CURRICULUM VITAE

VIKKI M. WEAKE

ASSOCIATE PROFESSOR OF BIOCHEMISTRY

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EDUCATION:

2002-2005	Ph.D. in Genetics Massey University, New Zealand Advisor: Max Scott Thesis: Isolation of *cis*-acting elements that present dosage compensation of X-linked genes in *Drosophila melanogaster*
1998-2001	Bachelor of Science (Honors) in Biochemistry & Physiological & Molecular Plant Biology, Massey University, New Zealand

Part I: "GENERAL INFORMATION"

a. Academic appointments:

2019-present	Associate Professor, Department of Biochemistry, Purdue University, West Lafayette, Indiana
2012-2019	Assistant Professor, Department of Biochemistry, Purdue University, West Lafayette, Indiana
2009-2012	Senior Research Associate, Dr. Jerry Workman, Stowers Institute for Medical Research, Kansas City, Missouri
2005-2008	Postdoctoral Research Associate, Dr. Jerry Workman, Stowers Institute for Medical Research, Kansas City, Missouri

b. Industrial, business, and governmental positions: *not applicable*

c. Licenses, registrations, and certifications: *not applicable*

d. Citations in biographical works: *not applicable*

e. Awards and Honors:

2002-2005	Top Achiever Doctoral Scholarship (Foundation for Research, Science & Technology)
2018	Invitation to speak and organize a spotlight session on chromatin biology at the Experimental Biology 2018 Meeting (ASBMB, San Diego, California).
2019	F1000Prime Faculty Member - Developmental Molecular Mechanisms

f. Memberships in academic, professional, and scholarly societies:

Genetics Society of America, 2013 - present
American Association for the Advancement of Science, 2013 - present
American Society for Biochemistry and Molecular Biology, 2014 – present
Association for Research in Vision and Opthalmology (ARVO), 2016 – present

Part II: Section A "DISCOVERY"

1. Published Work

1a. Publications:

All publications can be conveniently accessed through Dr. Weake's Google Scholar site:
http://scholar.google.com/vweake

Contribution Key:

* Corresponding author
PI and current/former lab members' names are underlined.
[a] Mentored undergraduate student
[b] Mentored graduate student
[c] Mentored postdoctoral researcher
[#] These authors contributed equally to this work

Tier Designation: In general, tier rankings for promotion documents in the Department of Biochemistry are linked to impact factors, but faculty are given the opportunity to make tier designations that are most accurate and appropriate for their own subfield of the discipline. Impact Factors are based on 5 year impact factor (2017) from Journal Citation Reports (*NA, not available for new journals*). Tier designations are based on 2017 SciMago quartiles (Top tier, Q1; second tier, Q2; third tier, Q3; fourth tier, Q4).

Refereed Articles:

1. Radhakrishnan, S., Norley, N., Wendt, S., LeRoy, N., Hall, H., Norcross, S., Doan, S., Snaider, J., MacVicar, B.A., Weake, V.M., Huang, L., Tantama, M.*. Neuron Activity Dependent Redox Compartmentation Revealed with a Second Generation Red-Shifted Ratiometric Sensor. ACS Chem. Neurosci. 2020. doi:10.17912/micropub.biology.000097

2. Escobedo, S.E.[b]; Zirin, J.; Weake, V.M.*. TRiP stocks contain a previously uncharacterized loss-of-function sevenless allele. microPublication Biology. 2019. doi:10.17912/micropub.biology.000097.

3. Mao X.[b], Kim J.I., Wheeler M.T., Heintzelman A.K., Weake V.M.*, Chapple C.*. Mutation of Mediator subunit CDK8 counteracts the stunted growth and salicylic acid hyperaccumulation phenotypes of an Arabidopsis MED5 mutant. New Phytol. 2019. doi: 10.1111/nph.15741. PubMed PMID: 30756399.

4. Torres-Zelada E.F.[b], Stephenson R.E., Alpsoy A., Anderson B.D.[a], Swanson S.K., Florens L., Dykhuizen E.C., Washburn M.P., Weake V.M.* The Drosophila Dbf4 ortholog Chiffon forms a complex with Gcn5 that is necessary for histone acetylation and viability. J Cell Sci. 2019;132(2). doi: 10.1242/jcs.214072. PubMed PMID: 30559249; PMCID: PMC6362396.

Refereed Articles published prior to promotion to Associate Professor:

5. Hall, H.[#], Ma, J.[#,b], Shekhar, S.[b], Leon-Salas, W.D. and Weake, V.M.* (2018). Blue light induces a neuroprotective gene expression program in *Drosophila* photoreceptors. BMC Neuroscience. 19(1):43. PMID:30029619. *IF = 2.8; # citations = 0. Second tier journal.*

6. Stegeman, R.[b], Hall, H., Escobedo, S.E.[b], Chang, H.C. and Weake, V.M.* (2018). Proper splicing is necessary to maintain visual function in the aging *Drosophila* eye. Aging Cell. PMID:30003673. *IF = 6.9; # citations = 0. Top tier journal.*

7. Serratore N.D., Baker K.M., Macadlo L.A., Gress A.R., Powers B.L., Atallah N., Westerhouse K.M., Hall M.C., Weake V.M. and Briggs S.D. (2017). A Novel Sterol-Signaling Pathway Governs Azole Antifungal Drug Resistance and Hypoxic Gene Repression in *Saccharomyces cerevisiae*. Genetics. PMID: 29263028. *IF = 5.1; # citations = 1. Top tier journal. My contributions to this work involved bioinformatics analysis.*

8. Chen X.[c], Hall H., Simpson J.P., Leon-Salas W.D., Ready D.F. and Weake V.M.* (2017). Cytochrome b5 protects photoreceptors from light stress-induced lipid peroxidation and retinal degeneration. Nature Partner Journal (NPJ) Aging Mech Dis. 3:18. PMID: 29214051. *IF = NA; # citations = 5. New journal, ranking unavailable. Highlighted in "Fruit fly breakthrough may help human blindness research" https://www.purdue.edu/newsroom/releases/2017/Q4/fruit-fly-breakthrough-may-help-human-blindness-research.html*

9. Hall H., Medina P., Cooper D.A., Escobedo S.E.[b], Rounds J., Brennan K.J.[a], Vincent C., Miura P., Doerge R. and Weake V.M.* (2017). Transcriptome profiling of aging Drosophila photoreceptors reveals gene expression trends that correlate with visual senescence. BMC Genomics. 18(1):894. PMID: 29162050. *IF = 4.3; # citations = 4. Top tier journal.*

