January 2025

YING WAI LAM

Vermont Biomedical Research Network (VBRN) Proteomics Facility
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EDUCATION

Ph.D. in Biochemistry, The Chinese University of Hong Kong **Dec. 1998 - Dec. 2001**
Thesis: *Purification and Characterization of Defense Proteins from Various Biological Sources.*
Chromatographically isolated (ion exchange, size exclusion, and affinity) and functionally characterized new defense proteins (lectins, antifungal proteins, and ribosome-inactivating proteins), which play important roles in host defense against exogenous attacks/infections in plants.

B.Sc. in Biochemistry, The Chinese University of Hong Kong **Sep. 1995 - Dec. 1998**

PROFESSIONAL EXPERIENCE

Director, Vermont Biomedical Research Network (VBRN) Proteomics Facility **Jun. 2020 - present**
Director, Vermont Genetics Network (VGN) Proteomics Facility **Jun. 2011 - May 2020**
Research Associate Professor, Department of Biology, University of Vermont **Sep. 2019 - present**
Research Assistant Professor, Department of Biology, University of Vermont **Jun. 2011 - Jul. 2019**
Direct the VBRN (formally VGN) Proteomics Facility (supported by Vermont INBRE, NIH NIGMS P20GM103449) with the goals of providing expertise and the latest proteomics technology to researchers, as well as establishing an educational environment for sharing experience and knowledge in proteomics. Work with faculty, staff, postdocs, and graduate students, providing guidance and support for their proteomics projects from initial experimental design, sample preparation, and instrument operation, to data analysis and interpretation. Assist investigators in initiating proteomics projects, publishing their findings, and obtaining intramural and external funding. Together with my colleagues, maintain the operation of facility instrumentation (LTQ linear ion trap MS, LTQ-XL-ETD linear ion trap MS, LTQ-Orbitrap Discovery MS, Exploris 240 MS, and Orbitrap Eclipse Tribrid MS), evaluate new technologies and software, and develop methodologies to address emerging proteomics and mass spectrometry needs. Give seminars, guest lectures and facility tours to faculty, faculty candidates, undergraduate, and graduate students from UVM and Primarily Undergraduate Institutions (PUIs) in Vermont. Prepare annual facility progress reports to NIH, External Advisory Committee and AAAS, as well as the proteomics core portion of the INBRE grant renewals. Worked with VBRN since 2020 to transition the facility operations to an income-expense model on July 1st, 2021. Planned facility relocation to the new Firestone Building as part of the Center for Biomedical Shared Resources serving investigators from the Northern New England Region (VT, NH, ME).

Research Assistant Professor **Oct. 2005 - May 2011**
Department of Environmental Health, University of Cincinnati, OH

My research focuses were: 1) elucidation of the unknown mechanisms underlying prostate aging and cancer development in an animal model of aging by stable isotope-based quantitative proteomics (ICAT) (Lam et al., Proteomics, 2008), and 2) understanding the role of oxidative/nitrosative stress-induced protein modifications

(nitration/*S*-nitrosylation) in prostate inflammation and cancer development (Lam et al., PLOS One, 2010). The results yielded clues for designing and interpreting subsequent hypothesis-driven molecular biology experiments on the importance of *S*-nitrosylation in prostate cancer cell migration/invasion.

Established a proteomics laboratory equipped with the LTQ-Orbitrap and capital proteomics equipment. Developed a number of research collaborations that involved protein identification, phosphorylation analyses, and structural elucidation of hydroxy metabolites using accurate mass and MS^n.

Postdoctoral Fellow **Oct. 2001 - Sep. 2005**
Department of Surgery, University of Massachusetts Medical School, MA

Developed an approach utilizing a profiling platform (solid-phase extraction in conjunction with MALDI-TOF-MS) to classify patients with prostate cancer according to their serum protein profiles. One of the most relevant biomarkers pinpointed for metastatic prostate disease was isolated and identified by a multi-dimensional separation scheme in conjunction with mass spectrometry and validated by biochemical methods (Lam et al., Proteomics 2005).

RESEARCH AND COLLABORATIONS

I have worked directly with UVM investigators (**66** faculty, **16** staff, **15** postdocs, and **37** graduate students) from **18** UVM departments and **29** investigators from other institutions in multiple states, providing expertise, training, and guidance for their proteomics projects. The facility begins projects with a consultation, during which details of the projects are discussed with investigators. The facility personnel help design proteomics experiments tailored to the experimental goals. As the projects progress, we discuss results, and assist in data interpretation, paper preparation, and grant submission. We also provide education and training to faculty, staff, and students depending on their needs and skill levels. Two to three consultations (a total of ~ 2 hours) are arranged per week.

I have collaborated with a number of investigators and applied an array of state-of-the-art mass spectrometry-based proteomics strategies to their studies. These studies range from routine protein identification, characterization of protein interaction, and post-translational modifications (e.g., acetylation, methylation, phosphorylation, glutathionylation, *S*-Sulfenylation, etc.), to large-scale quantitative proteomic analyses using stable isotopes (stable isotope labeling by amino acids in cell culture (SILAC), dimethyl labeling, and tandem mass tags (TMT)). Since 2012, I have co-authored **30** publications with UVM investigators and external users on a variety of projects. These collaborative efforts involve the use of large-scale proteomics discovery platforms to yield data and generate new hypotheses to address important research questions that cannot be interrogated by other biochemical or genomics strategies. I co-designed and helped develop in-house workflows and guided graduate students to establish methods specific to the research projects, for example, dimethyl labeling and strong cation exchange separation workflow for elucidating *A. actinomycetemcomitans* membrane proteome (Smith et al., Proteomics, 2015), and enrichment workflows for stable isotope-based phosphoproteomics (Hasan et al., MBio. 2020). I established specific mass spectrometry experiments with investigators for their specialized projects, for example, mapping novel cleavage sites (Lee et al., Molecular Neurodegeneration, 2017), identification and quantification of phosphorylation and *S*-sulfenylation using stable isotopes and parallel reaction monitoring (PRM) (Krishnamurthy et al., MBio, 2016; Heppner et al, Nature Communications, 2018), elucidating exosome protein content under asbestos exposure using gel-based fractionation method and TMT labeling (Munson et al., FASEB J, 2018), and quantifying estradiols in vomeronasal organs using stable-isotope dilution LC/MS techniques and Selected Reaction Monitoring (SRM) (Cherian, Wai Lam et al., Neuroscience, 2014). The results were published in the journals of investigators' interest and leading proteomics journals with a main focus on proteomic discovery (e.g. Journal of Proteomics, and Proteomics).

Current efforts involve establishing new proteomics techniques for structural proteomics, including hydrogen-deuterium exchange mass spectrometry, isotope-based cross-linking, and disulfide bond elucidation. These method developments target areas that are carefully assessed as the future needs of our investigators.

Major collaborations (since 2011) for which I worked closely with the PIs, their postdocs and graduate students are listed below:

Institution Department	PI	Research Areas and Proteomics Approaches	Representative Publications
UVM MMG	Ward	Phosphoproteome SILAC PRM and Skyline analysis	Krishnamurthy S (2016) MBio 7, pii: e00754-16.
UVM MMG	Mintz	Membrane proteome SCX fractionation Stable isotope dimethyl labeling	Smith et al (2015) Proteomics 15:1859-67. Smith KP et al (2015) Mol Oral Microbiol 30:97-110.
UVM MMG	Huston	Phosphoproteomics (IMAC, TiO_2) Stable isotope dimethyl labeling	Hasan et al (2020) MBio. 11(4):e00660-20.
UVM Pathology	Van der Vliet	Redox biology/*S*-sulfenylation Dimedone/dimedone-d6 labeling PRM and Skyline analysis Iodo-TMT	Hristova et al (2014) Redox Biol 2: 436-446. Heppner et al (2018) Nat Commun, 9:4522.
UVM Pathology	Shukla	Exosome proteomics TMT-based profiling	Munson et al (2018) J Cell Biochem 119:6266-6273. Munson et al (2018) FASEB J fj201701291RR.
UVM Pathology	Heininger	Redox biology/glutathionylation PRM and Skyline analysis TMT-based profiling	Corteselli et al (2021), Nature Commun, 14: 4550
UVM Pathology	Anathy	Protein interaction Spectral counting	Kumar et al (2021) Thorax, 77:669-678 Chandrasekaran et al (2022) Am J Physiol Lung Cell Mol Physiol 324(2):L141-L53.
UVM OBGYN	Nallasamy	ECM TMT profiling	Ouellette et al. (2024) JCI Insight, Submitted
UVM Pulmonary Medicine	Weiss	ECM protein profiling Spectral/peptide counting	Platz et al (2016) Tissue Eng Part C Methods 22: 725-739. Wagner et al (2014) Biomaterials 35: 2664-2679. Wagner et al (2014) Biomaterials 35: 3281-3297. Sokocevic et al (2013) Biomaterials 34: 3256-3269. Bonenfant et al (2013) Biomaterials 34: 3231-3245.
UVM Biology	Delay	Small molecule quantification SRM absolute quantification	Cherian et al (2014) Neuroscience 269: 43-58.
UVM Animal Sci.	Greenwood	Milk Proteome Spectral counting TMT-based profiling	Tacoma et al. (2016) J Proteomics 130: 200-210. Tacoma et al. (2016) Data Brief 6: 843-846.
Mayo Clinic	Lee	Cleavage site mapping TMT Pro profiling	Lee et al. (2017) Mol Neurodegener 12: 55. Peng et al. (2024) BioRxiv
Univ. of Connecticut Chemistry	Yao	SILAC analysis	Li et al (2017) Anal Chem 89: 6295-6299.
Univ. of Cincinnati Environmental Health	Yadav	Small molecule characterization Accurate mass/MS^n	Syed et al (2013) Appl Environ Microbiol 79: 2692-2702.
Mississippi. State Univ. Biochemistry	Li	Protein identification from 2D gels	Liu et al (2017) Acta Physiol Plant 39:215.

