Cooperating Faculty Member (CFM) within CNAS

DEPARTMENT OF MICROBIOLOGY AND PLANT PATHOLOGY (requesting department)

Cooperating Faculty Appointment/Reappointment

Instructions: Please complete the following.

1. Attach a current CV of potential CFM.
2. Statement of Anticipated or Past Involvement in the department referenced above. Please see page three.

Please provide or attach a statement that describes your anticipated or past involvement as a CFM in the department referenced above.

3. My signature below (or attached emailed approval) indicates my willingness to accept an appointment as a CFM in the department referenced above.

Printed Name: Olakunle Olawole Signature: Date: 11/20/2023

4. Approval by Cooperating Faculty Member's Home Department Chair

As Chair of the Department of Microbiology and Plant Pathology, my signature below (or attached emailed approval) indicates my approval of Olakunle Olawole participating as a CFM in the department referenced above.

Printed Name: Howard Judelson Signature: Date: 11/20/23

HOST DEPARTMENT VOTE: FOR, AGAINST, UNAVAILABLE

DATES OF APPOINTMENT: 12/01/23 TO 11/30/25

5. Approval by CFM's Host Department Chair

As Chair of the Department referenced above, my signature below (or attached emailed approval) indicates my approval of Olakunle Olawole participating in the department referenced above.

Printed Name: Patricia Springer Signature: Date:

CNAS DEAN'S APPROVAL:

Date:

Appointments/reappointments are for 2 years for Asst. and Assoc. Professors, and 3 years for full Professors

created by APSU/ct: 10/25/10
updated: 7/8/15

Please allow 5–7 business days for approval.

- To add electronic signatures, unprotect the document.
- Once approved, please send a copy of the host department's appointment letter to the appropriate analyst in the CNAS Dean's office and to Amanda Wong in the Graduate Division.

Olakunle Olawole
Department of Microbiology and Plant Pathology
University of California,
Riverside, 92521.
November 20, 2023.

Dear Chair,
Department of Plant Biology,
University of California,
Riverside, 92521.

STATEMENT OF ANTICIPATED INVOLVEMENT IN THE PLANT BIOLOGY GRADUATE PROGRAM

I hereby write to show my interest as a Cooperating Faculty Member in the Plant Biology (PB) graduate program. I anticipate serving as a member of the study of program committee for current and future graduate students, and collaboratively teaching relevant courses if necessary.

Thank you for your anticipated favorable response.

Sincerely,

Olakunle Olawole.

OLAKUNLE ("Kunle") OLAWOLE
Department of Microbiology & Plant Pathology
University of California, Riverside, CA 92521, USA.
Cell: 979-326-9803, E-mail: olakunlo@ucr.edu

EDUCATION

Ph.D. (Plant Pathology & Microbiology):
(2015 – 2021)
Iowa State University, USA.
Major Professor: Dr. Gwyn Beattie
Dissertation title: Exploring the genetic basis of host-specific virulence and pathogenicity in *Erwinia tracheiphila.*

M.Phil. (Plant Science):
(2011-2013)
Obafemi Awolowo University, Nigeria.
Major Professor: Dr. Olusola Salami
Thesis title: Isolation & characterization of *Xanthomonas axonopodis* pv. glycine strains from selected regions of the Southern Guinea Savanna in Nigeria.

B.A. (Plant Science):
(2003-2008)
Obafemi Awolowo University, Nigeria.
Major Professor: Dr. Olusola Salami
Thesis title: Effect of the interaction between arbuscular mycorrhizal fungi and *Fusarium oxysporum* on *Abelmoschus esculentus* (jute mallow) and *Corchorus esculentus* (okra).

