CURRICULUM VITAE

Vincent E. Sollars, Ph.D.

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Associate Professor
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Education

- 1994-2000 Ph.D. Molecular Genetics, University of Kansas, Lawrence, KS
- 1988-1993 B.S. Biochemistry & Biology (dual major), University of Kansas, Lawrence, KS

Ph.D. Thesis (2000) "Isolation and Characterization of *knirps* Suppressors as Possible Cell Division Cycle Genes." Advisor: Dr. Douglas M. Ruden, Associate Professor, Institute of Environmental Health Sciences, Wayne State University.

Professional Appointments

- 2010 – Present Associate Professor, Department of Biochemistry and Microbiology, Marshall University School of Medicine
- 2006 – Present Director of Flow Cytometry Core, Marshall University School of Medicine
- 2004 – 2010 Assistant Professor (tenure-track), Department of Biochemistry and Microbiology, Marshall University School of Medicine
- 2000 – 2004 Post-Doctoral Fellow, Kimmel Cancer Institute at Thomas Jefferson University

Awards, Recognition and Honors

- 2008 Designated a Master Educator by Marshall University School of Medicine
- 2004 Work from my Ph.D. dissertation was presented at the Nobel Symposium entitled "Epigenetic Reprogramming in Development and Disease" on June 19-21 in Stockholm by my Ph.D. mentor Dr. Douglas Ruden
- 2003 Faculty of 1000 evaluated my 2003 article in Nature Genetics where I was first author giving it a rating of 8.0 and placing it in the "exceptional" category. According to this popular peer review system a rating of exceptional means a landmark paper representing the top 1% of publications
- 2000-2003 Postdoctoral fellowship through a NIH Training Grant (T32-CA09678)
- 1999 William King Candlin Memorial Physiology Scholarship – this award of $3,000 was established in 1967 in memory of this University of Kansas student who died in a tragic accident. Awarded by the Department of Molecular Biosciences of the University of Kansas for excellence in graduate research
- 1999 Burton Electron Microscopy Award– this competitive funding award of $200 was established by a noted microscopist and University of Kansas professor to provide funds for projects using electron microscopy

Associations

- International Association of Medical Science Educators (IAMSE) (member since 2008)
- Reuters Insight, a research consultancy (member since 2007)
- American Association for Cancer Research (member since 2005)
- The American Society of Hematology (member since 2005)
- Marshall University, Joan C. Edwards School of Medicine Alumni Association (member since 2004)
- American Association for the Advancement of Science (member since 1996)
- Genetics Society of America (member since 1996)
- University of Kansas Alumni Association (member since 1995)

Professional Service

Manuscript Reviewer

- Frontiers in Epigenomics, editorial board since 1/2011, reviewing 3-6 manuscripts each year
- Book chapter review of "Genetics and Genomics in Medicine" by Tom Strachan for Garland Science (Taylor and Francis Group) in 4/2014
- International Journal of Molecular Sciences, 1 article in 12/2013
- ISRN Genetics editorial board since 3/2012
- Investigational New Drugs, on 3/2011
- Book proposal by Elsevier on 1/2011
- Guest editor for a special issue in Genetics Research International on The Role of Epigenetics in Evolution: Evolution, the Ultra-Modern Synthesis, started in 11/2010
- Leukemia Research, 1 article on 12/2010
- Frontiers in Bioscience, 2 articles on 10-11/2010
- Current Signal Transduction Therapy, on 6/2009
- Book proposal by The Company of Biologists Ltd on 5/2006
- Current Genomics, 2 articles on 3/2005 and 4/2005
- Frontiers in Bioscience, 1 article on 11/2004