10. Pharris M.C., Wu T.C., Chen X.[c], Wang X., Umulis D.M., Weake V.M. and Kinzer-Ursem T.L. (2017). An automated workflow for quantifying RNA transcripts in individual cells in large data-sets. MethodsX. 4:279-88. PMID: 28932696. *IF = 0.5; # citations = 0. Third tier journal. Our lab developed smFISH methods for adult Drosophila retina and performed all Drosophila experiments including smFISH imaging and qPCR analysis.*

11. Chen, X.[c], Leon-Salas, W.D.*, Zigon, T., Ready, D.F. and Weake, V.M. (2017). A programmable optical stimulator for the Drosophila eye. HardwareX 2: 13-33. *IF = NA; # citations = 3. New journal, ranking unavailable.*

12. Dyer, J.O., Dutta, A., Gogol, M., Weake, V.M., Dialynas, G., Wu, X., Seidel, C., Zhang, Y., Florens, L., Washburn, M.P., Abmayr, S.M. and Workman, J.L. (2017). Myeloid Leukemia Factor Acts in a Chaperone Complex to Regulate Transcription Factor Stability and Gene Expression. Journal of Molecular Biology 429(13): 2093-2107. PMID: 27984043. *IF = 4.2; # citations = 5. Top tier journal. My contributions to this work were completed at the Stowers Institute.*

13. Ma J.[b], Brennan K.J.[a], D'Aloia M.R.[a], Pascuzzi P.E. and Weake V.M.* (2016) Transcriptome Profiling Identifies Multiplexin as a target of SAGA Deubiquitinase Activity in Glia Required for Precise Axon Guidance During Drosophila Visual Development. G3 (Bethesda). PMID: 27261002. *IF = 3.0; # citations = 3. Second tier journal.*

14. Stegeman R.[b], Spreacker P.J.[a], Swanson S.K., Stephenson R., Florens L., Washburn M.P. and Weake V.M.* (2016). The Spliceosomal Protein SF3B5 is a Novel Component of Drosophila SAGA that Functions in Gene Expression Independent of Splicing. Journal of Molecular Biology. PMID: 27185460. *IF = 4.2; # citations = 5. Top tier journal.*

15. Stephenson, R., Hosler, M.R.[a], Gavande, N.S., Ghosh, A.K. and Weake, V.M.* (2015). Characterization of a *Drosophila* Ortholog of the Cdc7 Kinase: A Role for Cdc7 in Endoreplication Independent of Chiffon. Journal of Biological Chemistry. *290* (3), 1332 – 1347.

PMID:25451925. *IF = 4.3; # citations = 1. Top tier journal. An image from this article was selected for the cover of this issue.*

16. Ma, J.[b] and Weake, V.M.* (2014). Affinity-based isolation of tagged nuclei from *Drosophila* tissues for gene expression analysis. Journal of Visualized Experiments *85*. PMID:24686501. *IF = 1.7; # citations = 11. Second tier journal.*

17. Mohan, R.D., Dialynas, G., Weake, V.M., Liu, J., Martin-Brown, S., Florens, L., Washburn, M.P., Abmayr, S.M. and Workman, J.L. (2014). Loss of *Drosophila* Ataxin-7, a SAGA subunit, reduces H2B ubiquitination and leads to neural and retinal degeneration. Genes & Development *28*, 259-272. PMC3923968. *IF = 10.6; # citations = 22. Top tier journal. My contributions to this work were completed at the Stowers Institute.*

18. Weake, V.M., Dyer, J.O., Seidel, C., Box, A., Swanson, S.K., Peak, A., Florens, L., Washburn, M.P., Abmayr, S.M., and Workman, J.L. (2011). Post-transcription initiation function of the ubiquitous SAGA complex in tissue-specific gene activation. Genes & Development *25*, 1499-1509. PMID:21764853. *IF = 10.6; # citations = 48. Top tier journal.*

    Highlighted in "The unfolding 'SAGA' of transcriptional co-activators" www.eurekalert.org/pub_releases/2011-07/sifm-tus071411.php

19. Schiemann, A.H., Li, F., Weake, V.M., Belikoff, E.J., Klemmer, K.C., Moore, S.A., and Scott, M.J. (2010). Sex-biased transcription enhancement by a 5' tethered Gal4-MOF histone acetyltransferase fusion protein in *Drosophila*. BMC Molecular Biology *11*, 80. PMC2988783. *IF = 2.3; # citations = 5. Second tier journal.*

20. Schiemann, A.H., Weake, V.M., Li, F., Laverty, C., Belikoff, E.J., and Scott, M.J. (2010). The importance of location and orientation of male specific lethal complex binding sites of differing affinities on reporter gene dosage compensation in *Drosophila*. Biochemical & Biophysical Research Communications *402*, 699-704. PMID: 20977887. *IF = 2.5; # citations = 3. Second tier journal.*

21. Weake, V.M., Swanson, S.K., Mushegian, A., Florens, L., Washburn, M.P., Abmayr, S.M., and Workman, J.L. (2009). A novel histone fold domain-containing protein that replaces TAF6 in *Drosophila* SAGA is required for SAGA-dependent gene expression. Genes & Development *23*, 2818-2823. PMC2800089. *IF = 10.6; # citations = 27. Top tier journal.*

22. Weake, V.M., Lee, K.K., Guelman, S., Lin, C.H., Seidel, C., Abmayr, S.M., and Workman, J.L. (2008). SAGA-mediated H2B deubiquitination controls the development of neuronal connectivity in the *Drosophila* visual system. EMBO Journal *27*, 394-405. PMC2234343. *IF = 10.3; # citations = 93. Top tier journal.*

23. Weake, V.M., and Scott, M.J. (2007). The non-dosage compensated *Lsp1alpha* gene of *Drosophila* melanogaster escapes acetylation by MOF in larval fat body nuclei, but is flanked by two dosage compensated genes. BMC Molecular Biology *8*, 35. PMC1890558. *IF = 2.3; # citations = 6. Second tier journal.*

24. Guelman, S., Suganuma, T., Florens, L., Weake, V., Swanson, S.K., Washburn, M.P., Abmayr, S.M., and Workman, J.L. (2006). The essential gene wda encodes a WD40 repeat subunit of *Drosophila* SAGA required for histone H3 acetylation. Molecular & Cellular Biology *26*, 7178-7189. PMC1592886. *IF = 4.5; # citations = 19. Top tier journal.*

Invited Reviews:

25. Torres-Zelada E.F.[b], Weake V.M.* The Gcn5 complexes in *Drosophila* as a model for metazoa. Biochimica et Biophysica Acta (BBA) - Gene Regulatory Mechanisms. 2020. https://doi.org/10.1016/j.bbagrm.2020.194610.
26. Mao X.[b], Weake V.M., Chapple C.* Mediator function in plant metabolism revealed by large-scale biology. J Exp Bot. 2019 Nov 18;70(21):5995-6003. doi: 10.1093/jxb/erz372.

