

Jon-Paul Bingham BSc., BSc. (Hons.), PhD.

Associate Professor

Curriculum vitae

Department of Molecular Biosciences and Bioengineering
College of Tropical Agriculture and Human Resources
University of Hawaii at Manoa

[Redacted contact information]

Education/Employment:

- ❖ **Associate Professor & Graduate Chair** – Dept. of Molecular Bioscience and Bioengineering, University of Hawaii, Honolulu, HI, 2014- present
- ❖ **Assistant Professor** – Dept. of Molecular Bioscience and Bioengineering, University of Hawaii, Honolulu, HI, 2007-2014
- ❖ **Assist Research Professor** – Dept. of Biology, Clarkson University, Potsdam, NY 2003-2007
- ❖ **Post-doctoral position** – Dept. of Pharmacology, Yale School of Medicine, New Haven, CT 2000-2003
- ❖ **Post-doctoral position** – Mass Spectrometry Facility, Dept of Pharmaceutical Chemistry, University of California, San Francisco, CA, 1998-2000
- ❖ **PhD. in Biochemistry** – Center for Drug Design and Development, Dept of Biochemistry, University of Queensland, Brisbane, Australia, [REDACTED]
Thesis Title: Novel Toxins From the Genus *Conus* – From Taxonomy to toxins
Research Area: Proteomics, drug discovery; solid phase peptide synthesis and biochemistry of peptide toxins **Supervisors:** Drs. Paul Alewood and Ross Smith
- ❖ **B.Sc. (Hons.)** – School of Science, Griffith University, Brisbane, Australia, [REDACTED]
- ❖ **B.Sc.** – School of Science, Griffith University, Brisbane, Australia, [REDACTED]

Professional Membership:

- ❖ The American Peptide Society (2012– present)
- ❖ The American Chemical Society (2006 – present)
- ❖ Advancing Science, Serving Society (AAAS; 2004 – present)
- ❖ The International Society on Toxinology (2003 – present)
- ❖ The Malacological Society of Australasia (1992 – present)
- ❖ The Federation of Clinical Biochemists (1991– present)

Professional Awards/Recognition:

- ❖ Excellence in Instruction College Teaching Award, University of Hawaii, Manoa - 2011

Scientific Advisor/Editor:

- ❖ Review Editorial Board of *Frontiers in Chemical Biology* (Frontiers) 2013 – present
- ❖ Member of the Editorial Board – *Journal of Toxins* (Hindawi Publishing Corp) 2012 – present
- ❖ Vice President of and Program coordinator to the Hawaiian Malacological Society – 2012 – present
- ❖ President of and Scientific Advisor to the Hawaiian Malacological Society – 2011 – 2012
- ❖ Board Director and Scientific Advisor to the Hawaiian Malacological Society – 2009 – 2010

Provisional Patents (1):

- ❖ Bingham, J-P., Novel Toxins Derived from the milked and duct venoms from the genus *Conus*; PPN: PP2129

Peer-reviewed Scientific publications (UHM Student work; *Publications during the evaluation period at the University of Hawaii).

2015

1. Halford Z.A., Yu P.Y.C, Likeman R.K., Hawley-Molloy J.S, Thomas C. and **Bingham J-P.** (2015) Revised first aid and clinical interventions for cone snail envenomation. *The Journal of Diving and Hyperbaric Medicine.* (accepted)
 2. Lina H-T., Jan P. Amendb J.P, LaRoweb D.E., **Bingham J-P.**, Cowena J.P (2015) Dissolved amino acids in oceanic basaltic basement fluids. *Geochimica et Cosmochimica Acta* (accepted)
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3. Takacs Z, Imredy JP, **Bingham JP**, Zhorov BS, Moczydowski EG. (2014) Interaction of the BKCa channel Channels (Austin) 8(5):421-32.
 4. **Bingham J-P.**, Likeman R.K, Hawley J.S., Yu P.Y.C., and Halford Z. A. (2014) Conotoxins. In: Manual of Security Sensitive Microbes and Toxins, Ed. D. Liu; CRC Press ISBN: 1466553960. p.467-484.

2014

5. Espiritu M.J., Collier A.C, **Bingham J-P.** (2014) A 21st Century Approach to Age Old Problems: the ascension of biologics over the small molecule therapeutics. Drug Discovery Today 19 (8), 1109–1113.
6. Cleveland V., **Bingham J-P.**, Kan E. (2014) Heterogeneous Fenton degradation of bisphenol A by carbon nanotube-supported Fe₃O₄. Separation and Purification Technology Volume 133, 8 September 2014, Pages 388–395
7. Thapa P., Espiritu M.J., Cabalteja C.C., **Bingham J-P.** (2014) Conotoxins and their regulatory considerations. Regulatory Toxicology and Pharmacology, 70 (1) 197-202.
8. Negi V.S., **Bingham J-P.**, Li Q.X., Borthakur D. (2014) A Carbon-Nitrogen Lyase from *Leucaena leucocephala* Catalyzes the First Step of Mimosine Degradation. Plant Physiology, 164 (2) 922-934.
9. Yafuso J.T., Negi V.S., **Bingham J-P.**, Borthakur D. (2013) Characterization of O-acetylserine (thiol) lyase from *Leucaena leucocephala*. The FASEB Journal, 27:580.3
10. Yafuso J.T., Negi V.S., **Bingham J-P.**, Borthakur D. (2014) An O-Acetylserine (thiol) Lyase from *Leucaena leucocephala* Is a Cysteine Synthase But Not a Mimosine Synthase. Applied Biochemistry and Biotechnology 173 (5) 1157-1168.
11. Espiritu M.J., Cabalteja C.C., Sugai C.K., **Bingham J-P.** (2014) Incorporation of post-translational modified amino acids as an approach to increase both chemical and biological diversity of conotoxins and conopeptides. Amino Acids 46 (1)125-151
12. Thapa P., Espiritu M.J., Cabalteja C.C., **Bingham J-P.** (2014) The Emergence of Cyclic Peptides: The Potential of Bioengineered Peptide Drugs. International Journal of Peptide Research and Therapeutics, DOI: 10.1007/s10989-014-9421-0
13. Thapa P., Zhang R-Y., Menon V., **Bingham J-P.** (2014) Native Chemical Ligation: A Boon to Peptide Chemistry. Molecules – accepted for publication (Sept. 1st)

2013

14. Bergeron Z.L., Chun J.B., Baker M.R., Sandall D.W., Peigneur S., Yu P.YC., Thapa P., Milisen J.W., Tytgat J., Livett B.G., **Bingham J-P.** (2013) Analysis of the milked venom from the mollusk-hunting cone shell *Conus textile* – Peptides, 49, 145–158.
 15. Kapono CA., Thapa P., Cabalteja CC., Guendisch D., Collier AC and **Bingham J-P.** (2013) Conopeptide truncation as a post-translational modification to increase the pharmacological diversity within the milked venom of *Conus magus* – *Toxicon* 70, 170–178
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16. Negi V.S., **Bingham J-P.**, Li Q.X., Borthakur D. (2013) midD-encoded 'rhizomimosinase' from *Rhizobium* sp. strain TAL1145, catabolizes Lmimosine into 3-hydroxy-4-pyridone, *Amino Acids*. 2013 Jun;44(6):1537-47
 17. Devappa R.K., **Bingham J-P.** and Khanal S.K. (2013) New and modified high performance liquid chromatography method for rapid quantification of phorbol esters in *Jatropha curcas* seed. *Industrial Crops and Products* 49:211-219
 18. Bergeron ZL, **Bingham JP** (2012) Scorpion Toxins Specific for Potassium (K⁺) channels: A Historical Overview of Peptide Bioengineering. *Toxins* 4, 1082-1119
 19. **Bingham JP**, Andrews EA, Kiyabu SM*, Cabalteja CC (2012) Drugs from Slugs, Part II – Conopeptide Bioengineering. *Chemico-Biological Interactions* 200 (2012) 92–113
 20. **Bingham JP**, Baker MR, Chun JB. (2012) Analysis of a cone snail's killer cocktail - The milked venom of *Conus geographus*. *Toxicon*. Nov;60(6):1166-70
 21. Chun JB, Baker MR, Kim D H, Leroy M, Toribo P, **Bingham JP** (2012) Cone snail milked venom dynamics – a quantitative study of *Conus purpurascens*. *Toxicon*. 60(1):83-94
 22. Gilly W.F., Richmond T.A., Duda, Jr. T.F., Elliger C., Lebaric, Schulz J., **Bingham JP.**, Sweedler J.V. (2011) A Diverse Family of Novel Peptide Toxins from an Unusual Cone Snail, *Conus californicus*. *The Journal of Experimental Biology*. 214:147-61.
 23. **Bingham JP.**, Mitsunaga E., Bergeron Z.L. (2010) Drugs from Slugs – Past, Present and Future Perspectives of omega-Conotoxin Research. *Chemico-Biological Interactions* 183 pp. 1-18.
 24. **Bingham JP**, Chun JB, Ruzicka MR, Li QX, Tan ZY, Kaulin YA, Englebretsen DR, Moczydlowski EG. (2009) Synthesis of an iberitoxin derivative by chemical ligation: a method for improved yields of cysteine-rich scorpion toxin peptides. *Peptides*. 30(6):1049-57.
 25. Townsend, A.*, B. G. Livett, **J.-P. Bingham**, H.-T. Truong, J. A. Karas, P. O'Donnell, N. A. Williamson A. W. Purcell, D. Scanlon, Mass Spectral Identification of Vc1.1 and Differential Distribution of Conopeptides in the Venom Duct of *Conus victoriae*. Effect of Post-Translational Modifications and Disulfide Isomerisation on Bioactivity. *Int. J. Pept. Res. Ther.*, (2009)15 (3): 195-203.
 26. Xiao Y, **Bingham JP**, Zhu, W, Moczydlowski E, Liang S, Cummins TR. (2008) Tarantula Huwentoxin-IV inhibits neuronal sodium channels by binding to receptor site 4 and trapping the domain II voltage sensor in the closed configuration. *J Biol Chem*. 3;283(40):27300-13. (**Role:** collaborator/researcher; **Contribution:** 30% - collected data, data analysis research, writing, editing) (40 citations, Impact factor: 4.773).
 27. **Bingham, J-P.**, Bian, S. Tan, Z-Y., Takacs Z. and Moczydlowski E. (2006) Synthesis of a Biotin Derivative of Iberitoxin: Binding Interactions with Streptavidin and the BK Ca²⁺-activated K⁺ Channel Expressed in a Human Cell Line. *Bioconjugate Chem.*; 17(3):689 – 699. (**Role:** co-PI/lead researcher; **Contribution:** 80% - conceptualization of research, collected data, data analysis, writing, editing) (11 citations, Impact factor: 4.580).
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28. Krishnan M. N., **Bingham, J-P.**, Lee, S. H., Trombley, P.* and Moczydlowski E. (2005) Functional Role and Affinity of Inorganic Cations in Stabilizing the Tetrameric Structure of the KcsA K⁺ Channel. *J Gen Physiol.*;126(3):271 – 83.
 29. **Bingham J-P.**, Broxton N. M.*, Livett L.G., Down, J. G., Jones A. and Moczydlowski E.G. (2005) Optimizing the connectivity in disulfide-rich peptides: conotoxin SII as a case study. *Anal. Biochem.* 338(1):48 – 61.
 30. Jakubowski, J.A.*, Keays, D.A.*, Kelley, W.P.*, Sandall, D.W*., **Bingham, J-P.**, Livett, B.G., Gayler, K.R. and Sweedler, J.V., (2004) Determining Sequences and Post-Translational Modifications of Novel Conotoxins in *Conus victoriae* Using cDNA Sequencing and Mass Spectrometry. *Rapid communications in Mass. Spect.* 34: 548 – 557.
 31. Marshall, J.*, Kelley, W.P.*, Rubakhin, S. S., **Bingham J-P.**, Sweedler and Gilly W.F. (2002) Anatomical Correlates of Venom Production in *Conus californicus*. *The biological Bulletin* 203, p 27 – 41
 32. Hill J. M.*, Oomen C. J., Miranda L. P.*, **Bingham J-P.***, Alewood P. F., and Craik D. J. (1998) Three-Dimensional Solution Structure a of α -Conotoxin MII by NMR Spectroscopy: Effects of Solution Environment on Helicity. *Biochem*, 37, 15621.
 33. Broxton, N.*, Down, J., Loughnan, M., Gehrman, J.*, **Bingham, J-P.***, Miranda, L.*, Alewood, P. and Livett, B.G. (1997) Potent α -conotoxins with selectivity for nicotinic receptor subtypes. *Proc. Australian Neurosci. Soc.* 8: 139.
 34. Jones A., **Bingham J-P.***, Gehrman J.*, Bond T., Loughnan M., Atkins A., Lewis R. J., and Alewood P. F. (1996) Isolation and Characterization of Conopeptides by High-performance Liquid Chromatography Combined with Mass Spectrometry and Tandem Mass Spectrometry. *Rapid communications in Mass. Spect.*, 10, 138. (**Role:** grad. researcher; **Contribution:** 60% - conceptualization of research, collected data, data analysis, writing, editing) (37 citations, Impact factor: 2.509).
 35. Lewis R. J., **Bingham J.***, Jones A., Alewood P. F., and Andrews P. R. (1994) Drugs from the peptide venoms of marine Cone Shells. *Australian Biotechnology.* 4 298 – 300. (**Role:** grad. researcher; **Contribution:** 40% - conceptualization of research, collected data, data analysis, writing, editing) (3 citations, Impact factor: N/A).