Grant Application Reviewer

- Pennsylvania Performance Review of the CURE program administered by the Oak Ridge Associated Universities, June 2016
- West Virginia University-Marshall University Health Grants Program, December 2015
- Ralph Powe Award Program for Junior Faculty administered by the Oak Ridge Associated Universities, March 2015
- National Science Foundation Graduate Research Fellowship Program, January 2015 (Genetics, Genomics & Proteomics)
- Pennsylvania Final Performance Review of the CURE program administered by the Oak Ridge Associated Universities, April 2014
- West Virginia IDeA Network of Biomedical Research Excellence pilot grant program, Spring 2014
- National Science Foundation Graduate Research Fellowship Program, January 2014 (Genetics, Genomics & Proteomics)
- James and Esther King Biomedical Research Program managed by the Florida Department of Health, August 2013
- Pennsylvania Final Performance Review of the CURE program administered by the Oak Ridge Associated Universities, April 2012

- West Virginia IDeA Network of Biomedical Research Excellence pilot grant program, Spring 2012
- Bankhead-Coley Cancer Research Program managed by the Florida Department of Health, Spring 2012
- James and Esther King Biomedical Research Program managed by the Florida Department of Health, Spring 2012
- Arthritis Research UK for their program grant in October 2011.
- Pennsylvania Final Performance Review of the CURE program administered by the Oak Ridge Associated Universities, August 2011
- American Cancer Society grant review in the development and differentiation in cancer study section, June 2011
- Bankhead-Coley Cancer Research Program performance review, April 2011
- Bankhead-Coley Cancer Research Program managed by the Florida Department of Health, Spring 2011
- James and Esther King Biomedical Research Program managed by the Florida Department of Health, Spring 2011
- National Science Foundation Graduate Research Fellowship Program, February 2011 (genetics and evolutionary biology section)
- NASA Postdoctoral Program managed by Oak Ridge Associated Universities, December 2010
- James and Esther King Biomedical Research Program managed by the Florida Department of Health, Spring 2010
- National Science Foundation Graduate Research Fellowship Program, March 2010 (genetics and evolutionary biology section)
- NIH review panel for 2nd round of challenge grants, August 2009
- US Army Medical Research and Material Command for grant panel of the Peer Reviewed Medical Research Program in July 2009
- NIH review panel for challenge grants, May 2009
- National Science Foundation Graduate Research Fellowship Program, February 2009 (genetics and evolutionary biology section)
- Pennsylvania Department of Health for performance review on 4/2008 for 07/08 Cycle B
- Pennsylvania Department of Health for performance review on 12/2007 for 07/08 Cycle A
- Genesis Oncology Trust on 10/2007
- US Army Medical Research and Material Command for grant panel of the Peer Reviewed Medical Research Program on July 12-13, 2006
- American Institute of Biological Sciences for grant review on behalf of the Kansas University Medical Center Idea Network of Biomedical Research Excellence on 2/2006

Committees

- Medical School Year 1 Subcommittee of the Curriculum Committee (9/2012 – present) – advise the curriculum committee regarding the year 1 education at the medical school. Design the curriculum for the first year.
- Graduate Council (4/2012 – present) – The Marshall University Graduate Council makes policy recommendations with respect to the graduate education mission of the university to the university President. Specific functions include: facilitation of long range planning for graduate education at Marshall University; recommendation of new programs and courses; evaluation of existing programs and courses; facilitation of graduate accreditation; recommendation of promotion and tenure policies related to graduate education; recommendation of approval of graduate faculty to the university President.
- Institutional Biosafety Committee (4/2010 – present) – maintain compliance with federal and state laws in regards to biological agents
- Faculty Senate Library Committee (1/2008 – 5/2013) – advise and plan the development of library resources for the University. Served as chair in the 2009-2013 academic year until present
- Radiation Safety Committee (1/2009 – 8/2012) – maintain compliance with federal and state laws in regards to radiation safety
- Marshall University Faculty Senate (9/2010 – 3/2012) – a legislative body of Marshall University that has the authority to concern itself with topics affecting the whole university