PROFESSIONAL EXPERIENCE

- **Assistant Professor (August 2023 – Present)**
  My expertise, to date, has primarily been with phytopathogenic bacteria, and particularly those causing vascular wilts in both vegetable crops (*Erwinia tracheiphila*) and trees (*Xylella fastidiosa*). My research program is currently focused on understanding the genetics, genomics and physiology of the interactions of *Xylella fastidiosa,* with plants and insect vectors, and translating this information into developing environmentally friendly management strategies. We are particularly interested in characterizing the determinants of host-specific virulence among different subspecies of *X. fastidiosa* on multiple host plants.
- **Post-Doctoral Research Associate (January 2021 – July 2023)**
  Explored the bacteriophages of *Xylella fastidiosa* as a bio-control strategy for olive quick decline syndrome (OQDS) disease, by:
  - ✓ domesticating cultures of *Xylella fastidiosa* subsp. *pauca* (*Xfp*) obtained from the French Bacterial Collections;
  - ✓ isolating *Xfp* from trees exhibiting OQDS and identifying via the sequence types;
  - ✓ testing *Xfp* isolates for sensitivity to available pool of *Xylella* specific phages;
  - ✓ confirming the pathogenicity of *Xfp* isolates on different olive cultivars and tobacco seedlings;
  - ✓ conducting phage movement studies in olive trees and tobacco seedlings; and
  - ✓ determining the efficacy of phage treatment of OQDS.

This work has resulted in:
- ✓ the development of semi-selective media for the isolation of *Xfp* from infected olive tissues;
- ✓ the isolation of virulent phages which inhibited the growth of *Xylella* strains;
- ✓ the development of *in vitro* assay to demonstrate the pathogenicity of *Xfp* against different olive cultivars;
- ✓ the development of a pathogenicity *in vivo* assay of *Xfp* using surrogate tobacco cultivars

PROFESSIONAL EXPERIENCE (Continued)

Ph.D. (Doctor of Philosophy) Research (January 2015 – December 2020)

Explored the genetic basis of host-specific virulence and pathogenicity of the xylem-restricted bacterial pathogen of cucurbits, *Erwinia tracheiphila*, by:

- ✓ generating draft genome sequences (PacBio and Illumina) of strains of two host-specificity groups, and using these sequences to begin to identify the full complement of effector genes in each host-specificity group;
- ✓ characterizing *in planta* expression of effector genes to identify candidate effectors for host specific virulence, and performing a functional characterization of highly expressed effectors through mutant and complementation analyses.

This work resulted in:

- ✓ the further delineation of two subspecies of *E. tracheiphila* strains based on whole genome sequence and physiological data;
- ✓ the characterization of distinct roles of several effectors in the two *E. tracheiphila* subspecies;
- ✓ the discovery that the lack of expression of a type III secretion protein partially explained differences between the two subspecies in host-specific virulence.

M.Phil. (Master of Philosophy) Research (January 2011 – December 2013)

Gained insight into the population biology of *Xanthomonas axonopodis* pv. glycines (Xag), causal agent of bacterial pustule of soybean, associated with outbreaks within the Southern Guinea Savanna agro-ecological zone of Nigeria. The diversity of Xag isolates from diseased soybean seedlings collected from farmers was assessed by combining physiological data, biochemical data, and virulence data with Random Amplified Polymorphic DNA (RAPD) fingerprint profiles.

B.A. (Bachelor of Agriculture) Research (January 2003 – December 2008)

Investigated the effect of interactions between the arbuscular mycorrhizal fungus (AMF) and *Fusarium oxysporum* on *Abelmoschus esculentus* (jute mallow) and *Corchorus esculentus* (okra). AMF was found to reduce the impact of *Fusarium oxysporum* based on a reduction in disease incidence and severity in seedlings inoculated with the fungal pathogen.

Mentoring

- ✓ **Brandon Tompkins (October 2022 – Present) – Student Worker at Texas A & M University.** Currently mentoring Brandon on the development of sterile techniques in working with bacteria, development of an overlay assay for bacteriophages of *Xylella* and *Xanthomonas campestris*, extraction and quantification of genomic DNA from plant tissues and bacteria, inoculation of tobacco seedlings with bacterial inocula, scientific data collection and regular and quantitative PCR assays. Brandon is currently a final year Undergraduate student in the Bioenvironmental Sciences program at the Texas A & M University. He has plans to enroll into Graduate School in Fall 2023.