***Published Book Chapters (2):**

1. **Bingham J.***, Jones, A., Alewood, P. F, and Lewis, R. J. (1996) *Conus* Venom Peptides (Conopeptides): Inter-Species, Intra-Species and Within Individual Variation Revealed by Ionspray Mass Spectrometry. In: *Biochemical Aspects of Marine Pharmacology*, pp13 – 27. Ed Lazarovici, P., Spira, M. E. and Zlotkin, E., Alaken Inc., Fort Collins, Colorado, USA. (**Role:** grad. researcher; **Contribution** 70% - conceptualization data analysis, writing, editing).
2. **Bingham J-P.**, R.K. Likeman, J.S. Hawley, P.Y.C. Yu*, and Z. A. Halford (2014) Conotoxins. In: **Manual of Security Sensitive Microbes and Toxins**, Ed. **D. Liu**; **CRC Press ISBN: 1466553960 - in Press** (**Role:** P.I./lead researcher; **Contribution:** 75% - conceptualization, data analysis, writing, editing) (37 printed book pages) [Invited book chapter contribution].

***Published Editorials (3):**

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1. Duda , T.F. Jr. **Bingham, J.P.**, Livett, B.G. Kohn, A.J., Massilia, G. R., Schultz J.R., Down J., Sandall, D., Sweedler J.V. (2004) How much at risk are cone snails? *Science*. 2004 Feb 13;303(5660):955 – 7 (**Role:** co-PI; **Contribution:** 50% - conceptualization, writing, editing) (9 citations, Impact factor: 31.027)
 2. **Bingham J-P.**, (2010) It's about being compliant – Insight into the new regulations that govern Federal training awards and grants CTAHR Research News. July-August. Vol, 6 Iss. 6 (50). 19-23. (**Role:** co-PI; **Contribution:** 100%)
 3. **Bingham J-P.**, Chun J.*, Kim D.H.* and Milisen J.* (2010) Local 'killer' slugs provide novel leads for medical science and pesticide development. CTAHR Research News. Jan. Vol, 6 Iss. 1 (45). 3-10. (**Role:** PI; **Contribution:** 80% - conceptualization, writing, editing)

***Manuscripts Submitted/Revision Submitted – Corresponding Author (4):**

1. Baoanan Z.G., Milisen J.W., Slater D., and **Bingham J-P.** (2015) Cone snail aquaculture - A prospect for a biosustainable research commodity. *Toxicon*. (**Role:** PI/researcher; **Contribution:** 70% - conceptualization of research, collected data, data analysis, writing, editing) [to be re-submitted].
2. Cabalteja C.C., Thapa P., Sandall D.W., Kiyabu S.*, Chun J.B., O'Donnell P.A., Livett, B.G. and **Bingham J-P.** (2015) Expression of α -conotoxins from *Conus virgo* and the characterization of α -conotoxin Vr1A. *Toxicon* (**Role:** PI/researcher; **Contribution:** 50% - conceptualization of research, collected data, data analysis, writing, editing) [In 2nd review].
3. Thapa P., Cabalteja C.C., Philips E.E., Cummins T.R. and **Bingham J-P.** (2015) Trifluoromethanesulfonic acid - An alternative cleavage strategy in the generation thiol ester containing peptide fragments for Native Chemical Ligation. *Peptides*. (**Role:** PI/researcher; **Contribution:** 50% - conceptualization of research, collected data, data analysis, writing, editing) [In 1st. review].

***Manuscripts in preparation – Corresponding Author (4):**

1. **Bingham JP** Chun JB, Baker MR, Slater D*, Suan A*. Espiritus MJ, (2015) Molecular mass survey of the milked venom of *Conus* by MALDI-TOF MS *Journal of Mass spectrometry* (**Role:** PI/researcher; **Contribution:** 70% - conceptualization of research, collected data, data analysis, writing, editing).
 2. **Bingham JP**, Leong JL, Chun JB, Milisen JW, LeRoy M, Rivera C and Biggs J (2015) Comparative analysis of the milked venom derived from the fish-hunting cone shell *Conus striatus*. *Peptides*. (**Role:** PI/researcher; **Contribution:** 70% - conceptualization of research, collected data, data analysis, writing, editing).
 3. Wheeler K, McDonald T, Griffis J, Radovich TJK, and **Bingham JP** (2015) Quantitative analysis of flavonols and anthocyanins in purple fruited selections of pitanga (*Eugenia uniflora L.*). *Journal:* TBA (**Role:** PI/researcher; **Contribution:** 60% - conceptualization of research, collected data, data analysis, writing, editing).
 4. Zachary L. Bergeron, Youshan Yang, Frederick Sigworth, Abby C. Collier, **Jon-Paul Bingham** (2015) The Design and Synthesis of a Fluorescent-Bioengineered Scorpion Toxin to Investigate the Expression of the BK, Ca²⁺-Activated K⁺ Channel (K_{Ca}1.1), in Human Glioblastoma.
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Bioconjugate Chem. (Role: PI/researcher; Contribution: 60% - conceptualization of research, collected data, data analysis, writing, editing)

***Invited Speaker/ Key Note speaker (2):**

1. Slugs, Drugs and Pesticides – The Emergence of the Cyclotides, Vanderbilt Institute of Chemical Biology Seminar Program, March 23, 2011
2. Bioactive Peptides from Cone snails: cannibalistic slugs that kill, 23rd American Peptide Symposium & 6th International Peptide Symposium, Hilton Waikoloa Village Big Island, Hawaii, June 22-2, 2013.

***Sponsor and Host:**

1. Project P20 – Research Conference for Middle School Students, March 28, 2014, UMH, Honolulu.
2. Zenaida Baoana (2012-2013) Fulbright-Philippine Agriculture Scholarship Program for Advanced Research Award; **Project:** Culture and Propagation of Cone Snails (*Conus*)
3. Project P20 – Research Conference for Middle School Students, May 16, 2013, UMH, Honolulu.
4. DNA/Genetics Workshop 7 FIRST Pre-Academy Research Experience for Teachers (RET) March 3, 2012, UMH, Honolulu.

Publications and Posters in International and University of Hawaii Conference Proceedings (UHM Student work):

2014

1. Bright O.L.*, Khawaja M., **Bingham J-P.**, and Tamaru C.S (2014) Comparative Analysis through Rapid HPLC of Post Harvest Processing and Extraction Methods for High Curcuminoid Content from Aquaponically Grown. Abstract #31. 26th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 11-12. (MS. Student; Poster).
 2. Espiritu M.J.* and **Bingham J-P.** (2014) The influence of post translational modifications on phyla selectivity in bioactive *Conus* venom peptides. Abstract #38. 26th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 11-12. (MS. Student; Poster).
 3. Khawaja M.*, Tamaru C.S., Fox B., Radovich T., **Bingham J-P.**, and Ako H. (2014) Rapid HPLC analysis of Super Hot Chili aquaponically grown with pH remediation. Abstract #44. 26th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 11-12. (MS. Student; Poster).
 4. Sinclair N.N.* and **Bingham J-P.** (2014) Venogeography of *Conus pennaceus*. Abstract #60. 26th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 11-12. (MS. Student; Poster). (Poster MS)
 5. Sugai C.*, Espiritu M.J., and **Bingham J-P.** (2014) Characterization of Milked Venom from *Conus obscurus* in Search for Novel Bioactive Compounds. Abstract #61. 26th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 11-12. (MS. Student; Poster).
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6. Wen J.*, Archana Pant A., Radovich T., Wang K-H, and **Bingham J-P.** (2014) Ay caramba! Advanced chemical analysis of chili peppers and tomatoes. Abstract #67. 26th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 11-12. (MS. Student; Poster).
 7. Yu P.* and **Bingham J-P.** (2014) Overcoming Hurdles to Produce Stable Traceable Peptides Utilizing Cone Snail Venom. Abstract #72. 26th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 11-12. (MS. Student; Poster).
 8. Oeser S.G.*, Collier A.C., and **Bingham J-P.** (2014) Epigenetic Regulation of Hepatic UGTs via DNA Methylation Varies by Ethnicity. Abstract #78. 26th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 11-12. (PhD. Student; Poster).
 9. Cabalteja C.*, Thapa P., Kiyabu S., Chun J., Sandall D., Livett B., and **Bingham J-P.** (2014) α -Conotoxin Isomerism: Diversification Through Disulfide Bond Permutations. Abstract #91. 26th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 11-12. (MS. Student; Oral presentation).
 10. Jihyun R. Kim*, Michelle Chu, Allie Kim, Jon-Paul Bingham, and Eunsung Kan. (2014) Coupling solar photocatalytic oxidation process and biological treatment for endocrine disrupting compounds in wastewater and water. Abstract #99. 26th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 11-12. (MS. Student; Oral presentation).
 11. Parashar Thapa* and Jon-Paul Bingham (2014) Expanding the potential of peptide engineering: From Native Chemical Ligation to Cyclization. Abstract #126. 26th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 11-12. (PhD. Student; Oral presentation).

2013

12. Bergeron ZL., Sandall DW., Livett BG. and **Bingham J-P.** (2013) Analysis of Milked Venom from the Mollusc-hunting Cone Snail, *Conus textile*. Abstract #: 86032; 23rd American Peptide Symposium & 6th International Peptide Symposium, June 22-27, 2013.
 13. Bergeron ZL., Collier AC. and **Bingham J-P.** (2013) Peptide Toxin Bioengineering - Advancement of Fluorescent Probe Design for Targeting Human K⁺ Channels. Abstract # XXX, 23rd American Peptide Symposium & 6th International Peptide Symposium, June 22-27, 2013.
 14. Thapa P. and **Bingham J-P.** (2013) Optimization of Thiol-Ester ligation for expanding the potential of Native Chemical ligation. Abstract # 86605. 23rd American Peptide Symposium & 6th International Peptide Symposium, June 22-27, 2013.
 15. Negi VS., **Bingham J-P.**, Li QX., and Borthakur D. (2013) Biochemistry of *Rhizobium* and *Leucaena leucocephala* enzymes for degradation of mimosine. Abstract # TBA. 22nd North American Symbiotic Nitrogen Fixation (NASNFC) Conference University of Minnesota, Minneapolis July 14-17, 2013.
 16. Yafuso JT., Negi, VS., **Bingham J-P.**, Borthakur D. (2013) Characterization of O-acetylserine (thiol) lyase from *Leucaena leucocephala*. Abstract # 580.3 American Society for Molecular Biology and Biochemistry Annual Meeting, Experimental Biology, Boston Convention and Exposition Center in Boston, MA, April 20-24, 2013.
 17. Cleveland V., **Bingham J-P.** and Kan E. (2013) Simultaneous Adsorption and Heterogeneous Oxidation of Endocrine Disrupting Compounds in Wastewater Using Nano Metal Catalyst-Deposited Carbon Nanotubes. Abstract # 325879 AICHE (American Institute of Chemical
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Engineers) National Meeting, San Francisco, November 3-8, 2013.

