Thomas C. Mitchell, Ph.D.

Professor of Microbiology and Immunology

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EDUCATION

Sept 1982 - May 1986	B.S., University of Michigan, Ann Arbor MI, in Biology.
Sept 1986 - Dec 1992	Ph.D. in Molecular Biology of Retroviruses, University of Wisconsin-Madison, Madison WI. PhD, mentors: Rex Risser and Howard Temin.
Jan 1993 - Feb 1995	Postdoctoral training in DNA tumor virology, University of Wisconsin-Madison, Madison WI. Mentor: Bill Sugden.
Mar 1995 - Sept 2000	Postdoctoral training in immunology, Howard Hughes Medical Institute, National Jewish Medical Research Center, Denver CO, Mentors: John Kappler and Phillipa Marrack.

ACADEMIC APPOINTMENTS

Oct 2000 - June 2006	Assistant Professor Department of Microbiology and Immunology University of Louisville School of Medicine Louisville, Kentucky
Oct 2001 - present	Barnstable-Brown Derby Gala Chair
July 2006 - June 2012	Associate Professor Department of Microbiology and Immunology University of Louisville School of Medicine Louisville, Kentucky
July 2012 - present	Professor Department of Microbiology and Immunology University of Louisville School of Medicine Louisville, Kentucky

PROFESSIONAL MEMBERSHIPS AND ACTIVITIES

10/2000 - present	Member, Institute for Cellular Therapeutics
10/2001 - present	Member, J. Graham Brown Cancer Center, U of L
10/2001 - present	Member, Center for Genetics and Molecular Medicine, U of L
2/2002 - present	Member, American Association of Immunologists.
12/2004 - 2009	Member, Society for Leukocyte Biology
4/2006 - present	Governor's Appointee, Kentucky Diabetes Research Board

HONORS AND AWARDS

1986 - 1987	Wisconsin Alumni Research Fellow, Program in Cell and Molecular Biology, The University of Wisconsin-Madison.
1999 - 2000	Robert William Gitzen Jr. & Christopher Peter Gitzen Fellowship in Basic Immunology, National Jewish Medical and Research Center.
2001-present	Barnstable-Brown Gala Chair in Diabetes Research, University of Louisville School of Medicine.
2002	AAI Junior Faculty Travel Award, AAI/FASEB 2002 "Translating the Genome", New Orleans LA.

SERVICE ACTIVITIES

At University of Louisville

2001 - 2004	Member, *Ad Hoc* Animal Care Program Cost Accounting Committee (School of Medicine).
2002	Member, Research Standards and Training Task Force.
2002 - present	Standing member, Institutional Biosafety Committee.
2003	Qualifying Exam Revision Committee, Dept. of Microbiology and Immunology (M&I).
2004 - 2007	M&I Qualifying Exam Coordinator.
2006 - 2007	M&I Member, Graduate Program Committee.
2006	Member, University-Industry Relations Task Force.
2008 - present	Member, Intramural Research Incentive Grants Review Committee (spring and fall of each year).
2010 - 2012	M&I Admissions Committee, Chair.
2011 - 2012	M&I Representative to Integrated Program in Biomedical Sciences (School of Medicine).
2012 - 2015	M&I Faculty Performance Evaluation Committee (Chair, 2015).
2014 - 2017	M&I Graduate Program Director.