Besides research collaborations, I had also provided routine proteomics services and expertise to many investigators at UVM and nationwide (e.g., University of Connecticut, Albany College of Pharmacy, and Dartmouth College). From Aug. 2012 to 2014, recognizing the need for accurate mass measurements to fulfill publication requirements of chemistry journals, I had helped **6** UVM Chemistry faculty members authenticating their compounds of interest (a total of **11** publications acknowledging the facility).

SERVICES

Departmental

UVM

Thesis committee membership

Emily Joyce (PhD candidate)	Thesis committee member (CMB)	Sep. 2023 -
Emily Price (PhD candidate)	Thesis committee member (Biology)	Oct. 2021 -
Lynda Menard (PhD candidate)	Thesis committee member (Biology)	Jan. 2017 - Dec. 2020

Wyatt Chia (PhD candidate)	Thesis committee member (CMB)	Jul. 2016 - Apr. 2020
Ravi Nagori (PhD candidate)	Thesis committee member (Biology)	Dec. 2014 -
Robert Bauer (PhD candidate)	Outside committee member, CMB Qualifying Exam (Phase II)	May 2014 - May 2016
Wei Du	Thesis Committee member (Biology)	Jan. 2014 - Dec. 2014

***ad-hoc* RPT guidelines review committee** Department of Biology, UVM Nov.21 2020 – Jan. 31, 2021

Search committee – Agilent Laboratory for Chemical Analysis Manager Department of Chemistry, UVM May 2024

Prior to 2011

University of Cincinnati

Jared Isaac (PhD, graduated 06/12) Co-mentor/thesis committee member Jul. 2009 - May 2011

*Thesis title: Nitrosylation of Integrins in Prostate Cancer Progression (*Dept. of Cancer and Cell Biology*)*

I served as mentor on the Gene-Environment Interactions Training Program (GEITP), NIEHS, T32ES016646

Regional / National

NSF Reviewer 2022, 2023

Session panelist, Northeast Regional Laboratory Staff and Core Directors Meeting Oct. 18, 2024
"Training the next generation of Core Scientists"

Session chair, Northeast Regional Laboratory Staff and Core Directors Meeting Oct. 18, 2023
"Regional Analytical Resources Core"

Session chair, Northeast Regional Laboratory Staff and Core Directors Meeting
"Mass spectrometry 101" Nov. 4, 2021

MENTORING / TEACHING / OUTREACH

I) Facility technicians trained

Since 2012, I have trained five full-time facility technicians. They were involved in many aspects of the facility operation and were equipped with solid proteomics knowledge and technology, general laboratory techniques, and scientific writing/communications skills for the next stage of their careers.

Sydney Guthrie	Coauthored 2 manuscripts	**Jul. 2022 -**
Clarissa Gold	Coauthored 3 papers	**Sep. 2019 - May 2022**
Catrina Hood	*Currently enrolled in UVM medical school*	**May 2017- May 2019**
Bethany Ahlers	Coauthored 3 publications	**Jan. 2016 - Feb. 2017**
Julia Fields	Coauthored 6 publications (as second author on 5 papers; 1 in *Proteomics* and 1 in *Journal of Proteomics*) *Enrolled in Master of Science in Medical Laboratory Science* *Currently a medical laboratory scientist*	**Aug. 2012 - Dec. 2015**

II) Proteomics Internship Program

I established a Proteomics internship program in Sep 2022. During the program, trainees learn modern proteomics approaches using state-of-the-art mass spectrometry instrumentation and acquire skills that will be useful for their future careers in academia or industry, including literature analysis, experimental design, optimization and troubleshooting, and data analysis/interpretation. Training and learning are guided and achieved by setting incremental specific goals. Interns work directly with me for the entire period of the internship. Such a close mentor-mentee relationship allows flexibility to adjust the learning objectives/experiences according to individuals' interests, time commitment, and career aspirations.

Training Structure. For interns who do not have prior proteomics knowledge, they will be trained through a 4-6 week proteomics "boot camp" exercise involving protein identification and quantification, followed by active participation in a 4-6 week method development pilot project focusing on structural proteomics (i.e., disulfide bond elucidation, cross-linking mass spectrometry, and hydrogen-deuterium exchange (HDX) mass spectrometry). For interns who have relevant coursework, they can choose to join the method development efforts right way. When established, these methods will be applied to several ongoing collaborative projects with UVM investigators and outside collaborators. Interns will have opportunities to present their findings at professional events, including VBRN Career Day and the UVM Student Research Conference. Depending on their career aspiration, trainees can allocate their time between method development and core facility operation. Trainees can also choose to work on users' projects under our supervision and report progress and findings back to investigators during consultation/discussion meetings.

Name	**Department**	**Research Project**	
Lucas Leon	Biology	Optimizing High-pH Reversed-Phase HPLC Fractionation Proteomics Workflows *BIOL190 (6 cr.); BIOL2995 (2 cr.)*	Fall 2022 – Spring 2024
Brian Boyle	Biochemistry	Internship *BIOL190 (3 cr.)*	Spring 2022
Charlotte Pearson	Biochemistry	Crosslinking Mass Spectrometry and Bioinformatics (XlinkX vs. Kojak) *BIOL3995 (3 cr.); BIOL3991 (3 cr.)*	Summer 2022 – Spring 2024
Osmand Evans	Biochemistry	Hydrogen Deuterium Exchange – Mass Spectrometry (HDX-MS) *BIOL3995 (3 cr.); BIOL3991 (3 cr.)*	Summer 2022 – Spring 2024
Ava Vitters	Biology	Internship *BIOL3991 (2 cr.)*	Fall 2023 – Spring 2024
Lauren Schwartz	Biochemistry	Hydrogen Deuterium Exchange – Mass Spectrometry (HDX-MS) *BIOL3991 (2 cr.); CAS Summer Internship*	Fall 2023 -
Mateo Sulpizio	Biochemistry	FPLC method development for HDX-MS	Fall 2023 -
Beatrice Zaleski	BioMed Eng.	Crosslinking and HDX mass spectrometry Bioinformatics (XlinkX vs. Kojak)	Fall 2023 -
Favio Dupiton	Biochemistry Landmark College	Evaluating various quantitative proteomics approaches: DDA, SC, DIA, TMT, and PRM *VBRN Summer Internship; Landmark Internship (3 cr.)*	Summer 2024 -
Adam David	Biochemistry	Monitoring LC performance for Proteomics using Panorama AutoQC *BIOL3995 (3 cr.)*	Fall 2024 -
Harry Gritsch	Biochemistry	HDX mass spectrometry	Spring 2025

Outcomes: Since the inception of the program, 10 students have joined and three method development posters were presented at the UVM Research Day on April 2024 by seniors who had taken 6 - 8 internship (BIOL190/3991) /research credits (BIOL2995/3995) working at the facility.

III) Provide support for UVM and Vermont PUI classes (sample analysis/lectures/facility tours)

Worked with the VGN Outreach Core, UVM, and PUI faculty members to help incorporate a proteomics experimental component into their courses or laboratory curricula, aimed at equipping future scientists with state-of-the-art proteomics knowledge. Gave customized proteomics guest lectures (with in-class exercises and video demonstrations), which are usually followed by a 15 to 45 min facility tour.