18. Williams N., Pineda F., Lam TT., Bruce C., Bergeron ZL., **Bingham J.P.**, Cantely L., et al. (2013) Edman Sequencing and Amino Acid Analysis in the Modern Age. Abstract # C161 ASBMB 2013 Annual Meeting, Experimental Biology Boston Convention and Exposition Center in Boston, MA, April 20-24, 2013.
 19. Bergeron ZL. and **Bingham J.P.** (2013) Bioengineering Peptide Toxins for the Development of Novel Molluscicides and the Protection of Food Crops from Tropical Pathogens in Hawaii. Achievement Rewards for College Scientists (ARCS) Foundation, Scientific Symposium - Poster Session, Honolulu, HI April 20, 2013.
 20. Andrews E., Milisen J. and **Bingham J-P.** (2013) Effects of Diet Manipulation on Conotoxin Profiles in Fish-Eating *Conus striatus*. Abstract #1. 25th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 12-13. (MS. Student; Poster).
 21. Cabalteja C., Thapa P., Kiyabu S., Chun J., Sandall D., Livett B. and **Bingham J-P.** (2013) Expanding the α -Conotoxin Repertoire through Disulfide Bond Permutations. Abstract #6. 25th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 12-13. (MS. Student; Poster).
 22. Espiritu MJ. and **Bingham J-P.** (2013) Determination of the biochemical effects of naturally produced post translationally modified conotoxins in comparison to synthetic variants. Abstract #13. 25th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 12-13. (MS. Student; Poster).
 23. Halford Z. and **Bingham J-P.** (2013) 'On-glowing' connections: Diversifying the approaches to fluorescent peptide bioengineering for investigating Potassium (K⁺) Channels Abstract #17. 25th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 12-13. (MS. Student; Poster).
 24. Murphy J., Richmond RH. and **Bingham J-P.** (2013) Analyzing Changes to Coral Health and Metabolism in an Oxygen-Poor Environment. Abstract #29. 25th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 12-13. (MS. Student; Poster).
 25. Slater D. and **Bingham J-P.** (2013) Evaluating the Risk of Diphacinone Rodenticide Pellets to Hawaii Trigger Fish. Abstract #36. 25th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 12-13. (MS. Student; Poster).
 26. Sugai C., Espiritu M., and **Bingham J-P.** (2013) Characterization of Milked Venom from *Conus obscurus* in Search for Novel Bioactive Compounds. Abstract #39. 25th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 12-13. (MS. Student; Poster).
 27. Wheeler K., McDonald T., Griffis J., Radovich T.J.K. and **Bingham J-P.** (2013) Method development and high performance liquid chromatographic analysis of flavonols and anthocyanins from Purple-fruited Selections of *Eugenia uniflora L.* (Pitanga). Abstract #42. 25th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 12-13. (MS. Student; Poster).
 28. Thapa P., Phillips Z., Cabalteja C. and **Bingham J-P.** (2013) Optimization of novel Thiol-Ester ligation technique for expanding the potential of Native Chemical Ligation. Abstract #62. 25th
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CTAHR and COE search Symposium, University of Hawaii, Honolulu, April 12-13. (PhD. Student; Poster).

29. Yu P. and **Bingham J-P.** (2013) Cone Snails, Cyclized Peptides, and Fluorophores – A Gateway to Traceable Peptides. Abstract #96. 25th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 12-13. (UG. Student; Poster).
30. Kiyabu S. and **Bingham J-P.** (2013) Conotoxin Cyclization Linker Molecules Through the Use of Molecular Modeling applications. Abstract #104. 25th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 12-13. (UG. Student; Oral).
31. Cleveland V., **Bingham J-P.**, and Kan E. (2013) Adsorption and Heterogeneous Oxidation of Endocrine Disrupting Compounds in Wastewater Using Nano Metal Catalyst-Deposited Carbon Nanotubes. Abstract #113. 25th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 12-13. (MS. Student; Oral).
32. Bergeron ZL., Collier AC., **Bingham J-P.** (2013) Validation of a Novel, Direct Conjugate Scorpion Toxin-Fluorophore for the Investigation of the Large Conductance Ca²⁺-activated Potassium Channel, BK. Abstract #132. 25th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 12-13. (PhD. Student; Oral).

2012

33. Bergeron, ZL., Collier, AC., **Bingham, J-P.** Peptide Toxin Bioengineering - Advancement of Fluorescent Probe Design for Targeting Human K⁺ Channels. John A Burns School of Medicine Spring Research Symposium (Honolulu, HI) (2012).
 34. Andrews E., Milisen J., and **Bingham J-P.** (2012) "Effects of Diet Manipulation on Conotoxin Profiles in Fish-Eating *Conus striatus*". Abstract #24. 24rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 13-14. (MS. Student; Poster).
 35. Cabalteja C., Kiyabu S., Chun J., Sandall D., Livett B. and **Bingham J-P.** (2012) "Challenging the Dogma that Bioactive α -Conotoxins are Globular". Abstract #28. 24rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 13-14. (MS. Student; Poster).
 36. Halford Z. and **Bingham J-P.** (2012) "Making connections with azido-chemistry: A novel approach to bioengineering peptide toxin fluorophores. Abstract #33. 24rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 13-14. (MS. Student; Poster).
 37. Milisen J. and **Bingham J-P.** (2012) "Maximizing Conopeptide Production through Improved Snail Farming". Abstract #42 24rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 13-14. (MS. Student; Poster).
 38. Thapa P. and **Bingham J-P.** (2012) "Optimization of Thiol-Ester ligation for expanding the potential of Native Chemical ligation". Abstract #53 24rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 13-14. (MS. Student; Poster).
 39. Kiyabu S. and **Bingham J-P.** (2012) "Toxin folding patterns within the venom duct of the genus *Conus*". Abstract #69 24rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 13-14. (UG. Student; Poster).
 40. Yu P., Thapa P., and **Bingham J-P.** (2012) "Using an Optimized Methodology of TFMSA Cleavage in Peptide Synthesis Bioengineering". Abstract #93 24rd CTAHR and COE Research
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Symposium, University of Hawaii, Honolulu, April 13-14. (UG. Student; Poster).

41. Slater D.[#] and **Bingham J-P.** (2012) "Evaluating the Risk of Diphacinone Rodenticide Pellets to Hawaiian Trigger Fish". Abstract #95 24rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 13-14. (UG. Student; oral).
42. Yafuso J., Negi VS., **Bingham J-P.**, and Borthakur D. (2012) "Isolation and characterization of cDNAs encoding enzymes for mimosine biosynthesis in *Leucaena leucocephala*". Abstract #100 24rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 13-14. (MS. Student; oral).
43. Mahi E., Nordschow A.[#], Milisen J. and **Bingham J-P.** (2012) "Cultivation of Planktotrophic *Conus striatus* Larvae". Abstract #102 24rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 13-14. (MS. Student; Oral).
44. Bergeron ZL., Collier A. and **Bingham J-P.** (2012) Peptide Toxin Bioengineering - Advancement of Fluorescent Probe Design for Targeting Human K⁺ Channels. Abstract #118 24rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 13-14. (PhD. Student; oral).
45. Negi VS., **Bingham J-P.**, Li QX., and Borthakur D. (2012) Characterization of mimosine-degrading enzymes from *Rhizobium* sp. strain TAL1145 and *Leucaena leucocephala*. Abstract #121 24rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 13-14. (PhD. Student; Oral).

2011

46. Wheeler K., McDonald T., Griffis J., Radovich TJK., **Bingham J-P.** and Malcolm M. Manners. (2011) Flavonol and Anthocyanin Analyses of Purple-fruited Selections of *Eugenia uniflora* L. (Pitanga) by High Performance Liquid Chromatography. American Society for Horticulture Science. Waikola, HI. Sept. 25-28th
 47. Cabalteja C., Kiyabu S.[#], Chun J., Sandall D., Livett B., and **Bingham J-P** (2011) Challenging the Dogma that Bioactive α -Conotoxins are Globular "Big Research, Little Island" Summer Showcase 2011 McNair Student Achievement Program, University of Hawaii, Honolulu, August 8-9.
 48. Kiyabu S.[#], Cabalteja C., Chun J., Sandall D., Livett B., and **Bingham J-P** (2011) Selective Disulfide Bond Formation in α conotoxins INBRE SURI program, University of Hawaii, Honolulu, July 29th.
 49. Chun JBS., Kim DH. and **Bingham J-P.** (2011) "Exploring different approaches to identify novel drug lead candidates within *Conus purpurascens*". Abstract #32. 23rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 8-9. (MS. Student).
 50. Halford Z., and **Bingham J-P.** (2011) "Exploring Azido-chemistry: A Novel approach to peptide toxin bioengineering and fluorophore production". Abstract #34 23rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 8-9. (MS. Student).
 51. Mahi E., Nordschow A.[#], Milisen J. and **Bingham J-P.** (2011) "Cultivation of planktotrophic *Conus textile* larvae". Abstract #48. 23rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 8-9. (MS. Student).
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52. Milisen J., Mahi E., Leong J. # and Bingham J-P. (2011) "Venom variability in *Conus striatus*" Abstract #50. 23rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 8-9. (MS. Student).
 53. Nordschow A. #, Milisen J. and Bingham J-P. (2011) "Developmental analysis through protein quantification of *Conus striatus* veliger" Abstract #53. 23rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 8-9. (Undergraduate).
 54. Spafford D., Cuttriss A., Christopher D., Smith C., and Bingham J-P. (2011) "Identification of photoprotective pigments in *Gracilaria salicornia*, an invasive red macroalga". Abstract #58. 23rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 8-9. (MS. Student).
 55. Thapa P. and Bingham J-P. (2011) "Optimization of Thiol-ester mediated ligation for peptide synthesis and bioengineering" Abstract #60. 23rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 8-9. (MS. Student).
 56. Wheeler K., McDonald T., Griffis J., Radovich TJK., Bingham J-P. and Manners. M.M (2011) "Flavonol and Anthocyanin Analyses of Purple-fruited Selections of *Eugenia uniflora* L. (Pitanga) by High Performance Liquid Chromatography". Abstract #63. 23rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 8-9. (MS. Student).
 57. Maldonado A. #, Milisen J. and Bingham J-P. (2011) "Demonstration of molluscicidal activity targeting *pomacea canaliculata* (Golden Apple Snail)". Abstract #90. 23rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 8-9. (Undergraduate)
 58. Spann N. # and Bingham J-P. (2011) "Non-Translationally Modified Toxins as Molluscicides" Abstract #96. 23rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 8-9. (Undergraduate).
 59. Kapono C., Thapa P., Guendisch D. and Bingham J-P. (2011) " α -Conotoxin truncation – an investigation into the pharmacological and phyla specificity of venom peptides". Abstract #69. 23rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 8-9. (MS. Student) (oral).
 60. Bergeron ZL., Milisen J., Chun J. and Bingham J-P. (2011) "Venom From A Far; How a Cone Shell Will Travel". Abstract #124. 23rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 8-9. (PhD. Student) (oral).
 61. Yafuso E., Bingham J-P., Chen J., Turano H., Teresita Amore T. and Paull R.E. (2011) "Functional characterization of a *Dendrobium* F5'3'H gene in the Petunia model system". Abstract #130. 23rd CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 8-9. (PhD. Student) (oral).

2010

62. Kapono C. and Bingham J-P. (2010) Characterization of novel milked venom peptide M2450 from *Conus magus*. 22nd Annual CTAHR Student Research Symposium, April 9-10. Abstract No. 39 (MS. Student).
 63. Milisen J., Nordschow A., Maldonado A. and Bingham J-P. (2010) Aquaculture and protein quantification of *Conus striatus* veliger. 22nd Annual CTAHR Student Research Symposium, April 9-10. Abstract No. 46 (MS. Student)
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64. Leong J.L., Chun J., Milisen J., Biggs J., Rivera C., LeRoy M. and Bingham J-P. (2010) Venom differentiation within the milked venom of *Conus striatus*. 22nd Annual CTAHR Student Research Symposium, April 9-10. Abstract No. 71 (Undergraduate Student)
 65. Thapa P. and Bingham J-P. (2010) Alpha conotoxin peptide truncation as a potential novel means of post-translational modification for phyla selectivity and pharmacological selectivity 22nd Annual CTAHR Student Research Symposium, April 9-10. Abstract No. 80 (Undergraduate Student) (oral).
 66. Chun J., Bergeron Z. and Bingham J-P. (2010) Application of mass spectrometry in the analysis of novel conotoxins. 22nd Annual CTAHR Student Research Symposium, April 9-10. Abstract No. 87 (MS. Student) (oral).
 67. Kim D.H., Marangoudakis S., Lipscombe D., and Bingham J-P. (2010) Bioengineering of ω -conotoxin GVIA: Probes for the N-type neuronal Ca^{2+} channel. 22nd Annual CTAHR Student Research Symposium, April 9-10. Abstract No. 90 (MS. Student).
 68. Bergeron Z.L., Collier A., Cummins TR. and Bingham J-P. (2010) Design development and application of a fluorescent probe to study changes in hERG channel density and trafficking; a mechanistic basis for cardiac arrhythmia J. FASEB, 24 (Meeting Abstract Supplement) Abstract No. 490.2

2009

69. Thapa P., Morrison K., Bingham J-P. (2009) Alpha conotoxin peptide truncation – a potential novel means of post-translational modification for phyla and pharmacological specificity. 21st Annual CTAHR Student Research Symposium, April 3-5. Abstract No. 6 (undergraduate/high school intern). *Recipient of the Gamma Sigma Delta, Award of Merit, awarded in the category of Undergraduate Student Poster Presentation.
70. Kim D.H., Welling P.A., Slesinger P.A., Bingham J-P. (2009) Targeting RomK Channels; Tertiapin, a novel template for peptide toxin fluorophore bioengineering. 21st Annual CTAHR Student Research Symposium, April 3-5. Abstract No. 33 (MS. Student).
71. Chun J.B., Sandall D., Livett B.G., Bingham J-P. (2009) Assignment of disulfide bond connectivity within a α -Conotoxin Vg1.0 using partial reduction, differential thiol-alkylation, and MS/MS. 21st Annual CTAHR Student Research Symposium, April 3-5. Abstract No. 19 (MS. Student).
72. Phillips E.E., Bingham J-P. (2009) Thiol-ester Ligation of Huwentoxin-I Peptide Fragments: Increasing Synthetic Applications of a Novel Voltage-gated Sodium Channel Inhibitor. John A. Burns School of Medicine Biomedical Science Symposium, Honolulu, April 14th, 2009. Abstract No. 104.
73. Bergeron Z.L., Collier A., Bingham J-P. (2009) Correlation of Cardiac Arrhythmias and Drug Safety: Development of a toxin-fluorophore based hERG channel Screen. John A. Burns School of Medicine Biomedical Science Symposium, Honolulu, April 14th, 2009. Abstract No. 86.

