Steroid hormones like estrogens have profound effects on the developing, adult, and aging brain in vertebrates of both sexes. Estradiol modulates various indices of neuroplasticity including neurogenesis, neuronal migration, synaptic connectivity, and cell death. This is particularly obvious in some species of songbirds, where entire circuits of the adult brain degenerate and regenerate annually. Some songbirds constitutively synthesize estradiol in neurons and synapses within the brain itself; and at levels high enough to affect complex behaviors like learning and memory. Estradiol synthesis can also be induced in glial cells following neurotrauma, where we are beginning to learn about the complex interactions between inflammatory processes and neural steroid synthesis. I will discuss some of our findings with emphasis on the critical roles of ecologically valid animal models and interdisciplinary approaches in neuroscience research and teaching.
Aimee Judd, Aquinas College
Major(s): Mathematics, and Education with an emphasis in Learning Disabilities
Senior, Class of 2020
Research Mentor(s): Joseph Fox, PhD – Associate Professor of Mathematics
“Combinatorics of Citation Networks”

Meghan Schilthuis, Calvin College
Major(s): Biology
Senior, Class of 2019
Research Mentor(s): Anding Shen, PhD – Associate Professor of Biology
“Lymphatic Endothelial Cell Stimulation Promotes HIV-1 Infection in CD4+ T Cells”

Kathryn Sheets, Grand Valley State University
Major(s): Ecology & Evolutionary Biology
Senior, Class of 2018
Research Mentor(s): Eric Snyder, PhD – Professor of Biology
“Assessing the impact of mussel bed presence on aquatic macroinvertebrate communities and stream function”

Skylar Sundquist, Hope College
Major(s): Biochemistry and Molecular Biology
Junior, Class of 2020
Research Mentor(s): Maria Hledin, PhD – Professor of Biomedicine & Chemistry
“The Regulation of Cellular Proliferation by VACM-1/CUL5 is Dependent on its Posttranslational Modifications by NEDD8”
Leslie Wyman, PhD Candidate – Cell and Molecular Genetics
Van Andel Institute Graduate School
Alumna: Grand Valley State University – Bachelor of Science, Cell and Molecular Biology, 2015
Research Mentor: Darren Moore, PhD

“Mechanisms of LRRK2 dimerization and activity”

Co-Authors: Darren Moore, PhD

Student Profile: https://vaigs.vai.org/current-students-alumni/students/leslie-wyman/

Robert Vaughan, PhD Candidate – Cell and Molecular Genetics
Van Andel Institute Graduate School
Alumnus: Grand Valley State University – Bachelor of Science, Cell and Molecular Biology, 2012
Research Mentor: Scott Rothbart, PhD

“Growing with the scientific community in West Michigan”

Student Profile: https://vaigs.vai.org/current-students-alumni/students/robert-vaughan/
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WEST MICHIGAN REGIONAL UNDERGRADUATE SCIENCE RESEARCH CONFERENCE

2018 POSTER PRESENTATIONS
Poster presentations

AUTHORS LIST
Pages 4-7 includes a table with a list of principal presenting authors by last name
Co-Presenting authors, co-authors and research mentors are included with the detailed poster information on pages 8-27

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<td>Eric Snyder</td>
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53. Caroline Andrews, Hillsdale College  
Co-Authors: Jerry Fowler, Sasha Jakubek, Paul Scheet  
“Evaluation of Sensitivity and Specificity of Computational Techniques for Detecting Allelic Imbalance”

54. Rachael Tolsma, Hillsdale College  
“Generating NIH/3T3 based hnRNPA1 knockout cell lines using CRISPR-Cas”

55. Schuylar Brunink, Hope College  
Co-Presenting Authors: Emma Wabel  
Co-Authors: Sarah O’Mara, Philip Versluis, and Dr. Maria Burnatowska-Hledin*  
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56. Sarah Dible, Hope College  
Co-Authors: Dr. McDonough  
“The Role of OPI1 In The Regulation of OLE1 Expression”

57. Riley Draper and Austin Smith, Hope College  
Co-Authors: Virginia McDonough, PhD  
“Arv1p influences the regulation of the stearoyl-CoA desaturase”

58. Alexandra Wyeth, Hope College  
Co-Authors: Gonzalo Quiroga Artigas, Christine E. Schnitzler  
“A detailed head regeneration timeline in the cnidarian Hydractinia symbiolongicarpus”

59. Emma Dewey, Indiana Wesleyan University  
Co-Authors: W. Matthew Sattley, Jennifer Baker, Lynn M. Stokes, Austin M. Huntington, Kathryn N. Shaffer, Brad M. Burchell, Michael T. Madigan  
“Complete genome analysis of the alkalophilic and minimalistic phototrophic bacterium Heliorestis convoluta”

60. Brock Goeglein, Indiana Wesleyan University  
Co-Authors: Thomas Leuschner, Michael Gongwer, Lexi Shepherd, Hannah Caringal, Boriana K. Tchernookova, Robert P. Malchow, & Matthew A. Kreitzer  
“Muller Cell ATP-induced acidification is shaped by extracellular pH and carbonic anhydrase activity.”

61. Thomas Leuschner, Indiana Wesleyan University  
Co-Authors: Michael Gongwer, Boriana K. Tchernookova, Lexi Shepherd, Hannah Caringal, Brock Goeglein, Thomas Leuschner, Robert P. Malchow, & Matthew A. Kreitzer  
“Characteristics of ATP-induced extracellular acidification from retinal Muller (glial) cells.”
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80. Elizabeth Sutton, Ferris State University  
**Co-Authors:** Dr. Schuyler Pike, Dr. Clifton Franklund  
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81. Carlye Szarowicz, Ferris State University  
**Co-Authors:** Anne-Sophie Bohrer, Anthony Schilmiller, Dr. Dan Jones, and Dr. Hideki Takahashi.  
“Optimization of LC-MS analytical methods for metabolite profile characterization of switchgrass cultivars”

82. Stacy Thurber, Ferris State University  
**Co-Authors:** Schuyler Pike, Rich Haugland, Shannon Briggs and Mike Solomon  
“Quantification of *Escherichia coli* Levels in Recreational Water by qPCR”

83. Jennifer Tran, Ferris State University  
**Co-Authors:** S. Eric Nybo, Ph.D.  
“A BIOBRICKS SYNTHETIC BIOLOGY TOOLBOX FOR BIOSYNTHESIS OF ANTHRACYCLINONES”

84. Lindsey Winslow, Ferris State University  
**Co-Authors:** Amanda Kovach, Lin Bai, Huilin Li  
“Purification of BiP – an Hsp70 family chaperone that helps nascent proteins cross the ER membrane”

85. Andrew Freiman, Grand Valley State University  
**Co-Authors:** Dr. Margaret Dietrich  
“Abnormal growth patterns of *P. patens* mutant phenotype may be due to disrupted miRNAs”

86. Madeline Fugate, Grand Valley State University  
**Co-Authors:** Osman Patel  
“Effects of supraphysiological dose of testosterone on breast cancer cells”

87. Joshua Grey, Grand Valley State University  
**Co-Authors:** David A. Leonard, Agnieszka Szarecka  
“Force field parameters for doripenem for use in molecular dynamics simulations of OXA-66-doripenem complex”

88. Ashleigh Harrah, Grand Valley State University  
**Co-Authors:** Brooke Armistead, Sok Kean Khoo  
“miRNA-34b/c as disease progression biomarkers for Parkinson’s Disease”
89. Gage Paul, Grand Valley State University  
Co-Presenting Authors: Diego Flores  
Co-Authors: Sok Kean Khoo  
“β-synuclein as treatment for Parkinson’s symptoms in Drosophila”  

90. Nicholas Terrell, Grand Valley State University  
Co-Authors: Osman V Patel  
“Short-term androgen therapy inhibits proliferation of breast cancer cells”  

91. Austin VanDenTop, Grand Valley State University  
Co-Authors: Dylan Thompson, Steve McKenzie, Dr. Matthew Christians  
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92. Alexis Velazquez, Grand Valley State University  
Co-Authors: Osman Patel  
“Effects of testosterone on androgen-dependent and -independent prostate cancer cells”  

93. Jacob Kirby, Indiana Wesleyan University  
Co-Authors: Dan Jones  
“Rescue of Zoledronate-Induced Death in Normal Human Oral Keratinocytes”  

94. Tejas Vettukattil, Kalamazoo College  
Co-Authors: Dr. Eric Kort (Research Mentor), Dr. Stefan Jovinge (Research Mentor), Dr. Santiago Salinas (Faculty Advisor)  
“miRNA hsa-miR-144-3p and hsa-miR-1260a are differentially expressed across human circulation”  

95. William Young, Lansing Community College  
Co-Presenting Authors: Laura Hunnicutt, Lalith Gopi Nagaruri, Benjamin Oudsema, William Young, and Dr. Melinda Wilson  
Co-Authors: Dr. Melinda Wilson  
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96. Akira Nishii, University of Michigan - Ann Arbor  
Co-Authors: Hiroyuki Mori, Colleen Dugan, Ameena Benchamana, Ormond A. MacDougald  
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97. Rahel Keller, Cornerstone University  
Co-Authors: Ryan Reynolds, Dr. Robert Keys  
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<td>Dwight Williams Ph.D.</td>
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**Co-Authors:** Nicole Chinnici  
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133. Kanedra Thaxton, Michigan State University  
**Human Biology**  
**Co-Authors:** Tanwir Hashem, Hyun Hee Lee, Rupali Das  
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134. Olivia Harlow, Calvin College  
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**Co-Authors:** Natalie Anumolu, Shannon Manning, PhD, and Erica Boldenow, PhD  
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135. Tanwir Hashem, Michigan State University  
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**Co-Authors:** Ananth K. Kamala, Ryan M. Griffin, Manthan Patel, Kellie E. Mullany, Hariharan Subramanian, Rupali Das  
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**Co-Authors:** Dr. Joseph Fox  
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137. Kelsey Hall, Aquinas College  
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**Co-Authors:** Dr. Michael McDaniel, Nick Grabill, Emma Schmidt  
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138. Lorrayya Williams, Calvin College  
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**Co-Authors:** Ly Pham and Michael J Noto M.D. PhD.  
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139. Katrina Teunis, Grand Valley State University  
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140. Bethany Van Houten, Hope College  
**Mathematics**  
**Co-Presenting Authors:** Geordan Stukey, Angela Vito  
**Co-Authors:** Dr. Joseph Stukey  
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**Co-Authors:** Dr. Yiming Yang and Dr. Humphrey Maris  
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**Co-Authors:** Dr. David Wilson  
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161. Jonathan Sims, Calvin College  
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**Co-Authors:** Ananth Kumar Kammala and Hariharan Subramanian  
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164. Luis Reyes-Gonzalez, Grand Rapids Community College  
**Co-Authors:** Meghan VanderMale  
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165. Maame Adwoa Brantuo, Calvin College  
**Co-Authors:** Dr. Herb Fynewever, Elizabeth Schutt  
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166. Elizabeth Schutt, Calvin College  
**Co-Authors:** Maame Adwoa Brantuo, Herb Fynewever  
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167. Anna Langholz, Hope College  
**Co-Presenting Authors:** Thiel, Allie and Sooy, Trevor  
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168. Reece Lindemann, Hope College  
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<td><strong>“Phytoestrogen Intake and the Risk of Total and Advanced Colorectal Cancer”</strong></td>
<td>Breanna Frasher, Breanna Frasher</td>
<td>Ferris State University</td>
<td>Public Health</td>
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<td>Co-Authors: Dr. Michael Reger</td>
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