

## **APICHAJ TUANYOK**

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## **CURRICULUM VITAE**

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### **EDUCATION:**

2000: Ph.D. (Tropical Medicine - Medical Microbiology), Liverpool School of Tropical Medicine, University of Liverpool, Liverpool, United Kingdom.

Supervisors: Professor C. A. Hart and Dr. Paul Shears.

Thesis: A study of the molecular epidemiology and genetic basis of virulence mechanisms in *Shigella* spp.

1992: B.Sc. in Biology (Second Class Honors), Prince of Songkla University, Songkhla, Thailand

### **PROFESSIONAL EXPERIENCE:**

October 1<sup>st</sup>, 2014 – Present: Assistant Professor, Department of Infectious Diseases and Pathology, College of Veterinary Medicine  
University of Florida, Gainesville, FL, USA

August 1<sup>st</sup>, 2013 – September 25<sup>th</sup>, 2014:

Assistant Professor, Department of Tropical Medicine, Medical Microbiology and Pharmacology

Genome Microbiologist Research Scientist, Pacific Center for Emerging Infectious Diseases Research, John A. Burns School of Medicine, University of Hawaii at Manoa, Honolulu, HI, USA.

August 2009 – July 2013: Assistant Research Professor, Department of Biological Sciences

Assistant Director, Center for Microbial Genetics and Genomics, Northern Arizona University, Flagstaff, Arizona, USA.

April 2006 - July 2009: Postdoctoral Research Associate in *Burkholderia* Genetics and Genomics, Center for Microbial Genetics and Genomics, Northern Arizona University, Flagstaff, Arizona, USA.

July 2002-March 2006: Postdoctoral Fellow in *Burkholderia* Pathogenesis, Department of Microbiology and Infectious Diseases, University of Calgary, Calgary, Alberta, Canada.

October 2001-June 2002: Postdoctoral Fellow in Biophysics, Physics Department, Dalhousie University, Halifax, Nova Scotia, Canada.

- July 2000-September 2001: Lecturer  
Department of Tropical Hygiene, Faculty of Tropical Medicine,  
Mahidol University, Bangkok, Thailand.
- October 1996 – June 2000: Ph.D. Student  
University of Liverpool, Liverpool, England.
- 1993 - 1996: Electron Microscopist, Suranaree University of Technology,  
Nakhon Ratchasima, Thailand.
- 1992: Research Assistant, Bangkok Herbarium, Royal Forest  
Department, Ministry of Agriculture, Bangkok, Thailand  
(sponsored by World Wildlife Fund)
- 1988 – 1992: Undergraduate Student  
Biology Department, Faculty of Science  
Prince of Songkla University, Thailand

### **SCIENTIFIC MEMBERSHIPS AND SERVICE:**

- 1) 2010 – present: Subject matter expert on the biodefense modeling parameters for *Burkholderia pseudomallei* and *Burkholderia mallei*, US Department of Homeland Security
- 2) 2010 – present: Member, SPADA (Stakeholder Panel on Agent Detection Assays) – *Burkholderia* Working Group, AOAC - International.
- 3) 2015 – Present: Member, Editorial Board of the Journal of Tuberculosis: Opinions
- 4) 2011 – Present: Member, Editorial Board of the Scientific World Journal: Genomics
- 5) 2016 – Present: Member, Editorial Board of the Veterinary Science and Technology
- 6) 2004 - present: Member, American Society for Microbiology.
- 7) 2002 - present: Member, Canadian Society of Microbiologists.
- 8) 2001 - present, Member, Nuclear Society of Thailand.
- 9) 1994 - present, Member, Electron Microscopy Society of Thailand.
- 10) Reviewer, American Society of Tropical Medicine and Hygiene.
- 11) Reviewer, Transactions of the Royal Society of Tropical Medicine and Hygiene.
- 12) Reviewer, Nature Protocols.
- 13) Reviewer, Biomed Central Journals.
- 14) Reviewer, Clinical and Vaccine Immunology
- 15) Reviewer, PLoS Journals
- 16) Reviewer, Microbial Pathogenesis
- 17) Reviewer, Scientific Reports
- 18) Reviewer, Emerging Infectious Diseases Journal
- 19) Reviewer, Genes
- 20) Reviewer, Environmental Monitoring and Assessment
- 21) Reviewer, JoVE
- 22) Reviewer, CVI

## AWARDS AND SCHOLARSHIPS:

- 1) NHMRC 2012 Research Excellence Award– National Health and Medical Research Council, Australia.
- 2) 2011 NAU Inventor Recognition Award on the Disclosure of the Innovation “Glanders Vaccine Target”, Northern Arizona University
- 3) Young Investigator Award, the 5th Conference of the Federation of Infection Society, 1998, Manchester, England.
- 4) Royal Thai Government Ph.D. Studentship in England, 1996-2000.
- 5) SUT-CUTC Scholarship, Suranaree University of Technology (SUT)-Canadian Universities of Technology Consortium, 1994. This scholarship is sponsored by the Canadian International Development Agency (CIDA).

## PUBLICATIONS:

- 1: Norris MH, Rahman Khan MS, Schweizer HP, Tuanyok A. An avirulent *Burkholderia pseudomallei*  $\Delta$ purM strain with atypical type B LPS: expansion of the toolkit for biosafe studies of melioidosis. BMC Microbiol. 2017 Jun 7;17(1):132. doi: 10.1186/s12866-017-1040-4. PubMed PMID: 28592242; PubMed Central PMCID:PMC5461690.
- 2: Norris MH, Schweizer HP, Tuanyok A. Structural diversity of *Burkholderia pseudomallei* lipopolysaccharides affects innate immune signaling. PLoS Negl Trop Dis. 2017 Apr 28;11(4):e0005571. doi: 10.1371/journal.pntd.0005571. eCollection 2017 Apr. PubMed PMID: 28453531; PubMed Central PMCID: PMC5425228.
- 3: Bugrysheva JV, Sue D, Gee JE, Elrod MG, Hoffmaster AR, Randall LB, Chirakul S, Tuanyok A, Schweizer HP, Weigel LM. Antibiotic Resistance Markers in *Burkholderia pseudomallei* Strain Bp1651 Identified by Genome Sequence Analysis. Antimicrob Agents Chemother. 2017 May 24;61(6). pii: e00010-17. doi: 10.1128/AAC.00010-17. Print 2017 Jun. PubMed PMID: 28396541; PubMed Central PMCID: PMC5444168.
- 4: Göhler A, Trung TT, Hopf V, Kohler C, Hartleib J, Wuthiekanun V, Peacock SJ, Limmathurotsakul D, **Tuanyok A**, Steinmetz I. Quantitative Detection of *Burkholderia pseudomallei* in Soil samples Using Multiple Gene Targets in Real Time PCR. Appl Environ Microbiol. 2017 Feb 10. pii: AEM.03212-16. doi:10.1128/AEM.03212-16. [Epub ahead of print] PubMed PMID: 28188208.
- 5: Chewapreecha C, Holden MT, Vehkala M, Välimäki N, Yang Z, Harris SR, Mather AE, **Tuanyok A**, De Smet B, Le Hello S, Bizet C, Mayo M, Wuthiekanun V, Limmathurotsakul D, Phetsouvanh R, Spratt BG, Corander J, Keim P, Dougan G, Dance DA, Currie BJ, Parkhill J, Peacock SJ. Global and regional dissemination and evolution of *Burkholderia pseudomallei*. Nat Microbiol. 2017 Jan 23;2:16263. doi: 10.1038/nmicrobiol.2016.263. PubMed PMID: 28112723; PubMed Central PMCID:PMC5300093.
- 6: Nualnoi T, Norris MH, **Tuanyok A**, Brett PJ, Burtnick MN, Keim PS, Settles EW, Allender CJ, AuCoin DP. Development Of Immunoassays For *Burkholderia Pseudomallei* Typical And Atypical Lipopolysaccharide Strain Typing. Am J Trop Med Hyg. 2016

Dec 19. pii: 16-0308.