- Medical School Year 1 Integration Committee (8/2007 – 6/2009) – determine the structure of the major basic science course in the first semester of medical school that integrates biochemistry, cell biology, and genetics
- Library Advisory Committee (11/2006 – 12/2008) – advise and plan the development of the School of Medicine Library
- Biomedical Sciences Program Website and Publications Committee (6/2005 – present) – organize, design, and impliment a new website for the graduate and research programs at the medical school
- Served on three research cluster committees responsible for reorganization of the Biomedical Sciences graduate program at Marshall University School of Medicine
- Cancer (6/2005 – present)
- Molecular Mechanisms of Pathogenesis (6/2005 – present)
- Developmental Biology and Neuroscience (6/2005 – 6/2006)
- Graduate Studies Committee (9/2004 – 9/2005) – served as an ad-hoc member. create an optimal learning environment and develop and implement the best possible curriculum for the graduate students for the masters and Ph.D. students which will enhance their learning and provide a foundation for their professional careers as scientists
- Adhoc Library Journal Subscriptions Committee (9/2005 – 5/2007)– formed to determine the best way to spend new funds on journal subscriptions for the University
- Curriculum Committee (10/2004 – 6/2006) - create an optimal learning environment and develop and implement the best possible curriculum for the medical students which will enhance their learning and provide a foundation for their professional careers as physicians. Served as a non-voting member

Community

- Presentation "Being a Professor – the Search for Truth" to the 5th grade students of Martha Elementary School on November 3, 2014.
- Presentation "Life as a Professor" to the 3rd grade students of Martha Elementary School on September 20, 2012.
- Poster judge at the Appalachian Regional Cell Conference in October 2012.
- Poster judge at Research Day for Marshall University School of Medicine in March 2010.

Research

Experience

- **Current:** impaired differentiation is a hallmark of many forms of cancer, but particularly pronounced in myeloid leukemias. The objective of my research is to identify new chemotherapeutic approaches for the treatment of leukemia by focusing on elucidating the mechanisms of epigenetic gene regulation of myeloid cellular differentiation. Epigenetic gene regulation is of preeminent importance in the control of cell identity during differentiation and is at the forefront of research in chemotherapy. The murine model system is the premiere model for studying human disease. My laboratory is using this model system to study epigenetic gene regulation of myeloid cell differentiation in the bone marrow. We are using mice in mapping studies to identify genes important in these control mechanisms, determining the nature of the regulatory mechanisms, and in testing hypotheses concerning epigenetic gene regulation. The following projects guide the research in our laboratory:
  - To identify factors responsible for epigenetics "marks" (including DNA methylation and histone modification) that are important to oncogenesis to produce diagnostic tools.
  - To identify diagnostic and prognostic tools for myeloid leukemias in an individualized medicine approach by using genetic polymorphisms.
  - To elucidate the effects of omega 3 fatty acids on hematopoiesis and the epigenetic mechanisms involved.
  - Determine if Hsp90 epigenetic effects and associated phenotypic plasticity we discovered in *Drosophila* are conserved in mammalian systems and pertinent to cancer progression.
- I am currently the administrator for the flow cytometry facility at the medical school. This includes overseeing the budget, allocation of personnel and time on the machine, and technical assistance to a wide variety of investigators.

- **Post-doctoral:** my investigations at the Kimmel Cancer Institute as a post-doctoral fellow were in three areas using the mouse model system. My main project is the investigation of the roles of Meis1, Pbx3, and Hoxa9 in leukemic transformation using an *in vivo* bioassay where mutations are engineered into bone marrow that is used to reconstitute the immune system of lethally irradiated mice. I have secondary projects in identification of genetic factors involved in late stage myeloid progenitor cell proliferation and characterization of a transgenic mouse line exhibiting recessive, male-specific, peripubescent onset lethality associated with microvesicular steatosis.
- **Dissertation research:** my dissertation research was on the control of the cell cycle. My main project concerned the discovery of new cell cycle genes in *Drosophila melanogaster* followed by genetic characterization of those genes. Genes characterized as a result of my efforts are involved in the areas of membrane fusion, intracellular movement, RNA localization, and chromatin structure. I also conducted research developing a *Drosophila* model system for the study of a homeotic mutation with epigenetic inheritance.
- **Internet Resources**
  - http://bms.marshall.edu/research_groups/pathogenesis_and_aging/sollars/default.aspx
  - http://bms.marshall.edu/core_facilities/flow.aspx
  - http://www.marshall.edu/cncc/research.html