2008

74. Ishibashi J. and Bingham J-P. (2008) Peptide probes: Addressing Problems in design and synthesis. Pacific Region Diabetes Education Program NIDDK, NIH Diabetes conference, Ala
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Moana Hotel, Honolulu, August 10-11, 2008.

75. Bergeron Z., Collier A and **Bingham J-P.** (2008) The Correlation of Cardiac Arrhythmias and Drug Safety: Bioengineering of a Toxin-fluorophore High-throughput hERG Screen. 20th Annual CTAHR Student Research Symposium, April 11-12. Abstract No. 27.
76. Kim DH., Toribio P. and **Bingham, J-P.** (2008) Quantification of milked venom Conopeptide variability in *Conus purpurascens*. 20th Annual CTAHR Student Research Symposium, April 11-12. Abstract No. 3.
77. Phillips E., Cummins T. and **Bingham J-P.** (2008) Bioengineering of Huwentoxin-I: A Novel Pharmacological Probe for Isoforms of the Voltage Gated Sodium Channel. 20th Annual CTAHR Student Research Symposium, April 11-12. Abstract No. 21.
- 2006**
78. Townsend, A., Scanlon, D., O'Donnell, P., Insera, M., **Bingham, J-P.**, Satkunanathan, N., Khalil Z., Purcell, A., Livett, B.G. (2006) Posttranslational modifications of venom components in *Conus victoriae*. IST World Congress, Glasgow, July 23-28, 2006.
- 2005**
79. Krishnan, MN., **Bingham J-P.**, Lee S.H. and, Moczydlowski E. (2005) Role and Affinity of Inorganic Cations in Tetramer Stabilization of the KcsA K⁺ Channel. Biophysical Society Meeting, Long Beach, CA.
- 2004**
80. Cummins, TR., Moczydlowski E., **Bingham J-P.** (2004) Differential Block of Voltage-gated Sodium Currents by a Tarantula toxin. Neuroscience, 34th Annual Meeting, Oct. San Diego.
81. Bian, S., **Bingham, J-P.**, Yan, Y., Sigworth, F., Moczydlowski, E. BK Channel Clustering On HEK293 Cells. Abstracts of the Biophysical Society 48th Annual Meeting, Feb. 14 – 18, 2004, Baltimore, Maryland. Biophysical Journal Supplement, Jan. 2004, Vol. 86(1), Part 2 of 2, p430a.
- 2003**
82. **Bingham, J-P.**, Bian, S., and Moczydlowski E. (2003) Synthesis of iberitoxin-D19K-LC-Biotin: application to BK channels. *Biophys. J.* 84: abstract.
- 2002**
83. **Bingham, J-P.**, Whittal, R., Semchuk, P., Moczydlowski, E., (2002) The Milked venom from *Conus geographus* holds many surprises. 6th Asia-Pacific Congress on Animal, Plant and Microbial toxins, Cairns, Australia.
- 2001**
84. Sandall, D., Keays, D., Down, J., **Bingham, J-P.**, Livett, B. and Gayler, K. (2001) Conotoxin diversity in venom from Australian Cone shells. Proc. 26th Annual Conference on Protein Structure and Function, 7 – 11 February, Lorne, Australia, 26: A56.
- 2000**
85. **Bingham, J-P.**, Burlingame, A., Moczydlowski, E., Gilly, W.F. (2000) A new highly selective conotoxin from *Conus californicus* that targets voltage-gated neuronal Na⁺ channels of squid. General Physiology meeting, Woodshole, MA.
- 1999**
86. **Bingham J-P.**, Medzihradzky K. F., Gilly W. F. and Burlingame A. L. (1999) The Venom of *Conus californicus* – its complexity and diversity as studied by various methods of Mass Spectrometry. UCSF Dept. meeting. Asilomar CA.
- 1997**
87. Broxton, N., Down, J., Loughnan, M., Miranda, L., Gehrman, J., **Bingham, J-P.**, Alewood, P. and Livett, B.G. (1997) Potent alpha-conotoxins with selectivity for nicotinic receptor subtypes in muscle and chromaffin cells. Proc. 9th Int. Symposium on Chromaffin Cell Biology. May 29 – 30, 1997., Sapporo, Japan. p. 113.
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88. Down J., **Bingham J-P.**, Miranda L., Alewood P., Gehrman J., Livett B.G., Broxton N., and Loughnan M. alpha-Conotoxins with Selectivity Towards Neuronal- and Muscle-type Nicotinic Acetylcholine Receptors. Lorne Protein Conference, Lorne, Australia 1997.
- 1996**
89. Broxton N.M., **Bingham J-P.**, Alewood P., Capon R., Down J., and Livett B.G. Search for Marine Natural Products and Conotoxins That Target Neuronal-Type Nicotinic Receptors. 2nd Australian Peptide Symposium, Kingfisher Bay., Australia 1996.
- 1995**
90. **Bingham J-P.**, Jones A., Lewis R.J., and Alewood P.F. A Comparative Study of Venom Components From *Conus textile* by Ion Spray Spectrometry (ISMS). 1st Australian Peptide Symposium, Day Dream Is., Australia 1995.
91. Jones A., **Bingham J-P.**, Lewis R.J., and Alewood P.F. HPLC/MS and MS/MS in Drug and Receptor Discovery. Mass Spectrometry Workshop, Lorne Protein Conference, Lorne, Australia 1995.
92. **Bingham J-P.**, Jones A., Lewis R.J., and Alewood P.F. Novel Conotoxins in the milked Venom of Cone Shells, Lorne Protein Conference, Lorne, Australia 1995.
93. Jones A., **Bingham J-P.**, and Alewood P.F. Application of HPLC/MS and MS/MS in Drug Receptor Discovery, 15th ANZMS Sydney, Australia 1995.
94. Jones A., **Bingham J-P.**, Lewis R.J., and Alewood P.F. Characterising Peptides Isolated from *Conus* Venoms Using Ion Spray HPLC/MS and MS/MS. ASMS, Atlanta USA 1995.
- 1994**
95. Alewood P.F., **Bingham J-P.**, Jones A., and Lewis R.J. Rapid Analysis of *Conus* Venoms Peptides by Ion Spray Mass Spectrometry. Eilat Conference 1994.
96. **Bingham J-P.**, Jones A., Alewood P.F., and Lewis R.J. Bioactive Peptides from *Conus* Venom by ion spray HPLC/MS Lorne Protein Conference, Lorne, Australia 1994.
97. Jones A., **Bingham J-P.**, and Alewood P.F. Disulfide Bond Connectivity Analysis in Small, Multiply Disulfide Bonded Peptides by Ion Spray Mass Spectrometry, Lorne Protein Conference, Lorne, Australia 1994.
98. **Bingham J.**, Jones A., Lewis R.J., and Alewood P.F. Rapid Analysis of *Conus* Venoms Peptides by Ion Spray Mass Spectrometry. Proceedings from the Eilat Conference 1994.
- 1993**
99. Jones A., **Bingham J-P.**, and Alewood P.F. Determination of Bioactivity from *Conus* Venoms by Ion Spray HPLC/MS and MS/MS. 41st Annual Conference on Mass Spectrometry and Allied Topics, San Francisco, ASMS, Santa Fe, USA 1993.
100. Jones A., **Bingham J-P.**, Lewis R.J., and Alewood P.F. 43rd Annual Conference on Mass Spectrometry and Allied Topics, Atlanta, ASMS, Santa Fe, USA 1993.
- 1992**
101. Jones A., **Bingham J-P.**, Lewis R.J., and Alewood P.F. Characterization of an Array of Bioactive Peptides from *Conus* Venoms by Liquid Chromatography/Mass Spectrometry. Twelfth International Symposium on HPLC of Peptides, Proteins and Polynucleotides, Sydney, Australia, 1992.

Public Education:

(i) Special News Features (3):

1. National Geographic (2010/2011/2012/2013) “Venoms” (Producer: C. Cohen) – seen in 71 countries, viewed approximately by +17 million people world-wide.*
2. Nelson L. (2004) Venomous snails: one slip, and you're dead... Nature. 2004 Jun 24; 429(6994): 798 – 9. [Interview focused on cone shell milking and snail husbandry].
3. Chang A. (2004) Researcher Risks Killer Snails for Study: Farming Venomous, Killer Cone Snails for Research Is a Risky Affair for Biochemist. Released by Associated Press. - Article focused on cone shell work.

(ii) Scientific Advisor: in documentaries, Media production, textbook contributions, Public Education:

2007-Present*: KHON2 Local News (2013) (Producer: Ron Mizutani); Hawaii Public Radio (2013) (Producer: Molly Solomon); OC16 Tech Hawaii (2011) (Producer: Jay Fidel); Oelo 52 (2011) (Producer: Jay Fidel); Graber (2008) On the Tail of the Snail: Arts and Science for Kids (ASK) p 12-19; Kleinpaste R. (2008) Bug of the Month; Snorkeling at Night: New Zealand Growing Today, April p. 46.; Roberson M-R. (2008) Creature Comforts – Animals provide healing help for Humans, Zoogoer, Vol. 37 No.6 p18-23.; 60 Minutes “The bugman” – (2008) (Aust.) (Producer: Damien Comerford) – CD available; EcoGeeks - (2008) (Producer/interviewer Rob. Nelson; Wild Class Room) – CD available; Pearson Publishing BioAdventures (2008).

2006 – 2000: Videos on toxins and Cone Shells that will compliment every chapter of their new Miller and Levine High School Biology textbook (print 7 million copies a year for 9th graders); Animal Planet (2006): Buggin’ With Ruud (New Zealand Natural History); Flipside (UK; 2006): ‘Killer Sea Snails’ – Louise Murray; Radio 4, BBC Scotland (2005): ‘Danger! Venomous snails’ – Louise Yeoman – CD available; Discovery Channel (2005; Canada): Daily Planet – Exploration Productions Inc.; Associate Press (2005): ‘Farming killer cone snails for research is a risky affair’ – A. Chang; National Public Radio (2005; USA): ‘Pulse of the Planet’: ‘Cone Shells – Poison Tongued; Cone Shells – Fascination; Cone Shells – medical uses’; ScienCentral, Inc.: Medical textbook: A Colour Atlas of Tropical Medicine and Parasitology; ODYSSEY, Cobblestone Publishing – Children’s Science Magazine: ‘Possibility is everywhere...even in poisonous snails’ – Steven R. Wills.

(iii) Textbook advisor/reviewer for (3)*:

Essentials of Biochemistry 3/e, by Pratt & Cornely (Wiley) (2012); Biochemistry by Mathews 5/e, by van Holde, & Ahern; Pearson (2012); Lehninger Principles of Biochemistry 6/e, by Nelson & Cox W. H.; WH Freeman Publisher’s (2012).

(iv) Invited Talks shown 2007 – present (11)*:

Hawaiian Malacological Society (2008 – 2013/yearly); Waikki Aquarium – Meet the Mollusks (2011); Vanderbilt University, Nashville, Tennessee (2011); ACS (Hawaii)/ Forum in Chemistry at Windward Committee College (2010); Duquesne University, Pittsburg Pennsylvania (2010); ACS (Hawaii) – Annual Dinner (2009); University of Hawaii, Biology Club Manoa, Honolulu (2009); University of Hawaii, Chemistry Dept., Manoa, Honolulu (2009); Melbourne University, Melbourne Australia (2008); Clarkson University, Potsdam New York (2006 and 2007); University of Pennsylvania, Philadelphia (2007)

Grant reviewer for (4)*:

Australian Research Council – Australia; The Research Foundation Flanders (FWO) – Belgium; USDA-SBIR (Aquaculture) – USA; NOAA – Oceans Human Health Initiative - USA

Referee/peer reviewer for a manuscript submitted to (11 Journals)*:

Analytical Biochemistry; Proteome; Peptides; Toxicon; Journal of Biological Chemistry - Drugs of the Future; Toxins; Journal of Biological Chemistry; Biochemistry; FEBS; Drug Discovery Today; Chemical Biology.