External to University of Louisville

June 2006	*Ad hoc* reviewer, Immunity and Host Defense Scientific Review Group.
Aug 2008	Member, NIH/AI Special Emphasis Panel ZAI1-LR-I-J1, "Host Response to Pathogens".
Dec 2008	Member, NIH/AI Special Emphasis Panel ZAI1 KE-I (J2), "Reagent development for Toll-like and other innate immune receptors".
Jan 2009	Member, NIH/AI Special Emphasis Panel ZAI1 BDP-I(J3), "Immune Mechanisms of Viral Control".
Feb 2011	*Ad hoc* reviewer, Allergy, Immunology and Transplantation Research Committee (AITRC)**.**
2011 - 2015	Standing member, Allergy, Immunology and Transplantation Research Committee (AITRC)**.**
2007 - 2008	General Council Member, Autumn Immunology Conference.
2009 - 2011	Executive Council Member (as Liaison to Exhibitors), Autumn Immunology Conference.
2011 - 2012	Workshop Coordinator, Autumn Immunology Conference.
2012 - 2013	Secretary, Autumn Immunology Conference.
2013 - 2014	Conference Chair, Autumn Immunology Conference.
2014 - 2015	Councilor, Autumn Immunology Conference.
2012 - 2014	Committee Member, Membership Committee, American Association of Immunologists.
2015 - 2017	Chair, Membership Committee, American Association of Immunologists.
2015 - 2017	Chair, Allergy, Immunology and Transplantation Research Committee for NIAID, NIH)**.**
Jul 2017	Chair, NIH/NIAID Special Emphasis Panel, "NIAID Investigator Initiated Program Project Applications (P01) & NIAID Resource-related Research Projects (R24)".
Oct 2017	*Ad hoc* reviewer, NIH/CSR standing study section, "Vaccines Against Microbial Diseases**"**
June 2018	*Ad hoc* reviewer, Allergy, Immunology and Transplantation Research Committee (AITRC)**.**
March 2019	Ad hoc reviewer, NIH/NIAID Collaborative Cross (CC) Mouse Model Generation and Discovery of Immunoregulatory Mechanisms (R21) Teleconference review, ZAI1-JTS-I-M1

March 20 and March 25, 2019
EDUCATIONAL ACTIVITIES

Teaching: Courses and lectures to students

2001 - present	MBIO 690, Research Methods in Microbiology & Immunology (lecturer).
2002 - present	MBIO602, Immunology (Course co-director, lecturer).
2002	BIOC 675, Cancer Biology (lecturer).
2002-2003	MBIO 658, Cellular and Molecular Immunology (lecturer).
2008	BIOL 571/671, Immunobiology, Infection and Immunity (lecturer).
2010 - present	BIOC 630, Responsible Conduct of Research (lecturer).
2010 - 2015	MBIO 850, Microbiology and Immunology (lecturer).
2015 - 2016	Disease and Therapeutics I (MS2 lecturer).
2017 – present	Molecular Basis of Life, Defense and Disease (MS1 lecturer).

Teaching: Primary Advisor of doctoral students Dept. of M&I:

8/2002 - 5/2005	Bruce S. Thompson, Ph.D. student.
1/2002 - 12/2006	Veronica Mata Haro, Ph.D. student.
1/2003 - 12/2007	Padmini Jayaraman, Ph.D. student.
1/2005 - 12/2009	Caglar Cekic, Ph.D. student (American Heart Association Predoctoral Award, 2008-2009; OGMB080810A1-2).
1/2007 - 6/2009	Jonathon R. Brown, Ph.D. student (transferred, then graduated 3/2011).
1/2008 - 4/2011	Chelsea A. Eaves, Ph.D. student (American Heart Association Predoctoral Award, 2009-2011; OGMB090886A1-2).
3/2009 – 11/2015	Joseph P. Kolb, PhD student.
5/2012 – 8/2017	Shuvasree SenGupta, PhD student

Teaching: Supervision of postdoctoral fellows

12/2002 - 3/2007	Sadhak Sengupta, Ph.D. Postdoctoral fellow.
9/2003 - 12/2006	Mingqing Cai, Ph.D. Postdoctoral fellow.
7/2010 - present	Dereje Desta, Ph.D. Postdoctoral fellow (T32 trainee).
4/2010 - present	Siva K. Ghandapudi, Ph.D. Postdoctoral fellow.
2/2011 - present	William S. Bowen, Ph.D. Postdoctoral fellow (T32 trainee with Dr. Paula Chilton).

Advising: assistant professors

7/2009 – 3/2013	Paula Chilton, Ph.D. Assistant Professor, term track.