Improvement

- 2015 Completion of the Mastery Class on Flow Cytometry by Excyte Expert Cytometry.
- 2006 BD FACSAria Operator Course at BD Biosciences in Billerica, Mass
- 2005 Technical course with wet labs entitled "Hematopoietic Stem and Progenitor Cell Assays" at StemCell Technologies
- 2005 "14th Annual Short Course on Experimental Genetics of the Laboratory Mouse in Cancer Research" at The Jackson Laboratory in Bar Harbor, Maine
- 2005 Bioinformatics workshop on the Wisconsin Package/GCG program set using the SeqLab and SeqWeb interface with Dr. Pei-Li Li from Accelrys
- 2003 Microarray Data Analysis Workshop with John F. Quackenbush held by the GPBA in association with Drexel University, the University of Pennsylvania, and the Wistar Institute
- 2003 Gene Transcript Profiling Course including a wet lab on microarray analysis held by the Greater Philadelphia Bioinformatics Alliance (GPBA) conducted in association with AFFYMETRIX, Drexel University, and the University of Pennsylvania
- 2000 Post Graduate Course at The Jackson Laboratory in Bar Harbor, Maine entitled "Experimental Genetics of the Laboratory Mouse in Cancer Research"
- 1995 Granted class A radiation safety license by University of Kansas

Publications

Book Chapters

- **Vincent E. Sollars** (2012). Epigenetics as a Mechanism for Dietary Fatty Acids to Affect Hematopoietic Stem/Progenitor Cells and Leukemia – Royal Jelly for the Blood. Nutrition and Cancer, from Epidemiology to Biology. Eds: Pier Paolo Claudio and Richard M. Niles. Brussels, Belgium, Bentham Science Publishers. pp. 65-76. eISBN: 978-1-60805-447-3, 2012
- Xiangyi Lu, Luan Wang, **Vincent E. Sollars**, Mark Garfinkel, and Douglas M. Ruden (2013). Hsp90 as a Capacitor of Both Genetic and Epigenetic Changes in the Genome During Cancer Progression and Evolution. Stress-Induced Mutagenesis. Ed. Mittleman, David. New York, NY, Springer. ISBN 978-1-4614-6280-4

Editorial Works

- Aaron W. Schrey, Christina L. Richards, Victoria Meller, **Vincent Sollars**, and Douglas M. Ruden (2012). The Role of Epigenetics in Evolution: The Extended Synthesis, Genetics Research International. Eds: Aaron W. Schrey,

Christina L. Richards, Victoria Meller, **Vincent Sollars**, and Douglas M. Ruden. Hidawi Publishing Corporation, New York, NY. PMID: 22567381. # of citations: 6.

Original Artwork

- Cover-art on issue 4 in volume 4 of *Microbiology* (2007). **Vincent E. Sollars** and Hongwei Yu.
- Cover-art on issue 8 in volume 17 of *Mammalian Genome* (2006). **Vincent E. Sollars**

Primary Research Articles (18 total, citations according to Google Scholar, 2/2015)