University, College and Departmental Service*:

- ❖ Vice-President of the CTAHR Faculty Senate, 2013 – present
- ❖ Member of the CTAHR Faculty Senate Executive, 2011– present, Instructional Review Committee
- ❖ Represented CTAHR at Rat Lung Worm Disease Scientific Workshop, Honolulu, Aug. 16-18 (2011)
- ❖ Represented MBBE in May Commencement Exercises, 2008, 2009, 2010, 201, 2012 and 2013
- ❖ Represented MBBE in December Commencement Exercises, 2011
- ❖ Participant in the UH-Manoa Strategic Planning Process Focus Group session (October 2010)
- ❖ Represented CTAHR at Teaching “SURVIVAL SKILLS” AND ETHICS 16th Annual Trainer-of-Trainers Conference Supported by NIH, June 21-26, 2010, Santa Fe, New Mexico
- ❖ Member of the CTAHR Faculty Senate, 2009 – 2010, Member of the Instructional Review Committee
- ❖ Represented CTAHR on Faculty Panel—Striking a Balance: Teaching, Research, Service-for the New Faculty Orientation (Jan. 2009)
- ❖ Member of MBBE Graduate Steering Committee (2009)
- ❖ Represented MBBE on Biology Steering Committee (2008-2009)
- ❖ MBBE representative/shop steward for the University of Hawaii’s Professional Assembly, 2007-2009
- ❖ Scientific Judging Annual CTAHR Student Research Symposium:
 - (a) 2013 – Head judge CTAHR for 25th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 12-13.
 - (b) 2012 – PhD. Posters; MS Orals, 24th CTAHR and COE Student Research Symposium.
 - (c) 2011 – MS orals (Chair); PhD. Posters (Chair), 23rd Annual CTAHR Student Research Symposium, April 8-9, Honolulu;
 - (d) 2010 – PhD orals (Chair); PhD. Posters (Chair);, 22nd Annual CTAHR Student Research Symposium, April 9-10, Honolulu;
 - (e) 2009 – PhD orals; PhD. Posters, 21st Annual CTAHR Student Research Symposium, April 3-5, Honolulu;
 - (f) 2008 – PhD orals; PhD. Posters, 20th Annual CTAHR Student Research Symposium, April 11-12, Honolulu;
 - (g) 2007 – PhD orals; PhD. Posters, 19th Annual CTAHR Student Research Symposium, March 9-10, Honolulu.

Conference organization*:

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- ❖ Head judge CTAHR for 25th CTAHR and COE Research Symposium, University of Hawaii, Honolulu, April 12-13, 2013.
 - ❖ Scientific Advisory Committee; 23rd American Peptide Society Symposium/6th International Peptides Symposium. Hilton Waikoloa Village Big Island, Hawaii, June 22-27, 2013.
 - ❖ Judge for Poster competition: 23rd American Peptide Society Symposium/6th International Peptides Symposium. Hilton Waikoloa Village Big Island, Hawaii, June 22-27, 2013.

Graduate Student Mentorship, University of Hawaii*:

❖ **PhD Level (2)**

1. Zachary Bergeron, MBBE **Graduated Fall 2013**; Title: Peptide Toxin Bioengineering Advancement of Fluorescent Probe Design for Targeting Human K⁺ Channels. ABD. **Graduating in Fall 2013**.
2. Parashara Thapa, MBBE (2011), Title: Bioengineering of conopeptides to study the pharmacokinetics and pharmacodynamics of peptide cyclization. **Current student, expecting to graduate in Spring 2015**.

❖ **MSc Level – Plan A (18):**

1. Chino Cabalteja, MBBE (2011) – **graduated 2014**; Title: The means and ends all to thiol chemistry - a peptide journey from disulfide bonds to thiol-ester ligation **Past student**.
 2. Liz Andrews, MBBE (2010) – **graduated 2014**; Title: Effects of Diet Manipulation on Conopeptide Profiles in Fish-Eating *Conus striatus*. **Past student**.
 3. Zan Halford, MBBE (2010) – **graduated 2014**; Title: Peptide bioengineering of a kv1.3 channel probe: utilizing azide chemistry in fluorescent bioconjugation. **Past student**.
 4. Kristen Wheeler, MBBE – **graduated 2013**; Title: Quantitative Chemical Analysis of Flavonoids in Purple Fruited Selections of Pitanga (*Eugenia uniflora L.*). **Past student**.
 5. Jeffery Milisen, MBBE – **graduated 2012**; Title: Conopeptide Production through Biosustainable Snail Farming. **Past student**
 6. Cliff Kapon, MBBE – **graduated 2012**; Title: Characterization of Novel Conotoxins Derived from the Milked Venom of *Conus magus*. **Past student**.
 7. Joycelyn Chun, MBBE – **graduated 2011**; Title: Exploration of Novel Techniques and Approaches in the Study of Conopeptides. **Past student**.
 8. Zeb Philips, MBBE – **graduated 2010**; Title: Thiol-mediated Ligation and Characterization of Native and Mutant Huwentoxin-I Peptides on Voltage-gated Sodium Channels (Na_v). **Past student**.
 9. Do Kim – terminated, 2011. **Past student**.
 10. Christopher Sugai (2012), Title: Characterization of Milked Venom from *Conus obscurus* in Search of Novel Bioactive Compounds. **Current student, expecting to graduate in Fall 2015**.
 11. Michael Espiritu, MBBE (2012), Title: Exploring the Post Translational Modifications of *Conus* Peptides and their influence on isomer formation and biological activity. **Current student, switching to PhD. program**
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12. Peter Yu, MBBE (2013); Title: Design and use of Fluorophore cyclotides. **Current student, expecting to graduate in Fall 2015.**
 13. Jason Wen, MBBE (2013); Title: Development of High-through-put HPLC analysis of common requested agricultural makers in Chilies, Tomatoes and Sweet Potatoes. **Current student, expecting to graduate in Fall 2016.**
 14. Nicholas Sinclair, MBBE (2014); Title: Diet Manipulation in mollusk eating cone shells. **Current student, expecting to graduate in Fall 2016.**
 15. Vinay Menon, MBBE (2014); Title: TBA **Current student, expecting to graduate in Fall 2016.**
 16. Ray Zhang, MBBE (2014); Title: TBA **Current student, expecting to graduate in Fall 2016.**
 17. Zachary Bergeron (**graduated 2007**; Clarkson University – Biomolecular Science major); Title: The Molecular Engineering of Potassium Channel Probes: A Stepwise Approach to Cellular Imaging of BK and hERG Ion Channels. **Past student.**
 18. Adam Labaff (**graduated 2006**; Clarkson University); Title: Structural Design and Synthesis of Novel Peptide Bioconjugates for Quantification and Visualization of the hERG Channel. **Past student.**

MSc Level – Plan A (University of Hawaii) (1):

1. Elizabeth Mahi, MBBE, **graduated 2012**; Report: Cultivation of planktotrophic *Conus striatus* larvae. **Past student.**

Honors (1): (Clarkson University):

1. Sarah Morris (**graduated 2006**; Clarkson University): Identification of a Peptide with Antimicrobial Activity in the Venom of *Conus* **Past student.**

Undergraduate student mentorship (University of Hawaii) (14)*:

1. Harlacher, Jenna M., Biology (2013 Fall) Butterfly fish toxicity. **Current student.**
 2. Peter Yu, Biology (2012) (presently MSc Bingham Laboratory) Peptide Synthesis and isolation. **Past student.**
 3. David Slater, Biology (2011) (presently MSc. Bingham Laboratory) Toxicology of Trigger fish. **Past student.**
 4. Shaun Kiyabu, Biology (2011) (presently MSc Bingham Laboratory) Peptide oxidation and folding. **Past student.**
 5. William Pryor, Biology (BYU) (2010) (presently Medicine at Medical University of South Carolina) Isolation of a peptide from *Conus lividus*. **Past student.**
 6. Leilani Manglicmot, Biology (2010) Rapid bench top estimation of thiol oxidation. **Past student.**
 7. Nicholas Fujii, Biology (2009) (Dentistry at University of Missouri, Kansas City) Milked venom of *Conus obscurus*. **Past student.**
 8. Steven Gonslaves, Biology (2009) (presently Medicine at UH JABSOM) Milked venom of *Conus geographus*. **Past student.**
 9. Jessica Leong, Biology (2009) (practicing pharmacist) Milked venom of *Conus striatus*. **Past student.**
 10. Jeff Milisen, Biology (2009) (graduated MSc. from Bingham Laboratory) *Conus* aquaculture. **Past student.**
 11. Parashara Thapa, PEB (2009) (presently PhD. Bingham Laboratory) Chemical Synthesis of α -conotoxin M1280. **Past student.**
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12. Zan Halford , Biology (2009)(presently MSc. Bingham Laboratory) Azide chemical linkers. **Past student.**
 13. Jaclyn Hara, Biology (2008) (practicing pharmacist) *Conus* aquaculture. **Past student.**
 14. Jacob Ishibashi, Dept. of Chem. (Boston College)(2008) – PhD. Fullerton CA.) Chemical synthesis of a novel peptide linker. **Past student.**

High School science projects at the University of Hawaii (2)*:

1. Kristen Morrison (2008) Darien High School, Connecticut – summer internship. **Past student.**
2. Kristel Rodillas and Tyler Kriedler (2011) - Advanced Placement Biology class at Waipahu High School (Hawaiian Malacological Society award at the State Science Fair). **Past students.**

Senior Thesis (7) (Clarkson University):

1. Aaron Tandy (**graduated 2007**; Clarkson University – Chemistry major): Synthesis of novel non-native Fmoc amino acids used for peptide bioconjugation. **Past student.**
2. Scott Belina (**graduated 2007**; Clarkson University – Biomolecular Science major): Synthesis and purification of a novel class of α -conotoxins **Past student.**
3. Terrance Richards (**graduated 2008**; Clarkson University – Biology major): Synthesis of two highly selective μ -conotoxins for fluorophore bioconjugation **Past student.**
4. James V. Coleman II (**graduated 2007**; Clarkson University – Biomolecular Science major): Novel Methods for the Elongation and Derivatization of Amine Containing Side Chains in Solid Phase Peptide Synthesis **Past student.**
5. Edwin E. Phillips III (**graduated 2006**; Clarkson University – Biomolecular Science major): Synthesis, Oxidation and Pharmacology of Huwentoxin-I **Past student**
6. K'Drea Fox (**graduated 2005**; Clarkson University – Biology major): Analysis of *Conus pennaceus* through Taxonomical and Structural Techniques
7. Tung Luong (**graduated 2005**; Clarkson University – Biology major): Proteomic and Genomic Approaches in the Identification of Conoprotein Found in *Conus catus*. **Past student**

Undergraduate Student Awards (10) - University of Hawaii*:

2013*

Peter Yu – MBBE Best Undergraduate Poster Presentation - 25th CTAHR and COE Research Symposium. **Project:** Cone Snails, Cyclized Peptides, and Fluorophores – A Gateway to Traceable Peptides. **Role:** PI.

2012*

Peter Yu – Gamma Sigma Delta Award of Merit (2nd place overall) at the 24th CTAHR and COE Student Research Symposium. **Project:** Using an Optimized Methodology of TFMSA Cleavage in Peptide Synthesis Bioengineering. **Role:** PI.

2011*

Elizabeth Mahi – Student Research Award; Graduate Professional Access (GPA) Program. **Project:** Cultivation of planktotrophic *Conus textile* larvae. **Role:** PI.

Alec Nordschow – Best Research Presentation Poster Category Award. 28th Marine Option Program Student (MOPS) Symposium, University of Hawaii Hilo campus. **Project:** Developmental Analysis through Protein Quantification of *Conus striatus* Veliger. **Role:** PI.

Kenny Masuda – Research Award, University of Hawaii, Manoa, Undergraduate Research Opportunities Council. **Project:** Molecular finger-printing of *Conus pennaceus* from the Hawaiian Islands **Role:** PI.

Nolan Spann – MBBE Best Undergraduate Poster Presentation 23rd CTAHR Student Research Symposium. **Project:** Non-Translationally Modified Toxins as Molluscicides **Role:** PI.

Shaun Kiyabu – INBRE Summer Undergraduate Research Internship program. **Project:** Selective Disulfide Bond Formation in α -conotoxins **Role:** PI.

2010*

Alec Nordschow – Best Research Project Category Award (oral). 27th Annual Marine Option Program Student (MOPS) Symposium, University of Hawaii Hilo campus. **Project:** Developmental Analysis Through Protein Quantification of *Conus striatus* eggs. **Role:** PI.

2009*

Parashar Thapa – Gamma Sigma Delta, Award of Merit, awarded in the category of Undergraduate Student Poster Presentation. 21st CTAHR Student Research Symposium, University of Hawaii Manoa campus. **Project:** Alpha conotoxin peptide truncation – a potential novel means of post-translational modification for phyla and pharmacological specificity. **Role:** PI.

2008*

Jacob Ishibashi – PRIDE Summer Undergraduate Research Internship program. **Project:** Peptide probes: Addressing Problems in design and synthesis. **Role:** PI.

Graduate Student Awards (28 awards):

2014

Chino Cabalteja – University of Hawaii, Outstanding Masters Level Research Award; 25th CTAHR and COE Student Research Symposium. MBBE Best MS Student Oral Presentation, **Project:** Challenging the Dogma that Bioactive α -Conotoxins are Globular, **Role:** PI.