UVM Course	Course Director	Year	No. of Students	# of Sample Analysis	Facility Tour (Date)	Lecture (Date)
PATH 6070	Zhang	2025, Spring		-		Feb. 27
BIOL 205	Van Houten	2018, Spring	11	10	Apr. 17	Mar. 22/Apr. 19
	Van Houten	2017, Spring	10	15	Apr. 18	Mar. 23/Apr. 18
	Van Houten	2016, Spring	12	24	Apr. 7	Mar. 15/Apr. 14
	Van Houten	2015, Spring	9	--	Mar. 31	Mar. 10/Apr. 9
	Van Houten	2014, Spring	11	--	Apr. 2	Mar. 12/Apr. 10
	Van Houten	2013, Spring	13	--	Apr. 2	Mar. 12/Apr. 9
BIOC 207	Everse/Silveira	2022, Spring	21	21	No tour	By course instructor
	Everse/Silveira	2019, Spring	35	35	No tour	By course instructor
	Everse/Silveira	2018, Spring	30	30	No tour	By course instructor
	Everse/Silveira	2017, Spring	24	24	No tour	By course instructor
	Everse/Silveira	2016, Spring	26	31	No tour	By course instructor
	Everse/Silveira/Bouchard	2015, Spring	24	33	No tour	By course instructor
	Everse/Silveira/Bouchard	2014, Spring	16	35	No tour	By course instructor
MLS 221	Ray	2016, Spring	24	No	Mar. 4	Mar. 4
NSCI 306	Nishi	2016, Summer	5	No	Aug. 6	Aug. 6
	Nishi	2014, Summer	6	No	Aug. 19	Aug. 19
PBIO 187	Almstead	2015, Summer	11	18	No tour	By course instructor
	Almstead	2014, Summer	8	14	No tour	By course instructor
	Almstead	2013, Fall	109	No Analysis	Oct. 14-18 (4)	By course instructor
	Almstead	2013, Summer	13	No Analysis	No tour	By course instructor

Colleges	Course Director	Year	No. of Students	# of Sample Analysis	Facility Tour	Lecture
Vermont						
Saint Michael's College	Lamos	2023, Fall		No Analysis	Dec. 4	By course instructor
	Lamos	2021, Fall	6	No Analysis	Nov. 1	By course instructor
	Lamos	2019, Fall	9	No Analysis	Dec. 2	By course instructor
	Schroll	2019, Spring	9	No Analysis	Apr. 25	Apr. 25
	Lamos	2018, Fall	6	No Analysis	Dec. 3	By course instructor
	Schroll	2018, Spring	10	18	Apr. 26	Apr. 26
	Schroll	2017, Spring	4	4	May 1	May 1
	Lamos	2017, Fall	8	No Analysis	Nov. 27	By course instructor
	Schroll	2016, Spring	6	6	Apr. 25	Apr. 25
	Schroll	2015, Spring	--	20	Apr. 27	By course instructor
	Schroll	2014, Spring	--	12	Apr. 14	By course instructor
	Lamos	2014, Fall	--	No Analysis	Oct. 24	By course instructor
	Schroll	2013, Spring	9	--	Apr. 18	By course instructor
	Lamos	2013, Fall	10	No Analysis	Nov. 21	Oct. 24
	Schroll	2012, Spring	--	--	Apr. 19	By course instructor
	Schroll	2011, Spring	--	--	Apr.	By course instructor
Northern Vermont University	Landesman	2021, Fall	4	4	Nov. 30	Nov. 30
Green Mountain College	Landesman	2018, Spring	7	12	No tour	--
	Coe	2016, Spring	13	No Analysis	Apr. 13	Apr. 13
	Coe	2013, Spring	8	No Analysis	Dec. 2	Dec. 2
Community College of Vermont	Joy	2017, Fall	20	No Analysis	Nov. 20	Nov. 20
Castleton University	Palmer	2017, Fall	9	No Analysis	Dec. 6	Dec. 6
	Palmer	2015, Fall	10	No Analysis	Oct. 27	Oct. 27
Marlboro College	Smith	2015, Spring	5	No Analysis	Apr. 10	Feb. 20/Mar. 6
Norwich University	Guth	2014, Spring	--	44	Feb. 24/28	Feb. 24/28
	Guth	2013, Spring	7	--	Nov.11	Nov.11
	Guth	2012, Spring	--	--	Apr. 16	Apr. 16
Others						
SUNY Plattsburgh	Valentine	2018, Fall	7	27	Nov. 1	By course instructor

(-- : information not collected)

IIII) Research collaboration with PUI faculty on proteomics and mass spectrometry **Since 2012**

Meet with investigators from Vermont Colleges regularly to discuss their research projects. Provide research support, as well as help design, run, and interpret proteomics and mass spectrometry experiments. Discuss ideas for grant applications and facilitate their research connection with UVM investigators.

- Provided expertise for 8 PUI faculty (3 from St. Michael's College and 4 from Middlebury, 1 from NVU)
- Supported 3 VGN awards ('12-'13, '14-'16, '17-'18), 1 NSF, and 1 R01
- Served as faculty mentor on proteomics research for 2 BPI faculty (from St. Michael College ('12-'13) and Norwich Univ., '14-'15)
- Hosted a sabbatical stay for a St. Michael College PI in the facility (summer '14)

IV) Other services/outreach activities

Local (via VGN / VBRN)

Proteomics webinar speaker
(with VGN Professional Development and Education Core)

- for PUIs (https://www.youtube.com/watch?v=MaVbYhjngXQ (131 views, Feb, 2020) 10/12/17
- for Community College of Vermont 11/30/18

Round table discussion guest, VGN Career Day 4/12/17, 4/11/18
Poster judge, VGN Career Day 4/16/14, 4/13/16, 4/12/17
Poster judge, New England Regional Shared Resources Conference 11/12/15
Facility tours, VGN Career Day (for Vermont PUI undergraduates) 4/11/18, 4/3/19, 4/13/22, 4/12/23
Article contributor, VGN newsletters/magazines/handbooks '12, '13, '15, '18, '19. '24
Reviewer, grant proposal/pitch paper for VGN/VBRN grant writing workshop '18, '20 – '24

GRANTS SUPPORTED

Since 2011, I have provided **108** letters of support, preliminary data, and write-ups (as a collaborator, key personnel, significant contributor, or consultant) for grant applications to federal and non-federal agencies. No percent effort was included in those applications prior to 2021, as I was fully supported by VGN INBRE. Percent effort on grant since 2021 is listed in "Research Support".

Twenty-two have been funded, **8** are currently active (underlined). (**12 from NIH**: F31HL142221 (Dustin), F32HL129706 (Heppner), R01DE014711 (Spatafora), R15GM123393 (Hass/Cen), R01HL122383 (Anathy), R01NS045940 (Cipolla), R01AI105191 (Ward), R01HL085646 (Van der Vliet), R01HL138708 (Van der Vliet), R01HL137268 (van der Vliet/Dixon), R01GM054899 (Francklyn), R01GM117155 (Jordan, Johns Hopkins Univ.);**1 from DOD**: IDeA W81XWH-14-1-0199 (Shukla); **2 from Foundation**: Hearing Health Foundation Res. Grant (Bond), Preeclampsia Foundation (Ko); **1 from NSF**: MCB 1817793 (Garcia, Castleton Univ.); **1** Hatch Award, USDA-NIFA HATCH VT-H02009 (Greenwood), **3 from UVM**: CVRI ECAC award (Ko), FAHC Res. Award (Krag), COBRE PIP (Dixon); **3 VGN Pilot/Project Award**: (Lamos, Wuorinen, Garcia)).

AWARDS

Partial Travel Award, **American Urological Association** **Aug. 2005**
Society for Basic Urologic Research Summer Research Conference

Oxidative and Nitrosative Stresses and Inflammation as Early Events of Hormone-induced Prostatic Carcinogenesis in Noble Rats

Department of Defense-Prostate Cancer Program Postdoctoral Research Award Apr. 2003 - Mar. 005

Proteomics Approach to Evaluate the Impact of Diet and Stress Reduction on Prostate Cancer Progression.
Role: Principal Investigator. $98,000

PROFESSIONAL SOCIETY MEMBERSHIPS

Member, American Society of Mass Spectrometry	**Since 2002**
Member, American Chemical Society	**Since 2002**
Member, Association of Biomolecular Resource Facilities	**Since 2019**
Faculty, Graduate College, University of Vermont	**Since 2014**