Completed Ph.D. dissertation committees:
Heather Calamita (Microbiol. & Immunol.), Somkiat Leungpailin (M&I), Loretta Doan (Biol. and Mol. Gen.), Lata Mukundan (M&I), Chuancang Jiang (M&I), Chad Welsh (M&I), Deanna Franke (M&I), Eskan A Mehmet (M&I, Dental School), Shuang Liang (M&I), Steven Mathis (M&I), Yuan Zhao (M&I), Panagiota Stathopoulou (M&I, Dental School), Karanvir S. Aulakh (M&I), Elongovan Krishnan (M&I), Souhaila Al Khodor (M&I), Smita Karandikar (M&I), Arlixer McGhee (M&I), Jean Manirarora (M&I), Carlos Garcia (M&I, co-mentor), Kunal Rehani (M&I), Duygu Sag (M&I), Huizhi Wang (M&I, co-mentor), Colleen Tucker (M&I), Juhi Bagaitkar (M&I, co-mentor), Wan Wu (M&I), Megan McIntosh (M&I), Colins Eno (Pharmacology), Yanfang Zhu (M&I), Mehmet Askan (DMD, M&I), Sobha Bodduluri (M&I), Arin Zirnheld (M&I), Carolyn Roberson (M&I), Tad Dryden (M&I), Ali Al Magableh (Anatom. Sci. and Neuro.), Jeremy Camp (M&I), Jonathan Brown (M&I), Tess Dupre (Pharm. Tox.), Aaron Neely (Pharm. Tox.), Nicole Warner (M&I), Juanita von Dwingelo (M&I).

Current Ph.D. dissertation committees:
Katlin Stivers (M&I), Dylan Johnson (M&I), Zackary R. Fitsimonds (Oral Health & Inf. Dis.).

GRANTS AND CONTRACTS

Grant awards and contracts, current

1. **Mechanisms of successful vaccine adjuvants.**
   1R01AI127970-01A1, Mitchell (PI)
   06/26/2017 – 05/31/2022; $ 1,925,000 ($1,250,000 DC and $675,000 F&A); OGMB170750
   The major goals of this project are to investigate the molecular mechanisms by which an approved vaccine adjuvant combination, alum adsorbed with monophosphoryl lipid A, successfully boosts immune responses without causing harm.
   Role: Principal Investigator.

Grant awards and contracts, pending

1. **Relationship of vaccine reactogenicity to immunization outcomes.**
   1R03AI137842-01A1, Mitchell (PI)
   10/01/2018 – 9/30/2020; $154,000 ($100,000 DC and $54,000 F&A)
   This short-term project will perform statistical modeling of data from three head-to-head comparisons of competing vaccines in order to identify vaccination side effects that are consistently associated with desired immunization outcomes.
   Role: Principal Investigator.

Grant awards, completed

1. **Lipopolysaccharide variants in endotoxemia.**
   UofL SOM Collaborative Project Grant, Mitchell (PI)
   08/01/2016 – 6/30/2017; $50,000.
   The goal of this project is to refine assays of bacterial lipopolysaccharide structure for use in collaborative grant proposals on endotoxemia in cardiovascular and alcohol liver disease.
   Role: Principal Investigator.

2. **Adjuvant Functions of Detoxified LPS.**
   R01 AI071047, NIH/AI, Mitchell (PI)
   02/01/2008 – 01/31/2013; $1,800,566 ($1,219,583 DC and $580,983 F&A); OGMB071535
   The goal of this project is to elucidate the molecular basis for MLA's TRIF-biased adjuvant effects on T and B cells so that isuccessful attributes can be amplified in next generation synthetic forms.
   Role: Principal Investigator.

3. **Training Program in Transplantation.**
   2T32HL076138-06A1, NIH/NHLBI, Ildstad/Shirwan (PI).
   08/01/09-07/31/14; ($1,496,503 DC and $119,714 F&A (projected)); OGMB090351.
   07/12/10-07/11/13; (Support period for post-doctoral trainee Dereje Desta).

This training program provides high quality training for postdoctoral fellows in basic aspects of transplantation immunology and stem cell biology so that they may establish careers as independent investigators addressing a variety of critical questions in transplantation.
Role: Mentor of postdoctoral trainee (0% effort, 0% collaboration).