Nicholas Sinclair, MBBE (2014); Title: Diet Manipulation in mollusk eating cone shells. 25th CTAHR and COE Student Research Symposium. MBBE Best MS Student Poster Presentation **Role:** Co-PI.
Hawaiian Malacological Society Student Research award **Role:** Co-PI

Steffen Oeser (MBBE Ph.D poster)

2013*

Zachary Bergeron – (a) Student Travel Fellowship for 23rd American Peptide Society Symposium/6th International Peptides Symposium. Hilton Waikoloa Village Big Island, Hawaii, June 22-27; (b) Achievement Rewards for College Scientists (ARCS) Foundation: Scholar of the Year (joint); (c) Achievement Rewards for College Scientists (ARCS) Foundation: Helen Jones Farrar award in Tropical Agriculture Research; (d) 25th CTAHR and COE Student Research Symposium – CTAHR Best PhD. Student Oral Presentation, **Project:** Validation of a Novel, Direct Conjugate

Scorpion Toxin-Fluorophore for the Investigation of the Large Conductance Ca²⁺-activated Potassium Channel, BK. **Role:** PI.

Parashar Thapa – (a) Student Travel Fellowship for 23rd American Peptide Society Symposium/6th International Peptides Symposium. Hilton Waikoloa Village Big Island, Hawaii, June 22-27, 2013; (b) 25th CTAHR and COE Student Research Symposium – Gamma Sigma Delta PhD Student Poster Presentation, **Project:** Optimization of novel Thiol-Ester ligation technique for expanding the potential of Native Chemical Ligation, **Role:** PI.

Vincent Cleveland - 25th CTAHR and COE Student Research Symposium – CTAHR Best MS Student Oral Presentation, **Project:** Adsorption and Heterogeneous Oxidation of Endocrine Disrupting Compounds in Wastewater Using Nano Metal Catalyst-Deposited Carbon Nanotubes, **Role:** Co-PI.

2012*

Chino Cabalteja – 24th CTAHR and COE Student Research Symposium. CTAHR Best MS Student Poster Presentation, **Project:** Challenging the Dogma that Bioactive α -Conotoxins are Globular, **Role:** PI.

Elizabeth Mahi – 24th CTAHR and COE Student Research Symposium. MBBE Best MS Student Oral Presentation, **Project:** Cultivation of Planktotrophic *Conus striatus* Larvae. **Role:** PI.

Zachary Bergeron – 24th CTAHR and COE Student Research Symposium. CTAHR PhD Student Oral Presentation Award of Merit, **Project:** Peptide Toxin Bioengineering - Advancement of Fluorescent Probe Design for Targeting Human K⁺ Channels, **Role:** PI.

Elizabeth Andrews – Representative for the American Society of Biochemistry and Molecular Biosciences Hill Day, Washington DC, Sept. 10-12, **Role:** PI.

2011*

Cliff Kapon – (a) CTAHR Departmental Merit Scholarship Fall 2010; (b) Manoa Opportunity Grant Fall 2010/Spring 2011; (c) UHM second Century Scholarship Fall 2010/Spring 2011; (d) Kahuewai Ola Native Hawaiian Scholarship Fall 2010/Spring 2011; (e) Imi Na'auao Post Secondary Scholarship Fall 2010/Spring 2011; (f) Native Hawaiian Science and Engineering Mentorship program Malolo Award Fall 2010; (g) Kahuewai Ola Native Hawaiian Scholarship Fall 2011; (h) Tuition Imi Naauao scholarship 2011; (i) NSEMP scholarship 2011. **Role:** PI.

Erin Yafuso – The Board of Directors of the Pacific Orchid Society Award. 23rd Annual CTAHR Student Research Symposium. **Project:** Functional characterization of a *Dendrobium* F5'3'H gene in the Petunia model system. **Role:** Co-PI.

Zachary Bergeron – Gamma Sigma Delta, Award of Merit, awarded in the category of MBBE Best PhD. Student Oral Presentation 23rd Annual CTAHR Student Research Symposium. **Project:** Venom From A Far; How a Cone Shell Will Travel. **Role:** PI.

Kristen Wheeler – Student travel grant from the American Society for Horticulture Science. Sept. 25-28th Waikola, HI. **Project:** Flavonol and Anthocyanin Analyses of Purple-fruited Selections of *Eugenia uniflora* L. (Pitanga) by High Performance Liquid Chromatography. **Role:** PI.

Chino Cabalteja – McNair Summer Research Internship program. **Project:** Challenging the Dogma that Bioactive α -Conotoxins are Globular **Role:** PI.

2010*

Do Kim – (2010) Gamma Sigma Delta, Award of Merit, awarded in the category of MBBE Best MS Student Oral Presentation. 22nd Annual CTAHR Student Research Symposium. **Project:** Bioengineering of ω -conotoxin GVIA: Probes for the N-type neuronal Ca²⁺ channel. **Role:** PI.

Zachary Bergeron – (2010) Federation of American Societies for Experimental Biology, Graduate Student Travel Scholarship; in Anaheim, CA, April 24-28. **Project:** Design development and application of a fluorescent probe to study changes in hERG channel density and trafficking; a mechanistic basis for cardiac arrhythmia. **Role:** PI.

Graduate Student Thesis Committees, University of Hawaii*:

❖ **Thesis Committee PhD Level (Total 13; 6 current):**

1. Devin Takara MBBE (PI Dr. Khanal) – **graduated, 2013**; Title: Green Processing of a Tropical Grass for Biofuel and Biobased Products.
 2. Vishal Negi, MBBE (PI Dr. D. Borthakur) – **graduated 2012**; Title: Biochemistry of mimosine catabolism by enzymes from *Rhizobium* sp. TAL1145 and *Leucaena leucocephala*.
 3. Alejandro Preciado, Dept. of Chem. (PI Dr. P. Williams) – **graduated, 2012**; Title: Stereochemistry of γ -Amino- β -Hydroxy Acids of Natural and Synthetic Origins.
 4. Maribel Zaporteza, MBBE (PI Dr. W. Su) – **graduated, 2011**; Title: Transgenic expression and characterization of secretory Antimicrobial peptides in yeast and plant cell cultures.
 5. Eun Ju Cho, MBBE (PI Dr. D. Christopher) – **graduated, 2011**; Title: Identification, Characterization, and sub-cellular localization of Protein Disulfide Isomerase (PDI) in *Arabidopsis thaliana*.
 6. Sreeramula Kalluri, Dept. of Chem. (PI Dr. J. Garret); Title: Biosynthesis of Thuricin CD – terminated, 2013
 7. Norman Wang, MBBE (PI Dr. G. Presting) – terminated, 2012
 8. Zachary Bergeron, MBBE (JPB Chair/PI); Title: Peptide Toxin Bioengineering Advancement of Fluorescent Probe Design for Targeting Human K⁺ Channels. ABD. **Current student, will be graduating Fall 2013.**
 9. Archanal Pal, MBBE (PI Dr. D. Borthakur); Functional Characterization of Chloroplastic and Cytoplasmic β -Carbonic Anhydrase Isoforms from *Leucaena leucocephala*. ABD. **Current student, will be graduating Fall 2013.**
 10. Parashara Thapa, MBBE (JPB Chair/PI); Title: Bioengineering of conopeptides to study the pharmacokinetics and pharmacodynamics of peptide cyclization. **Current student, expecting to graduate in Spring 2015.**
 19. Nhan Hua, MBBE (PI Dr. H. Ako); Title: Development of Aquaculture Technology for the Hawaiian Opihi *Cellana* spp. **Current student, expecting to graduate in Summer 2014.**
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20. Margaret Baker, MBBE (PI Dr. X. Li); Title: Structure characterization of windmill palm peroxidase in relation to roles of glycosylation on stability and catalysis. **Current student, expecting to graduate in Fall 2014**
 11. David Spafford, Botany (PI Dr. Celia Smith); Title TBD **Current student, expecting to graduate in Fall 2017.**

❖ **Thesis Committee MSc Level (Total 19; 11 current):**

Plan A (University of Hawaii):

1. Kristen Wheeler, MBBE (JPB Chair/PI) – **graduated 2013**; Title: Quantitative Chemical Analysis of Flavonoids in Purple Fruited Selections of Pitanga (*Eugenia uniflora L.*).
 2. Jeffery Milisen, MBBE (JPB Chair/PI) – **graduated 2012**; Title: Conopeptide Production through Biosustainable Snail Farming.
 3. Cliff Kapon, MBBE (JPB Chair/PI) – **graduated 2012**; Title: Characterization of Novel Conotoxins Derived from the Milked Venom of *Conus magus*.
 4. Majdouline LeRoy, MBBE (PI Dr. S. Khanal) – **graduated 2012**; Title: Ultrastructural Changes Associated with Different Pretreatments on Napier Grass.
 5. Isabel Rushanaedy, MBBE (PI Dr. D. Borthakur) – **graduated 2012**; Title: Chitinase as Molecular Bioindicator of Resistance to *Fusarium oxysporum* in *Acacia koa*.
 6. Joycelyn Chun, MBBE (JPB Chair/PI) – **graduated 2011**; Title: Exploration of Novel Techniques and Approaches in the Study of Conopeptides.
 7. Zeb Philips, MBBE (JPB Chair/PI) – **graduated 2010**; Title: Thiol-mediated Ligation and Characterization of Native and Mutant Huwentoxin-I Peptides on Voltage-gated Sodium Channels (Nav).
 8. Do Kim MBBE (JPB Chair/PI) – terminated, 2011.
 9. Zan Halford, MBBE (JPB Chair/PI); Title: Peptide bioengineering of a kv1.3 channel probe: utilizing azide chemistry in fluorescent bioconjugation. **Current student, will be graduating Fall 2013.**
 10. Liz Andrews, MBBE (JPB Chair/PI); Title: Effects of Diet Manipulation on Conopeptide Profiles in Fish-Eating *Conus striatus*. **Current student, graduating Fall 2013.**
 11. Chino Cabalteja, MBBE (JPB Chair/PI); Title: The means and ends all to thiol chemistry - a peptide journey from disulfide bonds to thiol-ester ligation **Current student, will be graduating Fall 2013.**
 12. Christopher Sugai, MBBE (JPB Chair/PI); Title: Characterization of Milked Venom from *Conus obscurus* in Search of Novel Bioactive Compounds. **Current student, expecting to graduate in Fall 2014.**
 13. Michael Espiritu, MBBE (JPB Chair/PI); Title: Exploring the Post Translational Modifications of *Conus* Peptides and their influence on isomer formation and biological activity. **Current student, expecting to graduate in Fall 2014.**
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14. David Slater, MBBE (JPB Chair/PI); Diet Manipulation in mollusk eating cone shells. **Current student, expecting to graduate in Fall 2015.**
 15. Peter Yu, MBBE (JPB Chair/PI); Title: Design and use of Fluorophore cyclotides. **Current student, expecting to graduate in Fall 2015.**
 16. Shaun Kiyabu. (JPB Chair/PI): Title: *In-vitro* folding of conotoxins - **Current student, expecting to graduate in Fall 2015.**
 17. Simon Che MBBE (PI Dr. A. Collier); Title: Post-Translational Protein Glycosylation as a Mechanism for Neonatal Maturation of UDP-Glucuronosyl Transferase Enzymes. **Current student, graduating Fall 2013.**
 18. Steffen Oeser MBBE (PI Dr. A. Collier); Title: The effects of obesity on UDP-glucuronosyl transferase enzymes expression and activity. **Current student, be will graduating Fall 2013.**
 19. Jannai Yafuso, MBBE (PI Dr. D. Borthakur); Title: Isolation and characterization of O-acetylserine(thiol) lyase from *Leucaena leucocephala*. **Current student, will be graduating Fall 2013.**

Honors (2):

Past (University of Hawaii and Clarkson University):

1. Jennifer Ishimoto, MBBE (PI Dr. Q. Li), **graduated 2011**; Title: Degradation of pyrene by *Mycobacterium* species: single versus consortia.
2. Sarah Morris (JPB Chair/PI; **graduated 2006**; Clarkson University): Identification of a Peptide with Antimicrobial Activity in the Venom of *Conus*.

Education outcomes – Research Students from the Bingham Laboratory 2007 - present (University of Hawaii ONLY)*.

Student		
Zachary Bergeron (PhD.)	Norwich Chemicals, NY	Work force
Kristen Wheeler (MSc.)	‘Iolani School, HI	High School Teacher Science
Jeffery Milisen (MSc.)	Kona Blue Aquaculture, HI	Work force
Cliff Kapon (MSc.)	University of California, San Diego CA	Continuing Education – PhD.
Elizabeth Mahi (MSc.)	Dept. of Education, HI	Middle School Teacher
Joycelyn Chung (MSc.)	Western University OR	Continuing Education – D.O.
Zeb Philips (MSc.)	St. John Fisher Pharmacy School, NY	Pharm.D./Work force
Nicholas Fujii [#]	Dental School (University of Missouri, Kansas City)	D.D./Workforce
Steven Gonslaves [#]	JABSOM, HI	M.D./Workforce
Jessica Leong [#]	Pharmacy School (University of the Pacific, CA)	Pharm.D./Workforce
Parashara Thapa	PhD. – Bingham Laboratory	Continuing Education
Zan Halford	MSc. – Bingham Laboratory	Work forces
Peter Yu	MSc. – Bingham Laboratory	Continuing Education
William Pryor ^{1#}	University of South Carolina, SC	Continuing Education – M.D.
Jaclyn Hara [#]	Pharmacy School	Pharm.D./Workforce
Erin Mitsunaga	MSc. – Stanford University	Continuing Education – MSc.
Kristen Morrison ²	BSc. – Brown University, RI	Undergraduate
Jacob Ishibashi ^{3#}	PhD. – Boston College, MA	Continuing Education – PhD.
Leilani Manglicmot [#]	Johns Hopkins School of Medicine, MD	Continuing Education – MSc.