- Epigenetics as an answer to Darwin's "special difficulty," Part 2: natural selection of metastable epialleles in honeybee castes (2015). Douglas M. Ruden, Pablo E. Cingolani, Arko Sen, Wen Qu, Luan Wang, Marie-Claude Senut, Mark D. Garfinkel, **Vincent E. Sollars**, and Xiangyi Lu. Frontiers in Genetics 6, Article 60. doi: 10.3389/fgene.2015.00060. # of citations: no data.
- Domain requirements for the diverse immune regulatory functions of foxp3 (2011). Wei-ping Zeng, **Vincent E. Sollars**, and Andrea Del Pilar Belalcazar. *Molecular Immunology* 48, 1932-1939. PMID: 21737139. # of citations: 5.
- YB-1 expression and function in early hematopoiesis (2011). Jasjeet Bhullar and **Vincent E. Sollars**. *Immunogenetics* 63, 337-350. PMID:21369783. # of citations: 6.
- A high omega-3 fatty acid diet has different effects on early and late stage myeloid progenitors (2011). Melinda E. Varney, James T. Buchanan, Yulia Dementieva, W. Elaine Hardman and **Vincent E. Sollars**. *Lipids* 46(1), 47-57. PMID: 21038084. # of citations: 3.
- 17-N-Allylamino-17-demethoxygeldanamycin induces a diverse response in human acute myelogenous cells (2010). Jennifer Napper and **Vincent E. Sollars**. *Leukemia Research* 34(11), 1493-1500. PMID: 20646760. # of citations: 5.
- Silencing and Re-expression of Retinoic Acid Receptor Beta2 in Human Melanoma (2010). Jun Fan, Linda Eastham, Mindy Varney, Adam Hall, Nicolas L. Adkins, **Vincent E. Sollars**, Phillipe Georgel, Richard M. Niles. *Pigment Cell Melanoma Research* 23 (3), 419-429. PMID: 20374520. # of citations: 12.
- Rapid selection and proliferation of CD133(+) cells from cancer cell lines: chemotherapeutic implications (2010). Sarah E. Kelly, Altomare Di Benedetto, Adelaide Greco, Candace M. Howard, **Vincent E. Sollars**, Donald A. Primerano, Jagan V. Valluri, Pier Paolo Claudio. *PLoS One* 5(4): e10035. PMID: 20386701. # of citations: 27.
- Omega 3 fatty acids reduce myeloid progenitor cell frequency in the bone marrow of mice and promote progenitor cell differentiation (2009). Melinda E. Varney, W. Elaine Hardman, and **Vincent E. Sollars**. *Lipids in Health and Disease* 8(9). PMID: 19296839. # of citations: 13.
- Defect in early lung defense against *Pseudomonas aeruginosa* in DBA/2 mice is associated with acute inflammatory lung injury and reduced bactericidal activity in naïve macrophages (2007). Kari R. Wilson, Jennifer M. Napper, James Denvir, **Vincent E. Sollars**, and Hongwei D. Yu. *Microbiology* 153(4), pp. 968-979. PMID: 17379707. # of citations: 24.
- Analysis of expansion of myeloid progenitors in mice to identify leukemic susceptibility genes. (2006). **Vincent E. Sollars**, Edward Pequignot, Jay L. Rothstein, and Arthur M. Buchberg. *Mammalian Genome* 17(8), 808-821. PMID: 16897342. # of citations: 5.
- Diversity in secreted PLA_2-IIA activity among inbred mouse strains that are resistant or susceptible to $Apc^{Min/+}$ tumorigenesis (2005). Marina Markova, Revati A. Koratkar, Karen A. Silverman, **Vincent E. Sollars**, Melina MacPhee-Pellini, Rhonda Walters, Juan P. Palazzo, Arthur M. Buchberg, Linda D. Siracusa and Steven A. Farber. *Oncogene* 24, 6450-6458. PMID: 16007193. # of citations: 21.
- The Epigenomic Viewpoint on Cellular Differentiation of Myeloid Progenitor Cells as it Pertains to Leukemogenesis (2005). **Vincent E. Sollars**. *Current Genomics* 6 (3), 137-144. PMID: 15769653. # of citations: data not available.
- Epigenetic modification as an enabling mechanism for leukemic transformation (2005). **Vincent E. Sollars**. *Frontiers in Bioscience* 10, 1635-1646. PMID: 15769653. # of citations: 5.
- Multigenerational selection and detection of altered histone acetylation and methylation patterns: toward a quantitative epigenetics in *Drosophila* (2004). Mark D. Garfinkel, **Vincent E. Sollars**, Xiangyi Lu, and Douglas M. Ruden. *Methods Mol Biol* 287, 151-168. PMID: 15273410. # of citations: 19.