4. **Naturally Occurring Lipid A Based Adjuvants.**
   U54AI057141, NIH/AI, UW-Seattle, Miller (PI)**.**
   03/01/09-02/28/11; $209,363 ($141,462 and $67,901 F&A); OGMB081219 and OGMB081219A
   The goal of this project, which was one component of a biodefense research program administered by the Northwest Regional Center for Excellence at the University of Washington-Seattle, was to assess the ability of naturally-occurring, low toxicity forms of Lipid A to function as vaccine adjuvants.
   Role: PI of subaward with Project Director Dr. R. Darveau, UW-Seattle.

5. **Ligation of CR3 by Glucan and iC3b Links Innate and Adaptive Anti-Tumor Immunity**
   R01 CA86412-23A1, NIH/NCI, Yan (PI).
   12/01/06 - 11/30/10; $1,035,088 ($700,271 DC and $334,817 F&A); OGMB060981
   The goal of this proposal was to understand the molecular and cellular mechanisms of action within yeast beta-glucan mediated tumor immunotherapy, and then promote it for clinical utilization with humanized antitumor mAbs or tumor vaccines eliciting a sufficient humoral response for activation of complement.
   Role: Co-Investigator.

6. **T Cell Adjuvants for Biodefense**
   K02 AI059023, NIH/AI, Mitchell (PI).
   03/01/04 - 02/28/09; $495,185 ($458,505 DC and $36,680 F&A); GRNT031136
   The K02 is a career development award from the NIAID for newly independent investigators whose research interests are relevant or useful to biodefense.
   Role: Principal Investigator.

7. **Bcl-3 Oncoprotein In T Cell Survival**
   R01 AI51377, NIH/NIAID, Mitchell (PI).
   04/01/02 - 03/31/07; $1,420,699 ($995,300 DC and $425,399 F&A); GRNT010947
   This project investigated the molecular mechanism of the anti-apoptotic activity of Bcl-3, an NFκB transcription factor that is induced in T cells during productive immune responses.
   Role: Principal Investigator.

8. **T Cell Function in Nicotine-Treated Mice**
   Kentucky Lung Cancer Research Program, Mitchell (PI).
   07/01/02- 06/30/2006 (with no cost extension); $300,000 ($272,727 DC and $27,273 F&A); GRNT020518.
   Nicotine and other adjuvant effects for immunotherapy of lung carcinoma.
   Role: Principal Investigator.

Contracts, completed

1. **Adjuvant Development Program for AGP Adjuvant**
   Subcontract to HHSN272200900008, NIH/AI, GlaxoSmithKline dba Corixa Corp, Johnson (PI).

10/01/10-03/31/15**;** $740,630 ($463,889 DC and $276,741 F&A); OICB080721.
This project evaluates the dependence of candidate AGPs (synthetic TLR4 agonists) on the TLR4/MyD88 vs. TLR4/TRIF-associated signaling pathways for T cell-mediated immune outcomes using genetically defined mouse models as part of an adjuvant development program sponsored by the NIH.
Role: Principal investigator of subcontract.

2. **Assessment of Adjuvant Effects on T Cell Responses**
   Subcontract to HHSN2722009000036C, NIH/AI, GlaxoSmithKline dba Corixa Corp, Johnson (PI).
   04/01/10-09/29/14; $893,438 ($603,964 DC and $289,474 F&A); OICB090637
   This subcontract evaluates novel nucleolipids for their abilities to synergize with TLR4 agonists in boosting
   immune responses as part of an adjuvant discovery program sponsored by the NIH
   Role: Principal investigator of subcontract.

3. **Innate Immune Receptors and Adjuvant Discovery**
   Subcontract to HHSN266200400008C, NIH/AI, GlaxoSmithKline dba Corixa Corp, Baldridge (PI).
   12/30/04 – 12/29/08; $372,465 ($254,361 DC and $118,104 F&A); GRNT030608
   This subcontract investigated the mechanisms by which chemical mimetics of natural ligands of the innate immune receptor TLR4 enhanced T cell responses in experimental mice.
   Role: Principal investigator of subcontract.

EDITORIAL WORK

Oct 2000 – present

Ad hoc manuscript reviewer for Cellular Immunology, Proc. Nat. Acad. Sci. USA, J. Clin. Exp. Immunol., J. Exp. Med., J. Immunol, J. Immunol. Methods, J. Leukocyte Biology, Vaccine; Current Tuberculosis Drug Devleopment, Trends in Immunology, PLoS Pathogens, Revista do Instituto de Medicina Tropical de São Paulo, Science Signalining, et cetera.

PRESENTATIONS AND ABSTRACTS (since 2000)

Invited Oral Presentations (National/International)

1. The Ohio State University, Dept. of Molecular Virology, Immunology, and Molecular Genetics. 6/6/2001. "*The Bcl-3 oncoprotein as a mediator of 'danger' signals during T cell immune responses."*

3. Aventis Corp., Toronto Canada. International meeting of company scientists: "Applied Immunology in the 21st Century: Challenges and Opportunities". 3/25/2002. "*Immunological insights from genomics and DNA chip technologies."*

4. Fondation Merieux International Symposium "Microarrays, Immune Responses, and Vaccines", Annecy France. "*Adjuvants.*" 5/28/2002. (Served as Chairperson of session.)

5. Immunology Group Seminar Series, NCI-Frederick, Frederick MD. 11/19/04. "*Beyond Signal 2: How do adjuvants keep activated T cells alive?*"

6. AAI/FASEB 2005, Vaccines and Immunotherapy for Infectious Diseases symposium, San Diego CA. 4/5/05. "*Adjuvant survival effects on T cells in the absence of inflammation."*

7. Corixa Corporation, Seattle WA. 11/18/2002. "*Adjuvant-induced survival of activated T cells*."

8. Rocky Mountain Laboratory, NIAID, Hamilton MT. 6/9/2003. "*Adjuvant-induced survival of T lymphocytes."*

9. GlaxoSmithKline Biologicals, Hamilton MT. 8/31/06. "*TLR agonists and T cells."*

10. Department of Immunology, University of Connecticut Health Center, Hartford CT. 1/24/2008. "*The Vaccine Adjuvant Monophosphoryl Lipid A as a Trif-biased Agonist of TLR4."*

11. GlaxoSmithKline Biologicals, Hamilton MT. 4/29/2008. "*The Vaccine Adjuvant Monophosphoryl Lipid A as a Trif-biased Agonist of TLR4."*

12. Department of Microbiology and Immunology, Uniformed Services University of the Health Sciences, Bethesda MD. 11/3/2008. "*Trif-biased Signaling by the Vaccine Adjuvant MPL."*

13. National Jewish Health, Denver CO. 4/1/2009. "*Trif-biased Signaling by the Vaccine Adjuvant MP*L."

14. GSK-Biologicals, Hamilton MT. 4/27/2009. "*Trif-biased Signaling by the Vaccine Adjuvant MPL*."

15. "Curso/Simposio Internacional: Innate, Immunity, Inflammation and Adjuvants" at the Federal University of Rio de Janiero, Brazil. 5/8/2009. "*Monophosphoryl Lipid A and TLR4 signaling: understanding a good adjuvant in order to make it better*."

16. I Encontro de Inflamacao e Imunidade (Control of Inflammation and Immunity), Solar da Imperatriz, Rio de Janiero Brazil. 5/12/2009. "*Low toxicity adjuvant function of the TLR4 agonist Monophosphoryl Lipid A."*

17. Global COE Program Invited Speaker's Seminar, Graduate School of Frontier Biosciences, Osaka University, Osaka, Japan. 8/20/2010. "*TRIF-biased signaling and immunostimulatory properties of the TLR4 agonist monophosphoryl Lipid A."*

18. 14th International Congress of Immunology symposium presentation, Kobe, Japan. 8/23/2010. *A paradigm for vaccine adjuvant development: "TRIF-biased signaling by the TLR4 agonist monophosphoryl lipid A."*

19. St. Louis University, St. Louis MO. 4/10/2013. *TLR4 as a Trif-biased Receptor: Zigzagging to the truth in vaccine adjuvant development.*

20. Novel Immunotherapeutics Summit 2014 (Innate Immunity), GTCBio, San Diego CA. 1/31 2014. *" Through a therapeutic window: Innate and adaptive responses to low toxicity adjuvants."*

21. Autumn Immunology Conference 2014, Chicago, Illiniois. 11/24/2014. " *Safe immunostimulation: uncoupling innate from adaptive immunity."*

22. Toll-Like Receptor Signaling in Adjuvants Workshop, National Institute of Allergy and Infectious Diseases, Rockville, Maryland. 6/29/2017. "*Control of signaling to influence vaccine safety and efficacy."*

23. Molecular Mechanisms of Combination Adjuvants Annual Meeting, National Institute of Allergy and Infectious Diseases, Rockville, Maryland. 11/16/2018. "*Mechanisms of Successful Vaccine Adjuvants."*

Invited Oral Presentations (Local/Regional)

1. University of Louisville, J. Graham Brown Cancer Center. 10/18/2001. *Discovery of the Bcl-3 oncoprotein as a mediator of T cell survival during immune responses.*

2. Western Kentucky University, Dept. of Biology, 10/19/2001. *T cell science.*

3. University of Kentucky, Dept. of Microbiology and Immunology. 11/27/2001. *Beyond Signal 2: Adjuvant-induced survival of activated T cells.*

4. University of Louisville, Dept. of Microbiology and Immunology. 3/21/2002. *A role for Bcl-3 in adjuvant induced T cell survival.*
5. University of Louisville, Dept. of Biochemistry and Molecular Biology. 4/8/2002. *Integrity of the plasma membrane in rapidly dividing lymphocytes.*

6. Research!Louisville Symposium, Institute for Cellular Therapeutics, University of Louisville, Louisville KY. 11/3/2003. *How understanding normal immune function can lead to a cure for diabetes*.

7. Kentucky Lung Cancer Program Annual Scientists' Seminar. 5/12/2004. *T cell adjuvants for immunotherapy of lung carcinomas.*

8. Poa Pratensis Seminar Series, Brown Cancer Center, University of Louisville, Louisville KY. 6/24/2004. *T cell metabolism after clonal expansion: do adjuvants give T cells a full tank of gas?*

9. Bumgardner Minisymposium, Department of Microbiolgy and Immunology, University of Louisville, Louisville KY. 9/9/04. *Microbial products as T cell adjuvants*.

10. Tumor Immunobiology Program, J. Graham Brown Cancer Center, University of Louisville, Louisville KY. *MPL is the next alum: comparing the adjuvant activities of detoxified LPS to its parent compound endotoxin.*

11. Poa Pratensis Seminar Series, Brown Cancer Center, University of Louisville, Louisville KY. 4/26/2007. *Do adjuvants give T cells a full tank of gas Part II: Filling up on Krispy Kreme Doughnuts.*

12. Center for Regulatory and Environmental Metabolomics, University of Louisville, Louisville KY. 5/11/2007. *Effects of adjuvants on T cell proliferation.*
13. Cancer Prevention and Control Program, University of Louisville, Louisville KY. 11/20/2007. *Monophosphoryl lipid A as a TRIF-biased agonist of TLR4.*

14. Diabetes and Obesity Research Center, University of Louisville, Louisville KY. 9/6/2011. *The LPS Receptor in Health and Disease.*

15. University of Kentucky, Dept. of Microbiology and Immunology. 11/27/2012. *Vaccine Adjuvant Effects through TLR4: the Role of Bugs, Chemists and You.*

16. Department of Pediatrics, University of Louisville, Louisville KY. 11/11/2014. *How can the adaptive immune response be stimulated safely?*

17. Department of Oral Immunology and Infectious Diseases, University of Louisville, Louisville KY. 3/27/2015. *TLR4 and "quiet priming" of the adaptive immune response.*

Selected Posters (National/International Meetings)

1. Experimental Biology 2001, March 31-April 4, 2001, Orlando FL. *Immunological adjuvants increase activated T cell survival via the IkB protein, Bcl-3.* Casella, C.R., Thompson, B.S, and **Mitchell, T.C**.

2. AAI/FASEB 2002 "Translating the Genome" April 20–May 25, 2002. New Orleans LA. *Immunological Adjuvants Promote Activated T Cell Survival via Induction of Bcl-3.* **Mitchell T.C**., Thompson B.S., and Casella C.R. (Abstract received AAI Junior Faculty Travel Award.)

3. American Association of Immunologists "Immunology 2003", May 6-10, 2003, Denver CO. *Calculation of the relative contributions of cellular division versus survival to increased T cell yield after immunization with natural adjuvants.* Bruce S. Thompson, Veronica Mata-Haro, Janice White, and **Thomas C. Mitchell**.

4. Keystone Symposia: Survival and Death in Immune Tolerance and Homeostasis,March 3-9, 2005, Keystone CO. *The survival effects of TLR agonists on activated T cells do not require continuous PI3-Kinase signaling.* Sadhak Sengupta, Paula M. Chilton and **Thomas C. Mitchell**.

5. AAI/FASEB Experimental Biology 2005. April 2-6, 2005, San Diego CA. *Adjuvant survival effects on T cells in the absence of inflammation.* Veronica Mata-Haro, Bruce S. Thompson, Carolyn R. Casella, and **Thomas C. Mitchell.** (Oral presentation by T. Mitchell.)

6. Immunology 2006, American Association of Immunologists, May 12-16, 2006, Boston MA. *GSK3beta promotes clonal contraction of activated T cells.* Sadhak Sengupta, Carolyn R. Casella and **Thomas C. Mitchell.** (Oral presentation by S. Sengupta.)

7. Immunology 2006, American Association of Immunologists, May 12-16, 2006, Boston MA. *The vaccine adjuvant monophosphoryl lipid A is a partial agonist of TLR4.* Veronica Mata Haro, Carolyn R. Casella, Caglar Cekic, Paula M. Chilton, and **Thomas C. Mitchell.**

8. Immunology 2007, American Association of Immunologists, May 18-22, 2007, Miami Beach FL. *Bcl-3 is required for adjuvant mediated T cell survival and sustained inhibition of GSK3beta.* Padmini Jayaraman, Paula M. Chilton, Sadhak Sengupta, and **Thomas C. Mitchell**.

9. ImmunoRio 2007: 13th International Congress of Immunology, August 21-25, 2007, Rio de Janeiro, Brazil. *The Vaccine Adjuvant Monophosphoryl Lipid A is a Trif-biased Agonist of TLR4.* Caglar Cekic, Veronica Mata-Haro V, Michael Martin, Paula Chilton, Carolyn Casella, and **Thomas C. Mitchell.**

10. Toll2008: Recent Advances in Pattern Recognition, September 24-27, 2008, Cascais, Portugal. *A promoter complexity model for Trif-biased stimulation of TLR4 by Monophosphoryl Lipid A.* Caglar Cekic, Chelsea Eaves, Carolyn R. Casella and Thomas C. Mitchell**.**

11. Trisociety Annual Conference "Cellular and Cytokine Interactions in Health and Disease", Lisbon, Portugal. *Low Toxicity Signaling by Monophosphoryl Lipid A*. **Thomas C. Mitchell**, Caglar Cekic, Carolyn R. Casella, and Chelsea A. Eaves.

12. Immunology 2010, American Association of Immunologists, May 7-12, 2010, Baltimore MD. *Monophosphate Lipid A's TRIF-biased TLR4 signaling results in weak NLRP3 inflammasome priming and reduced IL-1β production.* Chelsea A. Eaves, Luigi Franchi, Gabriel Nunez, **Thomas C. Mitchell**.

13. 14th International Congress of Immunology, August 22-27, 2010, Kobe, Japan. *A paradigm for vaccine adjuvant development: TRIF-biased signaling by the TLR4 agonist monophosphoryl lipid A.* **T. Mitchell**, C. Casella, C. Cekic, C. Eaves, and P. Chilton. (Oral presentation by T. Mitchell.)

14. 2017 Annual Meeting of the Society for Leukocyte Biology, "Leukocyte Memory: Health and Disease," October 5-7, 2017, Vancouver, Canada. *Adherent human neutrophils depend on accessory cells for their survival response to LPS.* **Thomas C. Mitchell**, Madhavi J. Rane, Silvia M. Uriarte and Shuvasree SenGupta.

Selected Posters (Local/Regional Meetings)

Note: the Autumn Immunology Conference features national and international speakers, with most attendees from the upper midwest and some other states (IL, WI, IA, KY, MI, OH, IN, OK, UT).

1. 31st Annual Autumn Immunology Conference, November 23-25, 2002, Chicago IL. *A small functional domain in the NF-kB family member protein, Bcl-3, is responsible for inducing survival in activated T cells.* Bruce S. Thompson, Carolyn R. Casella, John O. Trent, and **Thomas C. Mitchell**.

2. 31st Annual Autumn Immunology Conference, November 23-25, 2002, Chicago Illinois. *Are Toll-like receptors the only adjuvant receptors?* Veronica Mata-Haro, Bruce S. Thompson, Gordon D. Ross, and **Thomas C. Mitchell**.

3. Research! Louisville. October 28 – November 1, 2002, Louisville Kentucky. *Immunological Adjuvants Promote Activated T Cell Survival via Induction of Bcl-3.* Bruce S. Thompson, Veronica Mata-Haro, Rachel Rivoli, Janice White, and **Thomas C. Mitchell**.

4. Research! Louisville. October 28- November 1, 2002, Louisville Kentucky. *Are Toll-like receptors the only adjuvant receptors?* Veronica Mata-Haro, Bruce S. Thompson, Gordon D. Ross, and **Thomas C. Mitchell.**

5. Research! Louisville. October 3-7, 2003, Lousiville Kentucky. *Calculation of the relative contributions of cellular division versus survival to increased T cell yield after immunization with natural adjuvants.* Bruce S. Thompson, Veronica Mata-Haro, Janice White, and **Thomas C. Mitchell.**

6. 32nd Annual Autumn Immunology Conference, November 22-24, 2003, Chicago IL. *In vivo measurement of adjuvant-induced survival using CFSE: multiple TLR ligands increase both T cell cycling and daughter cell survival.* Bruce S. Thompson, Veronica-Mata Haro, Rachel Rivoli, and **Thomas C. Mitchell**.

7. Research! Louisville, November 8-12, 2004. *Ankyrin repeat domains 1-3 are sufficient for Bcl-3's survival effect on T cells*. Mingqing Cai, Paula Chilton, Padmini Jayaraman, **Thomas C. Mitchell.**

8. Research! Louisville, November 8-12, 2004. *CD4 T cells from adjuvant-treated mice show induction of NFkB/IkB factor Bcl-3 associated in a complex.* Padmini Jayaraman, Mingqing Cai, Paula Chilton and **Thomas C. Mitchell.**

9. Research! Louisville, November 8-12, 2004. *Tracking ova-specific CD4 and CD8 T cells in mice bearing ova-expressing Lewis Lung tumors.* Veronica Mata–Haro, Paula Chilton, and **Thomas C. Mitchell.**

10. Research! Louisville, November 8-12, 2004. *T cells divide efficiently, but fail to accumulate after peptide stimulation in the absence of TLR agonists.* Bruce S. Thompson, Veronica Mata-Haro, and **Thomas C. Mitchell.**

11. Research! Louisville, November 8-12, 2004. *Adjuvants mediate peak expansion survival of activated T cells independent of PI3-kinase.* Sadhak Sengupta, Paula Chilton, and **Thomas C. Mitchell.**

12. Research! Louisville, November 8-12, 2004. *Redundant adjuvant-like T cell survival mediated by members of the IkB molecule family, Bcl-3 and I□B epsilon.* Paula Chilton and **Thomas C. Mitchell.**

13. 33rd Annual Autumn Immunology Conference, November 20-22, 2004, Chicago IL. *Ankyrin repeat domains 1-3 are sufficient for Bcl-3's survival effect on T cells*. Mingqing Cai, Paula Chilton, Padmini Jayaraman, **Thomas C. Mitchell.**

14. 33rd Annual Autumn Immunology Conference, November 20-22, 2004, Chicago IL. *CD4 T cells from adjuvant-treated mice show induction of NFkB/IkB factor Bcl-3 associated in a complex.* Padmini Jayaraman, Mingqing Cai, Paula Chilton and **Thomas C. Mitchell.**

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