PEER-REVIEWED PUBLICATIONS

1. **2024** Chandra H, Gupta ML, Lam YW, and Yadav JS. A Predominantly Orphan Secretome in Mycobacterium abscessus as Revealed by a Multi-pronged Strategy. Microbiology
2. **2023** Corteselli EM, Sharafi M, MacPherson M, White S, Lam YW, Gold C, Manuel A, van der Vliet A, Schneebeli ST, Anathy V, Li J, and Janssen-Heininger Y. Structural and functional fine mapping of cysteines in mammalian glutaredoxin reveal a hierarchy of susceptibility to oxidative inactivation. **Nature Commun,** 14: 4550
3. **2022** Chandrasekaran R, Bruno SR, Mark ZF, Walzer J, Caffry S, Gold C, Kumar A, Chamberlain N, Butzirus IM, Morris CR, Daphtary N, Aliyeva M, Lam YW, van der Vliet A, Janssen-Heininger Y, Poynter ME, Dixon AE, Anathy V. Mitoquinone mesylate attenuates pathological features of lean and obese allergic asthma in mice. **Am J Physiol Lung Cell Mol Physiol.** 324(2):L141-L53. PMCID: PMC9902225.
4. **2021** Kumar A, Elko E, Bruno SR, Mark ZF, Chamberlain N, Korwin-Mihavics B, Chandrasekaran R, Walzer J, Ruban M, Gold C, Lam YW, Ghandikotad S, Jeggad AG, Gomez JL, Janssen-Heininger YMW and Anathy V. Inhibition of PDIA3 in Club Cells Attenuates Osteopontin Production and Lung Fibrosis. **Thorax** 77:669-678. PMC8847543
5. **2021** Aboushousha R, Elko E, Chia SB, Manuel AM, van de Wetering C, van der Velden J, MacPherson M, Erikson C, Reisz JA, D'Alessandro A, Wouters EFM, Reynaert NL, Lam YW, Anathy V, van der Vliet A, Seward DJ, Janssen-Heininger Y. Glutathionylation chemistry promotes interleukin 1 beta-mediated glycolytic reprogramming and pro-inflammatory signaling in lung epithelial cells. **FASEB J,** 35: e21525 PMCID: PMC8073242
6. **2021** Yano J, Wells R, Lam YW, Van Houten JL. Two Ca2+ Pumps that Regulate Intraciliary Ca2+ Following the Action Potential Are Found in the Same Ciliary Membrane Fractions as Ciliary Voltage-Gated Ca2+ Channels. **J Exp Biol**, 224: jeb232074
7. **2020** Hasan M, Teixeira JE, Lam YW, Huston CD. Coactosin phosphorylation *controls Entamoeba histolytica* 1 cell membrane protusions and cell motility **MBio** 11: e00660-20. PMCID: PMC7407079
8. **2020** Chia SB, Elko EA, Aboushousha R, Manuel AM, van de Wetering C, Druso JE, van der Velden J, Seward DJ, Anathy V, Irvin CG, Lam YW, van der Vliet A, Janssen-Heininger Y. Dysregulation of the glutaredoxin/S-glutathionylation redox axis in lung diseases. **Am J Physiol Cell Physiol** 318:C304-C327. PMCID: PMC7052607
9. **2018** Heppner DE, Dustin CM, Liao C, Hristova M, Veith C, Little AC, Ahlers BA, White SL, Deng B, Lam YW, Li J, van der Vliet A Direct cysteine sulfenylation drives Src kinase activation. **Nature Commun** 9:4522. PMCID: 6207713
10. **2018** Wrenn SM, Griswold ED, Uhl FE, Uriarte JJ, Park HE, Coffey AL, Dearborn JS, Ahlers BA, Deng B, Lam YW, Huston DR, Lee PC, Wagner DE, Weiss DJ Avian lungs: A novel scaffold for lung bioengineering. **PLoS One** 13: e0198956. PMCID: 6021073

11. **2018** van der Velden JL, Wagner DE, Lahue KG, Abdalla ST, Lam YW, Weiss DJ, Janssen-Heininger YMW TGF-beta1-induced deposition of provisional extracellular matrix by tracheal basal cells promotes epithelial-to-mesenchymal transition in a JNK1-dependent manner. **Am J Physiol Lung Cell Mol Physiol** 314: L984-L997. PMCID: PMC6032072
12. **2018** Munson P, Lam YW, MacPherson M, Beuschel S, Shukla A Mouse serum exosomal proteomic signature in response to asbestos exposure. **J Cell Biochem** 119: 6266-6273. PMCID: PMC6335961
13. **2018** Munson P, Lam YW, Dragon J, MacPherson M, Shukla A Exosomes from asbestos-exposed cells modulate gene expression in mesothelial cells. **FASEB J**: fj201701291RR. PMCID: PMC6044058
14. **2018** Burgess EJ, Hoyt LR, Randall MJ, Mank MM, Bivona JJ, 3rd, Eisenhauer PL, Botten JW, Ballif BA, Lam YW, Wargo MJ, Boyson JE, Ather JL, Poynter ME Bacterial lipoproteins constitute the TLR2-stimulating activity of serum amyloid A. **J Immunol** 201: 2377-2384. PMCID: 6179936
15. **2017** Tacoma R, Gelsinger SL, Lam YW, Scuderi RA, Ebenstein DB, Heinrichs AJ, Greenwood SL Exploration of the bovine colostrum proteome and effects of heat treatment time on colostrum protein profile. **J Dairy Sci** 100: 9392-9401. PMCID: PMC6350923
16. **2017** Tacoma R, Fields J, Ebenstein DB, Lam YW, Greenwood SL Ratio of dietary rumen degradable protein to rumen undegradable protein affects nitrogen partitioning but does not affect the bovine milk proteome produced by mid-lactation Holstein dairy cows. **J Dairy Sci** 100: 7246-7261. PMCID: PMC6350925
17. **2017** Liu Y, Wang BX, Li J, Song ZQ, Lu BG, Chi M, Yang B, Liu JB, Lam YW, Li JX, Xu DY Salt-response analysis in two rice cultivars at seedling stage. **Acta Physiologiae Plantarum** 39: 215. PMCID: PMC6858053
18. **2017** Li S, Diego-Limpin PA, Bajrami B, Keshipeddy S, Lam YW, Deng B, Farrokhi V, McShane AJ, Nemati R, Howell AR, Yao X Scaling proteome-wide reactions of activity-based probes. **Anal Chem** 89: 6295-6299. PMCID: PMC6368408
19. **2017** Lee CW, Stankowski JN, Chew J, Cook CN, Lam YW, Almeida S, Carlomagno Y, Lau KF, Prudencio M, Gao FB, Bogyo M, Dickson DW, Petrucelli L The lysosomal protein cathepsin L is a progranulin protease. **Mol Neurodegener** 12: 55. PMCID: 5526245
20. **2017** Toomey CC, Weiss D, Chant A, Ackerman M, Ahlers BA, Lam YW, Ricciardi C, Bourne D, Kraemer-Chant CM. (2017) Development and Applications of a Calmodulin-Based Fusion Protein System for the Expression and Purification of WW and Zinc Finger Modules. Adv Biol Chem. 7:89-106.
21. **2016** Tacoma R, Fields J, Ebenstein DB, Lam YW, Greenwood SL Characterization of the bovine milk proteome in early-lactation Holstein and Jersey breeds of dairy cows. **J Proteomics** 130: 200-210. PMCID: 4859431
22. **2016** Tacoma R, Fields J, Ebenstein DB, Lam YW, Greenwood SL Comparative proteomics dataset of skimmed milk samples from Holstein and Jersey dairy cattle. **Data Brief** 6: 843-846. PMCID: 4749939
23. **2016** Platz J, Bonenfant NR, Uhl FE, Coffey AL, McKnight T, Parsons C, Sokocevic D, Borg ZD, Lam YW, Deng B, Fields JG, DeSarno M, Loi R, Hoffman AM, Bianchi J, Dacken B, Petersen T, Wagner DE, Weiss DJ Comparative decellularization and recellularization of wild-type and alpha 1,3 galactosyltransferase knockout pig lungs: a model for ex vivo xenogeneic lung bioengineering and transplantation. **Tissue Eng Part C Methods** 22: 725-739. PMCID: 4991572
24. **2016** Krishnamurthy S, Deng B, Del Rio R, Buchholz KR, Treeck M, Urban S, Boothroyd J, Lam YW, Ward GE Not a simple tether: binding of *Toxoplasma gondii* AMA1 to RON2 during invasion protects AMA1 from rhomboid-mediated cleavage and leads to dephosphorylation of its cytosolic tail. **MBio** 7. PMCID: 5021801
25. **2016** Smith KP, Fields JG, Voogt RD, Deng B, Lam YW, Mintz KP Alteration in abundance of specific membrane proteins of *Aggregatibacter actinomycetemcomitans* is attributed to deletion of the inner membrane protein MorC. **Proteomics** 15: 1859-67. PMCID: 4456248

26. **2015** Smith KP, Fields JG, Voogt RD, Deng B, Lam YW, Mintz KP The cell envelope proteome of *Aggregatibacter actinomycetemcomitans*. **Mol Oral Microbiol** 30, 97-110 PMCID: 4305030
27. **2014** Wagner DE, Bonenfant NR, Sokocevic D, DeSarno MJ, Borg ZD, Parsons CS, Brooks EM, Platz JJ, Khalpey ZI, Hoganson DM, Deng B, Lam YW, Oldinski RA, Ashikaga T, Weiss DJ Three-dimensional scaffolds of acellular human and porcine lungs for high throughput studies of lung disease and regeneration. **Biomaterials** 35: 2664-2679.
28. **2014** Wagner DE, Bonenfant NR, Parsons CS, Sokocevic D, Brooks EM, Borg ZD, Lathrop MJ, Wallis JD, Daly AB, Lam YW, Deng B, DeSarno MJ, Ashikaga T, Loi R, Weiss DJ Comparative decellularization and recellularization of normal versus emphysematous human lungs. **Biomaterials** 35: 3281-3297.
29. **2014** Hristova M, Veith C, Habibovic A, Lam YW, Deng B, Geiszt M, Janssen-Heininger YM, van der Vliet A Identification of DUOX1-dependent redox signaling through protein *S*-glutathionylation in airway epithelial cells. **Redox Biol** 2: 436-446. PMCID: 3949091
30. **2014** Cherian S, Wai Lam Y, McDaniels I, Struziak M, Delay RJ Estradiol rapidly modulates odor responses in mouse vomeronasal sensory neurons. **Neuroscience** 269: 43-58. PMCID: PMC4270699
31. **2013** Syed K, Porollo A, Lam YW, Grimmett PE, Yadav JS (2013) CYP63A2, a catalytically versatile fungal P450 monooxygenase capable of oxidizing higher-molecular-weight polycyclic aromatic hydrocarbons, alkylphenols, and alkanes. **Appl Environ Microbiol** 79: 2692-2702. PMCID: 3623170
32. **2013** Sokocevic D, Bonenfant NR, Wagner DE, Borg ZD, Lathrop MJ, Lam YW, Deng B, Desarno MJ, Ashikaga T, Loi R, Hoffman AM, Weiss DJ (2013) The effect of age and emphysematous and fibrotic injury on the re-cellularization of de-cellularized lungs. **Biomaterials** 34: 3256-3269.
33. **2013** Purmessur D, Guterl CC, Cho SK, Cornejo MC, Lam YW, Ballif BA, Laudier JC, Iatridis JC Dynamic pressurization induces transition of notochordal cells to a mature phenotype while retaining production of important patterning ligands from development. **Arthritis Res Ther** 15: R122. PMCID: 3978427
34. **2013** Bonenfant NR, Sokocevic D, Wagner DE, Borg ZD, Lathrop MJ, Lam YW, Deng B, Desarno MJ, Ashikaga T, Loi R, Weiss DJ (2013) The effects of storage and sterilization on de-cellularized and re-cellularized whole lung. **Biomaterials** 34: 3231-3245.
35. **2012** Lam HM, Suresh Babu CV, Wang J, Yuan Y, Lam YW, Ho SM, Leung YK Phosphorylation of human estrogen receptor-beta at serine 105 inhibits breast cancer cell migration and invasion. **Mol Cell Endocrinol** 358: 27-35. PMCID: 3348253
36. **2012** Isaac J, Tarapore P, Zhang X, Lam YW, Ho SM Site-specific *S*-nitrosylation of integrin alpha6 increases the extent of prostate cancer cell migration by enhancing integrin beta1 association and weakening adherence to laminin-1. **Biochemistry** 51: 9689-9697. PMCID: 3567210
37. **2011** Syed K, Porollo A, Lam YW, Yadav JS A fungal P450 (CYP5136A3) capable of oxidizing polycyclic aromatic hydrocarbons and endocrine disrupting alkylphenols: role of Trp(129) and Leu(324). **PLoS One** 6: e28286. PMCID: 3229547

prior to 2011

38. **2010** Syed K, Doddapaneni H, Subramanian V, Lam YW, Yadav JS Genome-to-function characterization of novel fungal P450 monooxygenases oxidizing polycyclic aromatic hydrocarbons (PAHs). **Biochem Biophys Res Commun** 399: 492-497. PMCID: 2943217
39. **2010** Lam YW, Yuan Y, Isaac J, Babu CV, Meller J, Ho SM Comprehensive identification and modified-site mapping of *S*-nitrosylated targets in prostate epithelial cells. **PLoS One** 5: e9075. PMCID: 2816712
40. **2009** Xiong SD, Yu K, Liu XH, Yin LH, Kirschenbaum A, Yao S, Narla G, DiFeo A, Wu JB, Yuan Y, Ho SM, Lam YW, Levine AC Ribosome-inactivating proteins isolated from dietary bitter melon induce apoptosis and inhibit histone deacetylase-1 selectively in premalignant and malignant prostate cancer cells. **Int J Cancer** 125: 774-782. PMCID: 3778503

41. **2008** Lam YW, Tam NN, Evans JE, Green KM, Zhang X, Ho SM Differential proteomics in the aging Noble rat ventral prostate. **Proteomics** 8: 2750-2763.
42. **2005** Lam YW, Mobley JA, Evans JE, Carmody JF, Ho SM Mass profiling-directed isolation and identification of a stage-specific serologic protein biomarker of advanced prostate cancer. **Proteomics** 5: 2927-2938.
43. **2004** Mobley JA, Lam YW, Lau KM, Pais VM, L'Esperance JO, Steadman B, Fuster LM, Blute RD, Taplin ME, Ho SM Monitoring the serological proteome: the latest modality in prostate cancer detection. **J Urol** 172: 331-337
44. **2003** Mobley JA, Leav I, Zielie P, Wotkowitz C, Evans J, Lam YW, L'Esperance BS, Jiang Z, Ho SM Branched fatty acids in dairy and beef products markedly enhance alpha-methylacyl-CoA racemase expression in prostate cancer cells in vitro. **Cancer Epidemiol Biomarkers Prev** 12: 775-783.
45. **2002** Lam YW, Ng TB Purification and characterization of a rhamnose-binding lectin with immunoenhancing activity from grass carp (*Ctenopharyngodon idellus*) ovaries. **Protein Expr Purif** 26: 378-385.
46. **2001** Lam YW, Ng TB, Wang HX Antiproliferative and antimitogenic activities in a peptide from puffball mushroom *Calvatia caelata*. **Biochem Biophys Res Commun** 289: 744-749.
47. **2001** Lam YW, Ng TB A monomeric mannose-binding lectin from inner shoots of the edible chive (*Allium tuberosum*). **J Protein Chem** 20: 361-366.
48. **2000** Lam YW, Wang HX, Ng TB A robust cysteine-deficient chitinase-like antifungal protein from inner shoots of the edible chive *Allium tuberosum*. **Biochem Biophys Res Commun** 279: 74-80.

MANUSCRIPTS SUBMITTED / IN PREPARATION

1. **2024** Peng H, Lam YW, Zhou Z, Herdt AR, Gelb MH and Lee CW. Quantitative profiling and pharmacological rescue of galactosylceramidase function and trafficking in missense mutation cell models of Krabbe Disease. **bioRxiv 2024.10.17.618938; doi: https://doi.org/10.1101/2024.10.17.618938**
2 **2024** Ouellette A, Do C, Cohn-Guthrie S, Lam YW, Mahendroo M, Nallasamy S. Lysyl Oxidases are Necessary for Myometrial Contractility and On-Time Parturition in Mice. **bioRxiv 2024.09.05.610344; doi: https://doi.org/10.1101/2024.09.05.610344**

TALKS

Gave talks/seminars covering proteomics technologies and applications since 2011.

2024 **Northeast Regional Laboratory Staff and Core Directors (NERLSCD) Meeting (Albany, NY)**
"Onboarding + educating interns/new staff" (Oct. 18)
2024 **CBSR-Research Technologies Seminar Series (UVM)**
"Getting Started and How to Work with CBSR Core Facilities" (Sep. 11)
2024 **CBSR-Research Technologies Seminar Series (UVM)**
"Spring Your Research Forward: Flow and Proteomics Cores – Services and Case Review" (Mar. 13)
2023 **Northeast Regional Laboratory Staff and Core Directors (NERLSCD) Meeting (Burlington, VT)**
"UVM Proteomics Resource" (Oct. 19)
2023 **Vermont Biomedical Research Network Retreat**
"Overview of the VBRN Proteomics Facility" (Jul. 26)
2022 **Vermont Biomedical Research Network Retreat**
"Overview of the VBRN Proteomics Facility" (Jul. 21)
2021 **Northeast Regional Laboratory Staff and Core Directors (NERLSCD) Meeting (Portsmouth, NH)**
"Proteomics 101" (Nov. 4)
2020 **Symposium for Proteomics Core Directors and Staff (IDeA National Resource for Proteomics)**
"Crosslinked peptide analysis" (Jan. 29)

2019 **Northeast Regional IDeA Conference (NERIC)**
Section: Core presentations of resources available to NERIC investigators
"Overview of the VGN Proteomics Facility" (Aug. 15)

2019 **Symposium for Proteomics Core Directors and Staff (IDeA National Resource for Proteomics)**
"Overview of the VGN Proteomics Facility" (Feb. 22)

2018 **Webinar** (for Community College of Vermont)
"Proteomics" (Nov. 30)

2018 **University of Vermont, Department of Biology**
"VGN Proteomics Facility: How can we help you?" (Sept. 10)

2018 **Vermont Genetics Network Retreat**
"Overview of the VGN Proteomics Facility" (Aug. 15)

2017 **Webinar** (for primarily undergraduate institutions in Vermont)
"From Basic to Advanced Proteomic Applications and How They Might Benefit Your Research: UVM Proteomics" (Oct. 12)

2015 **New England Regional Shared Resources Conference (NERSRC) at Dartmouth**
"Brief Overview of the VGN Proteomics" (Nov. 12)

2015 **Vermont Genetics Network Retreat**
"Proteomics" (Aug. 12)

2014 **University of Vermont / Department of Pathology / Redox Biology Meeting**
"How Can Proteomics Help Your Research? Expression, PTMs, Metabolites, and More" (Oct. 27)

2014 **Saint Michael's College / Department of Chemistry**
"Proteomics at UVM" (Apr. 11)

2012 **Vermont Cancer Center Basic Science/Translational Strategic Planning Meeting**
"UVM/VGN Proteomics" (Sep. 29)

2012 **Vermont Cancer Center Population Health Sciences Strategic Planning Meeting**
"UVM/VGN Proteomics" (Sep. 8)

2012 **University of Vermont / Department of Pathology / Environmental Pathology and Carcinogenesis Seminar Series**
"How Can Proteomics Help Your Research? Expression, PTMs, Metabolites, and More" (Feb. 27)

2011 **University of Vermont / Behavior and Health Focus Group Meeting**
"How Can Proteomics Help Your Research? Expression, PTMs, Metabolites, and More" (Dec. 13)

2011 **University of Vermont / VGN Proteomics Facility Open House**
"How Can Proteomics Help Your Research? Expression, PTMs, Metabolites, and More" (Nov. 15)

2011 **University of Vermont / Department of Biochemistry**
"How Can Proteomics Help Your Research? Expression, PTMs, Metabolites, and More" (Oct. 21)

2011 **University of Vermont / Department of Molecular Physiology and Biophysics**
"How Can Proteomics Help Your Research? Using Mass Spectrometry as a Tool" (Oct. 10)

2011 **University of Vermont / Department of Biology / "Cell Lunch" Graduate Student Seminars**
How Do I Apply Proteomics to My Research? "Stop by MLS 335" (Sep. 21)

2011 **University of Vermont / Department of Biology**
"How Can Proteomics Help Your Research? Using Mass Spectrometry as a Tool" (Sept. 19)

2011 **Vermont Genetics Network Retreat**
"How Can Proteomics Help Your Research? Interrogate the Proteome at Multiple Levels" (Aug. 17)

2011 **University of Cincinnati / Department of Environmental Health**
"How Can Proteomics Help Your Research? Take Prostate Cancer as an Example" (May 25)

2011 **University of Vermont / Department of Biology**
"How Can Proteomics Help Your Research? Take Prostate Cancer as an Example" (Mar. 07)

2011 **Miami University / Department of Chemistry and Biochemistry**
"Proteomics Applications in Prostate Research". (Feb. 25)

prior to 2011

2010 **7th Annual Ohio Mass Spectrometry Symposium, Columbus, OH.**

"Nitrosative Stress in the Prostate Epithelial Cells". (Apr. 19-20)

2009 **6th Annual Ohio Mass Spectrometry Symposium, Columbus, OH.**
"Comprehensive Identification and Modified Site Mapping of Nitrosylated Proteins in Normal Prostate Cells". (Apr. 20-21)

2007 **39th Central Regional Meeting of the American Chemical Society (Mass Spectrometry II Session), Covington, KY**.
"Differential Proteomics in the Aging Noble Rat Ventral Prostate: Profiling by Isotope-Coded Affinity Tags and Mass Spectrometry". (May 20-23)

2006 **University of Cincinnati / Prostate Cancer Working Group Symposium**
"Mass Spectrometry-Based Proteomics Technologies in Molecular Pathway Analysis". (June 22)

2006 **3rd Annual Ohio Mass Spectrometry Symposium, Columbus, OH. Extended Poster (podium) Presentation**
"Comparison of Relative Protein Levels in the Prostates of Young and Old Noble Rats by ICAT". (Mar. 20-21)

2005 **University of Cincinnati / Prostate Cancer Working Group Symposium**
"Proteomic Application in Prostate Cancer Research: Biomarker discovery in Serum". (Dec. 6)

POSTER PRESENTATIONS

Presented or contributed to **>30** facility/research posters since June 2011.

FACILITY POSTERS

These facility posters were presented in **5** conferences to promote the facility (Northeast Regional IDeA Meeting, Biennial National IDeA Symposium of Biomedical Research Excellence, Northeast Regional Life Sciences Core Directors Meeting, Dartmouth Shared Resources Fair, and Annual Vermont Genetics Network Retreat).

National

Association of Biomolecular Resource Facilities (ABRF) Annual Meeting

2023 Vermont Biomedical Research Network. Boston, MA (May 7 – 10)

2019 Lam YW, Deng B, Hood C. Vermont Genetics Network Proteomics Facility. San Antonio, TX (Mar. 23 – 26) J Biomol Tech. 2019 Dec;30 (Suppl):S41.

Biennial National IDeA Symposium of Biomedical Research Excellence (NISBRE), Washington, DC

2024 Lam YW, Deng B, Cohn-Guthrie S. Vermont Genetics Network Proteomics Facility. (June 16-19)

2018 Lam YW, Deng B, Hood C. Vermont Genetics Network Proteomics Facility. (June 24-26)
iPoster: https://nisbre2018-nisbre.ipostersessions.com/default.aspx?s=9A-EC-A3-B2-CF-7E-01-A3-8F-E0-C9-4D-EB-B8-1A-E1

2016 Deng B, Ahlers B, Lam YW. Driving to a sustainable proteomics core facility. (June 26-28)

Regional

Northeast Regional IDeA Conference (NERIC)

2019 Lam YW, Deng B, Hood C. Vermont Genetics Network Proteomics Facility.
Bretton Woods, New Hampshire (Aug. 16-18)

2017 Lam YW, Deng B, Hood C. Vermont Genetics Network Proteomics Facility.
Burlington, Vermont (Aug. 16-18)

2015 Fields J, Deng B, Lam YW. Growing Success - Vermont Genetics Network Proteomics Facility.
Bar Harbor, ME (Sept. 24-26)

2015 Vincent J, Hunter T, Murray J, Driscoll H, Deng B, Lam YW, Van Houten J. Highlights of the Vermont Genetics Network.
Bar Harbor, ME (Sept. 24-26)

2013 Fields J, Deng B, Lam YW. Growing success in the Vermont Genetics Network Proteomics Facility. Newark, Delaware (Aug. 21-23)
2011 Deng B, Lam YW. The establishment and growth of Vermont Genetics Network Proteomics Facility. New Port, Rode Island (Aug. 10-12)

Northeast Regional Life Sciences Core Directors (NERLSCD) Meeting

2015 Uhl F, Zvarova B, Fields J, Deng B, Lam YW, Weiss D, Wagner D. Enhanced mass spectrometry proteomics can be used to distinguish differences in protein compositions of acellular emphysematous versus normal lungs. Burlington, VT (Oct. 14-16)
2015 Fields J, Lam YW, Deng B, Smith K, Voogt R, Mintz K. Quantification of the membrane differential proteomes by stable isotope labeling. Burlington, VT (Oct.14-16)
2015 Lam YW, Fields J, Deng B. Growing Success - Vermont Genetics Network Proteomics Facility. Burlington, VT (Oct. 14-16)

Conferences at Dartmouth College

2015 **New England Regional Shared Resources Conference (NERSRC)** Lam YW, Fields J, Deng B. VGN Proteomics. (Nov. 12)
2013 **Dartmouth Shared Resources Fair.** Fields J, Deng B, Lam YW. Proteomics at UVM. (Oct. 9)

Local

Annual Vermont Genetics Network Retreat, South Burlington, VT

2014 Fields J, Deng B, Lam YW. Growing success in the Vermont Genetics Network Proteomics Facility. (Aug. 13)
2013 Fields J, Deng B, Lam YW. Growing Success in the Vermont Genetics Network Proteomics Facility. (Aug. 7)
2012 Lam YW, Deng B. Growing success in the Vermont Genetics Network Proteomics Facility. (Aug. 15)

RESEARCH POSTERS

These posters describe proteomics applications or method development.

National

ASMS Conference on Mass Spectrometry and Allied Topics (ASMS)

2017 Krishnamurthy S, Deng B, del Rio R, Buchholz KR, Treeck M, Urban S, Boothroyd J, Lam YW, Ward GE. Dephosphorylation of AMA1 cytosolic tail during *Toxoplasma gondii* invasion. Indianapolis, IN (June 19-22)
2015 Lam YW, Deng B, Fields J, Smith K, Voogt R, Mintz K. Quantification of the membrane differential proteomes by stable isotope labeling and spectral counting strategies. St. Louis, MO (May 31-June 4)
2013 Li S, Diego P, Keshipeddy S, Bajrami B, Farrokhi V, McShane A, Lam YW, Deng B, Nemati R, Howell A, Yao X. High-throughput scheduled MRM for multiplexed quantitation of chemical probe labeled enzymes in human cells. Minneapolis, MN (June 9-13)
2012 Li S, Keshipeddy S, Diego P, Bajrami B, Mcshane A, Deng B, Lam YW, Howell AR, Yao X. Using chemical probes and multiple reaction monitoring mass spectrometry for monitoring multiple enzymes in human cells. Vancouver, Canada (May 20-24)

prior to 2011

2010 Lam YW, Isaac J, Yuan Y, Suresh Babu CV, Meller J, Ho SM. Comprehensive identification and modified-site mapping of S-nitrosylated targets in normal prostate cell Line. Salt Lake City, Utah (May 23-27)
2005 Lam YW, Sun P, Green KM, Evans JE, Ho SM. Protein profiling of serum from prostate cancer patients by isotope-coded affinity tag (ICAT) analysis. San Antonio, Texas (June 5-9)
2004 Lam YW, Tam NNC, Sun P, Green KM, Evans JE, Ho SM. Comparison of relative protein levels in prostate from young and old Noble rat by ICAT. Nashville, Tennessee (May 23-27)

Other conference presentations prior to 2011

2009 Xiong SD, Liu X-H, Yin HF, Kirschenbaum A, Yao S, Narla G, DiFeo A, Yu K, Wu JB, Yuan Y, Ho S-M, Lam YW, Levine AC. Ribosome-inactivating proteins isolated from dietary bitter melon induce apoptosis and inhibit

histone deacetylase-1 selectively in premalignant and malignant prostate cancer cells**. Annual Meeting of the American Association for Cancer Research (AACR),** Denver, CO (Apr. 2009)

2006 Lam YW, Tam NNC, Green KM Evans JE, Ho SM. Comparison of relative protein levels in the prostates of young and old Noble rats by ICAT. **3rd Annual Ohio Mass Spectrometry Symposium**, Columbus, Ohio (Mar. 20-21)

2005 Tam NN, Lam YW, Ho SM. Oxidative and nitrosative stresses and inflammation as early events of hormone-induced prostatic carcinogenesis in Noble rats. **American Urological Association/Society for Basic Urologic Research Summer Research Conference, "**Inflammation in Prostate Diseases", Baltimore, DC (Aug. 19-20)

2004 Lam YW, Mobley JA, Evans JE, Carmody JF, Ho SM. Mass profiling and multidimensional separation of serologic proteome of patients with advanced disease. **95th American Association for Cancer Research (AACR) Annual Meeting**, Orlando, Florida (Mar. 27-31)

2002 Lam YW, Mobley JA, Carmody JF, Ho SM. Proteomics approach to evaluate the impact of diet on prostate cancer progression. **9th Prouts Neck Meeting on Prostate Cancer***,* Maine (Nov. 7-10)

RESEARCH POSTERS – BY UNDERGRADUATES

These posters presented at UVM Student Research Conference describe method development efforts by undergraduates.

2024 Optimizing High-pH Reversed-Phase HPLC Fractionation Proteomics Workflows
Lucas Leon (Biology senior), Sydney Cohn Guthrie (VBRN), Mateo Sulpizio (Biochemistry freshman)

2024 Crosslinking Mass Spectrometry and Bioinformatics (XlinkX vs. Kojak)
Charlotte Pearson (Biochemistry senior), Beatrice Zaleski (Biomedical Engineering sophomore), Ava Vitters (Biology sophomore)

2024 Hydrogen Deuterium Exchange – Mass Spectrometry (HDX—MS)
Osmand Evans (Biochemistry senior), Lauren Schwartz (Biochemistry sophomore), Ava Vitters (Biology sophomore)

SELECTED POSTERS FROM COLLABORATIONS

These posters cover a wide range of research areas of collaborators' interest, including lung physiology, neuroscience, parasitology, periodontal diseases, stem cell biology, redox biology, animal science, and mass spectrometry. **#:** undergraduate interns/researchers in the proteomics facility

2024 Department of Pathology, UVM

- Aboushousha R, MacPherson M, Abdelhamid H, Erickson C, Corteselli E, Lam YW, Seward DJ, Mistri S, Boyson J, Li J, Janssen-Heininger YMW. Upregulation of glutathione S transferase P in aberrant distal lung epithelial cells augments interleukin 1 beta (IL1B)-induced pro-inflammatory signaling in association with oxidation of ovarian tumor deubiquitinase 1 (OTUB1). **American Thoracic Society**. San Diego, CA. (May 17-22)
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2023 Department of Medicine: Immunobiology, UVM

- Mattice EB, Schubert T, Charlotte Pearson#, Osmand Evans#, Teixeira JE, Cohn-Guthrie S, Lam YW, Meyers MJ, Huston CD. A photo-reactive crosslinker for Cryptosporidium drug lead MMV665917 target identification. **Molecular Parasitology Meeting.** Woods Hole, MA (Sept. 15-19)

2021 Biomedical Research Institute of New Jersey

- Memon N, Eckman E, Lam YW, Herdt A, Lee C. Proteomic Alterations in the Plasma of Rat Pups Exposed to Phytosterols. **Pediatric Academic Societies 2021** Virtual Meeting (Apr. 30 – Jun. 4)

2020 Department of OBGYN and Reproductive Sciences, UVM

- Ko NL, Mukhtarova N, Hood C, Lam YW, Osol G Restricted Uterine Venous Blood Flow Results in Attenuated Uterine Vascular Remodeling and Preeclampsia-Related Placental Secretomics During

Pregnancy. **Society of Reproductive Investigation (SRI) Annual meeting**, Vancouver, BC, Canada (Mar. 10 – 14) (Canceled due to Covid-19)

2019 Department of Medicine: Immunobiology, UVM

- Teixeira JE, Hasan MM, Lam YW, Huston CD Coactosin phosphorylation controls *Entamoeba histolytica* cell membrane protrusions and cell motility. **Annual Woods Hole Molecular Parasitology Meeting**, Woods Hole, MA (Sept. 15-19)

2018 Department of Pathology, UVM

- Manuel A, Qian X, Chia SB, Aboushousha R, van de Wetering C, van der Velden J, Dixon AE, Lam YW, Irvin CG, Janssen-Heininger YMW. S-Glutathionylation of pyruvate kinase M2 is associated with metabolic reprogramming and cytokine production in the development of allergic obese airway disease. **25th Annual Conference of the Society for Redox Biology and Medicine**. Chicago, IL. (Nov. 14-17)

Department of Medicine: Pulmonary Disease & Critical Care Medicine, UVM

- Uhl FE, Zvarova B, Ahlers BA, Hood CM, Deng B, Lam YW, Beatman E, Schweitzer KS, Petrache I, Weiss DJ, Wagner DE. Characterization of decellularized COPD lung matrices using mass spectrometry proteomics. **16th Lung Science Conference**, Estoril, Portugal (Mar. 8-11)

2017 Department of Pharmacology, UVM

- Madasu S, Lam YW, Morielli A. Quantitative MS identifies potential targets for cerebellar disorders. **Discovery on Target**, Boston, MA (Sept. 25-29)

Department of Pathology, UVM

- Chia SB, Aboushousha R, Qian X, Lahue KG, Lam YW, Irvin CG, Anathy V, Poynter M, van der Vliet A, Heininger YMW. Glutaredoxin-1 regulates airway basal cell plasticity. **Gordon Research Conference** (Lung Development, Injury and Repair), New London, NH. (Aug. 20-25)

Department of Medicine: Pulmonary Disease & Critical Care Medicine, UVM

- Wrenn SM, Griswold ED, Uhl FE, Uriarte JJ, Park HE, Coffey AL, Dearborn JS, Hommel RJ, Lam YW, Deng B, Ahlers BA, Lee PC, Huston DR, Wagner DE, Weiss DJ. Lung bioengineering using avian tissue. **Stem Cell Conference**, Burlington, VT (July 24-27)
- Wrenn SM, Griswold ED, Uhl FE, Coffey AL, Dearborn JS, Hommel RJ, Lam YW, Deng B, Ahlers BA, Wagner DE, Weiss DJ. Avian lung de-and recellularization: A novel biomaterial for pulmonary therapeutics. **American Thoracic Conference**, Washington, DC (May 19-24)

Department of Animal Science, UVM

- Scuderi RA, Ebenstein DB, Lam YW, Kraft J, Greenwood SL. The effect of dietary grape marc on the bovine milk proteome. **ADSA Annual Meeting**, Pittsburgh, PA (June 25)

2016 Department of Pathology, UVM

- Chia SB, Nolin JD, Qian X, Aboushousha R, Lahue KG, van der Velden J, Schneider R, Lam YW, Irvin CG, Anathy V, van der Vliet A, Heininger YMW. Glutaredoxin-1 regulates allergic remodeling in house dust mite-induced allergic airways disease. **Gordon Research Conference** (Thiol-Based Redox Regulation and Signaling), Stowe, VT (Aug. 7-12)
- Heppner DE, Dustin CM, Liao C, Hristova M, Veith C, Little AC, Ahlers BA, White SL, Deng B, Lam YW, Li J, van der Vliet A. Molecular origin of thiol-based redox-regulation of the Src Kinase. **Gordon Research Conference** - Thiol-Based Redox Regulation and Signaling, Stowe, VT. (Aug. 7-12)
- Heppner DE, Dustin CM, Liao C, Hristova M, Veith C, Little AC, Ahlers BA, White SL, Deng B, Lam YW, Li J, van der Vliet A. Molecular origin of redox regulation of the Src kinase. **23rd National Meeting of the Society for Redox Biology and Medicine**, San Francisco, CA (Nov. 16 - 19)

Department of Medicine: Pulmonary Disease & Critical Care Medicine, UVM

- Uhl F, Zvarova B, Fields J, Deng B, Lam YW, Weiss D, Wagner D. Enhanced mass spectrometry proteomics can be used to distinguish differences in protein compositions of acellular emphysematous versus normal lungs. **American Thoracic Conference**, San Francisco, CA (May 13-18, 2016)
- Uhl F, Costa R, Zvarova B, Fields JG, Deng B, Lam YW, Königshoff M, Weiss DJ, Wagner DE. Acellular emphysematous lungs retain pathophysiological attributes and can be used as a novel *in vitro* culture system for studying disease biology. **German Lung Center (DZL) conference**. (Jan. 30-31)

2015 Department of Animal Science, UVM

- Tacoma R, Lam YW, Fields JG, Greenwood S. Characterization of the bovine milk proteome produced by Holstein and Jersey breeds of dairy cows. **ADSA-ASAS Joint Annual Meeting**, Orlando, FL (July 12-16).

2014 Department of Biochemistry, UVM

- Robey-Bond S, Lam YW, Ebert A, Fields J, Lefebvre P, Francklyn C. Molecular basis of histidyl-tRNA synthetase-associated Usher Syndrome Type 3B in cochlear-derived mouse cells and zebrafish. **25th tRNA Conference**, Kyllini, Greece (Sept. 21-25)
- Robey-Bond S, Fields J, Lam YW, Francklyn C. Identification of protein networks disrupted by a mutation in HARS. **Neuroscience, Behavior and Health Forum**, UVM (Jan. 25)

2013 Department of Biochemistry, UVM

- Abbott J, Deng B, Lam YW, Francklyn CS, Robey-Bond S. The role of human histidyl-tRNA synthetase mutations in human diseases, Type IIIB Usher Syndrome and Peripheral Neuropathy. **RNA Metabolism in Neurological Disease Conference** (8th Brain Research Conference), San Diego, CA (Nov. 7-8)
- Robey-Bond S, Fields J, Lam YW, Francklyn C. Identification of protein networks disrupted by a mutation in HARS. **9th International Symposium on Aminoacyl-tRNA Synthetases Conference**, Hakone, Japan (Oct. 6 – 11)

Department of Microbiology and Molecular Genetics, UVM

- Smith K, Voogt R, Lam YW, Mintz K. Membrane proteome changes in *Aggregatibacter actinomycetemcomitans* dependent on one protein. **Penn Periodontal Conference**, Philadelphia, PA (June 23-28)

Department of Biochemistry, Middlebury College

- Borsinger T, Lam YW, Cluss B. Initial determination of the proteome of *Borrelia burgdorferi*, the lyme disease spirochete. **Vermont Genetics Network Undergraduate Student Career Day**, South Burlington (Apr. 17)

PROFESSIONAL DEVELOPMENT

Courses, workshops, on-site trainings and other informational meetings attended.

	Organizer	**Topic**
2024	UVM	Leadership Development Pilot program (Nov. 1)
2023	ASMS	2 - day conference short course: Quantitative Proteomics: Case Studies
2023	ABRF	Business Skills for Core Facility Personnel
2022	Thermo Fisher Scientific	3 - day on-site Eclipse and Exploris 240 training (Jul. 26-28 & Sep. 13 - 15)
2021	VT IDeA Retreat	StrategicDoing Workshop (Aug. 19)
2021	Arkansas/Oklahoma IDeA	Symposium for Proteomics Core Directors and Staff (Jan.28 - 31)
2020	Celdara Medical Inc./NIGMS/ DRIVEN	Core Business Virtual Meeting (Oct. 5)
2020	UVM	Online Teaching Boot Camp (Aug. 4)
2020	ASMS	2 - day virtual conference short course: LC-MS: Practical Maintenance and Troubleshooting
2020	Arkansas/Oklahoma IDeA	Symposium for Proteomics Core Directors and Staff (Jan.28 - 31)
2019	Maine INBRE	Bioinformatics (T3): Train the Trainer (Jun. 29 - July 6)
2019	ASMS	2 - day conference short course: Native Mass Spectrometry
2019	Arkansas/Oklahoma IDeA	Symposium for Proteomics Core Directors and Staff (Feb. 20 - 23)
2018	May Institute	Computation and Statistics for Mass Spectrometry and Proteomics (Apr. 30 – May 9)
2018	Arkansas/Oklahoma IDeA	Symposium for Proteomics Core Directors and Staff (Apr. 4 - 5)
2017	ASMS	2 - day conference short course: DMPK: Experimentation and Data Interpretation

2017	Arkansas/Oklahoma IDeA	Symposium for Proteomics Core Directors and Staff (Apr. 4 - 6)
2016	ASMS	2 - day conference short course: Protein Therapeutics: Practical Characterization and Quantitation by Mass Spectrometry
2015	Thermo Fisher Scientific	3 - day on-site Q-Exactive training (Sep. 8 - 10)
2015	ASMS	2 - day conference short course: Protein Structural Analysis by Mass Spectrometry: Hydrogen Exchange and Covalent Labeling
2014	ASMS	2 - day conference short course**:** Ion Mobility in Mass Spectrometry
2014	Waters Corporation	SYNAPT G2-Si Workshop in Salem, MA (Feb. 19)
2014	AB SCIEX	New Developments in Clinical Research and Forensic Toxicology Using LC/MS/MS (Apr. 22)
2013	ASMS	2 - day conference short course: Glycans and Glycoproteins in Mass Spectrometry
2013	Thermo Fisher Scientific	MS Thought Leader Summit (Feb. 26)
2012	ASMS	2 - day conference short course: Metabolomics
2010	ASMS	2 - day conference short course: High Resolution LC-MS for Structural Identification and Quantitation
2009	ASMS	2 - day conference short course: Protein Structural Analysis by Mass Spectrometry: Hydrogen Exchange and Covalent Labeling
2007	ASMS	2 - day conference short course: FTMS: Principles and Applications
2006	ASMS	2 - day conference short course: Mass Spectrometry of Peptides and Proteins
2006	Institute for Systems Biology	2 - day Proteomics Informatics Course (May 25 - 26)
2006	University of Louisville	Metabolomics Symposium
2005	ASMS	2 - day conference short course: Quadrupole Ion Trap Mass Spectrometry
2004	ASMS	2 - day conference short course: Practical LCMS: Fundamentals, Techniques and Applications

RESEARCH SUPPORT

The VBRN Proteomics Facility is supported by P20GM103449 and operates with a cost-recovery model prior July 1st, 2021. Consumables are provided by investigators via various grants that support the proteomics projects. The facility operations has transitioned into an income expense model since July 1st, 2021.

Ongoing Research Support

5P20GM103449-19 — Christopher Francklyn (PI) — 06/01/20 - 05/31/25
NIH/NIGMS
Vermont INBRE

The major goal of this grant is to increase the culture of research in the state's four-year institutions by facilitating faculty members' research/grant productivity and undergraduate education in the sciences.
Role: Core Facility Director

Completed Research Support

P20 GM103449 — Rex Forehand (PI) — 06/01/15 - 05/31/20
NIH/NIGMS
INBRE Vermont Genetics Network

The goal of this grant is to invest in the Vermont biomedical research infrastructure, including physical and human resources, in order to bring about sustainable changes in how we in Vermont carry out research and educate our next generation of scientists and doctors.
Role: Core Facility Director

P20 GM103449 formerly P20RR16462 Van Houten (PI) 06/01/11 - 05/31/15
NIH/NIGMS

The goal of this grant is to invest in the Vermont biomedical research infrastructure, including physical and human resources, in order to bring about sustainable changes in how we in Vermont carry out research and educate our next generation of scientists and doctors.
Role: Core Facility Director