7: **Tuanyok A**, Mayo M, Scholz H, Hall CM, Allender CJ, Kaestli M, Ginther J, Spring-Pearson S, Bollig MC, Stone JK, Settles EW, Busch JD, Sidak-Loftis L, Sahl JW, Thomas A, Kreutzer L, Georgi E, Gee JE, Bowen RA, Ladner JT, Lovett S, Koroleva G, Palacios G, Wagner DM, Currie BJ, Keim P. *Burkholderia humptydooensis* sp. nov., a new species related to *Burkholderia thailandensis* and the fifth member of the pseudomallei complex. *Appl Environ Microbiol*. 2016 Dec 16. pii: AEM.02802-16.

8: Siritongsuk P, Hongsing N, Thammawithan S, Daduang S, Klaynongsruang S, **Tuanyok A**, Patramanon R. Two-Phase Bactericidal Mechanism of Silver Nanoparticles against *Burkholderia pseudomallei*. *PLoS One*. 2016 Dec 15;11(12):e0168098.

9. Schweizer HP, **Tuanyok A**, Bertherat E. Eighth World Melioidosis Congress, 2016: presenting an emerging infectious disease in the context of “One Health”. *Weekly Epidemiological Record*, No. 46, 18 November 2016

10: Sahl JW, Vazquez AJ, Hall CM, Busch JD, **Tuanyok A**, Mayo M, Schupp JM, Lummis M, Pearson T, Shippy K, Colman RE, Allender CJ, Theobald V, Sarovich DS, Price EP, Hutcheson A, Korlach J, LiPuma JJ, Ladner J, Lovett S, Koroleva G, Palacios G, Limmathurotsakul D, Wuthiekanun V, Wongsuwan G, Currie BJ, Keim P, Wagner DM. The Effects of Signal Erosion and Core Genome Reduction on the Identification of Diagnostic Markers. *MBio*. 2016 Sep 20;7(5). pii: e00846-16.

11: Johnson SL, Bishop-Lilly KA, Ladner JT, Daligault HE, Davenport KW, Jaissle J, Frey KG, Koroleva GI, Bruce DC, Coyne SR, Broomall SM, Ketheesan N, Mayo M, Hoffmaster A, Elrod MG, Wuthiekanun V, **Tuanyok A**, Norton R, Currie BJ, Wagner DM, Keim P, Li PE, Teshima H, Gibbons HS, Palacios GF, Rosenzweig CN, Redden CL, Xu Y, Minogue TD, Chain PS. Correction for Johnson et al., Complete Genome Sequences for 59 *Burkholderia* Isolates, Both Pathogenic and Near Neighbor. *Genome Announc*. 2016 Apr 21;4(2). pii: e00313-16.

12: Spring-Pearson SM, Stone JK, Doyle A, Allender CJ, Okinaka RT, Mayo M, Broomall SM, Hill JM, Karavis MA, Hubbard KS, Insalaco JM, McNew LA, Rosenzweig CN, Gibbons HS, Currie BJ, Wagner DM, Keim P, **Tuanyok A**. Pangenome analysis of *Burkholderia pseudomallei*: genome evolution preserves gene order despite high recombination rates. *PLoS ONE*. 2015. 10(10):e0140274.

13: Ginther JL, Mayo M, Warrington SD, Kaestli M, Mullins T, Wagner DM, Currie BJ, **Tuanyok A**, Keim P. Identification of *Burkholderia pseudomallei* Near-Neighbor Species in the Northern Territory of Australia. *PLoS Negl Trop Dis*. 2015 Jun 29;9(6):e 0003892. doi: 10.1371/journal.pntd.0003892. eCollection 2015 Jun. PubMed PMID: 26121041; PubMed Central PMCID: PMC4486726.

14: Belcaid M, Kang Y, **Tuanyok A**, Hoang TT. Complete Genome Sequence of *Burkholderia cepacia* Strain LO6. *Genome Announc*. 2015 Jun 11;3(3). pii: e00587-15. doi: 10.1128/genomeA.00587-15. PubMed PMID: 26067955.

- 15: Sermswan RW, Royros P, Khakhum N, Wongratanacheewin S, **Tuanyok A**. Direct detection of *Burkholderia pseudomallei* and biological factors in soil. *Trans R Soc Trop Med Hyg.* 2015 Jul;109(7):462-8. doi: 10.1093/trstmh/trv040. Epub 2015 Jun 4. PubMed PMID: 26048871.
- 16: Sahl JW, Allender CJ, Colman RE, Califf KJ, Schupp JM, Currie BJ, Van Zandt KE, Gelhaus HC, Keim P, **Tuanyok A**. Genomic characterization of *Burkholderia pseudomallei* isolates selected for medical countermeasures testing: comparative genomics associated with differential virulence. *PLoS One.* 2015 Mar 24;10(3):e0121052. doi: 10.1371/journal.pone.0121052. eCollection 2015. PubMed PMID: 25803742; PubMed Central PMCID: PMC4372212.
- 17: Wikraiphath C, Saiprom N, Tandhavanant S, Heiss C, Azadi P, Wongsuvan G, **Tuanyok A**, Holden MT, Burtnick MN, Brett PJ, Peacock SJ, Chantratita N. Colony morphology variation of *Burkholderia pseudomallei* is associated with antigenic variation and O-polysaccharide modification. *Infect Immun.* 2015 May;83(5):2127-38. doi: 10.1128/IAI.02785-14. Epub 2015 Mar 16. PubMed PMID: 25776750; PubMed Central PMCID: PMC4399047.
- 18: Austin CR, Goodyear AW, Bartek IL, Stewart A, Sutherland MD, Silva EB, Zweifel A, Vitko NP, **Tuanyok A**, Highnam G, Mittelman D, Keim P, Schweizer HP, Vázquez-Torres A, Dow SW, Voskuil MI. A *Burkholderia pseudomallei* colony variant necessary for gastric colonization. *MBio.* 2015 Feb 3;6(1). pii: e02462-14. doi: 10.1128/mBio.02462-14. PubMed PMID: 25650400; PubMed Central PMCID: PMC4324314.
- 19: Hoffmaster AR, AuCoin D, Baccam P, Baggett HC, Baird R, Bhengsri S, Blaney DD, Brett PJ, Brooks TJ, Brown KA, Chantratita N, Cheng AC, Dance DA, Decuyper S, Defenbaugh D, Gee JE, Houghton R, Jorakate P, Lertmemongkolchai G, Limmathurotsakul D, Merlin TL, Mukhopadhyay C, Norton R, Peacock SJ, Rolim DB, Simpson AJ, Steinmetz I, Stoddard RA, Stokes MM, Sue D, **Tuanyok A**, Whistler T, Wuthiekanun V, Walke HT. Melioidosis diagnostic workshop, 2013. *Emerg Infect Dis.* 2015 Feb;21(2). doi: 10.3201/eid2102.141045. PubMed PMID: 25626057; PubMed Central PMCID: PMC4313648.
- 20: Price EP, Sarovich DS, Viberg L, Mayo M, Kaestli M, **Tuanyok A**, Foster JT, Keim P, Pearson T, Currie BJ. Whole-genome sequencing of *Burkholderia pseudomallei* isolates from an unusual melioidosis case identifies a polyclonal infection with the same multilocus sequence type. *J Clin Microbiol.* 2015 Jan;53(1):282-6. doi: 10.1128/JCM.02560-14. Epub 2014 Oct 22. PubMed PMID: 25339397; PubMed Central PMCID: PMC4290970.
- 21: Gee JE, Allender CJ, **Tuanyok A**, Elrod MG, Hoffmaster AR. *Burkholderia pseudomallei* type G in Western Hemisphere. *Emerg Infect Dis.* 2014 Apr;20(4):682-4. doi: 10.3201/eid2004.130960. PubMed PMID: 24655932; PubMed Central PMCID: PMC3966370.

- 22: Sarovich DS, Price EP, Webb JR, Ward LM, Voutsinos MY, **Tuanyok A**, Mayo M, Kaestli M, Currie BJ. Variable virulence factors in *Burkholderia pseudomallei* (melioidosis) associated with human disease. PLoS One. 2014 Mar 11;9(3):e91682. doi: 10.1371/journal.pone.0091682. eCollection 2014. PubMed PMID: 24618705; PubMed Central PMCID: PMC3950250.
- 23: Stone JK, Heiss C, Wang Z, Black I, Grasso SA, Koppisch AT, Azadi P, Keim P, **Tuanyok A**. Structural characterization of polysaccharides expressed by *Burkholderia oklahomensis* E0147. Carbohydr Res. 2014 Mar 11;386:68-72. doi: 10.1016/j.carres.2013.08.011. Epub 2013 Aug 25. PubMed PMID: 24491843.
- 24: Podin Y, Sarovich DS, Price EP, Kaestli M, Mayo M, Hii K, Ngian H, Wong S, Wong I, Wong J, Mohan A, Ooi M, Fam T, Wong J, **Tuanyok A**, Keim P, Giffard PM, Currie BJ. *Burkholderia pseudomallei* isolates from Sarawak, Malaysian Borneo, are predominantly susceptible to aminoglycosides and macrolides. Antimicrob Agents Chemother. 2014;58(1):162-6. doi: 10.1128/AAC.01842-13. Epub 2013 Oct 21. PubMed PMID: 24145517; PubMed Central PMCID: PMC3910780.
- 25: Stone JK, Johnson SL, Bruce DC, Detter JC, Mayo M, Currie BJ, Gelhaus HC, Keim P, **Tuanyok A**. Complete Genome Sequence of the Encephalomyelitic *Burkholderia pseudomallei* Strain MSHR305. Genome Announc. 2013 Aug 22;1(4). pii: e00656-13. doi: 10.1128/genomeA.00656-13. PubMed PMID: 23969058; PubMed Central PMCID: PMC3751613.
- 26: Price EP, Sarovich DS, Webb JR, Ginther JL, Mayo M, Cook JM, Seymour ML, Kaestli M, Theobald V, Hall CM, Busch JD, Foster JT, Keim P, Wagner DM, **Tuanyok A**, Pearson T, Currie BJ. Accurate and rapid identification of the *Burkholderia pseudomallei* near-neighbour, *Burkholderia ubonensis*, using real-time PCR. PLoS One. 2013 Aug 13;8(8):e71647. doi: 10.1371/journal.pone.0071647. eCollection 2013. PubMed PMID: 23967229; PubMed Central PMCID: PMC3742511.
- 27: Price EP, Sarovich DS, Mayo M, **Tuanyok A**, Drees KP, Kaestli M, Beckstrom-Sternberg SM, Babic-Sternberg JS, Kidd TJ, Bell SC, Keim P, Pearson T, Currie BJ. Within-host evolution of *Burkholderia pseudomallei* over a twelve-year chronic carriage infection. MBio. 2013 Jul 16;4(4). pii: e00388-13. doi: 10.1128/mBio.00388-13. PubMed PMID: 23860767; PubMed Central PMCID: PMC3735121.
- 28: Sahl JW, Stone JK, Gelhaus HC, Warren RL, Cruttwell CJ, Funnell SG, Keim P, **Tuanyok A**. Genome Sequence of *Burkholderia pseudomallei* NCTC 13392. Genome Announc. 2013 May 23;1(3). pii: e00183-13. doi: 10.1128/genomeA.00183-13. PubMed PMID: 23704173; PubMed Central PMCID: PMC3662813.
- 29: Limmathurotsakul D, Dance DA, Wuthiekanun V, Kaestli M, Mayo M, Warner J, Wagner DM, **Tuanyok A**, Wertheim H, Yoke Cheng T, Mukhopadhyay C, Puthuchery S, Day NP, Steinmetz I, Currie BJ, Peacock SJ. Systematic review and consensus

guidelines for environmental sampling of *Burkholderia pseudomallei*. PLoS Negl Trop Dis. 2013;7(3):e2105. doi: 10.1371/journal.pntd.0002105. Epub 2013 Mar 21. Review. PubMed PMID: 23556010; PubMed Central PMCID: PMC3605150.

30: Stone JK, Mayo M, Grasso SA, Ginther JL, Warrington SD, Allender CJ, Doyle A, Georgia S, Kaestli M, Broomall SM, Karavis MA, Insalaco JM, Hubbard KS, McNew LA, Gibbons HS, Currie BJ, Keim P, **Tuanyok A**. Detection of *Burkholderia pseudomallei* O-antigen serotypes in near-neighbor species. BMC Microbiol. 2012 Nov 5;12:250. doi: 10.1186/1471-2180-12-250. PubMed PMID: 23126230; PubMed Central PMCID: PMC3541218.

31: Van Zandt KE, **Tuanyok A**, Keim PS, Warren RL, Gelhaus HC. An objective approach for *Burkholderia pseudomallei* strain selection as challenge material for medical countermeasures efficacy testing. Front Cell Infect Microbiol. 2012 Sep 26;2:120. doi: 10.3389/fcimb.2012.00120. eCollection 2012. Review. PubMed PMID: 23057010; PubMed Central PMCID: PMC3458228.

32: Price EP, Dale JL, Cook JM, Sarovich DS, Seymour ML, Ginther JL, Kaufman EL, Beckstrom-Sternberg SM, Mayo M, Kaestli M, Glass MB, Gee JE, Wuthiekanun V, Warner JM, Baker A, Foster JT, Tan P, **Tuanyok A**, Limmathurotsakul D, Peacock SJ, Currie BJ, Wagner DM, Keim P, Pearson T. Development and validation of *Burkholderia pseudomallei*-specific real-time PCR assays for clinical, environmental or forensic detection applications. PLoS One. 2012;7(5):e37723. doi: 10.1371/journal.pone.0037723. Epub 2012 May 18. PubMed PMID: 22624061; PubMed Central PMCID: PMC3356290.

33: Kaestli M, Richardson LJ, Colman RE, **Tuanyok A**, Price EP, Bowers JR, Mayo M, Kelley E, Seymour ML, Sarovich DS, Pearson T, Engelthaler DM, Wagner DM, Keim PS, Schupp JM, Currie BJ. Comparison of TaqMan PCR assays for detection of the melioidosis agent *Burkholderia pseudomallei* in clinical specimens. J Clin Microbiol. 2012 Jun;50(6):2059-62. doi: 10.1128/JCM.06737-11. Epub 2012 Mar 21. PubMed PMID: 22442327; PubMed Central PMCID: PMC3372170.

34: Nikolakakis K, Amber S, Wilbur JS, Diner EJ, Aoki SK, Poole SJ, **Tuanyok A**, Keim PS, Peacock S, Hayes CS, Low DA. The toxin/immunity network of *Burkholderia pseudomallei* contact-dependent growth inhibition (CDI) systems. Mol Microbiol. 2012 May;84(3):516-29. doi: 10.1111/j.1365-2958.2012.08039.x. Epub 2012 Apr 4. PubMed PMID: 22435733; PubMed Central PMCID: PMC3331888.

35: Sarovich DS, Price EP, Von Schulze AT, Cook JM, Mayo M, Watson LM, Richardson L, Seymour ML, **Tuanyok A**, Engelthaler DM, Pearson T, Peacock SJ, Currie BJ, Keim P, Wagner DM. Characterization of ceftazidime resistance mechanisms in clinical isolates of *Burkholderia pseudomallei* from Australia. PLoS One. 2012;7(2):e30789. doi: 10.1371/journal.pone.0030789. Epub 2012 Feb 21. PubMed PMID: 22363490; PubMed Central PMCID: PMC3283585.

36: **Tuanyok A**, Stone JK, Mayo M, Kaestli M, Gruendike J, Georgia S, Warrington S,

- Mullins T, Allender CJ, Wagner DM, Chantratita N, Peacock SJ, Currie BJ, Keim P. The genetic and molecular basis of O-antigenic diversity in *Burkholderia pseudomallei* lipopolysaccharide. PLoS Negl Trop Dis. 2012 Jan;6(1):e1453. doi: 10.1371/journal.pntd.0001453. Epub 2012 Jan 3. PubMed PMID: 22235357; PubMed Central PMCID: PMC3250505.
- 37: Liguori AP, Warrington SD, Ginther JL, Pearson T, Bowers J, Glass MB, Mayo M, Wuthiekanun V, Engelthaler D, Peacock SJ, Currie BJ, Wagner DM, Keim P, **Tuanyok A**. Diversity of 16S-23S rDNA internal transcribed spacer (ITS) reveals phylogenetic relationships in *Burkholderia pseudomallei* and its near-neighbors. PLoS One. 2011;6(12):e29323. doi: 10.1371/journal.pone.0029323. Epub 2011 Dec 14. PubMed PMID: 22195045; PubMed Central PMCID: PMC3237603.
- 38: Dale J, Price EP, Hornstra H, Busch JD, Mayo M, Godoy D, Wuthiekanun V, Baker A, Foster JT, Wagner DM, **Tuanyok A**, Warner J, Spratt BG, Peacock SJ, Currie BJ, Keim P, Pearson T. Epidemiological tracking and population assignment of the non-clonal bacterium, *Burkholderia pseudomallei*. PLoS Negl Trop Dis. 2011 Dec;5(12):e1381. doi: 10.1371/journal.pntd.0001381. Epub 2011 Dec 13. PubMed PMID: 22180792; PubMed Central PMCID: PMC3236730.
- 39: Kaestli M, Schmid M, Mayo M, Rothballer M, Harrington G, Richardson L, Hill A, Hill J, **Tuanyok A**, Keim P, Hartmann A, Currie BJ. Out of the ground: aerial and exotic habitats of the melioidosis bacterium *Burkholderia pseudomallei* in grasses in Australia. Environ Microbiol. 2012 Aug;14(8):2058-70. doi: 10.1111/j.1462-2920.2011.02671.x. Epub 2011 Dec 19. PubMed PMID: 22176696; PubMed Central PMCID: PMC3319007.
- 40: Richardson LJ, Kaestli M, Mayo M, Bowers JR, **Tuanyok A**, Schupp J, Engelthaler D, Wagner DM, Keim PS, Currie BJ. Towards a rapid molecular diagnostic for melioidosis: Comparison of DNA extraction methods from clinical specimens. J Microbiol Methods. 2012 Jan;88(1):179-81. doi: 10.1016/j.mimet.2011.10.023. Epub 2011 Nov 12. PubMed PMID: 22108495; PubMed Central PMCID: PMC3249147.
- 41: Engelthaler DM, Bowers J, Schupp JA, Pearson T, Ginther J, Hornstra HM, Dale J, Stewart T, Sunenshine R, Waddell V, Levy C, Gillece J, Price LB, Contente T, Beckstrom-Sternberg SM, Blaney DD, Wagner DM, Mayo M, Currie BJ, Keim P, **Tuanyok A**. Molecular investigations of a locally acquired case of melioidosis in Southern AZ, USA. PLoS Negl Trop Dis. 2011 Oct;5(10):e1347. doi: 10.1371/journal.pntd.0001347. Epub 2011 Oct 18. PubMed PMID: 22028940; PubMed Central PMCID: PMC3196475.
- 42: Stewart T, Engelthaler DM, Blaney DD, **Tuanyok A**, Wangsness E, Smith TL, Pearson T, Komatsu KK, Keim P, Currie BJ, Levy C, Sunenshine R. Epidemiology and investigation of melioidosis, Southern Arizona. Emerg Infect Dis. 2011 Jul;17(7):1286-8. doi: 10.3201/eid1707.100661. PubMed PMID: 21762589; PubMed Central PMCID: PMC3381374.



- 43: Kang Y, Norris MH, Wilcox BA, **Tuanyok A**, Keim PS, Hoang TT. Knockout and pullout recombineering for naturally transformable *Burkholderia thailandensis* and *Burkholderia pseudomallei*. Nat Protoc. 2011 Jul 7;6(8):1085-104. doi: 10.1038/nprot.2011.346. PubMed PMID: 21738123; PubMed Central PMCID: PMC3564556.
- 44: Mukhopadhyay C, Kaestli M, Vandana KE, Sushma K, Mayo M, Richardson L, **Tuanyok A**, Keim P, Godoy D, Spratt BG, Currie BJ. Molecular characterization of clinical *Burkholderia pseudomallei* isolates from India. Am J Trop Med Hyg. 2011 Jul;85(1):121-3. doi: 10.4269/ajtmh.2011.11-0166. PubMed PMID: 21734136; PubMed Central PMCID: PMC3122355.
- 45: Bowers JR, Engelthaler DM, Ginther JL, Pearson T, Peacock SJ, **Tuanyok A**, Wagner DM, Currie BJ, Keim PS. BurkDiff: a real-time PCR allelic discrimination assay for *Burkholderia pseudomallei* and *B. mallei*. PLoS One. 2010 Nov 12;5(11):e15413. doi: 10.1371/journal.pone.0015413. PubMed PMID: 21103048; PubMed Central PMCID: PMC2980470.
- 45: Reckseidler-Zenteno SL, Viteri DF, Moore R, Wong E, **Tuanyok A**, Woods DE. Characterization of the type III capsular polysaccharide produced by *Burkholderia pseudomallei*. J Med Microbiol. 2010 Dec;59(Pt 12):1403-14. doi: 10.1099/jmm.0.022202-0. Epub 2010 Aug 19. PubMed PMID: 20724509.
- 47: Price EP, Hornstra HM, Limmathurotsakul D, Max TL, Sarovich DS, Vogler AJ, Dale JL, Ginther JL, Leadem B, Colman RE, Foster JT, **Tuanyok A**, Wagner DM, Peacock SJ, Pearson T, Keim P. Within-host evolution of *Burkholderia pseudomallei* in four cases of acute melioidosis. PLoS Pathog. 2010 Jan 15;6(1):e1000725. doi: 10.1371/journal.ppat.1000725. PubMed PMID: 20090837; PubMed Central PMCID: PMC2799673.
- 48: Pearson T, Giffard P, Beckstrom-Sternberg S, Auerbach R, Hornstra H, **Tuanyok A**, Price EP, Glass MB, Leadem B, Beckstrom-Sternberg JS, Allan GJ, Foster JT, Wagner DM, Okinaka RT, Sim SH, Pearson O, Wu Z, Chang J, Kaul R, Hoffmaster AR, Brettin TS, Robison RA, Mayo M, Gee JE, Tan P, Currie BJ, Keim P. Phylogeographic reconstruction of a bacterial species with high levels of lateral gene transfer. BMC Biol. 2009 Nov 18;7:78. doi: 10.1186/1741-7007-7-78. PubMed PMID: 19922616; PubMed Central PMCID: PMC2784454.
- 49: Trunck LA, Propst KL, Wuthiekanun V, **Tuanyok A**, Beckstrom-Sternberg SM, Beckstrom-Sternberg JS, Peacock SJ, Keim P, Dow SW, Schweizer HP. Molecular basis of rare aminoglycoside susceptibility and pathogenesis of *Burkholderia pseudomallei* clinical isolates from Thailand. PLoS Negl Trop Dis. 2009 Sep 22;3(9):e519. doi: 10.1371/journal.pntd.0000519. PubMed PMID: 19771149; PubMed Central PMCID: PMC2737630.

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54: Auerbach RK, **Tuanyok** A, Probert WS, Kenefic L, Vogler AJ, Bruce DC, Munk C, Brettin TS, Eppinger M, Ravel J, Wagner DM, Keim P. Yersinia pestis evolution on a small timescale: comparison of whole genome sequences from North America. PLoS One. 2007 Aug 22;2(8):e770. PubMed PMID: 17712418; PubMed Central PMCID: PMC1940323.

55: **Tuanyok** A, Tom M, Dunbar J, Woods DE. Genome-wide expression analysis of *Burkholderia pseudomallei* infection in a hamster model of acute melioidosis. Infect Immun. 2006 Oct;74(10):5465-76. PubMed PMID: 16988221; PubMed Central PMCID: PMC1594879.

56: **Tuanyok** A, Kim HS, Nierman WC, Yu Y, Dunbar J, Moore RA, Baker P, Tom M, Ling JM, Woods DE. Genome-wide expression analysis of iron regulation in *Burkholderia pseudomallei* and *Burkholderia mallei* using DNA microarrays. FEMS Microbiol Lett. 2005 Nov 15;252(2):327-35. Epub 2005 Oct 10. PubMed PMID: 16242861.

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58: Stoica, O., **A. Tuanyok**, X. Yao, M.H. Jericho, D. Pink, and T.J. Beveridge. Elasticity of membrane vesicles isolated from *Pseudomonas aeruginosa*. Langmuir 2003. 19(26):10916-10924.

## BOOK CHAPTERS

**Tuanyok A.** 2012. Genomic Islands in *Burkholderia pseudomallei*, p 82-86. In Ketheesan N (ed), *Melioidosis: A Century of Observation and Research*, 1<sup>st</sup> Edition, Elsevier B.V., Amsterdam, The Netherlands.

Pearson T, Price EP, **Tuanyok A**, Keim P. 2012. Genomic diversity and geographic distribution of *Burkholderia pseudomallei*, p 340-348. In Ketheesan N (ed), *Melioidosis: A Century of Observation and Research*, 1<sup>st</sup> Edition, Elsevier B.V., Amsterdam, The Netherlands.

Limmathurotsakul D, Wuthiekanun V, **Tuanyok A**, Peacock SJ. Presence and sampling of *Burkholderia pseudomallei* in soil, p 349-357. In Ketheesan N (ed), *Melioidosis: A Century of Observation and Research*, 1<sup>st</sup> Edition, Elsevier B.V., Amsterdam, The Netherlands.

Richard T, Okinaka R, Hill K, Pearson T, Foster JT, Vogler AJ, **Tuanyok A**, Wagner DM, Keim P. 2010. Chapter 16: Forensic Analysis in Bacterial Pathogens. In Bruce Budowle, Steve E. Schutzer, and Roger G. Breeze *Microbial Forensics* 2<sup>nd</sup> Edition, Academic Press.

## SELECTED PRESENTATIONS:

### TALKS:

**Tuanyok, A.**, Masbang, A.N., Leano, S.P., Reye, Z., Bello, C., Ribo M.C., Chagan-Yasutan, H., Saito, N., Nakajima, C., Suzuki, Y., Sumi, A., Norris, M.H., Weppelmann, T.A., Schweizer, H.P., Parry, C., Hattori, T., and Telan, E.F. A Multidisciplinary Team Approach to Uncover Epidemiology of Melioidosis in the Philippines, presented at the 8<sup>th</sup> World Melioidosis Congress 2016, Cebu, the Philippines; August 7-10, 2016.

Norris, M. H., Schweizer, H. P., **Tuanyok, A.** Structural diversity of *Burkholderia pseudomallei* LPS affects innate immune signaling, presented at the 8<sup>th</sup> World Melioidosis Congress 2016, Cebu, the Philippines; August 7-10, 2016.

**Tuanyok, A.** Cooperative counter WMD research to promote “One Health” concepts of melioidosis with the Philippines, presented at the Multidisciplinary Scientific Research Regional Coordination Network (RCN) Southeast Asia Stakeholders Working Group Meeting. Bangkok, Thailand; Feb 23-25, 2016.

**Tuanyok, A.**, Leano P. S., Reyes, Z., Bello, C., Ribo, M. R., Chagan-Yasutan, H., Hattori, T., and Telan E. F. 2015. *Burkholderia pseudomallei*: Bioterrorism and public health concerns, an investigation of melioidosis in the Philippines at **the 10<sup>th</sup> Annual Biosafety Conference, Asia – Pacific Biosafety Association**, Cebu, the Philippines; June 25-26, 2015.

**Tuanyok, A.** Genetic and molecular basis of antigenic variation of *Burkholderia pseudomallei*, the causative agent of melioidosis, invited by **Tohoku Medical Society**, Sendai, Japan; November 4<sup>th</sup>, 2014.

**Tuanyok, A.** Various Aspects of *Burkholderia pseudomallei*, the causative agent of melioidosis, invited by **Philippine Department of Health - San Lazaro Hospital**, Manila, Philippines; August 14, 2014.

**Tuanyok, A.** Ceftazidime-Resistance Mechanisms in *Burkholderia pseudomallei*, **COBRE External Advisory Committee Meeting**, University of Hawaii at Manoa, Honolulu, Hawaii; March 24, 2014.

**Tuanyok, A.,** Stone J. K., Grasso, S., Mayo, M., Currie, B. J., and Keim, P. Structural analysis and innate immune responses of the atypical O-antigens in *Burkholderia pseudomallei*, the causative agent of melioidosis, **3<sup>rd</sup> Biennial Western Regional IDeA Conference**, Honolulu, Hawaii; Oct. 8, 2013.

**Tuanyok, A.** Immunogenic protein identification in *Burkholderia pseudomallei* from various melioidosis cases and animal models; invited talk at **the 7<sup>th</sup> World Melioidosis Congress (WMC)**, Bangkok, Thailand, September 20, 2013.

**Tuanyok, A.** Genomic Analysis of Differential Virulence of *Burkholderia pseudomallei* in a BALB/c Mouse Model of Acute Melioidosis; Invited oral presentation at **the Burkholderia Workshop**, organized by **Food and Drug Administration** in Silver Spring, Maryland, November 29, 2012.

**Tuanyok, A.** Dynamics of mobile genetic elements (MGEs) in *Burkholderia pseudomallei*, Oral presentation at **the US Department of Homeland Security- Bioforensics Review meeting** in Washington DC, August 2012.

**Tuanyok, A.** Pangenome and mobilome of *Burkholderia pseudomallei*. Invited speaker, **USA and Australia – Burkholderia Collaboration Workshop**, Gold Coast, Queensland, Australia, June 2012.

**Tuanyok, A.** Antigenic protein and lipopolysaccharide (LPS) signatures from *Burkholderia pseudomallei* towards specific biothreat detection strategies. Oral presentation at **the US Department of Homeland Security- Chemical and Biological Defense (CBD) Review meeting** in Washington DC, August 2011.

**Tuanyok, A.,** R. Bowen, and P. Keim. Differential virulence of *Burkholderia pseudomallei* in a BALB/c mouse model of acute melioidosis. Oral presentation at the **VIIth National RCE Meeting – Burkholderia Breakout Session**, 2011, Denver Colorado.

**Tuanyok, A.,** D. Wagner, B. Currie, and P. Keim. Dynamics of mobile genetic elements in *Burkholderia pseudomallei*. Oral presentation at **the VIth World Melioidosis Congress 2010**, Townsville, Australia.

**Tuanyok, A.,** V. Wuthiekanun, D. Limmathurotsakul, M. Kaestli, M. Mayo, T. Pearson, B. J. Currie, P. Keim, S. J. Peacock, and D. M. Wagner. *Burkholderia pseudomallei* strains that infect

animals are distinct from environmental strains. Oral presentation at the **Vith World Melioidosis Congress** 2010, Townsville, Australia.

Kaestli, M., M. Schmid, M. Rothballer, M. Mayo, G. Harrington, L. Richardson, **A. Tuanyok**, P. Keim, A. Hartmann, B. J. Currie. Effects of changes in landscape ecology upon *Burkholderia pseudomallei* in the top end of Australia. Oral presentation at the **Vith World Melioidosis Congress** 2010, Townsville, Australia.

Pearson, T., E. Price, J. Dale, **A. Tuanyok**, M. Mayo, B. Currie, and P. Keim. Genetic diversity, geographic distribution and evolution of *Burkholderia pseudomallei*. Oral presentation at the **Vith World Melioidosis Congress** 2010, Townsville, Australia.

Wagner, D.M., **A. Tuanyok**, M. Kaestli, M. Mayo, T. Pearson, H. Hornstra, V. Wuthiekanun, B. Leadem, A. Liguori, S.J. Peacock, B.J. Currie, and P. Keim. *Burkholderia pseudomallei*: diverse agent of melioidosis. **International Conferences on Diseases in Nature Communicable to Man**, Regina, Canada, August 2008.

**Tuanyok, A., et al.** Integrative genomic and proteomic analyses of *Burkholderia pseudomallei*. Oral presentation at the **4<sup>th</sup> Annual meeting of the Pacific Southwest Regional Center of Excellence for Biodefense & Emerging Infectious Diseases Research (PSWRCE)**, Flagstaff, Arizona, USA, July 2008.

**Tuanyok, A.**, R.K. Auerbach, T.S. Brettin, D.C. Bruce, A.C. Munk, J.C. Detter, T. Pearson, H. Hornstra, Leadem, B., R.W. Sermswan, V. Wuthiekanun, S.J. Peacock, B.J. Currie, P. Keim, and D.M. Wagner. Genomic diversity of *Burkholderia pseudomallei*. Oral presentation at the **5<sup>th</sup> World Melioidosis Congress**, Khon Kaen, Thailand, November 2007.

Reckseidler-Zenteno, S. L., **A. Tuanyok**, R. Moore, E. Wong, and D.E. Woods. 2006. Genetic and functional characterization of the capsules of *Burkholderia pseudomallei*. Oral presentation at the **Conference on Infectious Diseases**, Banff, Alberta, Canada, May 2006.

**Tuanyok, A.**, M. Tom, J. Dunbar, S. Kim, W. Nierman, and D.E. Woods. Microarray analysis of gene expression in *Burkholderia pseudomallei* in response to various growth conditions. Oral presentation at the **4<sup>th</sup> World Melioidosis Congress**, Singapore, September 2004.

Reckseidler-Zenteno, S. L., **A. Tuanyok**, and D.E. Woods. Genetic and functional characterization of the capsular polysaccharides of *Burkholderia pseudomallei*. Oral presentation at **4<sup>th</sup> World Melioidosis Congress**, Singapore, September 2004.

**Tuanyok, A.** and P. Shears. A study of the molecular epidemiology of *Shigella sonnei* infections in the northwest of England. Oral presentation at the **Joint International Tropical Medicine Meeting ( JITMM )**, Bangkok, Thailand, December 2000.

## **POSTERS:**

Norris, M.H., Sanford, D., Schweizer, H. P., and **Tuanyok, A.** Polysaccharide profile modification in *Burkholderia pseudomallei*, presented at **the 8<sup>th</sup> World Melioidosis Congress 2016, Cebu, the Philippines; August 7-10, 2016.**

Kaewrakmuk, J., Saechan, V., Sornyng, P., Yingkajorn, M., Sretrirutchai, S., Kawila, S., Suwanna, P., Norris, M. H., Koonrunsesomboon, C., Jitsurong, S., Chethanond, U., **Tuanyok, A.** One Health Initiative and Multidisciplinary Team Approach to Investigate Melioidosis in Songkhla Province, Southern Thailand. presented at **the 8<sup>th</sup> World Melioidosis Congress 2016, Cebu, the Philippines; August 7-10, 2016.**

Norris M. H., Chirakul, S., Chantratita, N., Randal, L., Rhodes, K., Allender, C. J., Keim, P., Schweizer, H. P., Limmathurotsakul, D., **Tuanyok, A.** PenA-mediated ceftazidime resistance in a large collection of *Burkholderia pseudomallei*. **Interscience Conference of Antimicrobial Agents and Chemotherapy (ICAAC) 2015.** San Diego, USA; September 17-21, 2015.

Bugrysheva, J. V., Sue, D., Randall, L. B., Chirakul, S., **Tuanyok, A.**, Schweizer, H. P., Weigel, L. M. Identification of novel mutation in *penA* that contribute to amoxicillin/clavulanic acid, ceftazidime, and meropenem resistance in *Burkholderia pseudomallei*. **Interscience Conference of Antimicrobial Agents and Chemotherapy (ICAAC) 2015.** San Diego, USA; September 17-21, 2015

Yi, J., Hernandez, K., Pristo, L., Stone, J. K., Busch, J., Bowen, R. A., **Tuanyok, A.**, Keim, P. Characterization of the humoral immune response to a caprine aerosol infection model of melioidosis. **115<sup>th</sup> General Meeting, American Society for Microbiology (ASM),** New Orleans, LA; May 30 – June 2, 2015.

Hepp, C., Sahl, J., Hornstra, H., Handady, K., Allender, C., Settles, E., **Tuanyok, A.**, Price, E., Kaestli, M., Mayo, M., Bowen, R., Kidd, T., Bell, S., Keim, P., Pearson, T., Currie, B. An intra-host longitudinal genomic comparison of *Burkholderia pseudomallei* provides insight into long term adaptation. **Sequencing, Finishing, and Analysis in the Future Meeting.** Santa Fe, NM; May 27-29, 2015.

Bollig, M., Norris, M., Randall, L., Rhodes, K., Chuvala, L., Wuthiekanun, V., Limmathurotsakul, D., Keim P., Heine, H. S., Schweizer, H. P., **Tuanyok, A.** PenA-Mediated ceftazidime resistance in *Burkholderia pseudomallei*, the causative agent of melioidosis. **Emerging Pathogens Institute - Research Day;** February 26, 2015.

S. Grasso, J. Stone, F. Monroy, P. Keim, **A. Tuanyok.** *Burkholderia pseudomallei* lipopolysaccharides cause differential stimulations of innate immune response in murine macrophage. **113<sup>th</sup> General Meeting, American Society for Microbiology (ASM),** Denver, CO; May, 18-21, 2013.

Spring-Pearson, Stone, J. K., Doyle, A., Allender, C. J., Okinaka, R. T., Mayo, M., Broomall, S. M., Karavis, M. A., Hubbard, K. S., Insalaco, J. M., McNew, L. A., Gibbons, H. S., Currie, B. J., Wagner, D. M., Keim, P., **Tuanyok, A.** Pangenome Analysis of *Burkholderia pseudomallei*:

Genome Evolution Preserves Gene Order Despite High Recombination Rates. **113<sup>th</sup> General Meeting, American Society for Microbiology (ASM)**, Denver, CO; May, 18-21, 2013.

Allender C. J., Stone, J. K., Gennarelli, J. M., Saltzman, M., Holguin, T. R., Mayo, M., Wagner, D., Currie, B. J., Keim, P., **Tuanyok, A.** tRNA-site specific recombination in *Burkholderia pseudomallei* and its close genetic relatives reveal hotspots for genomic island integration. **The 7<sup>th</sup> World Melioidosis Congress (WMC)**, Bangkok, Thailand, September 18- 20, 2013.

**Tuanyok, A.**, Bowen R., and P. Keim. Genomics and differential virulence of *Burkholderia pseudomallei* in BALB/c mouse model of acute melioidosis. **The European Melioidosis Network Meeting**, Amsterdam, The Netherlands; February 24, 2012.

Van Zandt, K. E., A. **Tuanyok**, H. C. Gelhaus, Jr., K. T. Brittingham, S. A. Sarrazine, P. S. Keim, R. L., Warren. A literature-based system for selecting *Burkholderia pseudomallei* strain panels for animal model testing under the FDA animal rule. Poster presentation at **ASM Biodefense& Emerging Diseases**; February 26-29, 2012.

**Tuanyok, A.**, J. K. Stone\*, M. Mayo, M. Kaestli, J. Gruendike\*\*, S. Georgia, S. Warrington\*\*, T. Mullins\*, C. J. Allender, D. M. Wagner, N. Chantratita, S. J. Peacock, B. J. Currie, and P. Keim. Genetic and molecular basis of O-antigen polysaccharide diversity in *Burkholderia pseudomallei*. Poster presentation at **the VIth World Melioidosis Congress 2010**, Townsville, Australia.

Richardson, L., M. Kaestli, M. Mayo, E. Woolveridge, J. Bowers, J. Schupp, **A. Tuanyok**, D. Engelthaler, D. Wagner, P. Keim, and B. Currie. Towards a rapid diagnostic for melioidosis: comparison of DNA extraction methods from clinical specimens. Poster presentation at **the VIth World Melioidosis Congress 2010**, Townsville, Australia.

Mukhopadhyay, C., K. E. Vandana, K. Sushma, M. Kaestli, M. Mayo, L. Richardson, **A. Tuanyok**, P. Keim, B. J. Currie. Molecular characterization of clinical *B. pseudomallei* isolates from India. Poster presentation at **the VIth World Melioidosis Congress 2010**, Townsville, Australia.

Podin, Y., M. Kaestli, M. Mayo, J. Menon, T. William, M. H. Ooi, A. M. Lai, L. Richardson, **A. Tuanyok**, P. Keim, P. Giffard, B. Currie. Current melioidosis situation in East Malaysia. Poster presentation at **the VIth World Melioidosis Congress 2010**, Townsville, Australia.

Mayo, M., **A. Tuanyok**, G. Harrington, M. Kaestli, L. Richardson, E. Woolveridge, L. Ward, D. Wagner, P. Keim, B. J. Currie. Near neighbor bacteria of *Burkholderia pseudomallei* found in the tropical environment of Northern Australia: What new *Burkholderia* species are out there? Poster presentation at **the VIth World Melioidosis Congress 2010**, Townsville, Australia.

**Tuanyok A.**, J. Bowers, J. Ginther, T. Pearson, H. Hornstra, J. M. Schupp, T. Stewart, B. J. Currie, D. M. Wagner, P. Keim, D. Engelthaler. Molecular epidemiological investigation of a melioidosis case in Southern Arizona, USA. **110<sup>th</sup> American Society for Microbiology Annual Meeting**, San Diego, CA, USA, May 2010.

Moore, R.A., S. Reckseidler-Zenteno, W. Nierman, H. Kim, **A. Tuanyok**, J. Warawa, D. DeShazer, and D.E. Woods. The contribution of gene loss to the pathogenic evolution of *Burkholderia pseudomallei* and *Burkholderia mallei*. Poster presentation at the 104th General Meeting of the **American Society for Microbiology**, New Orleans, USA, May 2004.

**Tuanyok, A.**, R.A. Moore, and D.E. Woods. Microarray analysis of gene expression in *Burkholderia pseudomallei*. Poster presentations at the **Burkholderia Genomes Workshop, Sanger Institute**, Cambridge, England, March 2003.

**Tuanyok, A.**, R.A. Moore, and D.E. Woods. Microarray analysis of gene expression in *Burkholderia pseudomallei*. Poster presentations at the Annual Meeting of the **Canadian Bacterial Disease Network (CBDN)**, Calgary, Canada, July 2003.

Stoica, O., **A. Tuanyok**, X. Yao, M.H. Jericho, D. Pink, and T.J. Beveridge. Elasticity of membrane vesicles isolated from *Pseudomonas aeruginosa*. Poster presentation at **Physics in Canada Conference**, University of Prince Edward Island, PEI, Canada, May 2003.

**Tuanyok, A.** and P. Shears. Molecular pathogenesis of *Shigella sonnei*. Young Investigator Award poster presentation at the **5th Conference of the Federation of Infection Society (FIS)**, Manchester, England, December 1998. Abstract published in *Journal of Infection* 39(1):A11.

## **PATENT APPLICATIONS:**

U.S. Provisional Patent– pending:

“Live non-pathogenic *Burkholderia thailandensis* strain ATPK1 as a candidate vaccine against glanders”, **Apichai Tuanyok** and Paul Keim; NAU Assignment of Case no. 2011-011.

U.S. Provisional Patent Application No. 60/948,324, “*Burkholderia pseudomallei* Diagnostic Elements that Predict Mortality in Melioidosis”; **A. Tuanyok**, R.K. Auerbach, P.S. Keim, D.M. Wagner, and B.J. Currie; filed 06-JUL-2007; Publication date: 15-JAN-2009.

## **RESEARCH SUPPORT:**

### **Recently Funded**

1. **Defense Threat Reduction Agency- HDTRA1-11-21-BRCWMD-BAA** 03/01/17 – 02/28/19  
Title: Eco-environmental signatures of danger to identify melioidosis-endemic hotzones (PI: Todd French, UCLA).

Role: PI on subaward

This project will investigate the complexity of soil microbiomes and their correlations with the presence of *B. pseudomallei*

2. **Defense Threat Reduction Agency- HDTRA1-11-21-BRCWMD-BAA**  
Prime Grant No. HDTRA1-17-1-0014 01/03/17 – 12/31/20  
(PI: Katie Edwards, CUBRC); Subaward No. 08036S2 (PI: A. Tuanyok)  
Title: Modulation of *Burkholderia pseudomallei* immune responses by human-like T cell



epitopes.

Role: PI on subaward

This project will identify the human-like T-cell epitopes of *B. pseudomallei* and their roles in immunity evasion.

**3. CRDF Global - 2016 U.S. – Japan Joint Research Competition** 03/01/17 – 02/28/18

Title: Molecular Surveillance of Ceftazidime (CAZ) Resistance in Melioidosis

Role: PI

This project will develop molecular tools such as line probe assays to detect mutations of penA gene in *B. pseudomallei*.

**Suggested for funding subject to availability of funds (SAF)**

**1. Defense Threat Reduction Agency, HDTRA114-AMD3-CBMV-03-1-0109**

Title: Outer membrane vesicle (OMV) based vaccines directed against *Burkholderia pseudomallei* and *B. mallei*;

Role: PI

**2. Defense Threat Reduction Agency, HDTRA1-11-21-BRCWMD-BAA**

Title: Dynamics of the environmental microbiota influence fitness and pathogenic life styles of *Burkholderia pseudomallei*.

Role: PI

**3. Defense Threat Reduction Agency, HDTRA1-14-CHEM-BIO-BAA**

Title: Vault Nanoparticle Vaccines for *B. pseudomallei* and *B. mallei* (PI: Jeff Miller, UCLA)

Role: Co-PI/Subcontractor

**Completed:**

NIH R13,

Title: World Melioidosis Congress 2016

07/01/16 – 08/31/16

Role: Co-PI

This project was to sponsor young scientists and clinicians from LMICs to attend the 8<sup>th</sup> World Melioidosis Congress in the Philippines during August 7-10, 2016.

BARDA/Rampex Pharmaceutical Inc./Battelle Memorial Institute

(Prime Contract No. HHSO100201400002C)

02/01/15 – 09/30/15

Title: Development of Meropenem Resistant *B. pseudomallei* Models

Role: **Principal investigator/subcontractor** on a subaward (10%)

\$50,000

US Department of Homeland Security

(Contract No. HSHQDC-10-C-00135)

09/20/10 – 09/21/15

Title: Antigenic protein and lipopolysaccharide (LPS) signatures from *Burkholderia pseudomallei* towards specific biothreat detection strategies.

Role: **Principal investigator** (20% effort)

\$1,445,731

**Note:** Dr. Tuanyok has resigned from the PI at Northern Arizona University on July 31, 2013.

Parts of the project have been transferred to him at University of Florida as a subcontract.

Biomedical Advanced Research and Development Authority (BARDA) 08/09/12 – 10/31/13  
Subcontracted through Battelle Memorial Institute (BMI)

Title: Development of a reference panel of *Burkholderia mallei* strains.

This project will select 6 reference *B. mallei* strains, and prepare master cell banks for testing in non-human primate models for glanders. We will complete whole genome sequencing and annotation on these strains within 8 months of work.

Role: **Principal investigator** (25% effort) \$737,720

Note: Dr. Tuanyok has resigned from being the PI on July 31, 2013 due to relocation.

Biomedical Advanced Research and Development Authority (BARDA) 10/16/11 – 06/28/13  
Subcontracted through Battelle Memorial Institute (BMI)

Title: Development of a clinical definition of inhalation-acquired melioidosis and reference panel of *Burkholderia pseudomallei* strains.

This project will select 6 reference *B. pseudomallei* strains, and prepare master cell banks for testing in non-human primate models for melioidosis. We will complete whole genome sequencing and annotation on 12 strains for *B. pseudomallei*.

Role: **Principal investigator** (20% effort) \$1,415,198

US Department of Homeland Security  
(Contract No. HSHQDC-10-C-00149)

09/01/10- 06/30/13

Title: Dynamics of Mobile Genetic Elements in *Burkholderia pseudomallei*.

This project will investigate the total of mobile genetic elements (MGEs) in 500 genomes of *Burkholderia pseudomallei*, and develop bioforensics tools for investigative applications.

Role: **Principal investigator** (10% effort) \$879,232

Research Grant (Keim), Subaward from PSWRCE (Barbour)  
National Institute of Health-NIAID

05/01/09 – 04/30/14

Title: Genomic correlates with differential virulence in melioidosis animal models.

This project will develop animal models for *Burkholderia pseudomallei* infection and genetic & genomic analyses will be used to correlate the expected differential virulence.

Role: **Co-Investigator** on Subaward (25% effort) \$1,546,764

## **TEACHING EXPERIENCES:**

- 1) 2016, Instructor, VME6464, Molecular Pathogenesis, University of Florida
- 2) 2014, Contributing lecturer, TRMD 608, Bacteriology, University of Hawaii at Manoa.
- 3) 2010- 2012, Guest Lecturer, BIO 450 Bioinformatics, Northern Arizona University
- 4) 2010- 2012, Instructor, BIO 497 Independent Study, Northern Arizona University
- 5) 2009- 2012, Instructor, BIO 485 Undergraduate Research, Northern Arizona University
- 6) 2008- 2012, Instructor, BIO 698 Graduate Seminar, Northern Arizona University.
- 7) 2000-2001: Instructor, Tropical Hygiene– Diploma in Tropical Medicine and Hygiene (DTM&H), Bangkok School of Tropical Medicine, Mahidol University, Thailand.

**LIST OF FORMER & PRESENT STUDENTS AND POSTDOCS UNDER SUPERVISION:**

**1) Serving as a member or chair of graduate committee for these students:**

<b>Student Name</b>	<b>Program</b>	<b>Role</b>
Treenate Jiranantasak	Ph.D. in Veterinary Medical Science University of Florida	Chair
Mohammad S. R. Khan	Ph.D. in Microbiology University of Dhaka Bangladesh (a joint graduate program with UF)	Co-Chair
Shariful Alam Jilani, M.D.	Ph.D. in Microbiology University of Dhaka Bangladesh (Graduated in 2016)	Member
Ms. Marissa Saltzman	M.S. in Tropical Medicine University of Hawaii	Chair
Mr. Evan McRobb	Ph.D. in Tropical Medicine Charles Darwin University Darwin, Australia (Graduated in 2015)	Member
Mr. Michael Valentine	M.S. in Biological Sciences Northern Arizona University (Graduated in 2013)	Member
Ms. Jennifer Ginther	Ph.D. in Biological Sciences Northern Arizona University (Graduated in 2013)	Member
Ms. Stephanie Grasso	M.S. in Biological Sciences Northern Arizona University (Graduated in 2013)	Chair
Ms. Adina Doyle	M.S. in Biological Sciences Northern Arizona University (Graduated in 2013)	Chair
Mr. Joshua Stone	M.S. in Biological Sciences Northern Arizona University	Co-Chair

	(Graduated in 2010)	
Ms. Umaporn Yodpratum	Ph.D. in Biochemistry Khon Kaen University, Thailand (Graduated in 2010)	Member
Ms. Shalamar Georgia	M.S. in Biological Sciences Northern Arizona University (Graduated in 2009)	Member
Mr. Phairat Royros	M.S. in Microbiology Khon Kaen University, Thailand (Graduated in 2008)	Member

**2) Serving as a research supervisor for these undergraduate students:**

Ms. Chompoonut Koonrunsesomboon, University of Florida  
 Ms. Michelle Vein, University of Hawaii at Manoa (Graduated in 2014)  
 Mr. Spenser Ropte, Northern Arizona University (Graduated in 2013)  
 Mr. Joseph Gennarelli, Northern Arizona University (Graduated in 2013)  
 Ms. Marissa Saltzman, Northern Arizona University (Graduated in 2013)  
 Ms. Kelsey Herring, Northern Arizona University (Graduated in 2012)  
 Mr. Jeffrey Gruendike, Northern Arizona University (Graduated in 2012)  
 Ms. Emily Kaufman, Northern Arizona University (Graduated in 2012)  
 Mr. Travis Mullins, Northern Arizona University (Graduated in 2011)  
 Mr. Alex Vonschulze, Northern Arizona University (Graduated in 2011)  
 Ms. Stephanie Warrington, Northern Arizona University (Graduated in 2011)  
 Ms. Lisa Buie, Northern Arizona University (Graduated in 2011)  
 Ms. Amanda Pettus, Northern Arizona University (Graduated in 2010)  
 Ms. Lindsey Watson, Northern Arizona University (Graduated in 2009)  
 Mr. Andrew Liguori, Microbiology, Northern Arizona University (Graduated in 2007)  
 Ms. Zeina Ziade, Chemistry, Northern Arizona University (Graduated in 2007)  
 Mr. Mathew Whiteside, Computer Science, University of Waterloo, ON, Canada  
 (Graduated in 2006)  
 Mr. Julius Litorco, Computer Science, University of Calgary, AB, Canada  
 (Graduated in 2005)

**3) Serving as a mentor for these postdoctoral fellows**

Dr. Michael Norris	University of Florida	2014 – Present
Dr. Thomas Weppelmann	University of Florida	2016
Dr. Jinhee Yi	Northern Arizona University	2011 - 2013
Dr. Senanu Spring-Pearson	Northern Arizona University	2012 - 2013
Dr. Francis Simpanya	Northern Arizona University	2012 - 2013