Invited Reviews published prior to promotion to Associate Professor:

27. Stegeman, R.[b] and Weake, V.M.* (2017). Transcriptional Signatures of Aging. Journal of Molecular Biology 429(16): 2427-2437. PMID: 28684248; PMCID: PMC5662117. *IF = 4.2; # citations = 11. Top tier journal.*
28. Weake, V.M. and Workman, J.L. (2011) SAGA function in tissue-specific gene expression. Trends in cell biology *22* (4), 177-184. PMID:22196215. *IF = 15.2; # citations = 44. Top tier journal.*
29. Weake, V.M., and Workman, J.L. (2010). Inducible gene expression: diverse regulatory mechanisms. Nature Reviews Genetics *11*, 426-437. PMID:20421872. *IF = 44.9; # citations = 293. Top tier journal.*
30. Weake, V.M., and Workman, J.L. (2009). Hit and run: X marks the spot! Nature Structural & Molecular Biology *16*, 801-803. PMID:19654616. *IF = 12.8; # citations = 1.* Top tier journal.
31. Weake, V.M., and Workman, J.L. (2008). Clearing the way for unpaused polymerases. Cell *134*, 16-18. PMID:18614004. *IF = 33.8; # citations = 4. Top tier journal.*
32. Weake, V.M., and Workman, J.L. (2008). Histone ubiquitination: triggering gene activity. Molecular Cell *29*, 653-663. PMID:18374642. *IF = 14.7; # citations = 560. Top tier journal.*
33. Weake, V.M., and Workman, J.L. (2011). Histone Ubiquitination. In Regulation of Organelle and Cell Compartment Signaling, R.A. Bradshaw, and E.A. Dennis, eds. (Elsevier).**Republished from Handbook of Cell Signaling (2009)*
34. Weake, V.M., and Workman, J.L. (2009). Histone Ubiquitination. In Handbook of Cell Signaling, R.A. Bradshaw, and E.A. Dennis, eds. (Oxford:Academic Press), pp. 2449-2460.

Book Chapters:

35. Weake, V.M.* (2014). Histone Ubiquitylation Control of Gene Expression. In Fundamentals of Chromatin, J.L. Workman, and Abmayr, S.A. eds. (Springer). pp. 257-307.

Supporting data sets published through Purdue University Research Repository (PURR):

Supporting data sets containing raw data, detailed protocols and scripts have been deposited in the Purdue University Research Repository for all corresponding-author papers for the PI since 2016. These are linked in the appropriate manuscripts, and can also be located via:
https://purr.purdue.edu/groups/vikkiweake/wiki

1b. Unpublished Work Submitted Under Review:

1. N/A

1e. Work in Progress:

1. Jia, Y., Ferhatoglul, Y., Dmitriev, O.Y., Welham, A.J., Hall, H., Weake, V.M., Scott, M.J. and Moore, S.A. The MOF chromo-barrel domain selectively binds the N-terminal tail of Histone H4 and attenuated binding affects both MSL X-chromosome binding and Histone H4 K16 acetylation in *Drosophila*. *Planned submission date: 2020 (Stan Moore corresponding author)*

2. Exhibition of Creative Work:

Commentary and News Report:

Eye on Vision (26 January, 2018): *Why blue light kills photoreceptors in fruit flies and what that could mean for research into human retinal diseases.* http://eyeonvision.blogspot.com/ Broadcast on WYPL FM 89.3, the Memphis Libraries' broadcast radio station.

The Pulse on AMI-audio (10 January, 2018): *What steps do you take to protect your eyes and eyesight?* https://www.stitcher.com/podcast/the-pulse-on-amiaudio/e/52841747?autoplay=true The Pulse is a radio show in Canada that discusses issues impacting the disabled community (Accessible Media Inc.).

Purdue University Agriculture News: *Fruit fly breakthrough may help human blindness research* https://www.purdue.edu/newsroom/releases/2017/Q4/fruit-fly-breakthrough-may-help-human-blindness-research.html

ScienceNode (30 March, 2016): *Stronger eyes through supercomputing*. https://sciencenode.org/feature/stronger-eyes-through-supercomputing.php

3. Other evidence of creative excellence:

1. Guest Editor for Biochimica et Biophysica Acta (BBA) - Gene Regulatory Mechanisms: Special Issue on "*Gcn5: the quintessential histone acetyltransferase*". Expected publication date fall 2020.
2. Weake, V.M., and Workman, J.L. (2011). Chromatin remodelling and the transcription cycle. Nature Reviews Genetics *12*, No. 2. [Poster] www.nature.com/nrg/posters/remodelling/index.html

4. Presentations:

4a. Lectures presented at regional, national and society meetings (oral):

1. *"Identification of a novel Gcn5 histone acetyltransferase complex in Drosophila that is essential for development and contains the Dbf4 ortholog Chiffon".* ASBMB Evolution and core processes in gene expression Special Symposium. May 9 – 12 2019, Michigan State University, East Lansing, MI.

Seminar lectures presented prior to 2019: Experimental Biology 2018, Stowers workshop 2017, Midwest Chromatin and Epigenetics Meeting 2016, FASEB Biology and Chemistry of Vision 2013, Annual Drosophila Research Conference 2010, FAEB Transcriptional Regulation during Cell Growth, Differentiation and Development 2008, Szeged minisymposium histone modifying complexes (Hungary) 2008.

4b. Presentations presented at regional, national and society meetings (posters):

Underlined name, presenter.

1. Torres-Zelada, E.F. *A novel Dbf4-Gcn5 HAT complex is necessary for histone H3 acetylation and viability in Drosophila*. Mechanisms of Eukaryotic Transcription. Cold Spring Harbor Laboratory. August 27 – 31, 2019.

Posters presented by PI at national/international meetings prior to 2019: 3

Posters presented by lab members at national/international meetings prior to 2019: 9

4c. Invited Seminar Lectures:

1. *"New functions for the DNA replication regulator Dbf4 in histone acetylation in insects".* Department of Biology, IUPUI, Indianapolis, Indiana, March 13th 2020. (postponed due to COVID-19)
2. *"What's so stressful about aging in the fly eye?".* Glick Eye Institute, IUPUI, Indianapolis, Indiana, September 26th 2019.