- Waddington's Widget: Hsp90 and the inheritance of acquired characters (2003). Douglas M. Ruden, Mark D. Garfinkel, **Vincent E. Sollars** and Xiangyi Lu. *Seminars in Cell and Molecular Biology* 14, 301-310. PMID: 14986860. # of citations: 44.
- Evidence for an epigenetic mechanism by which Hsp90 acts as a capacitor for morphological evolution (2003). **Vincent Sollars**, Xiangyi Lu, Li Xiao, Xiaoyan Wang, Mark D. Garfinkel, and Douglas M. Ruden. *Nature Genetics* 33, pp. 70-74. PMID: 12483213. # of citations: 322.
- A novel transgenic line of mice exhibiting autosomal recessive male-specific lethality and non-alcoholic fatty liver disease (2002). **Vincent E. Sollars**, Benjamin J. McEntee, Julie B. Engiles, Jay L. Rothstein and Arthur M. Buchberg. *Human Molecular Genetics* 11(22), pp. 2777-2786. PMID: 12374767. # of citations: 7.
- Membrane Fusion Proteins are Required for *oskar* mRNA Localization in the *Drosophila* Egg Chamber. Douglas M. Ruden, **Vincent Sollars**, Xiaoyan Wang, Daisuke Mori, and Marina Alterman (2000). *Developmental Biology* 218, pp. 314-325. PMID: 10656772. # of citations: 43.
- A *Drosophila* Kinesin-like Protein, Klp38B, Functions during Meiosis, Mitosis and Segmentation. Douglas M. Ruden, Wei Cui, **Vincent Sollars,** and Marina Alterman (1997). *Developmental Biology* 191, pp. 284-296. PMID: 9398441. # of citations: 36.

Presentations and Abstracts

- "Hypoxia effect on hematopoietic stem cells", Sarah Govender, Manaf Elhamdani, Abdalla Lawag, and Vincent Sollars. Poster presentation at the Annual Research Day at the Joan C. Edwards School of Medicine in March 2016.
- "Phenotypic plasticity associated with HSP90 inhibition", Abdalla Lawag and Vincent E. Sollars. Poster presentation at the Annual Research Day at the Joan C. Edwards School of Medicine in March 2016.
- "Phenotypic plasticity associated with HSP90 inhibition and Cellular Stress", Abdalla Lawag and Vincent E. Sollars. Poster presentation at the 2015 Appalachian Regional Cell Conference in November 2015.
- "Immunophenotyping of EML Stem Cells in Hypoxia", Manaf El-Hamdani, Sarah Govender, Abdalla Lawag and Vincent E. Sollars. Poster presentation at the 2015 Appalachian Regional Cell Conference in November 2015.
- "Differentiation Kinetics of Hematopoietic Stem Cells in Hypoxic Conditions", Seth Deskins, Abdalla Lawag, Sarah Govender, and Vincent E. Sollars. Poster presentation at the 2015 West Virginia IDeA Network of Biomedical Research Excellence Summer Research Symposium in July 2015.
- "Immunophenotyping of Differentiating Hematopoietic Stem Cells in Hypoxia", Seth Deskins and Vincent E. Sollars. Oral presentation at the 2015 West Virginia IDeA Network of Biomedical Research Excellence Summer Research Symposium in July 2015.
- "Phenotypic plasticity associated with HSP90 inhibition", Abdalla Lawag, Jennifer M. Napper, and Vincent E. Sollars. Poster presentation at the 2014 Appalachian Regional Cell Conference in November 2014.
- "Hypoxia effect on hematopoietic stem cells", Sarah Govender, Abdalla Lawag, and Vincent E. Sollars. