J.S., and Ribas, A. Natural killer cells play a critical role in the immune response following immunization with melanoma-antigen-engineered dendritic cells. *Cancer Gene Ther.*, 12(6): 516-527, 2005. PMID: 15775996
35. **Butterfield, L.H.**, Ribas, A., Dissette, V.B., Lee, Y., Yang, J., De la Rocha, P., Duran, S.D., Hernandez, J., Seja, E., Potter, D.M., McBride, W.H., Finn, R., Glaspy, J.A., and Economou, J.S. A Phase I/II trial testing immunization of hepatocellular carcinoma patients with dendritic cells pulsed with four alpha-fetoprotein peptides. *Clin. Cancer Res.*, 12: 2817-2825, 2006. PMID: 16675576
36. Liu, Y., Daley, S., Evdokimova, V.N., Zdobinski, D.D., Potter, D.M., and **Butterfield, L.H.** Hierarchy of alpha-fetoprotein (AFP)-specific T cell responses in subjects with AFP-positive hepatocellular cancer. *J. Immunol.*, 177: 712-721, 2006. PMID: 16785570; PMCID: 3607814
37. Evdokimova, V.N., Liu, Y., Potter, D.M., and **Butterfield, L.H.** AFP specific CD4⁺ helper T cell responses in healthy donors and HCC patients. *J. Immunother.*, 30: 425-437, 2007. PMID: 17457217; PMCID: 3612834
38. **Butterfield, L.H.**, Ribas, A., Potter, D.M., and Economou, J.S. Spontaneous and vaccine induced AFP-specific T cell phenotypes in subjects with AFP-positive hepatocellular cancer. *Cancer Immunol. Immunother.*, 56: 1931-1943, 2007. PMID: 17522860
39. Okada, H., Lieberman, F.S., Walter, K.A., Lunsford, L.D., Kondziolka, D.S., Bejjani, G.K., Hamilton, R.L., Torres-Trejo, A., Kalinski, P., Cai, Q., Mabold, J.L., Edington, H.D., **Butterfield, L.H.**, Whiteside, T.L., Potter, D.M., Schold, S.C., and Pollack, I.F. Autologous glioma cell vaccine admixed with interleukin-4 gene transfected fibroblasts in the treatment of patients with malignant gliomas. *J. Transl. Med.*, 5: 67, 2007. PMID: 18093335; PMCID: 2254376
40. Ueda, R., Low, K.L., Zhu, X., Fujita, M., Sasaki, K., Whiteside, T.L., **Butterfield, L.H.**, and Okada, H. Spontaneous immune responses against glioma-associated antigens in a long term survivor with malignant glioma. *J. Transl. Med.*, 5: 68, 2007. PMID: 18093336; PMCID: 2244605
41. **Butterfield, L.H.**, Gooding, W., and Whiteside, T.L. Development of a potency assay for human dendritic cells: IL-12p70 production. *J. Immunother.*, 31: 89-100, 2008. PMID: 18157016
42. **Butterfield, L.H.**, Comin-Anduix, B., Vujanovic, L., Lee, Y., Dissette, V.B., Yang, J-Q., Vu, H.T., Seja, E., Oseguera, D.K., Potter, D.M., Glaspy, J.A., Economou, J.S., and Ribas, A. Adenovirus MART-1 engineered autologous dendritic cell vaccine for metastatic melanoma. *J. Immunother.*, 31: 294-309, 2008. PMID: 18317358; PMCID: 3651040

43. **Butterfield, L.H.**, Disis, M.L., Fox, B.A., Lee, P.P., Khleif, S.N., Thurin, M., Trinchieri, G., Wang, E., Wigginton, J., Chaussabel, D., Coukos, G., Dhodapkar, M., Hakansson, L., Janetzki, S., Kleen, T.O., Kirkwood, J.M., Maccalli, C., Maecker, H., Maio, M., Malyguine, A., Masucci, G., Palucka, A.K., Potter, D.M., Ribas, A., Rivoltini, L., Schendel, D., Seliger, B., Selvan, S., Slingsluff, C.L., Stroncek, D.F., Streicher, H., Wu, X., Zeskind, B., Zhao, Y., Zocca, M-B., Zwierzina, H., and Marincola, F.M. A systematic approach to biomarker discovery; Preamble to "the iSBTc-FDA taskforce on immunotherapy biomarkers. *J. Transl. Med.*, 6: 81, 2008. PMID: 19105846; PCMID: 2630944
44. Vujanovic, L., Whiteside, T.L., Potter, D.P., Chu, J., Ferrone, S., and **Butterfield, L.H.** Regulation of antigen presentation machinery in human dendritic cells by recombinant adenovirus. *Cancer Immunol. Immunother.*, 58: 121-133, 2009. PMID: 18488218; PCMID: 2726804
45. Kirkwood, J.M., Lee, S., Moschos, S., Albertini, M., Michalak, J., Sander, C., Whiteside, T.L., **Butterfield, L.H.**, and Weiner, L. Immunogenicity and antitumor effects of vaccination with peptide vaccine +/- granulocyte-monocyte colony-stimulating factor and/or IFN-alpha2b in advanced metastatic melanoma: Eastern Cooperative Oncology Group Phase II Trial E1696. *Clin. Cancer Res.*, 15: 1443-1451, 2009. PMID: 19228745; PCMID: 2759898
46. Tahara, H., Sato, M., Thurin, M., Wang, E., **Butterfield, L.H.**, Disis, M.L., Fox, B.A., Lee, P.P., Khleif, S.N., Wigginton, J.M., Ambs, S., Akutsu, Y., Chaussabel, D., Doki, Y., Eremin, O., Fridman, W.H., Hirohashi, Y., Imai, K., Jacobson, J., Jinushi, M., Kanamoto, A., Kashani-Sabet, M., Kato, K., Kawakami, Y., Kirkwood, J.M., Kleen, T.O., Lehmann, P.V., Liotta, L., Lotze, M.T., Malyguine, A., Masucci, G., Matsubara, H., Nakamura, K., Nishikawa, H., Palucka, A.K., Petricoin, E.F., Pos, Z., Ribas, A., Rivoltini, L., Sato, N., Shiku, H., Slingsluff, C.L., Streicher, H., Stroncek, D.F., Takeuchi, H., Toyota, M., Wada, H., Wu, X., Wulfkuhle, J., Yaguchi, T., Zeskind, B., Zhao, Y., Zocca, M-B., and Marincola, F.M. Emerging concepts in biomarker discovery: The US-Japan workshop on immunological molecular markers in oncology. *J. Transl. Med.*, 7: 45, 2009. PMID: 19534815; PCMID: 2724494
47. Lipscomb, M.W., Chen, L., Taylor, J.L., Goldbach, C., Watkins, S. C., Kalinski, P., **Butterfield, L.H.**, Wesa, A.K., and Storkus, W.J. Ectopic T-bet expression licenses dendritic cells for IL-12-independent priming of type-1 T cells *in vitro*. *J. Immunol.*, 183: 7250-7258, 2009. PMID: 19915058; PCMID: 2921905
48. Steel, J., Kim, K.H., Dew, M.A., Unruh, M., Antoni, M., Olek, M.C., Geller, D.A., Carr, B.I., **Butterfield, L.H.**, and Gamblin, T.C. Cancer-related symptom clusters and eosinophils and survival in hepatobiliary cancer: An exploratory study. *J. Pain Symptom Manage.*, 39: 859-71, 2010. PMID: 20471546; PCMID: 3127169
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24. **Butterfield, L.H.**, Ribas, A., Lee, Y., Dissette, V.B., Yang, J-Q., Vu, H., Seja, E., Oseguera, D., McBride, W.H. Glaspy, J.A., and Economou, J.S. A Phase I/II Trial Immunizing Melanoma Patients with Autologous Dendritic Cells Transduced with AdVMART1. Basic Aspects of Tumor Immunology, Keystone Symposia, 2003.
25. Liao, Y-P., **Butterfield, L.H.**, Ribas, A., and McBride, W.H. Ionizing radiation effects on MHC class I antigen presentation. Proc. AACR, 2003.
26. Ribas, A. Wargo, J.A., Comin-Anduix, B., **Butterfield, L.H.**, Dissette, V.B., Schumacher, L., Glaspy, J.A., McBride, W.H., and Economou, J.S. Broad Tumor Protection Stimulated by Dendritic Cell-Based Immunization in the Absence of CD8+ T Cells. Proc. AACR, 2003.
27. Liao, Y-P., **Butterfield, L.H.**, Ribas, A., Meng, W.S., and McBride, W.H. Radiation modulates tumor antigen presentation by dendritic cells. Proc. AACR, 2004.
28. **Butterfield, L.H.**, Ribas, A., Dissette, V.B., Lee, Y., Yang, J., Duran, S.D., Amarnani, S., Seja, E., McBride, W.H., Finn, R., Glaspy, J.A., and Economou, J.S. T Cell responses to alpha fetoprotein-derived immunodominant peptide-pulsed dendritic cells in patients with hepatocellular cancer. iSBTc, 2004.
29. **Butterfield, L.H.**, Ribas, A., Dissette, V.B., Lee, Y., Yang, J., Duran, S.D., Amarnani, S., Seja, E., McBride, W.H., Finn, R., Glaspy, J.A., and Economou, J.S. Spontaneous AFP-Specific T Cell Responses in Subjects with AFP-positive Hepatocellular Cancer. Basic Aspects of Tumor Immunology II, Keystone Symposia, 2005. ***Selected for short oral presentation.**
30. Schumacher, L.Y., Vo, D.D., Owens, S.K., Dissette, V.B., Comin-Anduix, B., **Butterfield, L.H.**, Ribas, A., and Economou, J.S. Modest Activity of Alpha-fetoprotein (AFP)-based Genetic Immunotherapy in a Spontaneous Hepatocarcinogenesis Model. Proc. AACR, 2006.
31. Liu, Y., Daley, S., Potter, D.M., and **Butterfield, L.H.** Hierarchy of AFP-Specific T Cell Responses in Subjects with AFP-positive Hepatocellular Cancer. Proc. AAI, 2006. ***Selected for short oral presentation.**
32. Evdokimova, V. N., Liu, Y., Potter, D.M., Ribas, A., Economou, J.S., and **Butterfield, L.H.** Tumor Antigen-Specific T Cell Responses in Hepatocellular Cancer Patients. iSBTc, 2006.
33. **Butterfield, L.H.** and Kirkwood, J.M. Creation Of An Adenoviral Vector Encoding Tyrosinase, MART-1 And MAGE-A6 To Perform A Clinical Trial Testing Multiple Antigen-Engineered DC Immunization And IFN α Boost For Metastatic Melanoma. Univ. Pittsburgh Science Technology Showcase, 2006.
34. **Butterfield, L.H.** Tumor Antigen-Specific T Cell Responses in Hepatocellular Cancer Patients. AHA Research Symposium, 2006. ***Selected for short oral presentation.**
35. Vujanovic, L., Whiteside, T.L., Ferrone, S., and **Butterfield, L.H.** Regulation of Antigen Processing Molecules in Adenovirally Engineered Human Dendritic Cells, AAI, 2007. (*Also presented at UPCI Annual Retreat 6/21/07).
36. **Butterfield, L.H.**, Ribas, A., Comin-Anduix, B., Glaspy, J.A., and Economou, J.S. Immunological and Clinical Responses from a Phase I/II Trial Immunizing Melanoma Patients with Autologous Dendritic Cells Transduced with AdVMART1. Anti-Tumor Immunotherapies, Keystone Symposia, 2007. (*Also presented at Univ. Pittsburgh Clinical and Translational Science Day 5/17/07 and UPCI Annual Retreat 6/21/07).

37. **Butterfield, L.H.**, Gooding, W.E., and Whiteside, T.L. Development of a potency assay for human dendritic cells: IL-12p70 production. iSBTc, 2007.
38. Vujanovic, L., Newton, S.B., Landsberg, J., Vujanovic, N.L., and **Butterfield, L.H.** Cross-Talk Between NK Cells and Adenovirally-Engineered Dendritic Cell Vaccines. Proc. AAI, 2008. **Winner of AAI travel award (LV)**. Also presented at the Tumor Vaccine and Cell Therapy Working Group meeting, April, 2008.
39. Okada, H., Lieberman, F., Ueda, R., Fujita, M., Zhu, X., Kalinski, P., Lunsford, L., Kassam, A., Mintz, A., Park, D., Mabold, J., Bartlett, D., Brown, C., Zeh, H., Whiteside, T.L., **Butterfield, L.H.**, Hamilton, R., Salazar, A., and Pollack, I. Induction of type-1 CTL responses against novel glioma-associated antigen (GAA)-derived epitopes EphA2 (883-891) and IL-13alpha2 (345-353) in patients with recurrent malignant glioma receiving dendritic cell (DC) vaccines in combination with poly-ICLC. SNO, 2008.
40. Vujanovic, L.*, Newton, S. B., Landsberg, J., Vujanovic, N.L., and **Butterfield, L.H.** Activation of human NK cells by adenovirally-engineered dendritic cells. Proc. EFIS/EJI Belgrade Symposium/Postgraduate Course, 2008 ***selected for oral presentation**.
41. Vujanović, L.N., Bray, S., Vujanović, N.L., and **Butterfield, L.H.** Activation of human NK cells by adenovirally-engineered dendritic cells. Proc. iSBTc, 2008.
42. Bray, S., Park, J.E., Shi, J., Tse, J.C., Watkins, S.C., Vujanovic, N.L., Vujanovic, L.N., and **Butterfield, L.H.** Impact of tumor antigen loading of dendritic cells on CD8+ and CD4+ T cell and NK cell responses. Dendritic Cells, Proc. Keystone Symposia, 2009.
43. Landsberg, J., Shi, J., Vujanovic, L., Messmer, M., Kirkwood, J.M., and **Butterfield, L.H.** Human Dendritic Cells Adenovirally-Engineered to Express Three Defined Melanoma Tumor Antigens Activate Polyclonal T Cells: Preclinical Development for a Phase II Trial. NCI Translational Science, 2009.
44. Vujanović, L.N., Szymkowski, D.E., Vujanović, N.L., and **Butterfield, L.H.** Adenovirus-Infected Human Dendritic Cells Activate Natural Killer Cells Via Plasma Membrane-Bound TNF and IL-15. Proc. iSBTc, 2009.
45. Steel, J.L., Kim, K.H., Unruh, M., Schulz, R., Antoni, M., Marsh, W., Youssef, M., Dunlavy, A., **Butterfield, L.H.**, Hammond, J., and Gamblin, T.C. The Consequences of Fatigue in Patients Diagnosed with Hepatobiliary Carcinoma. Proc. UICC, 2010 (#671).
46. Slingluff, C.L., Lee, S., Bullock, K.A., Olson, W., **Butterfield, L.H.**, Leming, P.D., and Kirkwood, J.M. First Report of a Randomized Phase II Trial of Multi-epitope Vaccination with Melanoma Peptides for Cytotoxic T-Cells and Helper T-Cells in Patients with Metastatic Melanoma: An Eastern Cooperative Oncology Group Study (E1602). Proc. ASCO, 2010 #8508 *** selected for oral presentation**.
47. Vujanovic, L., Ballard, W., Vujanovic, N.L., and **Butterfield, L.H.** Adenovirus-engineered human dendritic cells effectively recruit natural killer cells via CXCL8/IL-8 and CXCL10/IP-10. Proc. iSBTc, 2010.
48. **Butterfield, L.H.**, Vujanovic, N., Ballard, W., and Vujanovic, L. Adenovirus-engineered human dendritic cells recruit NK cell subsets via proinflammatory CXCL8/IL-8 and immunoregulatory CXCL10/IP-10 chemokines. Proc. Keystone Symposia, February, 2011.
49. Tarhini, A.A., Edington, H., **Butterfield, L.H.**, Sinha M., Moschos, S.J., Tawbi, H., Shuai, Y., Shipe-Spotloe, J., Simonetta, M., Milburn, C., Horak, M., Sander, C., and Kirkwood, J.M. Neoadjuvant ipilimumab in patients with stage IIIB/c melanoma: Immunogenicity and biomarker analysis. Proc. ASCO, 2011 (#84486).

50. Tarhini, A.A., Edington, H., **Butterfield, L.H.**, Sinha, M., Moschos, S., Tawbi, H., Shuai, Y., Shipe-Spotloe, J., Simonetta, M., Sander, C., and Kirkwood, J.M. Neoadjuvant anti-CTLA4 blockade with Ipilimumab in patients with AJCC stage IIIB-C (T_{x,1-4}, N_{1b,2c,3}, M₀) melanoma: Immunogenicity and biomarker analysis. Proc. ASCO, 2011.
51. Pollack, I., Jakacki, R., **Butterfield, L.H.**, and Okada, H. Results of a pilot study of vaccinations with HLA-A2-restricted glioma antigen-peptides in combination with poly-ICLC for children with newly diagnosed malignant brainstem gliomas, non-brainstem high-grade gliomas, or recurrent unresectable gliomas. Neuro-Oncology iii35, 2011.
52. Vujanovic, L., Ballard, W., Vujanovic, A., Thorne, S.H., Vujanovic, N.L., **Butterfield, L.H.** Adenovirus-engineered human dendritic cell vaccine induces natural killer cell chemotaxis via CXCL8/IL-8 and CXCL10/IP-10 chemokines. Proc. SITC, Nov. 2011. ***Selected for oral presentation.**
53. Pardee, A.D. and **Butterfield, L.H.** Dendritic cells and tumor cells internalize alpha-fetoprotein, a hepatocellular carcinoma tumor antigen, via distinct endocytosis mechanisms. Proc. SITC, Nov. 2011.
54. Naveh, H.P. and **Butterfield, L.H.** Adenovirus vector-specific cellular immune response induced by transduced human dendritic cells. Proc. SITC, Nov. 2011.
55. Pollack, I.F., Jakacki, R.I., **Butterfield, L.H.**, and Okada, H. Peptide vaccine therapy for childhood gliomas. J. Neurosurg: Pediatr, A341, Neurosurgery, 2012 Aug; 71(2):E572. 2012. ***Recipient of the Mahaley Clinical Research Award.**
56. Pollack, I.F., Jakacki, R.I., **Butterfield, L.H.**, and Okada, H. Peptide vaccine therapy for childhood gliomas: Interim results of a pilot study. Proc AACR, April 2012.
57. Tarhini, A.A., Edington, H., **Butterfield, L.H.**, Moschos, S., Tawbi, H., Shuai, Y., Ship-Spotloe, J., Simonetta, M., Johnson, J.T., and Kirkwood, J.M. Modulation of circulating regulatory T-cells and MDSCs in high risk melanoma patients treated with neoadjuvant ipilimumab. Poster presentation #5375, Proc. AACR, April 2012.
58. Tarhini, A.A., Edington, H., **Butterfield, L.H.**, Tawbi, H., Moschos, S.J., Shuai, Y., Lin, Y., Horak, M., Sarkisian, S., Shipe-Spotloe, J., Milburn, C., Sander, C., Johnson, J.T., Kirkwood, J.M. Neoadjuvant ipilimumab in locally/regionally advanced melanoma: Clinical outcome and immune monitoring. Proc ASCO, June 1-5, 2012.
59. Tarhini, A.A., Edington, H., **Butterfield, L.H.**, Shuai, Y., Lin, Y., Rao, U.N., Kirkwood, J.M. Neoadjuvant ipilimumab in locally/regionally advanced melanoma: Clinical outcome and biomarker analysis. Proc #103651, Markers in Cancer: A Joint Meeting by ASCO, EORTC and NCI, Oct. 11-13, 2012.
60. Pardee, A.D. and **Butterfield, L.H.** Tumor derived alpha-fetoprotein impairs the differentiation of human dendritic cells. SITC, 2012.
61. Vujanovic, L., Kirkwood, J.M., Storkus, W.J., and **Butterfield, L.H.** Induction of MAGE-A6-specific CD8⁺ T-cell responses using MAGE-A6 and Mycoplasma penetrans HF-2 permease-derived peptides. SITC, 2012.
62. Okada, H., **Butterfield, L.H.**, Hamilton, R.H., Lively, M.O., Chan, M.D., Salazar, A.M., Potter, D.M., Shaw, E.G., and Lieberman, F.S. A bi-institutional pilot study of peptide-based vaccines in combination with poly ICLC in patients with WHO grade 2 low-grade glioma. SITC, 2012.
63. Hodi, F.S., Lee, S.J., Rao, U.N.M., **Butterfield, L.H.**, Tarhini, A.A., Leming, P.D., Puzanov, I., Kirkwood, J.M., and Eastern Cooperative Oncology Group. Multicenter, randomized phase II trial of GM-CSF (GM) plus

ipilimumab (Ipi) versus ipi alone in metastatic melanoma: E1608. Abstract # 112494. ASCO, 2013. ***Selected for oral presentation.**

64. Kirkwood, J.M., Lin, Y., Lee, S.J., **Butterfield, L.H.**, Ringquist, S., Gogas, H., Agarwala, S.S., Sander, C., Yin, Y., Horak, M., and Tarhini, A.A. Biomarkers of outcome after one month of adjuvant IFN- α 2b in patients with intermediate-risk resected melanoma participating in E1697. Abstract # 109794. ASCO, 2013.

65. VanderWeele, R.A., **Butterfield, L.H.**, Lin, H.M., Cunningham, D.E., Lin, Y., Kirkwood, J.M., and Tarhini, A.A. T-regulatory cell function analysis in locally/regionally advanced melanoma patients treated with ipilimumab. Abstract # 115547. ASCO, 2013.

66. Naveh, H.P. and **Butterfield, L.H.** Adenovirus vector-specific cellular immunity induced by engineered human dendritic cells in vitro and in vivo. AAI, 2013. ***Selected for oral presentation; also presented for Clinical Onc. Grand Rounds, UPCI, 6/19/13.**

67. Steel, J.L., Kim, K.H., Gamblin, T.C., Fraser, D., Brower, D., Biala, M., Savkova, A., **Butterfield, L.H.**, Geller, D.A., Marsh, J.W., and Tsung, A. The course of depression, inflammation, and survival in the context of advanced cancer. ASCO, 2013. ***Selected for oral presentation.**

68. **Butterfield, L.H.**, Naveh, H.P., Geller, D., and Kirkwood, J.M. Tumor Antigen-encoding Adenovirus-based Vaccines for Melanoma and Hepatocellular Cancer. TVACT XIX, 2013. ***Selected for oral presentation.**

69. **Butterfield, L.H.**, Pardee, A., Shi, J. Tumor-derived alpha-fetoprotein impairs the differentiation and T cell stimulatory activity of human dendritic cells. Keystone Symposium on Immune Evolution in Cancer, 2014. ***Selected for oral presentation.**

70. Pollack, I.F., Jakacki, R.I., **Butterfield, L.H.**, Hamilton, R.L., Panigrahy, A., Potter, D.M., Krol, A.K., Dibridge, S., Whiteside, T.L., Okada, H. Immune responses and clinical outcome in a pilot study of vaccination with glioma-associated antigen peptides and PolyICLC in children with newly diagnosed malignant brainstem and non-brainstem gliomas. International Brain Tumor Research and Therapy, 2014.

71. Vujanovic L., Stahl, E., **Butterfield, L.H.** Alpha fetoprotein directly induces a unique pro-inflammatory, IL-2 hyperresponsive phenotype in human natural killer cells. SITC, 2014.

72. Pardee, A., Shi, J., **Butterfield, L.H.** Tumor-derived alpha-fetoprotein impairs the differentiation and T cell stimulatory activity of human dendritic cells. SITC, 2014.

73. Santos, P., Etheridge, A., Gambotto, A, and **Butterfield L.H.** Effect of transduction of human dendritic cells with adenovirus encoding anti-PD-1 co-cultured with autologous T cells. Abstract - poster presentation, SITC, 2014.

74. Retseck, J., Gillespie-Twardy, A., Nasr, A., Lin, H.M., Lin, Y., Kirkwood, J.M., **Butterfield, L.H.**, Zahoor, H., Sander, C., Tarhini, A.A. Long term monitoring of circulating regulatory T cells (Treg), myeloid derived suppressor cells (MDSC) and type I effector T cells in melanoma patients treated with neoadjuvant ipilimumab. Abstract – AACR Annual Meeting, 2015.

75. Vujanovic, L., Stahl, E., Pardee, A., Watkins, S., Gibson, G., **Butterfield, L.H.** Tumor-derived alpha fetoprotein directly impacts human natural killer cell activity and viability. SITC poster presentation 2015. J Immunother Cancer 2015, 3(Suppl 2):P289 (4 November 2015).

76. Santos, P.M., Pardee, A., Delgoffe, G.M., **Butterfield, L.H.** Tumor-derived alpha-fetoprotein (tAFP) causes immune and metabolic dysfunction in monocyte-derived dendritic cells. SITC poster presentation 2015. *J Immunother Cancer* 2015, 3(Suppl 2):P210 (4 November 2015).
77. Du, S., Santos, P.M., Tawbi, H., Tarhini, A., Kirkwood, J.M., **Butterfield, L.H.** CD8+ T cell responses in metastatic melanoma patients receiving an adenovirally antigen engineered dendritic cell vaccine +/- IFN- α . SITC poster presentation 2015. *J Immunother Cancer* 2015, 3(Suppl 2):P149 (4 November 2015)
78. Najjar, Y.G., Ding, F., Lin, Y., **Butterfield, L.H.**, Tarhini, A.A. Melanoma antigen-specific effector T cell cytokine secretion patterns in patients treated with ipilimumab. ASCO, 2016.
79. Kirkwood, J.M., Singh, S., Lin, Y., Hahm, E.R., Beumer, J.H., Christner, S.M., Rao, U.N.M., Sander, C., Tarhini, A.A., Tawbi, H.A., Ferris, L., Wilson, M., Petrany, M., Rose, A., Fahey, J.W., Leachman, S.A., Cassidy, P., **Butterfield, L.H.**, Zarour, H.M. Dose-Response Evaluation of Broccoli Sprout Extract Sulforaphane (BSE-SFN) in Melanoma Patients (Pts) with Atypical/Dysplastic Nevi (A/DN). ASCO, 2016.
80. Santos, P.M., Menk, A.V., Shi, J., Delgoffe, G.M., **Butterfield, L.H.** Tumor-derived alpha-fetoprotein (tAFP) inhibits dendritic cell metabolism. SITC 2016. *Journal for Immunotherapy of Cancer* 2016, 4(Suppl 1):P268.
81. Najjar, Y.G., **Butterfield, L.H.**, Zarour, H.M., Tarhini, A.A., Davar, D., Lin, Y., Kirkwood, J.M. Dose-seeking and efficacy study of pembrolizumab plus vemurafenib for therapy of advanced melanoma. ASCO Annual Meeting, 2017.
82. Burgess, M.A., Bolejack, V., Van Tine, B.A., Schuetze, S., Hu, J., D'Angelo, S.P., Attia, S., Priebat, D.A., Okuno, S.H., Riedel, R.F., Davis, L.E., Movva, S., Reed, D.R., **Butterfield, L.H.**, Roszik, J., Reinke, D.K., Baker, L.H., Maki, R.G., Patel, S., Tawbi, H.A. Multicenter Phase II Study of Pembrolizumab (P) in Advanced Soft Tissue (STS) and Bone Sarcomas (BS): Final Results of SARC028 and Biomarker Analyses. ASCO Annual Meeting, 2017.
83. Maurer, D.M., Santos, P.M., Kirkwood, J.M., Tarhini, A.A., Tawbi, H.A., Stroncek, D., Ping, J., **Butterfield, L.H.** Analysis of immune checkpoint and costimulation molecules in DC vaccines from melanoma patients. 29th Annual UPMC Hillman Cancer Center Scientific Retreat, 2017. ***Best Clinical Science poster award**
84. Santos, P.M., **Butterfield, L.H.**, Du, S., Kirkwood, J.M. Tumor-specific CD8 T cell checkpoint expressions in melanoma patients that received adenovirally-engineered DC vaccine +/- IFN- α . SITC 2017. *J Immunother Cancer* 2017, 5(Suppl 2):86
85. Maurer, D.M., Santos, P.M., Kirkwood, J.M., Tarhini, A.A., Tawbi, H.A., Stroncek, D., Jin, P., and **Butterfield, L.H.** Immune Checkpoint and Costimulatory Molecules on DC Vaccines from Melanoma Patients., Hillman Cancer Center annual retreat, June 2018. *** 2nd place, Clinical Science poster award**
86. Maurer, D.M., Santos, P.M., Kirkwood, J.M., Tarhini, A.A., Tawbi, H.A., Stroncek, D.F., Ping, J., **Butterfield, L.H.** Identification and analysis of critical immune molecules and signaling pathways to improve the immunogenicity of dendritic cell vaccines. SITC 2018.

Professional Activities

Teaching, University of Pittsburgh:

Facilitator, Department of Medicine, MED5116, “Immunology in Health and Disease,” Jan.20, 21 and 26, 2005, (MS-1, 1 PBL, 10 medical students, score: 4.29).

Facilitator, Department of Medicine, MED5116, “Immunology in Health and Disease,” Jan. – Feb., 2006, Jan.-Feb. 2007, (3 PBL sets, 10 MS-1 medical students, score 4.3 (2006) and 4.5 (2007)).

Facilitator, Department of Medicine, MED5116, “Immunology in Health and Disease,” February, 2015; February, 2016. (1PBL set, 10 MS-1 medical students, score 4.4). February 2017 (2 PBL sets, 10 MS-1 medical students, score 4.8).

Lectures (2), Department of Psychology, Psychoneuroimmunology (2520), Jan.10 and 24, 2005, 15 graduate students.

Lecture and Discussion, Department of Immunology, Introduction to ImmunoBioTherapeutics, “Gene Therapy in Malignancy,” (5-7 graduate students) Fall 2005, 2006, 2007.

Director, co-director and lecturer, Department of Immunology “Immunology and Human Disease,” MSIMM 3230:
Co-director and lecturer - Fall 2005 (25)*; Spring 2007 (12)*; Fall 2010 (12)*
Director and lecturer - Fall 2008 (20)*; Fall 2009 (18)*
Lecturer, Fall 2011; 2012; 2013; 2014; 2015; 2016; 2017
*(number of graduate students/postdocs)

UPCI IMCPL Continuing Education seminar leader, 9/29/05; 12/8/05, 1/12/06, 5/5/06, 6/29/06, 9/29/06, 11/30/06, 12/14/06, 5/19/07, 6/14/07, 2/18/08, 4/18/08, 5/22/08, 6/16/08, 1/8/09, 2/13/09, 10/9/09, 11/20/09, 3/25/2010, 9/17/2010, 10/22/2010, 7/19/2012, 12/20/12, 11/26/13, 02/17/14, 11/24/15, 11/20/16, 12/15/17; **Series organizer 6/2010-11/2018.**

Lecturer, “Cancer Vaccines,” Neoplasia elective, S. Moschos, M. T. Lotze, Directors. 3/9/09.

2010 Summer Institute for Biostatistical Sciences, sponsored by UPCI Biostatistics Facility - research presentation to undergraduates, July 21, 2010.

Lecturer, Cell Therapy Course (BioEng 3770, MSCMP 3770 Cell Therapy); “GMP Procedures for Cell Therapy” and “Dendritic Cell-based Vaccines for Cancer,” Course Directors, Alejandro Soto-Gutierrez and Diana Metes; June 27, 2013 and July 11, 2013; June 17 and June 24, 2014; June 16 and July 2, 2015.

Lecturer, MSTP Course, Professional Development I: Molecular Medicine Course, “Immunology,” June 27, 2013.

Lecturer, UPCI Summer Academy “Immune Monitoring”, July 2016, July 2017. “Immunological Monitoring and Cellular Products Lab and a Career as a Professor”, July 2018.

Lecturer, Hem. Onc. MD Fellows: Immunology/Tumor Immunology. July 2016; July 2017.

Lecturer, Dept. of Immunology: Comprehensive Immunology Course: “Tumor Immunity” – April 10, 2017; “Tumor Immunology – Immune Evasion & Vaccines” – March 30, 2018

Teaching, External:

Lecturer, Duquesne University, GPSC 617, Advanced Pharmaceutics on “Viral Gene Vectors and Cancer Vaccines,” 3/26/08.

AAI Advanced Course, “Tumor Immunology,” Boston, MA - August 7, 2015, August 5, 2016, July 28, 2017, July 27, 2018

Immuno-Oncology Young Investigator’s Forum, Faculty Mentor. Houston, TX. Feb. 21-22, 2017; April 20-21, 2018

FOCIS-SITC “Cancer Immunity and Immunotherapy” Course, “Vaccination Strategies” lecture, San Francisco, CA, June 20, 2018

Undergraduate and medical students supervised:

UPCI: Karen Schmitt (summer 2004)

SURP (Immunology): Michelle Heid (summer 2006, Gannon Univ., Erie, PA.), accepted to Univ. Pittsburgh Graduate Program, Fall 2007)

SURP (Immunology): Jason Tse (summer 2007, Beloit College., Beloit, WI., supported by Dean’s Scholarship)

SRP Sarah Bray Newton (MS-I) (supported by T35 DK065521 T. Kleyman), Univ. Pittsburgh Scholarly Project, 2007-2009

Duquesne University student Megan Mitchell, summer 2008, UPCI Volunteer Program

University of Pittsburgh Medical Resident Florencia McAllister, July-Dec. 2008

SURP (Immunology): Weners Ballard (summer 2009, Hampton College, Hampton, VA)

Doris Duke Summer Scholar: Aaron Ponce (summer 2012, Honolulu, Hawaii)

*project won “Best in Category” at the Hawaiian State Science Fair and was presented at the Intel International Science and Engineering Fair, Phoenix AZ, May 2013.

SURP (Immunology): Alexander Etheridge (summer 2014, Michigan State Univ., Lansing, MI)

SURP (Immunology): Samuel Du (summer 2015, Pomona College, Claremont, CA).

SURP (Immunology): Joel Lohr (summer, 2016, Edinboro University, PA)

BaoBao Annie Song, (summer 2017 – June 2018, Carnegie Mellon Univ., Pittsburgh, PA)

James Edgerton, Jesus College Summer Research Program (summer 2017, University of Cambridge, UK)

Grant Magnon (MS-1), Univ. Pittsburgh Scholarly Project, 2018-present

Graduate students supervised:

Jessica Chu (rotation Spring 2005)

Brian Janelsins (rotation Spring 2005)

Qi Yang (rotation Fall 2006)

Michelle Messmer (rotation Spring 2009)

Douglas Marvel (rotation Fall 2009)

Mahesh Raundhal (rotation Winter 2010)

Member, Immunology Comp Exam Committee, Sean Ryan, Summer 2005, Dept. Immunology (PI, O. Finn)

Member, Immunology Thesis Committee, Payal Watchmaker, 2006-2007, Dept. Surgery, (PI, P. Kalinski)

Member, Immunology Comp Exam Committee, Laura Vella, Winter 2005, Thesis committee, June 2006-2008, Dept. Immunology, (PI, O. Finn)

Member, Immunology Comp Exam Committee, Angela Pardee, Summer 2007, Thesis committee, Aug. 2007-Sept. 2010, Dept. Dermatology (PI, W. Storkus)

Member, Immunology Comp Exam Committee, Erik Berk, Summer 2008, (PI, P. Kalinski)

Member, Graduate School of Public Health Doctoral Comp Exam Committee, Thesis Committee, Catherine Mundia, July 2008-2009, Department of Infectious Diseases and Microbiology. (PI, C. Rinaldo)

Member, Immunology Comp Exam Committee, Kristine-Ann Buela, July 2009, (PI, R. Hendricks)

Member, Immunology Thesis Committee, Lu Chen, Fall 2009-2013, (PI, W. Storkus)

Member, Immunology Comp Exam Committee, Nina Chi, June 2010, (PI, W. Storkus)

Member, Immunology Dissertation Committee, Yu Zhou, August, 2010-2013, (PI, R. Binder)

Member, Immunology Dissertation Committee, Kellie Smith, August 2010-2014, (PI, C. Rinaldo)

Member, Immunology Dissertation Committee, Nina Chi, November 2010-2013, (PI, W. Storkus)

Member, Immunology Comp Exam Committee, Douglas M. Marvel, May 2011, (PI, R. Salter)

Chair, Immunology Comp Exam Committee, Jo Erika Narciso, Aug. 2012, (PI, L. Faló)

Member, Immunology Thesis Committee, Jo Erika T. Narciso, Jan. 2013-2018, (PI, L. Faló)

Chair, Immunology Comp Exam Committee, Kellsye Fabian, Jan. 2013, (PI, W. Storkus)

Member, Immunology Thesis Committee, Kellsye Fabian, Oct. 2013-2018 (PI, W. Storkus)

Mentor, Aliyah Weinstein (rotation Winter 2013)

Mentor, Elizabeth Stahl (rotation, Fall 2013)

Mentor, Liwen Wang (Tsingua University rotation #2, Fall 2013)

Member, Immunology Comp Exam Committee, Lauren Kinner, July 2014, (PI, R. Binder)

Member, Immunology Thesis Committee, Abigail Overacre, September 2014–2018 (PI, D. Vignali)

External Dissertation Reader, Debarati Banik, Graduate student (PI: S. Abrams), Dept. of Immunology, Roswell Park Cancer Institute, Buffalo, NY, July 2014

Mentor, Hiroshi Yano (rotation Fall, 2014)

Member, Immunology Comp Exam Committee, Aliyah Weinstein, July, 2015, (PI, W. Storkus)

External Dissertation Committee Member, Erica Fleming, (PI: M. I. Nishimura), Loyola, Chicago, IL, 2015-2018

Mentor, Chunlei Li (Tsinghua University rotation #2, and dissertation project) Fall 2015-Summer 2017

Member, Immunology Thesis Committee, Aliyah Weinstein, September 2015–2018 (PI, W. J. Storkus)

External Dissertation Chair, Andressa Sodre de Castro Laino, Graduate Student (PI: E. Sotomayor), Cancer Biology Program, H. Lee Moffitt Cancer Center & Research Institute, University of South Florida, December, 2015.

External Dissertation Committee Member, Zipei Feng (PI: Bernard A. Fox), Oregon Health & Science University, Portland, OR, July 2016.

Dissertation Mentor, Deena Maurer (rotation, Fall 2016, PhD Dissertation Chair, 2017-present). Univ. Pittsburgh Skin Biology T32 Training Grant pre-doctoral Scholar 2017-2018. CTSI TL1 Scholar pre-doctoral support 2018-present.

Mentor, Christopher Chuckran (rotation, Winter 2017)

Member, Immunology Comp Exam Committee, Manoj Chelvanambi, July, 2017, (PI, W. Storkus)

Member, Immunology Thesis Committee, Manoj Chelvanambi, Sept. 2017-present, (PI, W. Storkus)

Mentor, Stephanie Grebinoski (rotation, Fall 2017)

Mentor, Ronal Peralta (rotation, Winter 2017)

Member, Immunology Comp Exam Committee, Sayali Onkar, Nov. 17, 2017, (PI, S. Oesterreich, D. Vignali)

Postdoctoral Fellows Supervised:

Viktoriya Evdokimova, Ph.D. (Tomsk, Russia), Aug. 2004 - Dec. 2006

Yang Liu, M.D. (Shanghai, China), Nov. 2004 - Mar. 2006

Lazar Vujanovic, Ph.D. (Pittsburgh, PA), Oct. 2006 – 2018

Postdoctoral Fellow 2006-2008, Research Associate 2008-2011, Research Instructor 2011-2018

Jenny Landsberg, M.D. (Bonn, Germany), Feb. - June 2007

Jun Eun Park, M.D. (Seoul, South Korea), Mar. 2008 - Feb. 2009

Lee Ann Blalock, Ph.D. (Boston, MA), Aug. 2009 - March 2010

Angela Pardee, Ph.D. (Pittsburgh, PA), Oct. 2010 – Feb. 2015

Hadas Prag Naveh, M.D. (Jerusalem, Israel), Nov. 2010-Sept. 2012

Patricia Santos, Ph.D. (Pittsburgh, PA), Mar. 2014-present

Seminars:

Nov. 14, 1994, Surgical Oncology Division Seminar Series, UCLA

March 7, 1996, Jonsson Cancer Center Seminar, UCLA

March 11, 1996, Surgical Oncology Division Seminar Series, UCLA

March 13, 1996, Radiation Oncology Graduate Student Research Seminar, UCLA

August 23, 1996, Radiation Oncology Research Seminar, UCLA

June 5, 1998, Gene Medicine Symposium, UCLA

April 22, 1999, Surgery Branch, NCI, NIH, Bethesda, MD

June 5, 2000, Gene Medicine Symposium, UCLA
July 31, 2000, Gene Medicine/Human Genetics Seminar, UCLA
Oct. 19, 2000, Jonsson Cancer Center Seminar, UCLA
Nov. 6, 2000, Surgical Oncology Divisional Seminar, UCLA
Nov. 11, 2000, Dental School Alumni Day Seminar, UCLA
May 4, 2001, University of Connecticut Health Center, CT
Oct. 25, 2001, Clinical Dendritic Cell Immunotherapy Conference, Pinehurst, NC, *invited speaker
Feb. 28, 2002, University of Michigan Medical Center, Ann Arbor, MI
June 5, 2002, University of Chicago, Surgery Dept., Chicago, IL
June 13, 2002, Jonsson Cancer Center Seminar, UCLA
Mar. 25, 2003, Baylor Institute for Immunology Research, Dallas, TX
Apr. 16, 2003, Cleveland Clinic, Surgical Research, Cleveland, OH
Apr. 18, 2003, University of Pittsburgh, Dept. Medicine, Pittsburgh, PA
June 5, 2003, University of Nebraska, Omaha, Eppley Inst., NE
June 10, 2003, Portland-Providence Medical Center, OR
July 7, 2003, University of Chicago, Surgery Dept., Chicago, IL
Nov. 13, 2003, Univ. Pittsburgh, Immunology Dept., Pittsburgh, PA
Jan. 28, 2004, Univ. Pittsburgh, Clinical Onc. Grand Rounds, Pittsburgh, PA
Apr. 2, 2004, "Hepatocellular Cancer" meeting, NIH, Bethesda, MD, *invited speaker
June 9, 2004, Biological Therapeutics Group, UPCI, Pittsburgh, PA
Jan. 18, 2005, Univ. Pittsburgh, UPCI Basic Science Seminar, Pittsburgh, PA
June 24, 2005, Sabin Vaccine Colloquium on Cancer Vaccines, Cold Spring Harbor, NY, *invited speaker
Oct. 18, 2005, Roswell Park Cancer Institute, Buffalo, NY
Dec. 15, 2005, Univ. Pittsburgh, Immunology Dept., Pittsburgh, PA
May 3, 2006, Univ. Pittsburgh, Surgical Oncology, Pittsburgh, PA
Nov. 18, 2006, Immunotherapy 2006: Targeting Complexity, Havana, Cuba, *invited speaker and Cancer Immunotherapy session co-chair
Jan. 5, 2007, Gastroenterology, Hepatology & Nutrition Research Seminar, Pittsburgh, PA
Jan. 19, 2007, Surgical Oncology Retreat Faculty Session, Seven Springs, PA
Feb. 28, 2007, Univ. Pittsburgh, Clinical Onc. Grand Rounds, Pittsburgh, PA
June 22, 2007, Annual UPCI Retreat, Bench to Bedside, Greensburg, PA
June 29, 2007, Japanese Society for Gene Therapy, Nagoya, Japan *invited speaker
July 2, 2007, University of Nara, Nara, Japan
July 11, 2007, Univ. Pittsburgh, Surgical Oncology, Pittsburgh, PA
Aug. 29-30, 2007, Advances in Immunotherapy for Malignant Melanoma, Santa Monica, CA; Scottsdale, AZ

Oct. 5, 2007, Perspectives in Melanoma, Huntington Beach, CA *invited meeting talk

Nov. 7, 2007, University of Iowa, Immunology Program, Iowa City, IA

Mar. 6, 2008, Univ. Pittsburgh, Melanoma Program Seminar, Pittsburgh, PA

Mar. 18, 2008, Univ. Pittsburgh, UPCI Basic Science Seminar, Pittsburgh, PA

Mar. 20, 2008, Univ. Pittsburgh, Immunology Dept., Pittsburgh, PA

Apr. 11, 2008, Tumor Vaccine and Cell Therapy Working Group, San Diego, CA

May 19, 2008, International Society for Cellular Therapy, Miami, FL*invited speaker

May 27, 2008, Baylor Institute for Immunology Research, Dallas, TX

July 12, 2008, Skin SPORE Summer Workshop, New Haven, CT

Aug. 6, 2008, Univ. Pittsburgh, Surgical Oncology, Pittsburgh, PA

Sept. 23, 2008, Medical Univ. South Carolina, Dept. Surgery, Charleston, SC

Jan. 30, 2009, Univ. Pittsburgh, Surgical Oncology Retreat, Pittsburgh, PA

Mar. 24, 2009, US-Japanese Workshop on Immunological Molecular Markers in Oncology, Kona, Hawaii,*invited speaker

June 26, 2009, “Vector Development and Clinical Trials,” Yonsei Cancer Center, Seoul, South Korea, *invited speaker

June 29, 2009, Ajou University School of Medicine, Suwon, South Korea

June 30, 2009, Chonnam National University, Gwangju, South Korea

August 18, 2009, “Novel Vaccines,” ImVacs, Providence, RI, *invited speaker

Oct. 28, 2009, “iSBTc/FDA/NCI Workshop on Prognostic and Predictive Immunologic Biomarkers in Cancer,” Washington, DC, *invited speaker

Mar. 19, 2010, “MIATA Panel” panel discussant, Cancer Vaccine Consortium, Washington, DC, *invited panel member

Mar. 29, 2010 “Nordic Cancer Vaccine Consortium,” Stockholm, Sweden, *invited speaker

Mar. 30, 2010, Karolinska Institute, Stockholm, Sweden

April 9, 2010, 5th Meeting on Combined Biotherapy of Cancer of the *Allenza Contro il Cancro*, San Raffaele Scientific Institute, Milan, Italy

June 26, 2010, Human ImmunoPhenotyping Consortium, FOCIS, Boston, MA, *invited panel member

Sept. 30, 2010, Immuno-Oncology Biomarkers 2010 and Beyond, NIH, Washington, DC

Oct. 1, 2010, iSBTc Primer on Tumor Immunology, “Immune Monitoring,” *invited speaker

Oct. 3, 2010, iSBTc Annual Meeting, “Update: 2009 iSBTc-FDA-NCI Workshop on Prognostic and Predictive Immunologic Biomarkers in Cancer,” Washington, DC

Oct. 20, 2010, University of Iowa, Immunology Seminar Series, Iowa City, IA

May 23, 2011, Herlev University Hospital, Center for Cancer ImmuneTherapy (CCIT), Copenhagen, Denmark, *invited speaker

May 27, 2011, 9th Annual Meeting of the Association for Cancer Immunotherapy (CIMT), Mainz, Germany,*invited speaker

May 30, 2011, Institute of Molecular Immunology, Helmholtz Center, Munich, Germany, *invited speaker

June 23, 2011, “MIATA Panel” discussant, FOCIS meeting, Washington, DC, *invited panelist and module 3 moderator

June 30, 2011, Skin SPORE Summer Workshop, *invited presentation: “Immune Biomarkers and Melanoma Patient Banks in Pittsburgh,” Weston, MA

Nov. 3, 2011, SITC Primer on Tumor Immunology & Cancer Immunotherapy, Bethesda, MD, *invited speaker: “Immunologic Monitoring”

Jan. 25, 2012, World Cancer Immunotherapy Conference, “Cancer Vaccine Immunity in Melanoma and Hepatocellular Cancer,” San Diego, CA, *invited speaker

Oct. 24, 2012, SITC Early Career Scientist Professional Development Session, “The Business of Research,” North Bethesda, MD, *invited speaker

Dec. 4, 2012, Georgia Health Sciences University Cancer Center, “Immunotherapy for Melanoma and Hepatocellular Cancer,” Augusta, GA

February 7, 2013, EMD Serono Lecturer, Oncology MSL Training, “Cancer Immunology 101,” Rockland, MD

Mar. 18, 2013, Dartmouth University, Tumor Immunology Seminar, Hanover, NH

April 4th, 2013, Society for Immunotherapy of Cancer (SITC), Cancer Immunotherapy Clinical Trials: Concepts and Challenges “What Relevant Immune Monitoring and Correlative Study Criteria Do We Use?” Bethesda, MD, *invited speaker

June 19, 2013, University of Pittsburgh School of Medicine, Clinical Oncology and Hematology Grand Rounds, “ASCO, AAI and BBBC Presentations,” AAI presenter, Pittsburgh, PA

Sept. 25-26, 2013, MD Anderson Cancer Center, Skin SPORE Workshop, Session IV – Immunotherapy, “State of the Art: DC Based Vaccines,” Houston, TX

Dec. 13, 2013, SITC Industry Primer: Dendreon, “The Need for Immune Monitoring and Development of Predictive & Prognostic Biomarkers,” Seattle, WA, *invited speaker

Jan. 22, 2014, Sidra Medical Research & Research Center Symposium, “Dendritic cell and adenovirus-based cancer vaccines” and “Highlights of Society for Immunotherapy of Cancer Annual Meeting,” Doha, Qatar, *invited speaker

Jan. 31, 2014, 6th Immunotherapeutics & Immunomonitoring Conference, “Immune Biomarkers in Cancer Immunotherapy,” San Diego, CA, *invited speaker

Jan. 31, 2014, Moores UCSD Cancer Center Immunotherapy Seminar, “Immunotherapy for Melanoma and Hepatocellular Cancer and Immunologic Biomarkers,” La Jolla, CA.

Apr. 1, 2014, Buffalo Conference on Immunology, Keynote Lecture: “Immunotherapy for Melanoma and Hepatocellular Cancer,” Chautauqua, NY

Apr. 16, 2014, Allegheny College “Women in Science” lecture: “Harnessing the Immune System to Fight Cancer,” Meadville, PA.

May 14, 2014, University of Pittsburgh, Clinical Oncology and Hematology Grand Rounds, “Immunotherapy Cancer Vaccination and a Dendritic Cell Combination Trial for Melanoma,” Pittsburgh, PA

July 11, 2014, Seminar: “Cancer Vaccination for Melanoma and Hepatocellular Cancer,” Roswell Park Cancer Institute, Buffalo, NY

October 10, 2014, Transplantation Biology Seminar Series: “Immunotherapy for Cancer,” University of Pittsburgh, Pittsburgh, PA *invited speaker

November 6, 2014, SITC Primer 2014: “Dendritic Cells.” SITC Annual Meeting, National Harbor, MD

November 7-9, 2014, SITC Annual Meeting Professional Development Session: “Implementing Your Academic Mission,” and Meet the Expert Breakfast Session: “Networking and Developing Successful Collaborations,” National Harbor, MD *invited speaker

November 18, 2014, Loyola University, “Immunotherapy for Melanoma and Hepatocellular Cancer,” Chicago, IL *invited speaker

January 13, 2015, University of Pittsburgh Cancer Institute, Basic and Translational Research Seminar, “Cancer vaccines and tumor antigens in melanoma and hepatocellular cancer,” Pittsburgh, PA

March 18, 2015, University of Pittsburgh, Pitt Signaling Club, “Cancer vaccine related gene regulation in DC,” Pittsburgh, PA

March 26, 2015, (ITOC-2) Immunotherapy of Cancer Conference, “Unexpected findings from Treg and MDSC monitoring,” Munich, Germany

April 29, 2015, (CITIM) Cancer Immunotherapy and Immunomonitoring, “Adenovirus and DC combination vaccines for melanoma and hepatocellular cancer,” Ljubljana, Slovenia

May 10, 2015, American Association of Immunology (AAI), “Immune biomarkers in clinical trials,” SITC Guest Symposium, New Orleans, LA

May 22, 2015, Tumor Immunology Meets Oncology XI (TIMO) “Immunologic monitoring of clinical trials,” Halle, Germany

June 18, 2015, UPCI Annual Retreat, “Antigen-Engineered Dendritic Cells and Immune Biomarkers in Melanoma,” Pittsburgh, PA

June 23, 2015, Topics in Pediatric Hem.Onc., “Immunologic Monitoring and Biological Effects of Tumor-Associated Antigens,” Children’s Hospital, Pittsburgh, PA

June 25, 2015, FOCIS 2015, “Immunologic biomarkers in cancer clinical trials” in “Best of Tumor Immunology” session, San Diego, CA.

July 31, 2015, “Advances in Cancer Immunology” SITC Program: “Tumor Immunology 101,” Pittsburgh, PA

September 3, 2015, “Challenges in immune target choice: Immune effects of tumor-associated antigens,” International Liver Cancer Assoc. (ILCA) Workshop, Paris, France

December 4, 2015, “Immunotherapy for Melanoma and Hepatocellular Cancer,” Moffitt Cancer Center, University of South Florida, Tampa, FL.

January 14-15, 2016, “Assay standardization and logistic challenges/SITC perspectives” NCI DCTD Workshop on Immunotherapy, presenter and panelist, Shady Grove, MD

January 21, 2016, “Immune biomarkers integration,” NRG Winter Symposium, Atlanta, GA

February 29, 2016, “Biomarker integration in clinical trials for immunotherapy,” Institute of Medicine, Washington, D.C.

March 11, 2016, “Cancer immunotherapy biomarkers: lessons from clinical trials,” Molecular Medicine TriCon, San Francisco, CA.

March 24, 2016, “Immune modulation by tumor antigens,” ITOC-3, Munich, Germany.

June 3, 2016, “Can we predict which patients will respond to cancer immunotherapy?” ASCO-SITC Symposium, Chicago, IL

June 12, 2016, “T cell responses to shared tumor antigens in cancer patients,” AgonOx T Cell Meeting, Maui, HI

June 15, 2016, “Targeting shared tumor antigens for immune activation,” UPCI Cancer Immunotherapy Symposium, Greensburg, PA

June 23, 2016, “Predictive and prognostic biomarkers in cancer immunotherapy,” FOCIS Meeting, Boston, MA

June 26, 2016, “Cancer immunotherapy biomarkers: progress and issues,” China FDA Cancer Immunotherapy Workshop, Beijing, China

July 26, 2016, “Tumor Antigens and Cancer Vaccines in Melanoma and Hepatocellular Cancer,” Earl A. Chiles Research Institute, Portland, OR

August 22, 2016, “Alpha Fetoprotein Immune Modulation of DC and NK cells,” International Congress on Immunology, Melbourne, Australia

September 9, 2016, “Immune Modulation by AFP,” and “SITC Immunotherapy Biomarkers Task Force,” National Institute of Oncology Immunotherapy Meeting, Budapest, Hungary.

September 21, 2016, “Cancer Immunotherapy for HCC and Immune Modulation by AFP,” Japan Society for Hepatology, Kanazawa, Japan.

September 24, 2016, “Immunologic Impact of Tumor Antigens in Vaccines for Melanoma and Hepatocellular Cancer,” SITC-CAHON-CSCO Workshop, CSCO Meeting, Xiamen, China

September 28, 2016, “Targeting Shared Tumor Antigens for Cancer Immunotherapy.” University of Pittsburgh Immunology Department Retreat, Wheeling, WV

November 11, 2016, “Vaccines, Tumor Antigens and Immune Responses.” SITC Annual Meeting, National Harbor, MD

November 12, 2016, “Immune Biomarkers Task Force Update.” SITC Annual Meeting, National Harbor, MD

December 3, 2016, “Promoting anti-tumor immunity with cancer vaccines.” Translational Cell Therapy for Cancer subgroup, ASCB Annual Meeting, San Francisco, CA

Feb. 24, 2017, “Biomarkers Wrap Up”, ASCO-SITC Clinical Immuno-Oncology Symposium, Orlando, FL

April 8, 2017, “Immunotherapy for Hepatocellular Cancer.” 2017 GI Oncology Symposium: Current Advances of Immune Therapy in Gastrointestinal Malignancies. UPMC Cancer Center, Pittsburgh, PA.

May 12, 2017, “Antigen-engineered DC Vaccine +/- IFN α for Melanoma”, The International Symposium on Immunotherapy, Institute for Cancer Vaccines and Immunotherapy, The Royal Society, London, UK.

June 15, 2017, “Cancer Immunotherapy Biomarkers,” ASTRO 2017 Immunotherapy Workshop, NIH, Bethesda, MD

June 28, 2017, “Immune Monitoring to determine efficacy of combination immunotherapy,” Rational Combinations 360, New York Academy of Medicine, New York, NY

August 31, 2017, “Genetically engineered DC vaccines for melanoma”, Keynote Presentation, Immuno-Oncology Summit, CHI. Boston, MA

September 12, 2017, “Tumor Immunology,” Arnold Palmer Cancer Center Journal Club, Greensburg, PA

September 14, 2017, “Basic Principles of Cancer Immunotherapy,” SITC Advances in Cancer Immunotherapy Course, Pittsburgh, PA

September 23, 2017, “Genetically engineered DC vaccines for melanoma,” Keynote Lecture, Great Lakes Imaging & International Flow Cytometry Association Conference, Middleton, WI

September 27, 2017, “How emerging biomarkers may affect patient selection for immunotherapy,” CSCO-CAHON-SITC Joint Symposium, Xiamen, China

October 3, 2017, “Immunotherapy for melanoma and hepatocellular cancer,” Center for Vaccine Research Seminar, Pittsburgh, PA

November 17, 2017, NanoString “Lunch and Learn,” “Immune profiling to discovery cancer vaccine markers in melanoma,” Pittsburgh, PA

November 30, 2017, “DC vaccine combinations for melanoma.” Melanoma Bridge Meeting, Naples, Italy

December 8, 2017, “Biomarker development to integrate immune effector and suppressor responses in cancer,” ESMO-IO Conference, Geneva, Switzerland

January 9, 2018 “Cancer Vaccines and Immunity”, Univ. Calif. San Diego Pharmacy Dept. seminar, La Jolla, CA

January 25, 2018 “Selection and Testing of Optimal Correlates to Immunotherapy Trials”, ASCO-SITC, San Francisco, CA

February 6, 2018 “Update on Cancer Vaccination and Biomarkers of Response”, IO360, New York, NY

March 19, 2018 “Cancer Vaccination and Immunotherapy Biomarkers,” ITOC-5, Berlin, Germany

March 25, 2018 “Cancer Immunotherapy,” Taiwan Society for Immunotherapy of Cancer, Taipei, Taiwan

March 26, 2018 “Cancer Vaccines and Biomarkers in Melanoma and Hepatocellular Cancer,” Taipei Medical University, Taipei, Taiwan

April 3, 2018 “Tumor antigens, vaccines and immunity,” Cancer Medicine Grand Rounds, MD Anderson, Houston TX

April 14, 2018 “Measuring Effector and Suppressor Cellular Responses and Circulating Proteins,” AACR Methods Workshop “Immunologic Landscape of Tumors,” Chicago, IL

May 8, 2018 “Oncology Diagnostics – Reading the Future,” panel discussion, Cancer Progress Conference, New York, NY

May 30, 2018 “Cancer Vaccines and Biomarkers in Melanoma and Hepatocellular Cancer,” Medical University of South Carolina, Seminar Speaker, Charleston, SC

June 6, 2018 “Cancer Vaccines and Immune Profiles in Melanoma and Hepatocellular Cancer”, Parker Institute for Cancer Immunotherapy, San Francisco, CA

June 7, 2018 “Cancer Vaccines and Immune Profiles in Melanoma and Hepatocellular Cancer”, Univ. Calif. San Francisco, San Francisco, CA

June 13, 2018 “Cancer Vaccines and Immune Profiles in Melanoma and Hepatocellular Cancer”, Massachusetts General Hospital, Boston, MA

June 20, 2018 “Vaccination Strategies and Identification of Neoantigens”, FOCIS-SITC Cancer Immunology session, FOCIS annual meeting, San Francisco, CA

July 16, 2018, “Strategies for Incorporating Biomarkers in Clinical Trials for PD-1/PD-L1 Combinations”, National Cancer Policy Forum workshop “Development of Combination Cancer Therapies with Immune Checkpoint Inhibitors”., Washington, DC

September 21, 2018, “Update on Cell Therapy,” CSCO-CAHON-SITC Joint Symposium, Xiamen, China

Session Co-chair:

1. American Assoc. Immunology (AAI) Annual Meeting, “Immunotherapy of Cancer,” Block Symposium Co-Chair, April 2005.
2. American Assoc. for Cancer Research (AACR) Annual Meeting, Mini-Symposium Co-Chair, “Novel Vaccine and Antibody Approaches,” April 2005; Session 2 Co-Chair, Tumor Vaccine and Cell Therapy Working Group meeting, March 2006.
3. American Assoc. Immunology (AAI) Annual Meeting, “Tumor-associated Immunoregulation and Immunosuppression” Block Symposium Co-Chair, May 2006.
4. American Assoc. Immunology (AAI) Annual Meeting, April 2008 Block Symposium Co-Chair, “Tumor-Associated Antigens and Pathobiology of the Immune System,” and Discussion Leader, Committee on the Status of Women “Careers Roundtable.”
5. US-Japanese Workshop on Immunological Molecular Markers in Oncology, Session Co-Chair, 2009.
6. NCI Translational Science, Poster Discussion Session Co-Chair, "Adoptive Cellular Therapies," 2009
7. NIH Center for Scientific Review, Oncology 2 CII Study Section Co-Chair, Feb. 2011.
8. American Assoc. for Cancer Research (AACR) Annual Meeting, Mini-Symposium Co-Chair, “Posed for the Clinic: Next Generation of Cancer Immunotherapy.” Orlando, FL, April 2011.
9. Society for Immunotherapy of Cancer (SITC), “Meet the Expert” breakfast discussion leader, “Grant Writing.” N. Bethesda, MD. Nov. 2011.
10. American Assoc. Immunology (AAI) Annual Meeting, “DC Vaccines” and “Innate Immunity and Viral Vaccines” Block Symposia Co-Chair, Honolulu, HI, May 2013.
11. Society for Immunotherapy of Cancer (SITC), “Meet the Expert” breakfast discussion leader, “Work-Life Balance,” National Harbor, MD, Nov. 8, 2013.
12. “Immune Evolution in Cancer” Keystone Meeting, Whistler, B.C., Canada. Workshop co-chair, Mar. 12, 2014.

13. American Assoc. Immunology (AAI) Annual Meeting, “Tumor Immunoregulation” Block Symposium Co-Chair; SITC Guest Society Symposium co-chair, Pittsburgh, PA, May 2014.
14. American Assoc. Immunology (AAI), SITC Guest Society Symposium: Block symposium “Checkpoints and Combinations in Cancer Therapy,” Co-Chair, New Orleans, LA, May 2015.
15. CSCO-CAHON- SITC, Cancer Immunotherapy Session, CSCO, Xiamen, China, September, 2016
16. ASCB Annual Meeting, Subgroup (SITC) Session on “Translational Cell Therapy of Cancer,” Co-Chair, San Francisco, CA, December, 2016
17. ASCO-SITC Clinical Immuno-Oncology Symposium, “Immune Biomarkers in the Blood”, Co-Chair, Orlando, FL, Feb. 24, 2017.
19. American Assoc. Immunology (AAI) Annual Meeting, Career’s Round Table. “Preparing for Promotion” Table mentor. Washington DC, May 14, 2017.
20. CSCO-CAHON- SITC, Cancer Immunotherapy Session, CSCO, Xiamen, China, September, 2017.
21. ITOC-5, Conference Co-President and “Immune Evasion” session co-chair, Berlin, Mar. 2018.
22. CSCO-CAHON-SITC, Cancer Immunotherapy Session, CSCO, Xiamen, China, September 2018.
23. Immunotherapy Bridge/Melanoma Bridge, conference co-President, session chair, Naples, Italy, Nov. 2018

Meeting Co-organizer:

1. “iSBTc-FDA-NCI Workshop on Prognostic and Predictive Immunologic Biomarkers in Cancer” Co-organizers: **Lisa Butterfield, PhD** – *University of Pittsburgh*; Mary (Nora) Disis, MD – *University of Washington*; Samir Khleif, MD – *National Cancer Institute*; Francesco Marincola, MD – *National Institutes of Health*; Magda Thurin, MD – *National Institutes of Health*. October 28, 2009, Gaylord National Hotel and Convention Center, Washington, DC.
2. “Immuno-Oncology Biomarkers 2010 and Beyond: Perspectives from the iSBTc Biomarker Task Force” Co-organizers: **Lisa Butterfield, PhD** – *University of Pittsburgh*; Mary (Nora) Disis, MD – *University of Washington*; Samir Khleif, MD – *National Cancer Institute*; Francesco Marincola, MD – *National Institutes of Health*, Sept. 30, 2010, NIH Masur Auditorium, Washington, DC.
3. Society for Immunotherapy of Cancer (SITC): Advances in Cancer Immunotherapy. Co-organizers: **Lisa Butterfield, PhD** – *University of Pittsburgh*; Roberts Ferris, MD, PhD, FACS – *University of Pittsburgh*; Hassane Zarour, MD – *University of Pittsburgh*. December 7, 2013.
4. Immunotherapy Biomarkers 2016: Overcoming the Barriers. Co-organizers: **L.H. Butterfield**, M.L. Disis, B.A. Fox, S. Gnjatic, J.L. Gulley, S.N. Khleif, F.M. Marincola, G.V. Massucci, D.F. Stroncek, M. Thurin, J. Yuan. National Cancer Institute, April 1, 2016.

5. SITC Cancer Immunotherapy Biomarkers Workshop. Co-organizers: **Lisa H. Butterfield, PhD** – *University of Pittsburgh*; Mary (Nora) Disis, MD – *University of Washington*; Samir Khleif, MD – *Georgia Regents Cancer Center*; Francesco Marincola, MD – *Abbvie*; Magda Thurin, MD – *National Institutes of Health*. San Francisco, CA May 16-17, 2018

6. SITC Cancer Immunotherapy Winter School, Co-organizers: **Lisa H. Butterfield, PhD** *University of Pittsburgh*, Leisha Emens *University of Pittsburgh*, Michael Morse *Duke University*. Mesa, Ariz., Feb. 18–22, 2019

7. 2019 Women in Immunotherapy Network Leadership Institute Workshop (SITC). Co-organizers: **Lisa H. Butterfield, PhD** – *University of Pittsburgh*, Nora Disis, MD FACP – *University Washington*, Olivera Finn, PhD – *University of Pittsburgh*, Kristen Hege, MD – *Celgene, University of California San Francisco*, Elizabeth Jaffee, MD – *Johns Hopkins University*, Solange Peters, MD, PhD – *Centre Hospitalier Universitaire Vaudois*, Padmanee Sharma, MD, PhD – *MD Anderson Cancer Center...* (In development for summer 2019).

Research

Current Research Support:

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|---|----------------------------------|---------------|
| CCSG Supplement - P30CA047904 (Ferris) NIH “Tumor Microenvironment Biomarkers” Role: Project Director | 09/01/16 – 11/30/18 \$616,141 | 0.36 calendar |
| P50 CA121973-03 Skin SPORE (Kirkwood) NIH Skin SPORE: Project 2 (Butterfield, PI), “Multiple Antigen-Engineered DC Immunization and IFN α Boost for Metastatic Melanoma” Role: Co-Investigator | 08/01/08 – 07/31/18 \$105,483 | 2.40 calendar |
| P50 CA121973-05 (Kirkwood) NIH Skin SPORE: Core B Role: Core Leader | 08/01/08 – 07/31/18 \$372,420 | 0.60 calendar |
| P30 CA047904-24 (Ferris) NIH “Cancer Center Support Grant” IMCPL – Cellular Products Laboratory (CPL) Role: Co-Investigator, IMCPL Director | 08/01/15 – 11/30/18 \$325,025 | 0.60 calendar |
| P30 CA047904-24 (Ferris) NIH “Cancer Center Support Grant” IMCPL – Immunologic Monitoring Laboratory (IML) Role: Co-Investigator, IMCPL Director | 08/01/15 – 11/30/18 \$146,951 | 0.60 calendar |

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| PITE2408 (Butterfield) Frontier Science and Technology Research Foundation “Immunologic Monitoring and Cellular Products Laboratory (IMCPL): E2408 Laboratory Studies: Processing, TNF- α ELISA, Proteasome ELISA” This grant supports the coordination, receipt, and analysis of samples as outlined in the E2408 protocol. Role: Co-Investigator | 12/13/10 – 11/30/18 \$135,105 | 0.22 calendar |
| PITE1609 (Butterfield) Frontier Science and Technology Research Foundation “Immunologic Monitoring and Cellular Products Laboratory (IMCPL): E1609 Collection Kits, Processing, Shipping, and Storage” This grant supports the coordination, receipt, and processing of kits and specimens as outlined in the E1609 protocol. Role: Co-Investigator | 05/25/11 – 11/30/18 \$1,345,603 | 0.30 calendar |
| U24 CA196172-01-PITT1 Sub- EAMRF (Butterfield) NIH “ECOG-ACRIN biospecimen bank to support the NCI- Clinical Trials Network (NCTN)” Role: PI | 04/29/15 – 11/30/18 \$59,791 | 0.40 calendar |
| U01 CA099168-11 (Chu) NIH “NCI ET-CTN with Phase 1 emphasis at PCI” Role: Co-Investigator | 03/01/14 – 11/30/18 \$23,653 | 0.22 calendar |
| Roswell Park Cancer Institute (Edwards) RPCI/UPCI Ovarian Cancer SPORE Role: Co-Investigator | 07/01/14 – 06/30/18 \$48,145 | 0.30 calendar |
| R01 CA187219-01A1 (Pollack) NIH “Peptide vaccine immunotherapy for children with recurrent low-grade astrocytomas” Role: Co-Investigator | 01/08/16 - 11/30/18 | 0.48 calendar |
| U01 AI131285 (Riddler) NIH “Comparison of Dendritic Cell-Based Therapeutic Vaccine Strategies for HIV Functional Cure” Role: Co-Investigator | 07/14/2017 – 11/30/18 \$45,408 | 0.60 calendar |
| <u>Prior Grant Support:</u> | | |
| UCLA Gene Medicine Seed Grant (Butterfield) “Melanoma Tumor Antigen Immunological Monitoring” Role: PI | 07/01/02-06/30/03 \$25,000 total | 0.6 calendar |
| Henry L. Hillman Foundation “Determinant Spreading in Melanoma” Role: PI | 07/01/04-06/30/07 \$100,000/year, \$200,000 total | 1.2 calendar |

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|---|---|---------------|
| #0330102N American Heart Association Scientist Development Grant “AFP Based Immunotherapy for Hepatocellular Cancer” Role: PI | 01/01/03-12/31/06 \$65,000 per year, \$260,000 total | 2.4 calendar |
| The Pittsburgh Foundation “AFP-Based Adoptive Immunotherapy for Hepatocellular Cancer” Role: PI | 08/01/05-07/31/07 \$60,000/year, \$120,000 total | 1.44 calendar |
| Intrexon Corporation (research contract) “Assay development and AdvRTSIL-12 vector preclinical studies” | 03/01/08-06/01/08 \$21,300 total | |
| Henry L. Hillman Foundation “Determinant Spreading in Melanoma” Role: PI | 01/01/08-12/31/08 \$100,000 total | 1.2 calendar |
| Basic to Clinical Collaborative Research Program Clinical and Translational Science Inst. (CTSI) University of Pittsburgh “Serum Biomarkers for Hepatocellular Cancer” (Butterfield and Gamblin) Role: Co-PI | 10/01/08-09/30/09 \$25,000 | 1.2 calendar |
| RO1 CA 104524 (Butterfield) NIH/NCI “AFP-Based Prime-Boost Immunotherapy of Hepatocellular Cancer” This grant supports a Phase I clinical trial in which Alpha Fetoprotein-positive Hepatocellular cancer patients are immunized with AFP DNA and AdvhAFP with detailed immunological monitoring. Role: PI | 07/01/04-06/30/10 \$205,000 annual direct costs | 3.6 calendar |
| Frontier Science and Technology Research Foundation ECOG Central Laboratory Support This grant supports efforts by the UCPI Immunological Monitoring Lab work for multiple ECOG supported clinical trials. Role: Co-Investigator | 05/01/05-04/30/10 | |
| R21 CA133859-02 (Okada) NIH “A Bi-Institutional Pilot Study of Vaccinations for Patients with Low-Grade Glioma” Role: Co-Investigator | 07/01/10-06/30/11 \$7,088 | 0.58 calendar |
| R21 CA127046-01A1 (Steel) NIH “Analysis of the cytokine-immunological model of a cancer-related symptom cluster” Role: Co-Investigator | 07/01/08-6/30/11 | 0.36 calendar |
| P01 CA101944 (Lotze) NIH/NCI “Integrating NK and DC into Cancer Therapy” This program studies interactions between tumor, NK cells and DC. Dr. Butterfield is responsible for generating therapeutic cultures of NK cells and DC for patient therapy. | 07/06/05-06/30/11 \$89,999 | 0.78 calendar |

Role: Co-Investigator

PO1 CA109688 (Whiteside) 07/01/06-06/30/12 0.6 calendar
NIH \$1,071,960/yr

“Immune Escape in Human Cancer: Mechanisms and Therapeutic Implications”

In this multidisciplinary program, the investigators will evaluate various mechanisms of tumor escape in humans, focusing on T-cell and DC apoptosis down-regulation of the APM machinery and protection mechanisms.

Role: Co-Investigator, Core C

PO1 NS40923-09 (Pollack) 03/01/10-02/28/13 0.6 calendar
NIH \$122,312

“Novel Strategies for Brain Tumor Therapies”

Core C (IMCPL) is responsible for immune monitoring, DC generation and preparation of gene-modified products.

Role: Co-Investigator

R21 CA149872-02 (Pollack) 03/01/10-02/28/13 0.528 calendar
NIH \$7,241

“Peptide Based Vaccine Therapy for Childhood Malignant Gliomas”

Role: Co-Investigator, Core C

W81XWH-11-2-0013 (Davidson) 11/01/10-04/30/12 0.56 calendar
US Army/DOD \$5,988

GYN COE Project 4

Role: Co-Investigator

UPCI CCSG Development Funds 10/01/13 – 07/31/14
UPCI CCSG \$5,000

“Whole Transcriptome Analysis of Tumor and Normal Forms of AFP on Dendritic Cells”

Role: Co-PI

PITE6508 (**Butterfield**) 09/21/10 – 09/20/15 0.30 calendar
Frontier Science and Technology Research Foundation \$77,411

“Immunologic Monitoring and Cellular Products Laboratory (IMCPL): E6508 Laboratory Studies: VEGF, ICAM-1 and other Analyte Levels; Treg Assessments; Anti-Muc-1 Antibody Titer, Cellular Immune Response against Muc-1”

This grant supports the coordination, receipt, processing of samples, and distribution of shipping/collections kits.

Role: Co-Investigator

PITAIMSS-00 (**Butterfield**) 10/1/12 – 09/30/15 0.24 calendar
Frontier Science and Technology Research Foundation \$33,333

A Cohort Study to Evaluate Genetic Predictors for Aromatase Inhibitor Musculoskeletal Symptoms.

Role: Co-Investigator

PIT1Z11B-00 (**Butterfield**) 10/1/14 – 09/30/15 0.40 calendar
Frontier Science - BCRF \$24,000

“BCRF Project 4: A Cohort Study to Evaluate Genetic Predictors for Aromatase Inhibitor Musculoskeletal Symptoms”

Role: PI

5UL1 TR00000-09 (Thomson) 02/01/15 – 01/31/16
CTSI \$20,000

“Safety and efficacy of donor-derived regulatory dendritic cell (DCreg) infusion in living donor renal

transplant recipients”
Role: Co-Investigator

R01 CA174858-02 (Pollack) 08/01/13 – 04/30/16 0.46 calendar
NIH/NCI \$37,499
“Peptide-vaccine-based immunotherapy for children with recurrent ependymomas.”
Role: Co-PI

RO1 CA138635 (**Butterfield**) 07/01/10 – 05/31/16 3.52 calendar
NIH/NCI \$310,114
“Multiple Tumor Antigen-loaded DC Vaccine for Hepatocellular Cancer”
This grant supports a Phase I clinical trial in which Alpha Fetoprotein-positive Hepatocellular cancer patients are immunized with AFP, Glypican-3 and MAGE antigen-loaded DC with detailed immune monitoring.
Role: PI

R56 AI117726 (Gambotto) 07/01/15 – 06/30/16 0.60 calendar
NIH \$15,462
“Clinical manufacturing and toxicology testing of an adenoviral-based RSV vaccine”
Role: Co-Investigator

Lustgarten Foundation (Thorne) 01/01/13 – 12/31/16 0.28 calendar
Lustgarten Foundation Award \$3,454
“Novel oncolytic vaccinia strains for targeted pancreatic cancer therapy”
This proposal will test a novel oncolytic vaccinia virus for pancreatic cancer.
Role: Co-Investigator

SAP#410006224 (Levine) 01/07/14 – 12/31/16 0.6 calendar
Commonwealth of Pennsylvania \$505,814
“Tobacco Yr. 12 – Project 10”
Role: Co-Investigator

2013 MRA Team Science Award (Tawbi) 05/01/13 – 04/30/17 0.36 calendar
Melanoma Research Alliance/MD Anderson Center \$62,231
“Targeting BRAF-mutant Melanoma Brain Metastases”
Role: Co-Investigator

Pending Grants:

R21 CA230491-01 07/01/18 – 06/30/20 1.2 calendar
NIH \$250,000
“Metabolic Inhibitory AFP-binding Molecules”
Role: PI

R21 CA230490-01 07/01/18 – 06/30/20 1.2 calendar
NIH \$250,000
“Mechanism of AFP Inhibition of DC Metabolism”
Role: PI

Patents and INDs Granted:

Co-inventor for “Method and Compositions for Treating Hepatocellular Cancer” in various formulations, patent protection granted in 2005-2009 in: South Korea, China, Japan, Europe/ United Kingdom/Hong Kong

U. S. Patent # 7,098,306, "Method and Compositions for Treating Hepatocellular Cancer"
August 2006, co-inventor with Drs. J.S. Economou and A. Ribas.

Disclosure filed: co-inventor for UPCI provisional patent submitted for "An Adenoviral Vector Expressing Melanoma Tumor Antigens Tyrosinase, MART-1 and MAGE-A6." Feb. 2006 (not pursued by Univ. Pittsburgh).

IND 13653, "A Phase I/II Trial Testing Immunization with AFP + GM-CSF Plasmid Prime and AFP Adenoviral Vector Boost in Patients with Hepatocellular Carcinoma." Sponsor: L. H. Butterfield, April 2008.

IND 15044, "A Phase I trial testing Multiple Antigen-Engineered DC followed by IFN α 2b Boost for Immunization of HLA-unrestricted Melanoma Patients". Sponsor: L. H. Butterfield, April 2012.

Current Research Interests:

Immunotherapy, Cancer Vaccines, Tumor Antigens, Dendritic Cells, Melanoma, Hepatocellular Carcinoma, NK cells, Antigen Processing and Presentation

Service

Editorial Service:

Journal of Immunology; Journal of Experimental Medicine; Cancer Research; Journal of Immunotherapy; Journal of Clinical Oncology; Clinical Cancer Research; Nature Nanotechnology; Science Translational Medicine; Journal of the National Cancer Institute; Vaccine; Cancer Immunology Immunotherapy; Journal of Leukocyte Biology; Gene Therapy; Trends in Immunology; Molecular Cancer Therapeutics; Journal of Immunological Methods; International Journal of Cancer; British Journal of Cancer; Gene Therapy; Current Gene Therapy; Cancer Letters; Cancer Investigation; Journal of Hepatology; Expert Opinion on Biological Therapy; Expert Review of Gastroenterology and Hepatology; BioMed Central Cancer; BMC Immunology; Cellular and Molecular Life Sciences; Cancer Chemotherapy and Pharmacology; Biologics: Targets and Therapy; Journal of Cancer Research and Clinical Oncology; Experimental Biology and Medicine; Clinical and Developmental Immunology; Journal of Biomedicine and Biotechnology; Tumor Biology; OMICS: A Journal of Integrative Biology; Current Molecular Medicine; Neoplasia; Yonsei Medical Journal; Clinical and Experimental Medicine; Cancers; BioScience Reports; Melanoma Research; PLoS ONE; Clinical Immunology; Gastroenterology, Gut, The Lancet Oncology; European Journal of Immunology; Cancer Immunology Research; Cytometry: Part B: Clinical Cytometry; JAMA Oncology; Cancer Discovery (all *ad hoc* reviewer).
Special Journal Issue: Frontiers in Immunology: Molecular Innate Immunity "Dendritic cell control of immune response," 2014, L. H. Butterfield and P. A. Morel, Co-Editors

Associate Editor, *Cancer Research*, Jan. 2005-2009

Associate Editor, *The Journal of Immunology*, July 2007-2009 and 2009-2011

Editorial Board, *Cancer Research*, 2010-present

Editorial Board, *OncImmunity*, 2011-present

Section Editor, *Journal for ImmunoTherapy of Cancer (JITC)*, Immunotherapy Biomarkers, 2012-present

Grant Reviewer:

Department of Veterans Affairs, Office of External Reviews, Feb. 2002

Avon/NCI Progress for Patients Program, Dec. 2002, May 2004, May 2005

Northwest Health Foundation Grant Programs, Sept. 2003

NCI “Rapid Access to Interventional Development (RAID)” Program, Oct. 2003

NIH Clinical Oncology (CONC) Study Section, *ad hoc* member, Feb. 2004, June 2005

Special Emphasis Panel member Mar. 2004

Prostate Ca. Res. Program (DOD) Immunol. Sciences, Scientist Reviewer Apr. 2004, 2005,

June 2006, July 2007 (co-chair for June 2006 and July 2007); Chair, Sept. 2008

Breast Ca. Res. Program (DOD) Immunol. Sciences, Scientific Reviewer Mar. 2005, Aug.

2005; Concept Award Reviewer 2005, 2006, 2007

NIH/NCI Immunotherapy Cluster Panel, *ad hoc* member, Oct. 2005

NIH SBIR/STTR Cancer Diagnostic and Treatment Study Section, *ad hoc* member, Oct. 2005

NIH SBIR/STTR Experimental Cancer Therapeutics, Study Section, *ad hoc* member, Feb. '09.

July '09, Oct. '09

American Heart Association, Microbiology/Immunology, grant reviewer, April 2006

Alliance for Cancer Gene Therapy, grant reviewer, April 2006, October 2006

Medical University of South Carolina, Center for Gene, Cell and Vaccine Therapy, Sept. 2006,

Feb. 2009

NIH NCI/Cancer Immunopathology and Immunotherapy (CII) Study Section, *ad hoc* member:

Nov. '06, Feb., Sep. '07, Jan. '10, mail review May '10, Jul '10; Standing member: 2010-2014.

Cancer Research UK, Jan. '08, Feb. '09, July '09

NIH/NCI Cancer Health Disparities PAR Panel, ZRG1-OBT-Z, *ad hoc* member, Mar. '10

NIH/NCI Intramural Research Program Reviewer, Surgery Branch, Sept. 15-16, 2010

NIH – Division of Translational and Clinical Sciences CII Study Section, June 2011

NIH – Special Emphasis Panels: March 2012; Dec. 2012 (co-chair), July 2014

NIH/NCI “Provocative Questions” RO1 and R21 reviewer, Mar. 26-29, 2012

NIH/NCI Intramural Research Program Reviewer, Surgery Branch, June 12-14, 2012

NCI Program Project Meeting ZCA1 RPRB-C, Bethesda, MD, Oct. 15-16, 2012

MRC, RCUK Shared Services, Developmental Clinical Studies grant, Nov. 2012

NCI Program Project Meeting III, ZCA1 RPRB-2 (M1), Rockville, MD, February 19-20, 2013

NCI Program Project Meeting I, ZCA1 RPRB-C (J1), Rockville, MD, October 9-10, 2013

NIH Immunology Fellowship and R15 AREA reviewer, Rockville, MD, October 21-22, 2014
FDA Site Visit Review, Tumor Vaccines and Biotechnology Branch (TVBB), Office of Cellular, Tissue and Gene Therapies (OCTGT), CBER, FDA, June 8-9, 2015
JDRF External Advisory Board, Diabetes Biomarker Working Group, San Diego, CA June 26, 2015
NCI ZCA1 SRB-D Omnibus R03 & R21 SEP-7 Review, Panel Chair, Bethesda, MD July 9-10, 2015
NCI ZRG1 F09B-B Fellowships: Oncological Sciences Review, July 13-14, 2015
NCI Omnibus SEP-7 ZCA1 Review Panel, Bethesda, MD, Oct. 20-21, 2015
NCI ZRG1 OTC-Y(50)R & ZRG1 OTC-Y(51)R US-China Program for Collaborative Biomedical Research Review Teleconference, August 1, 2016
University of Maryland Greenebaum Cancer Center External Advisory Committee, ad hoc member, November 21-22, 2016
NCI ZCA1 SRB-C (M1): NCI R03/R21 SEP-2 Review Committee, Tyson's Corner, VA Feb. 16-17, 2017
NCI OTC K03 CII member conflict SEP Review Committee, Chair, Mar. 8, 2017.
NCI Program Project I (P01) SEP Review Committee, June 8-9, 2017
NCI Clinical and Translational Exploratory/Developmental Studies SEP ZCA1 SRB-P (M2), Co-Chair, Feb. 16, 2018
NCI PI-DDN (U54), April 5, 2018
NCI ZRG1 OTC-B, (CII member conflict), panel Chair, July 3, 2018
NCI Mechanisms of Cancer Therapeutics-1 [MCT1], San Diego, October 11-12, 2018

Consultant:

Bristol-Myers Squibb, Tumor Immunology, Advisory Board Meeting Oct. 2-3, 2009
Prometheus Laboratories, Advisory Board Meeting Oct. 29-30, 2010
Kite Pharma, Consultant/Special Advisor 2010-2014
Amplimmune, Consultant, Feb.-May 2011
Boehringer-Ingelheim meeting Participant/Presenter Oct. 5-7, 2011
EMD Serono, Advisory Board Meetings: Dec. 10, 2011; Sept. 5, 2012; Educational lecture Feb. 7, 2013
Novartis, Immunotherapy in Cancer, Advisory Board Meeting, April 5, 2012
Bionest Partners, Consultant, Dec. 18, 2012, August 2017
Ziopharm Oncology, Advisory Board Meeting, Feb. 8, 2013
Nodality, Advisory Board Meeting, Nov. 10, 2013
Dendreon, SITC Industry Primer, Dec. 13, 2013
Dianippon Sumitomo Pharma meeting, June 5, 2014
Caladrius (formerly NeoStem), Scientific Advisory Board member, 2014 – 2016

Astellas, Cancer Immunotherapy Advisory Board Meeting, Santa Monica, CA, September 12-13, 2014;
“Overview of Cancer Immunotherapy Approaches” educational lecture.
Oxford Immunotec, consulting meeting, Pittsburgh, PA. June 22-23, 2015.
Affymetrix/eBioscience, consulting meeting, San Diego, CA, Aug. 5, 2015
Merck, Advisory Board Meeting, New Jersey, Oct. 1-2, 2015
Biodesix Advisory Board Meeting, National Harbor, DC, Nov. 4, 2015
Verastem Consulting call, Nov. 30, 2015
UCLA Human Gene and Cell Therapy Program and GMP Lab, External Consultant, January 11, 2016
AstraZeneca, Grand Rounds, Gaithersburg, MD, March 16, 2016
Verastem meeting, August 28, 2016
Immune Design consulting call, October, 2016
Kite Pharma Advisory Board Meeting, National Harbor, MD, November 9, 2016
Simpatica, Scientific Advisory Board Member, Jan. 2017-present
Shire Advisory Board Meeting, Orlando, FL Feb. 25, 2017
StemImmune Scientific and Medical Advisory Board, April 6, 2017-present
SapVax Advisory Board meeting, Philadelphia, PA, Nov. 15, 2017; Dec. 6, 2018
Rutgers Cancer Institute Immune Monitoring Shared Resource Advisory Committee, 2018
NextCure, Scientific Advisory Board, 2018-present
Replimmune, Scientific Advisory Board, 2018-present
Western Oncolytics, Scientific Advisory Board, 2018-present
Torque Therapeutics, Scientific Advisory Board, 2018-present

University of Pittsburgh Service:

Member, Liver Tissue Utilization Committee, Surgery Dept., 2004-2016
Member, UPCI Basic Research Task Force, 2004-2006
Judges Panel for the UPCI Scientific Retreat, June 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012,
2013, 2014, 2015, 2016, 2017
Director, UPCI Immunologic Monitoring Laboratory, 2005-2008
Director of Operations, UPCI Immunologic Monitoring and Cellular Products Laboratory, 2008-2010
Director, UPCI Immunologic Monitoring and Cellular Products Laboratory, 2010-2018
Member, UPCI Luminex Core Facility Advisory Committee, 2007-2010, 2015, 2017
Participant: UPCI Melanoma DSMC, 2008-2018

Participant: UPCI GI DSMC, 2009-2014

Member, Cytometry Facility Steering Committee, 2011-2018

Member, UPCI Poster Review Committee, UPCI Summer Academy, 2011, 2013

Member, Clinical Pharmacology Analytical Facility and Translational Research Facility Advisory Committee, 2013-2017

Member, Univ. Pittsburgh Non-Tenured Faculty Promotions and Appointments Committee, 2014-2017

Poster Judge: Department of Immunology Annual Retreat, 2014, 2015, 2016

Co-organizer, UPCI Annual Scientific Retreat, June 2015

Co-organizer, UPCI 30th Anniversary Immunotherapy Symposium, June 2016

Member, Department of Immunology Junior Faculty Mentoring Committee, 2017-2018

Member, UPMC Hillman Cancer Center Research Executive Advisory Committee, 2017-2018

Member and Chair, UPMC Hillman Cancer Center Women's Task Force, 2018

Community Service:

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| 1998 | Boy Scout Troup Atomic Energy Merit Badge, Counselor |
| 1998 | John Muir School, Glendale, Career Day classroom presentations |
| 2000 | American Association of University Women, Glendale Branch, lecture |
| 2003 | Boy Scout Troup Atomic Energy Merit Badge, Counselor |
| 2005 | The Ellis School Health Sciences Day, Hillman Cancer Center |
| 2011 | Pittsburgh Philoptochos Society Daffodil Luncheon Event, Honored Guest Speaker – presenting UPCI Melanoma Program |
| 2015-2018 | Pittsburgh Symphony Orchestra, New Leadership Board/Council |
| 2016 | STEM/AP Biology High School Student visit, co-host, Hillman Cancer Center |
| 2016 | Bipartisan Energy and Commerce Committee congressional staffer briefing on immun- oncology (as SITC President), Washington DC |
| 2017 | AACR-SITC Congressional briefing: Progress in Immuno-Oncology. Speaker. Washington DC |