Seminar lectures presented prior to 2019: University of Reno (Reno, NV 2018), Purdue University (2018), Wayne State University (Detroit, MI 2017), IUPUI (Indianapolis, IN 2017), Northwestern University (Evanston, IL 2017), Purdue University Calumet (Hammond, IN 2016), IU Bloomington (Bloomington IN 2015), National Eye Institute (Bethesda, MD 2013), Cawthron Research Institute (Nelson, New Zealand 2011).

4d. Career Development:

1. 7th Annual Conference for Pre-Tenure Women, Purdue, September 8 – 9, 2016.
2. David Morrison Grant writing workshop, November 2013 – June 2013.
3. Effective College Teaching workshop (sponsored by Colleges of Agriculture and Engineering), November 20th – 21st, 2013.

5. Involvement in the Graduate research Program:

Supervise Ph.D. work (ordered by starting year):

1. Rachel Stegeman (Graham), Biochemistry, March 2013 – November 2018. *Current position: Postdoctoral fellow, University of Minnesota Medical School in Pediatric Rheumatology (PI: Bryce Binstadt).*
2. Jingqun Ma, Biochemistry, March 2013 – May 2017. *Current position: Bioinformatician/Computational Biologist, University of Michigan Medical School.*
3. Xiangying "Candy" Mao, Biochemistry (co-supervise with Clint Chapple), March 2014 - May 2019. *Current position: postdoctoral scholar MD Anderson.*
4. Eliana Torres-Zelada, Pulse, May 2016 –
5. Spencer Escobedo, Biochemistry, March 2017 –
6. Juan Pablo "Jupa" Jauregui, Biochemistry, March 2018 –

Supervise M.S. work: *not applicable*

Ph.D. Advisory Committee Service (ordered by starting year):

Current: Srishti Chakravorty, Biochemistry (PI: Majid Kazemian), 2017; Jennifer Hensel, Pulse (PI: Chris Rochet), 2018; Sudhanshu Shekhar, Pulse (PI: Andrea Kasinski), 2018; Ronard Kwizera, Biochemistry (PI: Ann Kirchmaier), 2019; Sandra Ordonez, MCMP (PI: Emily Dykhuizen), 2019.

Prior to promotion to Associate Professor: Biochemistry (Hunter Balduf, Nina Serratore, Zheng "Cindy" Xing, Courtney Traugh, Kirsten Westerhouse); Pulse (Elizabeth Porter, Xin Wen, Tiffany Young); Biological Sciences (Nazratan Naeem); Statistics (Patrick Medina).

Served on Ph.D. Prelim Exam Committee:

Sudhanshu Shekhar, Pulse, 2019 (CHAIR); Sherlene Brown, Biochemistry, 2019 (CHAIR); Sandra Ordonez, MCMP, 2019; Surbhi Sood, Pulse, 2019; Debasmita Saha, Biochemistry, 2020 (CHAIR); Matthew Russon, Biochemistry, 2020.

Prior to promotion to Associate Professor: Biochemistry (Nina Serratore, Yu-hsuan Karen Lai, Allison Norvill, Srishti Chakravorty); Pulse (Yong Gu, Hyunjin Kim); Biological Sciences (Nazratan Naeem)

Served on Ph.D. External Defense Committee:

Patrick Main (PI: Helen Fitzsimons), Massey University, New Zealand 2019

Prior to promotion to Associate Professor: Silvia Schwartz (PI: Helen Fitzsimons), Massey University, New Zealand 2017

Rotation students supervised:

Stephanie Sullymar Diaz, Biochemistry (2019); Mithila Shukla, Biochemistry (2019); Jill Cornell, Pulse (2019); Sarah Stanhope, Biochemistry (2020).

Prior to promotion to Associate Professor: 14 rotation students supervised from Biochemistry and Pulse programs.

6. Undergraduate Research Mentoring:

Undergraduate Awards, Fellowships, and Graduate positions are described as applicable.

Current undergraduate research students:

Ellis Anderson, Kimaya Bahkle, Alyssa Easton, Hannah Blum.

Prior to promotion to Associate Professor: Benjamin Anderson, Aditya Bhatt, Kaelan Brennan, Amy Bowman, Edwin Colon Acosta, Mitch D'Aloia, Duncan Eccles, Emily Fletcher, Alejandro Garcia, Arrianna Hagins, Mikaela Hand, Arryn Harris, Phyllicia Hemphill, Marcus Hosler, Hanna Hughes, Brianna Kennedy, Travis Lantz, Kevin Lin, Oscar Montenegro, Nicholas Nelson, David Ojewole, Solymar Pellot, Gerardo Rubio, Aashka Shah, Peyton Spreacker, Claire Stamper, Hannah Yen, Yuta Yokoyama, Emory York.

Publications co-authored by undergraduate students:
Full details for these publications are listed under section 1a.

Marcus Hosler: Stephenson et al. 2015 Journal of Biological Chemistry.

Kaelan Brennan: Ma et al. 2016 G3, and Hall et al. 2017 BMC Genomics.

Mitch D'Aloia: Ma et al. 2016 G3.

Peyton Spreacker: Stegeman et al. 2016 J. Mol. Biol.

Ben Anderson: Torres-Zelada et al. 2019 J.C.S.

7. Grant Activities (Research grants and awards received):

7a. Current Grants:

Agency/Title of Grant: NIH/R01: *Epigenetic regulation of gene expression in the aging eye*
Duration of Funding: 04/01/2015 – 03/31/2020 (no-cost extension until 03/31/2021)
Total amount of award: $1,902,763 ($1,250,000 direct costs)
Your role: Principal Investigator (100%)

Agency/Title of Grant: NIH/R01: *Epigenetic regulation of gene expression in the aging eye* (Renewal)
Duration of Funding: 09/01/2020 – 08/31/2021
Total amount of award: $376,148 ($250,000 direct costs)
Your role: Principal Investigator (100%)
**One year bridge funding awarded (29% percentile score on competitive renewal)*

Agency/Title of Grant: NSF: *Developmental functions of insect Dbf4 link replication and transcription*
Duration of Funding: 08/15/2019 - 07/31/2022
Total amount of award: $690,000 ($467,799 direct costs)
Your role: Principal Investigator (100%)

Agency/Title of Grant: CTSI Core Pilot: *Proteomic and transcriptome changes in the aging eye*
Duration of Funding: 3/1/19-2/28/21
Total amount of award: $10,000
Your role: Principal Investigator (100%)

Agency/Title of Grant: NIH/R21: *R-loops as a novel driver of photoreceptor aging*
Duration of Funding: 01/01/2020 - 12/31/2020
Total amount of award: $376,148 ($250,000 direct costs)
Your role: Principal Investigator (50%); co-PI, Hana Hall

7b. Pending Grants:

7c. Past Grants:

Agency/Title of Grant: PUCRR:CIS: *The Drosophila eye as a model for ferroptosis*
Duration of Funding: 07/01/2018
Total amount of award: $3,400
Your role: Principal Investigator (50%): co-PI, Ourania Andrisani.

Agency/Title of Grant: PUCRR:CIS: *Test Dbf4-Gcn5 interaction in mammalian cells*
Duration of Funding: 02/12/2018
Total amount of award: $2,000
Your role: Principal Investigator (50%): co-PI, Emily Dykhuizen.

Agency/Title of Grant: CTSI/Core Pilot Funding program: *Confocal microscopy analysis of photoreceptor-specific gene expression in aging eyes*
Duration of Funding: 01/01/2014 – 02/28/2017
Total amount of award: $9,900 (Core Facility Use only)
Your role: Principal Investigator (100%)

Agency/Title of Grant: Chromatin and Epigenetics Symposium (EVPR Cluster Building Communities Awards)
Duration of Funding: 01/01/2016 – 12/31/2016
Total amount of award: $12,800
Your role: Principal Investigator/Chair organizing committee

Agency/Title of Grant: College of Agriculture, Office of Academic Programs Funding for Professors: Development of Introductory Biochemistry laboratory
Duration of Funding: 02/01/2016
Total amount of award: $1,000 (for laboratory equipment start-up costs)
Your role: Principal Investigator (100%)

Agency/Title of Grant: Showalter Trust: *Misregulation of stress-induced transcriptional activation in the aging eye*
Duration of Funding: 07/01/2014 – 06/30/2016 (1 year no-cost-extension)
Total amount of award: $75,000
Your role: Principal Investigator (100%). *Co-PIs, Don Ready (Biological Sciences) and W. Daniel Leon Salas (ECET) collaborated with our laboratory to identify genes that are misregulated in the aging eye in response to blue light stress.*

Agency/Title of Grant: Purdue HHMI Undergraduate Course Development Award: *Development of new laboratory course for BCHM10*
Duration of Funding: 01/01/2015 – 05/30/2015
Total amount of award: $18,815
Your role: Principal Investigator (100%)

Agency/Title of Grant: Agricultural Research at Purdue Assistantships in Food and Agriculture: *Drosophila SAGA as a model for SCA7-associated blindness*
Duration of Funding: 07/01/2013 – 07/01/2015
Total amount of award: $37,000
Your role: Principal Investigator (100%)

Agency/Title of Grant: 2013 Shared Resource Project Grant (Purdue Cancer Center): *Synthesis of specific inhibitor for Cdc7 kinase*
Duration of Funding: 10/01/2013 – 01/31/2014
Total amount of award: $2,900
Your role: Principal Investigator (100%), *Co-PI, Arun Ghosh collaborated with our lab to synthesize specific Cdc7 inhibitors that we tested in both in vitro and in vivo systems against the Drosophila kinase.*
Agency/Title of Grant: CTSI – PDT: *Proteomic identification of SAGA substrates relevant to SCA7*
Duration of Funding: 06/01/2013 – 05/31/2014
Total amount of award: $10,000
Your role: Principal Investigator (100%), *Co-PI, Amber Mosley, IU Medicine collaborated with our lab to identify novel non-histone substrates of SAGA deubiquitylase activity using a proteomic approach.*

Agency/Title of Grant: OVPR Laboratory Equipment Program: *QIAgility instrument*

Duration of Funding: May 31, 2013
Total amount of award: $53,738
Your role: Co-writer (0%) (PI: Ann Kirchmaier)

Agency/Title of Grant: Purdue University Center for Cancer Research American Cancer Society (ACS) Institutional Grant program for new investigators: *Epigenetic regulation of CDC7 activity*
Duration of Funding: 02/01/2014 – 01/31/2015
Total amount of award: $30,000
Your role: Principal Investigator (100%)

Agency/Title of Grant: Showalter Trust/Bioinformatics Award: *Analysis of gene expression in the developing and aging eye*
Duration of Funding: 02/01/2014 – 01/31/2015
Total amount of award: 100 - 150 hours, $6,000 - $9,000 (Core Facility Use only)
Your role: Principal Investigator (100%)

8. Current Research Interests: *(last updated spring 2019)*

Dr Weake's lab website: https://ag.purdue.edu/biochem/weake

The goal of Dr. Weake's work is to understand the epigenetic mechanisms that control gene expression in different cell types in metazoans. Although every cell in our bodies contains the same genetic information in the form of DNA, each cell has its own distinct characteristics that can be controlled and inherited by *epigenetic* factors that bind or modify the DNA. During early embryogenesis, developmental events and cell growth are exquisitely coordinated with rapid cell divisions to lay out a body plan for the growing animal. Later during aging, neurons in the brain no longer divide and become susceptible to cumulative damage resulting from exposure to stress, and the passage of time itself. Dr. Weake seeks to understand how evolutionary pressures associated with multicellular development have shaped transcriptional regulation in these different types of cells. For example, specific genomic features are associated with genes expressed during distinct developmental stages; the short cell cycle length in early embryogenesis favors the expression of short intron-less genes, whereas post-mitotic neuronal cells tend to express longer genes, which are often heavily spliced. Her lab has become recognized for the development of techniques to perform cell type-specific transcriptomics using the fruit fly (*Drosophila melanogaster*), a powerful model system for developmental biology. Cell type-specific approaches are increasingly regarded as being important to understand development and aging in complex, heterogeneous tissues. The cell type-specific approaches pioneered by Dr. Weake's lab to study aging in the eye provide key information that could help to prevent or delay the onset of age-associated neurodegenerative disease, including age-associated ocular diseases such as age-related macular degeneration (Project 1). In addition, her work has provided insight into the developmental roles of chromatin modifying complexes in metazoans (Project 2).

Project 1: Epigenetic mechanisms in the aging eye. The incidence of ocular disease increases with age with 21% of people older than 75 years reporting visual impairment. Although factors such as diet and smoking increase the risk of developing age-associated ocular disease, age itself remains the major risk factor associated with diseases such as age-related macular degeneration. The eye experiences a high oxidative stress environment due to the high metabolic demand of vision, high oxygen content and exposure to light, which can induce photo-oxidative stress. Most research on aging focuses on longevity in animal models, and typical studies of gene expression or epigenetic profiles have been conducted in whole animals or tissues (reviewed in Stegeman & Weake 2017 JMB). In contrast to these traditional approaches, Dr. Weake has developed methods to profile gene expression specifically in individual cell types (Ma & Weake 2014 JoVE). This is important because tissues are composed of heterogeneous mixtures of cells, with each cell type possessing its own gene expression profile and epigenome. Using the approaches developed in her lab, Dr. Weake's group have profiled the transcriptome of aging photoreceptors in *Drosophila* (Hall et al. 2017 BMC Genomics). These studies revealed gene expression changes, including decreased expression of synaptic transmission genes, that correlate with decreased visual behavior in aging flies. Importantly, the decrease in visual behavior in aging flies is not caused by cell death, suggesting that aging photoreceptors possess gene regulatory pathways that promote neuronal survival, potentially at a cost to visual function. One of the key goals in Dr. Weake's current research is to identify the mechanisms that control this balance between survival and visual function in aging photoreceptors. Several lines of evidence from recent studies in Dr. Weake's lab point to light as one of the major environmental factors that contributes to age-associated stress and gene expression changes in photoreceptors. In flies, exposure to strong blue light induces retinal degeneration (Chen et al. 2017

HardwareX). Work from Dr. Weake's lab has shown that blue light exposure causes retinal degeneration in flies due to lipid peroxidation, oxidative damage caused to lipids by reactive oxygen species (Chen et al. 2017 NPJ Aging & Mech. Dis.). Photoreceptors have a high concentration of polyunsaturated fatty acids, making them extremely susceptible to lipid peroxidation. Importantly, lipid peroxidation is an emerging therapeutic target for age-associated neurodegenerative and ocular disease. Thus, blue light provides an effective approach to mimic the effect of the chronic stress resulting from long-term light exposure on aging neurons. Supporting this idea, Dr. Weake's group have shown that the gene expression changes observed in young photoreceptors exposed to blue light include stress response pathways similar to those induced during aging (Hall & Ma 2018 BMC Neuroscience). The blue light studies recently published in NPJ Aging & Mech. Dis., a partner journal of Nature, have received wide-spread attention from the blind and visually impaired community, and Dr. Weake was interviewed on two radio stations that serve this community (Eye on Vision, 26 January 2018 http://eyeonvision.blogspot.com/; The Pulse on AMI-audio, 10 January 2018 https://www.stitcher.com/podcast/the-pulse-on-amiaudio/e/52841747?autoplay=true).

Although Dr. Weake's work suggests that light-induced oxidative stress is a major contributor to age-associated gene expression changes in photoreceptors, emerging evidence from her group indicates that changes in splicing also contribute to the age-associated decline in visual behavior. Splicing, in which portions of the emerging RNA transcript are cut and joined together, allows many different proteins to be produced from the same gene. Neuronal genes are often heavily spliced, suggesting that neurons could be extremely sensitive to any defects in splicing. Recently published work from Dr. Weake has shown that aging photoreceptors have altered patterns of splicing, particularly in genes that are required for visual function. Further, multiple splicing factors show decreased expression in aging photoreceptors, and these same splicing factors are required in young photoreceptors for proper visual behavior. Together, these data suggest that proper splicing is essential to prevent visual senescence (Stegeman et al. 2018 Aging Cell).

Current research in Dr. Weake's lab now seeks to identify the gene expression regulators that promote photoreceptor survival and enhance visual behavior during aging. Identifying these factors, which may drive the gene expression changes observed during aging, provides a mechanism to restore the balance in aging photoreceptors between function and survival. Eventually, this research could help identify pathways and global regulators of gene expression that can be targeted to prevent or delay the onset of ocular disease, thereby prolonging healthy visual function.

Funding**:** This work is supported by NIH R01 *Epigenetic regulation of gene expression in the aging eye*, and by the completed Showalter Trust Award *Misregulation of stress-induced transcriptional activation in the aging eye*. Funding from completed CTSI/Core Pilot Funding program *Confocal microscopy analysis of photoreceptor-specific gene expression in aging eyes* supported development of single-cell analysis protocols for this project.

Project 2: Developmental functions of metazoan chromatin modifying complexes. In eukaryotic cells, DNA is wrapped in chromatin, a nucleoprotein structure that is largely inhibitory to gene expression. Enzymatic complexes that modify this chromatin structure by post-translational modifications, or by remodeling this structure to expose DNA, are critical for gene expression. Histone acetyltransferases are a class of chromatin modifying complexes that acetylate histone proteins within the nucleosome, generally activating gene expression by promoting chromatin remodeling. The Gcn5

histone acetyltransferase is one of the major histone H3 acetyltransferases and has critical roles in transcription and development. Dr. Weake's group have shown that the Gcn5-containing complex, SAGA, activates expression of genes in glial cells in the developing brain that are necessary for photoreceptor neurons to project their growing axons to the correct region of the brain (Ma et al. 2016 G3). In addition, her lab identified two new subunits of SAGA that are shared with the spliceosome, SF3B3 and SF3B5 (Stegeman et al. 2016 JMB).

Recently, her group has identified a new Gcn5-containing complex that contains the cell cycle regulatory protein Dbf4 (Torrez-Zelada et al. JCS). These studies build on earlier findings from Dr. Weake that identified the *Drosophila* ortholog of the cell cycle kinase Cdc7, which binds and activates Dbf4 *(Chiffon* in flies) (Stephenson et al. 2015 JBC). Dbf4 and Cdc7 are required to initiate DNA replication in all organisms, but in flies, Chiffon has an additional role in regulating histone acetylation. We propose that although the DNA replication and histone acetylation activities of Chiffon can be separated, these have evolved as part of the same gene structure to coordinate DNA replication and gene expression during specialized phases of development such as early embryogenesis. These studies will provide insight into the specialized developmental roles of Dbf4 paralogs in DNA replication, chromatin modification and gene expression in insects. Moreover, emerging developmental functions of Dbf4, particularly in gene expression, may represent a common theme in metazoans; although Dbf4 and Gcn5 do not interact in yeast or human cells, Dbf4 has links with chromatin modifications and transcription factors in these organisms. This work is highly relevant to human disease because Cdc7 is an emerging therapeutic target in human cancer, and understanding how transcription and replication are coordinated in developing cells is a fundamental question in biology.

Funding: The Cdc7/Gcn5 studies were funded by the Purdue University Center for Cancer Research American Cancer Society (ACS) Institutional Grant program for new investigators *Epigenetic regulation of CDC7 activity* and through a 2013 Shared Resource Project Grant from the Purdue Cancer Center *Synthesis of specific inhibitor for Cdc7 kinase*. An NSF application on this project has been funded (July, 2019): *Developmental functions of insect Dbf4 link replication and transcription*.

9. Evidence of Interdisciplinary Activity:

9a. Membership in interdisciplinary groups:

Purdue Center for Cancer Research, 2012 – present

PULSe: Chromatin and Regulation of Gene Expression Training Group, 2012 – present

PULSe: Integrative Neuroscience Training Group, 2016 - present

Independent Interdisciplinary Graduate Program, Purdue University, Application Review Panel, 2015.

Organizer: Chromatin & Epigenetics Symposium, October 11th 2016

Integrative Neuroscience Departmental Liaison Committee, 2016 – present

9b. Collaborations:

On campus:

Clint Chapple, Distinguished Professor, Department of Biochemistry, Purdue University, West Lafayette, IN. *Arabidopsis Mediator complex and transcription regulation*.

Walter Daniel Leon-Salas, Associate Professor of Electrical and Computer Engineering Technology, School of Engineering Technology, Purdue Polytechnic Institute, West Lafayette, IN. *Optical stimulators for Drosophila eye.*

Don Ready, Professor, Biology Department, Purdue University, West Lafayette, IN. *Blue-light stress in the Drosophila eye.*

Off campus:

Pedro Miura, Assistant Professor, Department of Biology, University of Nevada, Reno. *Role of circRNA in visual function and ageing in Drosophila.*

Stanley Moore, Associate Professor and Graduate Chair, Department of Biochemistry, University of Saskatchewan, Saskatoon, Canada. *Characterization of MOF histone acetyltransferase mutations in protein localization and function in Drosophila*.

Completed:

Ourania Andrisani, Professor, Basic Medical Sciences, Purdue University, West Lafayette, IN. *Drosophila blue light stress as a model for ferroptosis in cancer drug resistance.*

Scott Briggs, Associate Professor, Department of Biochemistry, Purdue University, West Lafayette, IN. *Gcn5 regulation of H3K4m3 demethylation in Drosophila.*

Rebecca Doerge, Trent and Judith Anderson Distinguished Professor of Statistics, Departments of Statistics and Agronomy, Purdue University, West Lafayette, IN. *Bioinformatic analysis of transcriptional changes in the aging eye.*

Emily Dykhuizen, Assistant Professor, Medicinal Chemistry and Molecular Pharmacology, Purdue University, West Lafayette, IN. *Gcn5 and Dbf4 complexes in mammalian cells.*

Arun Ghosh, Distinguished Professor, Medicinal Chemistry Program, Purdue University, West Lafayette, IN. *Cdc7 inhibitor synthesis and evaluation.*

Pete Pascuzzi, Assistant Professor, Purdue Libraries, Purdue University, West Lafayette, IN. *Bioinformatics collaborations.*

Tamara Kinzer-Ursem, Assistant Professor of Biomedical Engineering, Purdue University, West Lafayette, IN. *Single molecule FISH analysis.*

10. Evidence of National or International Recognition:

10a. Reviewer for Professional Journals:

BBA-Gene Regulatory Mechanisms, Cell Cycle, Cell Reports, Cell Stem Cell, Developmental Biology, eLife, Epigenetics, Epigenetics and Chromatin, Experimental Eye Research, Experimental and Molecular Pathology, FEBS Letters, Genome Research, Genes & Development, Journal of Biological Chemistry, Molecular Cell, Nature, Nature Structural & Molecular Biology, NPJ Molecular Phenomics, Nucleic Acids Research, Nucleus, PLOS One, PLOS Genetics, Scientific Reports.
Handbook of Epigenetics: chapter *Drosophila Epigenetics*
Peer review activity for Dr. Weake from 2016 - present is available through Publons: https://publons.com/author/1359952/vikki-weake#profile

10b. Reviewer for Grants:

Purdue: Purdue Center for Cancer Research (2014, 2015), AgSEED proposals (2015), College of Agriculture Hatch Project (2018)
Indiana: CTSI Core Pilot Grants (2016, 2019)
NIH: NIH/NEI K99 review (2016, 2017, 2018), NIH/NEI/Biology of Visual System: Study Section (2018, 2019), NIH Special Emphasis Panel Fellowship: Cell Biology, Developmental Biology, and Bioengineering (F05-U) (2020 Spring, Fall),

Part II: Section B "LEARNING" (last updated spring 2019)

Teaching Philosophy: Dr. Weake has had a unique contribution to undergraduate teaching in the Department of Biochemistry through teaching BCHM100 "Introduction to Biochemistry" (spring semester) and developing a new Biochemistry laboratory course targeting freshmen (BCHM101). This laboratory course has provided incoming students with an opportunity to experience authentic research that prepares them for independent undergraduate research. In addition, the laboratory course provides opportunities for peer mentoring within the Department of Biochemistry because junior- and senior-level Biochemistry major students participate in this laboratory to lead and mentor groups of freshmen in their research.

Long-term goal and future plans: Dr. Weake aims to recruit more incoming students into the Biochemistry major through two introductory Biochemistry courses aimed at freshmen and sophomore students: (1) BCHM100 "Introduction to Biochemistry" (spring); and (2) BCHM101 "Introduction to Biochemistry laboratory" (spring). Her educational goal is to provide an authentic course-based research experience (CURE) to undergraduate students as early as possible during their university career to enhance their performance, retention and research skills in Biochemistry.

Rationale: Exposure to undergraduate research has been shown to improve the retention of students in STEM fields, and is particularly effective in improving retention rates for under-represented minorities. Further, inquiry-based laboratory instruction has been shown to facilitate active student engagement and increase retention of students in STEM fields. There is an emerging consensus in the STEM education field that undergraduates should be exposed to research experiences as early as possible during their undergraduate training. However, one challenge of traditional undergraduate research apprenticeships is that there are limits to the numbers of students who can participate due to constraints on faculty time, space and resources. To address this challenge, both the President's Council of Advisors on Science and Technology and the National Academies of Science, Engineering and Medicine have advocated for discovery-based research courses such as CUREs that provide access to all students, rather than a privileged small number of selected undergraduates. Undergraduate participation in a CURE has been shown to significantly increase the probability of a student graduating within six years with a STEM degree independent of students' gender, race/ethnicity or first-generation college status.

Courses taught in past five years:
BCHM100 (spring), BCHM101, BIOL 695 (Neurological and Neuropsychiatric Disorders Seminar, Guest lecture, Age-related Eye Disease)

Courses with administrative or supervisory responsibility:
BCHM100 (spring), BCHM101.

Contributions in course and curriculum development:

BCHM100: Dr. Weake has revised BCHM100 lecture material, in collaboration with Dr. Chapple, to include more active learning exercises. Students use Pymol extensively in class, and this provides an invaluable tool for illustrating aspects of protein structure and function.

BCHM101: BCHM101 teaches fundamental principles of protein structure and function through real-world research activities relevant to the current projects in the Weake laboratory. Dr. Weake developed and tested a CURE lab with 14 freshmen undergraduate students in 2016. This 3-hour weekly semester-long CURE was offered to a subset of self-selecting students from BCHM100, which includes students from a variety of programs including Biochemistry, Biology, Chemistry, and Food Science. Dr. Weake proposes to expand this CURE laboratory as part of her current NSF CAREER application (2018). The CURE lab projects are modified each year to fit active research questions from Dr. Weake's group, and are matched with the research interests of the graduate student teaching assistant, who is also from Dr. Weake's laboratory. One key aspect of the CURE laboratory is the inclusion of undergraduate peer-mentors. Peer-mentoring has been identified as playing a critical role in the retention of students into STEM disciplines. Junior- and senior-level Biochemistry undergraduates have worked as peer mentors for BCHM101, receiving research credit for this experience through BCHM298/498. These peer mentors are not traditional undergraduate teaching assistants because they are involved in both the design, development and implementation of the CURE laboratory. This approach has allowed the flexibility to readily modify the experimental aims of the CURE each year so that it yields data that is most relevant to Dr. Weake's current research question.

Funding: Based on Dr. Weake's vision and plan for the course, the College Ag and the Department of Biochemistry provided significant funds for the purchase of new equipment for the course in addition to continual TA support. Pilot funding for development of BCHM101 was also received from the Purdue Howard Hughes Medical Institute, Undergraduate Science Education "Deviating from the Standard: Integrating Statistical Analysis and Experimental Design into Life Science Education. 9/1/2010-8/31/2014. PI: Dennis Minchella. Co-PI: James Forney.

1. **Preparation of instructional materials**: See Section 3, CURE development.
2. **Experimentation in teaching methods and techniques**: See Section 3, CURE development.
3. **Special activities**: See Section 3, CURE development.
4. **Development innovative educational offerings**:

BCHM100 as a recruitment initiative for Biochemistry: Dr. Weake began teaching BCHM100 "Introduction to Biochemistry" in the spring semester of 2014. Prior to this, BCHM100 was only offered during the fall semester and was primarily targeted to Biochemistry majors. Over the past 4 years, between 2 and 7 exploratory students have completed BCHM100 each spring, suggesting that the spring offering of BCHM100 does provide a mechanism to expose exploratory/undecided majors to the Biochemistry major. Moreover, between 2014 and 2017, 27 students transferred into the Biochemistry major after taking BCHM100 in the spring semester. Notably, the number of Chemistry students in the spring offering of BCHM100 remains relatively high, suggesting that BCHM100 provides a useful mechanism to expose Chemistry majors to the Biochemistry program in our department. Enrolment in BCHM100 was restricted to freshmen and sophomores in 2018 to enhance access to these students. This may have resulted in reduced enrolment in spring 2018.

	Number of students		
Year	enrolled BCHM100	Transferred to Biochem. (CODO)	Transferred to Biochem.minor
2014	47	11	1
2015	66	3	1
2016	61	5	5
2017	47	10 (+1 dual major)	2
2018	42	1	2
2019	42	3	3
2020	54	4	

5. Recognition received/impact:

BCHM100	**Overall Course Rating***	**Instructor Performance**	**Instructor Preparation**	**Response Rate**
Spring 2014	4.6	4.8	4.9	20/47 (43%)
Spring 2015	4.0	4.6	4.6	15/66 (23%)
Spring 2016	4.1	4.6	4.7	55/61 (90%)
Spring 2017	4.1	4.5	4.9	45/47 (96%)
Spring 2018	4.7	4.7	4.9	32/38 (84%)
Spring 2019	4.4	4.6	4.7	41/42 (98%)
Spring 2020	NA	NA	NA	NA

*median shown for all rankings (1 – 5 scale)

BCHM101	**Overall Course Rating**	**Instructor Performance**	**Instructor Preparation**	**Response Rate**
Spring 2016	4.9	4.9	4.9	14/14 (100%)
Spring 2017	5.0	5.0	5.0	8/12 (67%)
Spring 2018	4.7	4.8	4.7	11/12 (92%)
Spring 2019	5.0	5.0	4.9	15/17 (88%)
Spring 2020	NA	NA	NA	NA

2. Commitment to active and responsive mentoring of students:

Dr. Weake advises eight undergraduate students as part of the Biochemistry Department's faculty mentoring initiative for undergraduate students. In addition, she has mentored 33 undergraduate students who have worked on research projects in her lab (*Section II.6*). Dr. Weake has also mentored one postdoctoral researcher, Dr. Xinping Chen, who now has a faculty position (Professor) in China at Lanzhou University. She is currently mentoring another postdoctoral researcher, Smitha George, who joined the lab in 2020. She has also mentored a senior scientist, Dr. Hana Hall, who is moving into a research faculty career track and will be developing an independent lab. She has mentored six Ph.D. students: three current students are in the lab and three have graduated and moved onto postdoctoral positions.

3. Other evidence of teaching excellence:

Prior to 2019: 9 guest lectures, Richard L. Kohls Early Career Award nominee Biochemistry (2014 – 2019).

Part II: Section C "ENGAGEMENT"

University/Departmental Activities

1 – 7: *not applicable.*

8. University or Departmental Administrative Services:

Current:
Biochemistry Department Undergraduate Curriculum Committee 2020 –
College of Agriculture Curriculum & Student Relations Committee (CSRC) 2020 -
Imaging Faculty Advisory Committee (Bindley) 2020
Completed:
A/P advancement Committee (2013-2018); Pulse Executive Committee (2013-2016); Spring Awards Committee (2014); Biochemistry Department Head Search Committee (2014); Independent Interdisciplinary Graduate Program, Application Review Panel (2015); Graduate Women in Agriculture, Faculty Advisor (2015-2018); Biochemistry Department Graduate Admissions Committee (2012-2015); Biochemistry Department Graduate Admissions Committee (2017 – 2020); Biochemistry Department Seminar Committee (2016 – 2020); Biochemistry Department Advisory Committee to Department Head (2018 - 2020); Biochemistry Department Graduate Executive Committee (2018 – 2020).

9 – 14:

Engagement: *"What's so stressful about getting old?"* Science on Tap, November 29th 2018, Lafayette Brewing Company, Lafayette, Indiana