- ✓ **Nayelly Rodriguez (August 2021 – July 2022) – Laboratory Technician at Texas A & M University.** Mentored Nayelly on the development of sterile techniques in working with bacteria, development of an overlay assay for bacteriophages of *Xylella* and *Xanthomonas campestris*, extraction and quantification of genomic DNA from olive tissues and bacteria, inoculation of tobacco seedlings with bacterial inocula, scientific data collection, regular PCR assays and in vitro assays for *Xylella* pathogenicity on olive twigs.

Mentoring (continued)

- ✓ **Grace Hess (May 2021 – July 2021) – Student Worker at Texas A & M University.** Mentored Grace on the development of sterile techniques in working with bacteria, development of an overlay assay for bacteriophages of *Xylella* and *Xanthomonas campestris*, extraction and quantification of genomic DNA from plant tissues and bacteria, inoculation of tobacco seedlings with bacterial inocula, scientific data collection and regular and quantitative PCR assays. Grace is currently a Sophomore in Biomedical Science at the Texas A & M University.

- ✓ **Matthew (Jan 2021 – May 2021) – Student Worker at Texas A & M University.** Mentored Matthew on the greenhouse practices for the maintenance of olive trees and tobacco seedlings for the purpose of conducting a pathogenicity assay. Matthew is currently a Senior in the Zoology program at Texas A & M University.

- ✓ **Rachel Philip (Jan 2021 – May 2021) – Laboratory Technician at Texas A & M University.** Mentored Rachel on the cultivation of *Xylella fastidiosa* subsp. *pauca* (*Xfp*) and the development of an overlay system for characterizing *Xfp* phages. Rachel is currently in medical school, at the University of Colorado School of Medicine.

- ✓ **Yingyan Zhai (Oct 2018 – Sept 2019) – Visiting M.S. student from Xi'an, Shaanxi Province, China.** Mentored Yingyan on *Erwinia tracheiphila* cultivation in a project aimed at isolating lysogenic *E. tracheiphila* bacteriophage. Yingyan is currently completing a M.S. degree in Plant Pathology at Northwest A&F University, China.

- ✓ **Yun Xu (Jan 2018 – July 2019) – Undergraduate at Iowa State University (ISU).** Mentored Yun in studies comparing the range of virulence abilities among strains of two *Erwinia tracheiphila* subspecies. Served as the primary mentor teaching experimental design, cultivation and inoculation protocols, data collection, data analysis and data presentation. Yun is currently completing a M.S. degree in Plant Pathology at ISU.

- ✓ **Hanli Yang (March 2017 – March 2018) – Visiting scientist from Agro-Tech Extension Center, Korla City, Xinjiang Province, China.** Mentored Hanli on *Erwinia tracheiphila* cultivation in a project aimed at isolating lysogenic and lytic *E. tracheiphila* bacteriophage.

- ✓ **Tina Wu (Jan 2015 – July 2016) – Undergraduate at ISU**
  Mentored Tina in construction and characterization of mutants of host-specificity and pathogenicity genes in *Erwinia tracheiphila*. I served as the primary mentor teaching experimental design, data collection and data analyses. Tina is currently a Ph.D. candidate in Plant Pathology at the University of Wisconsin-Madison.

PUBLICATIONS

1. **O. I. Olawole**, P. Uribe, N. A. Rodriguez, C. F. Gonzalez and K. L. Ong (2022). "First Report of Bacterial Leaf Scald of Plum Caused by Xylella fastidiosa in Texas." *Plant Disease* **0**
2. **O.I. Olawole**, M. L. Gleason and G. A. Beattie (2022). Expression and functional analysis of the type III secretion system effector repertoire of the xylem pathogen *Erwinia tracheiphila*. *Molecular Plant-Microbe Interactions* **35**, 768-778.
3. B. LaSarre, **O. I. Olawole**, A. A. Paulsen, L. J. Halverson, M. L. Gleason, and G. A. Beattie (2022). Complete genome sequences of four strains of *Erwinia tracheiphila*, a bacterial plant pathogen with a highly complex genome. *Molecular Plant-Microbe Interactions* **35**, 500-504.

PUBLICATIONS (continued)

4. **O.I. Olawole**, Q. Liu, C. Chen, M.L. Gleason and G.A. Beattie (2021). The contributions to virulence of the effectors Eop1 and DspE differ between two clades of Erwinia tracheiphila strains. *Molecular Plant-Microbe Interactions* **34**, 1399-1408.
5. B. Fu, **O. I. Olawole** and G. A. Beattie (2020). Draft genome sequence of *Glutamicibacter* sp. FBE-19, a bacterium antagonistic to the plant pathogen *Erwinia tracheiphila. Phytopathology* **111**, 765-768.
6. **O.I. Olawole** (2020). Exploring the genetic basis for host specific virulence and pathogenicity in *Erwinia tracheiphila*. Graduate Theses and Dissertations. 18577. https://lib.dr.iastate.edu/etd/18577.
7. O. Salami, F. A. Bankole and **O. I. Olawole** (2016). Effect of different substrates on the growth and protein content of oyster mushroom (*Pleurotus florida*). International Journal of Biological and Chemical Sciences. 10(2): 475-485.
8. O. O. Idowu, **O. I. Olawole**, O. O. Idumu and A. O. Salami (2016). Bio-control Effect of *Trichoderma asperellum* (Samuels) Lieckf. and *Glomus intraradices* Schenk on Okra Seedlings Infected with *Pythium aphanidermatum* (Edson) Fitzp and *Erwinia carotovora* (Jones). *American Journal of Experimental Agriculture*. 10(4): 1-12.
9. O. Salami and **O. I. Olawole** (2011). Ditrophic Interaction between *Glomus mosseae* and *Phytophthora infestans* in Jute Mallow (*Corchorus olitorius*) Seedlings at Different Ages. *International Journal of Agricultural Sciences, Science, Environment and Technology* (ASSET). Volume 11(1): 1-15.
10. O. Salami, **O. I. Olawole** and A.A. Oni (2011). Effect of interactions between *Glomus mosseae* and *Pythium aphanidermatum* on the growth performance of okra plant seedlings. *Journal of Science Research.* Volume 10 (2): 212-220.

PUBLISHED ABSTRACTS

1. **O. I. Olawole**, M. L. Gleason and G. A. Beattie (2019). *In planta* expression profiling of *Erwinia tracheiphila* effector genes to identify pathogenicity and host-specific virulence candidate. *Phytopathology* 109(10): 160-160.
2. **O. I. Olawole**, M. L. Gleason and G.A. Beattie (2018). The effector Eop1 functions as a host-specific virulence factor in *Erwinia tracheiphila*. *Phytopathology* 108(12): 33-33.
3. **O. I. Olawole**, M. L. Gleason and G. A. Beattie (2017). Contribution of *dspE* and *eop1* to *Erwinia tracheiphila* virulence. *Phytopathology*, 107 (12): 81.

MANUSCRIPTS IN PREPARATION

1. **O. I. Olawole,** C. F. Gonzalez. Development of methods for Isolation of Recalcitrant strains of different *Xylella fastidiosa* subspecies.
2. **O. I. Olawole,** C. F. Gonzalez. Isolation, Characterization and Activity of Virulent Phages against *Xylella fastidiosa* subsp. pauca isolated from Olive Trees Expressing Olive Quick Decline Syndrome.
3. **O. I. Olawole**, M. L. Gleason and G. A. Beattie. Subspecies delineation of *Erwinia tracheiphila* strains on the basis of whole-genome sequence and physiological data.
4. **O. I. Olawole**, M. L. Gleason and G. A. Beattie. *Erwinia tracheiphila* subspecies differences in host specificity are associated with host-specific differences in *hrpA* expression.

PROFESSIONAL PRESENTATIONS

POSTER PRESENTATIONS

- ✓ **O. I. Olawole**, M. L. Gleason and G. A. Beattie (2020). Identification of clade-specificity in the effector genes contributing to the virulence of two Erwinia tracheiphila clades. APS Annual General Meeting scheduled to hold at Denver, Colorado (August 10-14, 2020).

- ✓ **O. I. Olawole**, M. L. Gleason and G. A. Beattie (2019). *In planta* expression profiling of *Erwinia tracheiphila* effector genes to identify pathogenicity and host-specific virulence candidate. APS Annual General Meeting at Cleveland, Ohio (August 3-7, 2019).

- ✓ **O. I. Olawole**, M. L. Gleason and G. A. Beattie (2018). The effector Eop1 functions as a host-specific virulence factor in *Erwinia tracheiphila*. APS North Central Division Meeting at Fargo, North Dakota (June 12-14, 2018).

- ✓ **O. I. Olawole**, M. L. Gleason and G. A. Beattie (2017). Contribution of *dspE* and *eop1* to *Erwinia tracheiphila* virulence. APS Annual General Meeting at San Antonio, Texas (August 5-9, 2017).

- ✓ **O. I. Olawole**, Q. Liu, T. Wu, C. Chen, M. L. Gleason and G. A. Beattie. Construction and initial characterization of a *dspE* deletion mutant of *Erwinia tracheiphila.* APS North Central Division Meeting at St. Paul, Minnesota (June 7–9, 2016).

TEACHING EXPERIENCE

- **Instructor for PLPA/MCBL/BIOL 120 (Introductory Plant Pathology).** A graduate/undergraduate course of 56 students, offered by the UCR Microbiology and Plant Pathology Department. (Fall 2023)
- **Preparing Future Faculty (PFF) lecturer for PLP 506 (Molecular Plant-Pathogen Interactions).** A graduate level course; gave 2 on bacterial effectors in plant-microbe interactions. (Spring 2019)
- **Guest lecturer for PLP 577 (Plant-Bacterial Interactions).** A graduate level course; gave 3 lectures that provided an overview of bacterial diseases of plants. (Spring 2018)
- **Teacher for the Science Bound Program at Dr. Gwyn Bettie's lab.** A pre-college program to empower Iowa students of color to pursue degrees and careers in STEM fields. (Spring 2018)
- **Teacher for the Science Bound Program at Dr. Gwyn Bettie's lab.** A pre-college program to empower Iowa students of color to pursue degrees and careers in STEM fields. (Spring 2016) (Fall 2016)
- **Graduate Teaching Assistant for MICRO 440 (Laboratory in Microbial Physiology, Diversity, and Genetics).** A senior-level course; taught and coordinated lab sessions (two four-hour sessions for 15 weeks).
- **Assistant Lecturer for CPP202 (Principles of Plant Science), CPP 304 (Plant Pathology), CPP 405 (Greenhouse Operations) and CPP 506 (Plant Disease Control).** Undergraduate courses for levels 2, 3, 4 and 5 students, respectively; gave lectures, taught and coordinated lab sessions (each was a full-semester course) (2011-2014)
- **National Youth Service Corp teacher for Physics and Mathematics at Berachah International High School, Naibawa, Kano State, Nigeria.** A mandatory one-year national service for Nigerian college graduates. (2009-2010)
- **Teacher for Agricultural Principles & Practices at Seventh-Day Adventist High School, Ile-Ife, Nigeria.** An undergraduate internship program, required for earning a degree in Agriculture at Obafemi Awolowo University, which involved serving as a teacher for a one semester. (2007-2008)

DISTINCTIONS AND AWARDS

- **First place poster award,** American Phytopathological Society (APS) North Central Division Meeting Cleveland, Ohio. (2019)
- **Zirakparvar Fellowship,** a department-level fellowship that enables the recipient to function as the Webpage Administrator for the Department of Plant Pathology and Microbiology website, ISU. (2017-2019)
- **Charles Gould Graduate Student Travel Award, and APS Graduate Student Travel Award.** Both awards enabled attendance and presentation of work at the APS North Central Division Meeting at Fargo, North Dakota. (2018)
- **Print and Grace Powers Hudson Scholarship in Agriculture,** a college-level award to an ISU College of Agriculture and Life Sciences graduate student demonstrating academic and leadership qualities. (2016-2017)
- **ISU Presidential Graduate Scholarship,** a department-level award for incoming and continuing graduate students with an excellent record of academic performance. (2015-2016)
- **Professor John Lester L. Libby Prize,** a department-level award for the graduating student with the highest grade in CPP 503 (Applied Entomology) in the Department of Plant Science, Obafemi Awolowo University, Nigeria. (2008)

PROFESSIONAL DEVELOPMENT

- **Participant, Preparing Future Faculty Program, ISU.** Program that provided training in teaching and mentoring through a combination of seminars, mentoring and departmental service experiences, in preparation for a faculty career. (Aug 2018 – May 2019)

AFFILIATIONS AND MEMBERSHIPS

- American Association for the Advancement of Science (2018 – present)
- American Phytopathological Society (2015 – present)
- Australasian Plant Pathology Society (2013 – present)
- Nigerian Society for Plant Protection (2012- present)

SERVICE

- **Member, Admissions/Recruitment Committee for the Plant Pathology Graduate Program, University of California, Riverside.** (2023 – 2024)
  Responsibilities: Supporting the enrollment efforts of the Department by reviewing applications and providing admissions information to prospective or newly admitted students.
- **Member, The Essential Electronic Agricultural Library (TEEAL) Committee, Obafemi Awolowo University.** (2013 – 2014)
  Responsibilities: Managing and updating the TEAL archives and helping students and lecturers/professors who need assistance with getting research articles from the facility.
- **Member, Faculty Environment and Physical Infrastructure Committee, Obafemi Awolowo University.** (2013/2014 Academic Session)
  Responsibilities: Coordinating and working with student representatives to ensure that the environment that houses the Faculty of Agriculture and physical infrastructure are protected in a sustainable way.

TECHNICAL SKILLS

MICROBIOLOGY, PHYTOPATHOLOGY AND MOLECULAR BIOLOGY SKILLS

- ✓ Bacterial and fungal cultivation and microbial isolation from plant tissues
- ✓ Assay development for quantitative assessment of bacterial and fungal virulence on plants
- ✓ Metabolic and biochemical phenotyping of bacteria
- ✓ Gene cloning and generation of over-expression constructs
- ✓ Generation of mutants and pyramided mutants using Lambda Red-recombineering technology and spliced-overlap-extension PCR (SOE-PCR) technology
- ✓ Pulse-field gel electrophoretic profiling of large plasmids
- ✓ Molecular characterization of bacterial strains based on Random Amplified Polymorphic DNA (RAPD) fingerprint profiling
- ✓ Phage isolation, propagation and concentration

BIOINFORMATIC SKILLS

- ✓ Assembly of PacBio genomic sequence data
- ✓ Assembly of Illumina genomic sequence data
- ✓ Annotation of bacterial genome sequences
- ✓ Use of localized database tools in conjunction with BLAST

BIOINFORMATIC SKILLS (continued)

- ✓ Bacterial genome comparisons
- ✓ Phylogenetic analysis of concatenated bacterial sequences
- ✓ Methylation analysis of PacBio-generated sequences

COMPUTER AND MICROSCOPY SKILLS

- ✓ **Statistics:** SAS, JMP Pro, SigmaPlot, GraphPad, SPSS, Statistix, Minitab, Excel
- ✓ **Website Design and Management:** Java, CSS, HTML
- ✓ **Bioinformatics:** Perl programming language, MEGA, Blast, SMRTPortal, SMRTLink, Expasy, Clustal-W, High Performing Computing (HPC) servers, bamtools, blasr – bax2bam, SPADES, FastQC, BRIG, Blast2go, Mauve, Trimgalore, Prinseq, bwa, samtools, bam2fastq, bcftools, Augustus, Busco, Roary, QUAST, PHASTER, dbCAN,
- ✓ **Graphics:** Photoshop, Fireworks, CorelDraw, Dreamweaver, Powerpoint
- ✓ Transmission Electron Microscopy (TEM)

EXTENSION SKILLS

- ✓ Working with extension agents and farmers for surveillance, collection and diagnosis of diseased plant materials from farmlands
- ✓ Disseminating new technology to farmers through onsite demonstration plot approach.