[#]Undergraduate research student; ¹Semester Student from BYU²; Summer Intern High School Student from Danbury CT; ³ Summer Intern Undergraduate Student via the NSF PRIDE Program.

Undergraduate Teaching Philosophy: Higher education is something to be cherished and not taken lightly. My goal is to provide the student with the correct understanding of how to extend the foundational principles of biology and organic chemistry via the formulation of Biochemistry, which provides insight not only into the metabolic mechanisms of one self, but to that of health and disease, whether it be in plants, humans or animals.

As Biochemistry professor I reflect on how I was taught biochemistry, the people and skills they possessed to improve the classroom understanding. Biochemistry often lacks a big picture aspect until one starts to sum up the individual sequences of biochemical events. To achieve this I try incorporate technology via web-casts, you-tube video, DVDs and television documentaries that emphasize the world of biochemistry and promote discussion of the physical inter-linkages.

Like a tour guide, I provide guidance into the quagmire of 400-level biochemistry (MBBE/BIOL – 402), pointing out that learning is reflective on the student's motivation and interest to learn. Textbooks can be boring, but are an essential part of education. Homework is a task that many frown upon, but re-enforces understanding and learning. These principles I enforce in my lecture style.

Education in the classroom has to be a highlight, an introduction to what the student can learn, apply and understand. These few hours a week provide the basis for their education. Such value is placed on this time, leading to the need of a highly regimented process of learning – ‘one hits the road running’ in my class. Students are often put off by this, and often find this a little intimidating at first, yet there is a high level of support, many safety nets, checks and balances to monitor their sequential progress – many unknown to the student. A part of lecturing is being able to convey the required information, provide the support, as well as the necessary encouragement to explore the given details. My expectations are clear and some feel ‘high’, but so many students meet these challenges and even go beyond, even to their own surprise. It is this sole feature that gives me great pride in my students; they can all do this if they put heart and minds to the subject. In many ways this is a preparation to life beyond classroom walls. Many students who I keep in contact after the course are amazed at what they know, retain and can apply; many it has helped them to graduate degrees, doing better on the MCATs, PCATs etc. Again this provides me the personal will to do better each year. Reviewing the student comments “How can the instructor improve the teaching of this course?” – some are critical, some are thoughtful and positive, and some really do provide suggests that improve the class. And yes I have taken some of these suggests to improve the use of our valuable lecture time.

But in all it is about the students' progression to bigger things. Most are confused, unaware of the opportunities that possibly awaits them with a science degree, and some need a reality check. As professor, though it's not fully in my job description, I try to provide some individual guidance and direction to those who do not have a clear career-road-map. Here, I get to know my students better, offer some direction or comments that they may find helpful. I do check up on these students, most reply with stories of applying themselves to higher degree(s), reflections on stories and illustrations I commonly use in the biochemistry class. But most say, “you told us that biochemistry will comeback and haunt us – as it does!”

Knowing that I have done my job teaching the basic foundations and principles of biochemistry.

Now as time goes on new responsibilities are given – this is now reflective with handing over the MBBE Biochemistry 402 (L) Laboratory class. Although a recent assignment, this allows me to sets new goals for careful planning and construction of practical laboratory experiments that will develop both skills and

further the student's interest in biochemistry. My aim is to develop interlinked and progressive experiments in quantitative and analytical science, promoting interpretation of data, the formulation of written reports, paralleling experience that maybe found in a research laboratory either in an academic or industrial setting. A primary goal is the familiarization of mathematical concepts regarding making solutions, dealing with dilutions and concentrations in a research environment, and to continue the identification and incorporation essential to strengthen the employment competitiveness of our students.

Graduate Teaching Philosophy: Installing the correct principles of conducting good research, understanding what is ethical behavior, collegueship, mentorship, developing a research focus and a commitment, are in many ways the obligatory requirements that starts to make graduate students comprehend what it means to be a professional scientist/researcher. Yet many graduate students see it as a long and rocky road ahead littered with what many see to be unsurpassable hurdles, with limited maps or concrete directions – “there no way to goggle map the path through a graduate degree!”

Graduate students often gain these necessary experiences or ‘tip-bits’ of information in an informal piece-meal fashion, some unfortunately never see their true importance, their interlinkages or even gain the ‘essential tools of survival’ until way past their graduate training, most as they enter the abyss of a sink or swim environment. But this is where I feel my training of graduate students, both in course materials, laboratory supervision and mentorship, has the greatest level of contribution and impact to my department, my college and to my University. Good skills training (in themselves directly employable commercial techniques), strong critical guidance and mentorship – ‘Ohana style’, all have a lasting effect on those who receive it. My undergraduate and graduate students attest to this. My focus, not only as a researcher professor, is in due course to allow passage of graduate students who are well-equipped with a sense of professional identity, career focus and survival skills, and ultimately in due time become themselves good mentors to others – this is my Graduate Teaching Philosophy. Yet the approach, with both its strengths and weakness, is a pure reflection of my own experiences, my own development as a researcher and educator. Using this I hope to provide sound directions to allow graduate students achieve their career goals.

Arriving in Hawaii, I got to know many graduate students – my goal was to carefully listen to how they are progressing as developing professionals, what they are concerned about in their educational development, where they thought our weaknesses are (Department, College and University) – from their personal experiences and from their view to what the community wants and expects of them. From this in 2008 I ran a spring ‘pilot’ course – “When a PhD. is not enough” under the MBBE 610 Seminar banner. With a handful of students we addressed areas of professional development, little did I realize that the need was so great. With further refinement the course was offered in 2009, and was immensely popular with full capacity enrolment. The program achieved its primary goals of developing student confidence and professionalism. Such measures of success are clearly obtainable from the development of individual portfolios – a foundation to their own professional career development. Fall 2011, takes this one step further – examining the transition and requirements to becoming a principle investigator – whether in an academic or commercial setting (class filled to over capacity). This program will focus more on the PhD. student population and again provide them insight to the opportunities, career directions and importantly the need to plan ahead. It is expected in 2011 to establish both courses, in a bi-annual fashion, under their own right, being open to all graduate students independent of department. This again solidifies one of my graduate teaching philosophies that “if you give the students a good compass they will find their own path to success – we have to teach you how to use that compass.”

Select few student comments (eCAFE, MBBE 610, Spring 2010):

“I feel I have matured professionally through the development of a portfolio. This portfolio will hopefully follow me through many successful interview processes and get me where I want to be.”

“I will remember this course every time I revise my CV or write a cover letter or grant...or when I

think about/evaluate my career goals.”

“Having better tools to increase my chances at getting the job of my choice. My mom just told me she wished she took this class. ☺”

Teaching at the University of Hawaii* (As provided by MyUH) – 2007-Present:

		Enrollment*	Total credits*
Fall 2007	MBBE/BIOL 402 – Principles of Biochemistry	117	468
	MBBE 499 Directed research (Undergraduate)	1	3
	MBBE 699 Directed research (Graduate)	4	12
Spring 2008	MBBE 610 Graduate Seminar – When a PhD. is not enough, Part I	10	10
	MBBE 499 Directed research (Undergraduate)	5	7
	MBBE 699 Directed research (Graduate)	2	14
Summer 2008	MBBE 499 Directed research (Undergraduate)	1	2
	MBBE 699 Directed research (Graduate)	2	6
Fall 2008	MBBE/BIOL 402 – Principles of Biochemistry	100	400
	MBBE 499 Directed research (Undergraduate)	3	5
	MBBE 699 Directed research (Graduate)	3	15
Spring 2009	MBBE 499 Directed research (Undergraduate)	4	6
	MBBE 699 Directed research (Graduate)	4	18
Fall 2009	MBBE/BIOL 402 – Principles of Biochemistry	103	412
	MBBE 499 Directed research (Undergraduate)	2	5
	MBBE 699 Directed research (Graduate)	2	5
	MBBE 700 Thesis research (Graduate)	1	6
Spring 2010	MBBE 610 Graduate Seminar – When a PhD. is not enough, Part I	20	20
	MBBE 499 Directed research (Undergraduate)	5	8
	MBBE 699 Directed research (Graduate)	5	20
	MBBE 700 Thesis research (Graduate)	1	1
Fall 2010	MBBE/BIOL 402 – Principles of Biochemistry	85	340
	MBBE 499 Directed research (Undergraduate)	4	7
	MBBE 699 Directed research (Graduate)	5	14
	MBBE 700 Thesis research (Graduate)	1	6
Spring 2011	MBBE 610 Graduate Seminar – When a PhD. is not enough, Part I	17	17
	MBBE 499 Directed research (Undergraduate)	4	8
	MBBE 699 Directed research (Graduate)	6	20
	MBBE 700 Thesis research (Graduate)	1	1
Fall 2011	MBBE/BIOL 402 – Principles of Biochemistry	111	444
	MBBE 610 Graduate Seminar – When a PhD. is not enough, Part II	16	16
	MBBE 499 Directed research (Undergraduate)	2	4
	MBBE 699 Directed research (Graduate)	9	40
Spring 2012	MBBE 610 Graduate Seminar – When a PhD. is not enough, Part I	22	22
	MBBE 499 Directed research (Undergraduate)	3	9
	MBBE 699 Directed research (Graduate)	8	34
Fall 2012	MBBE/BIOL 402 – Principles of Biochemistry	98	392
	MBBE 499 Directed research (Undergraduate)	3	8
	MBBE 699 Directed research (Graduate)	8	31
	MBBE 700 Thesis research (Graduate)	1	1
	MBBE 800 Thesis research (Graduate)	1	1
Spring 2013	MBBE 499 Directed research (Undergraduate)	1	2
	MBBE 699 Directed research (Graduate)	6	31
	MBBE 700 Thesis research (Graduate)	2	3
	MBBE 800 Thesis research (Graduate)	1	1
Summer 2013	MBBE/BIOL 402 – Principles of Biochemistry	17	68
	MBBE 699 Directed research (Graduate)	1	4
Fall 2013	MBBE/BIOL 402 – Principles of Biochemistry	110	440
	MBBE 499 Directed research (Undergraduate)	1	4
	MBBE 699 Directed research (Graduate)	9	45
	MBBE 800 Thesis research (Graduate)	1	1
	Total student enrollments (including continuing education)	949	
	Total student credit hours		3,457

Undergraduate Teaching: Selected student comments from e-CAFE that reflect my teaching philosophy – MBBE/BIOL 402 – Principles in Biochemistry – Fall 2007, 2008, 2009, 2010 and 2011.

(2007) [68% student response] Total Enrolment: 117 Students

- Organization, this was the first class that I knew exactly what was expected and what material was important
- I thought the instructor was good because he was encouraging and motivating. His structure of the course was effective because it forced students to learn the material and stay on track.
- Instructor makes an intimidating topic much more accessible
- This is the best course at UH. Expectations are high, but teaching taught at level where it is possible to expect that. Easy to talk to, but intimidating at first

Global appraisal: 4.56 18/20 responses above ALL Dept., College and Campus scores.

Average question response: 4.44

(2008) [77.5% student response] Total Enrolment: 100 Students

- Homework and quizzes minimized cramming and was better for learning
- He ties in biochemistry with real life applications.
- I loved every part of this class- I've never had a class I've enjoyed so much! I really like that there was mandatory attendance, homework and quizzes weekly and that JP's door was almost always open!
- Dr. Bingham was flexible and accommodating.
- Dr. Bingham (JP) is an excellent instructor and the university is very lucky to have him. He has faith in his students and really really truly wants them to succeed not only in his class but past college. I really felt that I learned a great deal in this class and it was valuable to my education – more teachers (that have big class sizes) could take a lesson from J.P.

Global appraisal: Not provided in report

Average question response: 4.58/5.0, 19/20 responses above ALL Dept., College and Campus scores.

(2009) [68% student response] Total Enrolment: 103 Students

- I believe JP has done an amazing job teaching this biochemistry course. He really drills you with the concepts he wants the students to learn.
 - Perfect teacher to inspire people to actually learn the subject and not just study to get a good grade
 - I liked that we had homework that prepared us for the exams and forced us to learn the material. Often times I did not like the amount of homework, but I am glad that we had some practice with the material before we were examined. It is a lot of work for the professor, so I appreciate his effort. I also like that he met with us one-on-one to hand us back our exams. I was impressed how he would sit down with some of the students to go over their exam with them and how they can improve. He also enjoys talking with students about their future endeavors, which is fairly remarkable considering how little time he has.
 - The instructor giving us the powerpoints, old exams, letting us keep our current exams (I have other professors which recycle and I appreciate the willingness to create different exams and let us keep them) and especially the willingness to go over material outside of class. This class was challenging, but I certainly learned a lot. He does everything to increase our learning, not inhibit it, which is not as common as you'd expect.
 - This is the best course I've taken at UH. It takes all of the material that they (unsuccessfully) tried to teach us in gen bio, gen chem, o-chem, cell & molecular bio, and puts it all together in a way that **MAKES SENSE**. Dr. Bingham is a fabulous teacher and presents this material in a way so
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that it's easy to understand. I also really like the homework format because it reinforces everything that we learn in class and is a great resource to study off of for exams. Overall, this class helped me improve my study habits and my focus outside of the classroom.

- I liked the fact that the professor actually graded the homework and exams himself especially with 200+ students in the class. The fact that he actually went through and didn't try to take points off but reward them instead was very respectful to me.

Global appraisal: 4.43/5.0 – 20/23 responses above ALL Dept., College and Campus scores.

Average question response: 4.51/5.0

(2010) [93% student response] Total Enrolment: 85 Students

- That it finally really did come together (after a long semester of suffering) I also really like that Dr. Bingham meets with you individually to go thru the exams and gives you advice on how to study better to improve your grade. I've never had a professor do that before, and I think it's a really nice touch. He's making time in his busy schedule which shows that he is dedicated to each student's learning and education. Thanks!
- Great job! Honestly, this is the BEST course I have ever taken at UH. More professors should teach in this style. Thanks for actually caring about your students and giving us the tools and support to succeed!
- Dr. Bingham is one of the best professors I've ever had and he genuinely cares about his students and their success. I learned a lot that I will remember for a long time.
- Dr. Bingham is a awesome teacher. I like that he gets on your case from the beginning to do your homework and study hard for the exams. I would definitely want Dr. Bingham to teach another one of my classes. I wish UH manoa had a biochemistry degree so I could have Dr. Bingham as a mentor. He has so much knowledge and I wish I could have been able to take in some of that knowledge.

Average question response: 4.46/5.0

Global appraisal: 4.42/5.0 – 20/23 responses above ALL College and Campus scores; 19/23 responses above Dept. scores.

Graduate teaching:

Selected student comments from e-CAFE that reflect my teaching philosophy – MBBE 610 – When a PhD. is not enough – Spring 2008, 2010, 2011 and 2012.

(2010 Spring) [62% student response] Total Enrolment: 20 Students

- the course that helped me to take responsibility for my future and take it more seriously in one direction.
 - Excellent teacher for this course! I cannot think of another faculty member more fit for this type of course. JP is very committed to serving his students and serves as an excellent mentor... a quality that many professors seem to lack.
 - Honest, criticizes with good intent, takes the time to consider the students' expectations of the course.
 - He is a great teacher and I would have gone to him before and after this class for advice. I think he should teach more. :)
 - I really enjoyed this class! Other people in my lab told me they felt like they missed out on a great opportunity by not taking this class.
-

Global appraisal: 4.75/5.0 – 16/19 responses above ALL Dept., College and Campus scores
Average question response: 4.69/5.00

(2011 Spring) [71% student response] Total Enrolment: 17 Students

- He seemed more like a friend that wanted to help you help yourself than a professor telling you what to do and what not to do. He also was very good at giving advice about a wide range of things related to students developing a better idea of how to plan for their future.
- His positive attitude, friendly behavior and motivation to teach as well as share worthy personal experiences.
- Highly enthusiastic to better prepare his students for successful professional career.
- Dr. Bingham is a great instructor, his enthusiasm motivates to actively participate and he communicates in an excellent way the course material. Overall, I would suggest and even encourage other fellow students to take his class.

Global appraisal: 4.95/5.0 – 20/23 responses above ALL Dept., College and Campus scores
Average question response: 4.75 /5.00

Comment: Student Self Evaluations and Grade Justification provided greatest impact to the approach, methods and material I was providing – importantly the students developed a level of focus, commitment and used the foundational career tools to thinking about their futures – this was so engaging. Seeing these comments I am very proud of the students that now they take their career direction into their own hands! – No eCAFE could instill that measurement.

A second follow up class is now being offered in the Fall semester (2011). This will act as an exit preparation class, mainly for PhD. students wishing to seek academic options and opportunities. It is hoped that providing the necessary instruction on selection and surviving a Post-doctoral position will see our graduate students achieve their goals as future educators and researchers.

Student Recommendations letter and support:

I discuss with students their specific school choices and application procedures, and when needed provide discussion, comment and direction in the formulation of their personal/professional statements. High percent of students (<70%) are focused on professional health degrees.

Kaitlyn Domres* ¹	CASPA (Physician Assistant) M.D. – St. George’s University, Grenada	Accepted Accepted ²
Sara Morihara	AMCAS (MD) JABSOM University of Hawaii	Accepted
Michael Moses*	PhD. – University of Rochester Medical Center, NY.	Accepted ²
Gregory Buda*	PhD. – Cornell University NSF – Graduate Research Fellowship	Accepted ² Awarded
S. John Miyagi	Research Excellence Award (PhD.) University of Hawaii Research Council	Awarded
Zeb Philips ¹	PharmCAS (PharmD.) – St. John’s Fisher, NY	Accepted
Marielle Blackburn* ¹	SUNY Upstate, NY – Doctorate in Physical Therapy	Accepted ²
Jessica Leong ¹	PharmCAS (PharmD.) – University of the Pacific, CA	Accepted
Molly Malone* ¹	Pace University, NY – Physician Assistant	Accepted ²
Zachary Bergeron ¹	American Heart Association Fellowship	Not awarded
Parashar Thapa ¹	MS. – MBBE Graduate Program, University of Hawaii	Accepted
Bill Nguyen	PharmCAS (PharmD.) University of Hawaii, Hilo	Accepted
Edward Warner	PharmCAS (PharmD.) University of Hawaii, Hilo	Accepted
Sun Ae Kim	Summer Intern Program, The Fred Hutchins Centre for Cancer Research	Not awarded
Brodie Rutherglen* ¹	MS. – Clarkson University, NY Ontario Universities’ Application Center (MD) – University of British Columbia, Vancouver, Canada	Accepted ² Accepted
Jeffery Raunig	AMCAS (American Medical College Application Service) (MD) Harvard	Accepted
Joycelyn Chun ¹	AMCAS (MD) AACOMAS (DO) Western University OR	- Accepted
Mathew Chan	AMCAS (MD)	Pending
Chris Arca	AMCAS (MD) Uni. Of Chicago	Accepted
Chad Council	AMCAS (MD) (JABSOM) University of Hawaii	Accepted
Monica Orcine	NSF URE Program The Rhodes Trust Scholarship Marshal Scholarship Fund (UK)	Awarded Not awarded Not awarded
Ian Nagata	AMCAS (MD)	Pending
Alexandra Benavente	University of Guam Graduate School (Education)	Accepted
Chihui Yuan	AMCAS/ Imi Ho’ola, University of Hawaii (MD)	Accepted
Yvonne Lum	Master of Science, Physiology Georgetown University School of Medicine, Washington, DC AMCAS (MD) (JABSOM) University of Hawaii	Accepted ² Accepted
Ricky Kaneshiro	AMCAS (MD) (JABSOM) University of Hawaii	Accepted
William Pryor ¹	AMCAS (MD), University of South Carolina	Accepted

*Clarkson University students; ¹Research Students from the Bingham Laboratory (including both Clarkson University and the University of Hawaii); ² Degree completed

Student Recommendations letter and support – cont'd:

Nicholas Fujii ¹	Associated American Dental School Application Service (AADSAS) - University of Missouri	Accepted
Daniel Cho	AMCAS (MD) (JABSOM) University of Hawaii	Accepted
Jason Wong	MS – MBBE Graduate School, University of Hawaii	Accepted
Aileen Maldonado ¹	NSF McNair – summer internship PhD. UC Riverside, CA	Awarded Accepted
Steven Gonslaves ¹	AMCAS/ Imi Ho'ola (MD) (JABSOM) University of Hawaii	Accepted
Vonne L Lee	SOPHAS (Schools of Public Health Application Services)	Accepted ²
Clifford Kapon ¹	Ke Ali'i Pauahi Foundation Scholarship 'Imi Na'auoa Scholarship MS. – MBBE Graduate Program, University of Hawaii PhD. UC San Diego, CA	Awarded Awarded Accepted ² Accepted
Sara Miles	AMCAS/ Imi Ho'ola (MD) (JABSOM) University of Hawaii	Accepted
Sarah Evans* ¹	AADSAS - University of Buffalo, NY	Accepted ²
Jacob Ishibashi ¹	Various PhD. programs in Chemistry University of Oregon. OR	Accepted
James Coleman* ¹	MS. University of Columbia PhD. University of Columbia AMCAS (MD)	Accepted ² Pending Re-applying
Adam Labaff* ¹	Ph.D. – University of Texas at Houston M.D. Anderson Cancer Research Center Rosalie B. Hite Fellowship Congressional Directed Medical Research Programs – Breast Cancer Research Program	Accepted Not awarded Not awarded
Margaret Ruzicka	EPA Science to Achieve Results Fellowship	Awarded
Lance Buesa	AMCAS (MD)	No action
Michelle Wong	MS. – MBBE Graduate Program, University of Hawaii	Accepted ²
Devin Hazama	AACOMAS (DO)	Accepted
Sean Sheehey	AMCAS (MD)	Accepted
Peter Yu ¹	AMCAS (MD)	Re-applying
Britney Quibelan	Imi Ho'ola (MD) (JABSOM) University of Hawaii	Pending
Brenda Yu ^{1#}	PharmCAS (PharmD.) University of Hawaii, Hilo	Accepted

¹Research Students from the Bingham Laboratory (including both Clarkson University and the University of Hawaii); ² Degree completed; *Clarkson University student.

Research: Terrestrial and aquatic mollusks cause serious crop damage, as well as present serious health concerns to both agricultural workers and produce consumers alike. Present molluscicides are ineffective, non-selective, non-biodegradable, residual forming AND costly (reflected in the rising price of copper salts, which are an active constituent in snail baits). Combined, these represent serious concerns in food safety and security, pest management, environmental impact and tropical human health.

Hawai'i has not escaped these growing concerns, which have seen mass infestations, crop losses (e.g. Taro, water cress, herbs etc.) and has sadly been directly implicated in a number of human deaths on the Big Island (via *Angiostrongylus cantonensis* / Rat Lung worm – a snail vector-borne parasitic disease). What we are facing here in Hawai'i is not an isolated issue, but is clearly becoming a concern for health care professionals and agriculturalists in both developing and developed countries.

Noting: Intestinal helminthes (some which are snail vector-borne) are the most common of all human parasites, and *schistosomiasis* (solely snail vector-borne) is second only to malaria in the public health impact of all vector-borne tropical diseases. **Thus the control of snail populations worldwide is directly interrelated to food production/supply, food safety and to human health.**

The primary goal of my research is to interface agriculture research and medicine. We achieve this via researching the use of phyla-selective peptide toxins to control pests – specifically snails, as well as fueling the discovery of new human biopharmaceuticals using novel biosustainable approaches in aquaculture/animal husbandry to ensure a present and future supply of biologics.

Using venom extracts from the marine snails from the genus *Conus*, we characterize novel toxin candidates from captive (dietary manipulated) animals, then integrating both synthetic peptide chemistry and bioengineering strategies to produce novel toxin candidate variants for field-testing (and medical research). These efforts include: bioengineering of novel fluorescent receptor probes, the establishment of phyla-selective/ receptor isoform-selective high through put assays for discovery, designing peptide candidate templates for specific applications (i.e. receptor targets) or biological characteristics (i.e. biodegradability).

The impact of peptide chemistry in medicine has becoming clearly evident, yet for agricultural applications or use veterinary science there is a significant lag. This is one area that my research laboratory is moving towards changing.

Mentoring: My mentoring efforts produce independent, highly qualified and competent peptide chemists. My continued laboratory presence (having a open desk actually inside the working research laboratory) ensures continued student access, intervention, immediate problem solving, greater output and increased student learning. This unique approach adds a dynamic collaborative dimension to the laboratory – my continued presence increases research student presence and productivity. I lead by example.

The productivity of the laboratory (student publications and awards) is well recognized by incoming graduate students who request the availability of research positions. Unfortunately every semester I am at capacity (10 graduate students; 4 undergraduates). I mostly recruit prospective graduate students from the MBBE/BIOL 402 Biochemistry class that I teach each fall. The present trend is that I can secure future graduate students from the top 1-5% of the class. The limited number of undergraduate research students I accept, coming in at a 300-level, often transition to graduate students with accelerated projects once they graduate.

Mentoring and laboratory based teaching is one of my daily highlights, and provides me with the drive to push the students and myself to new heights in research.
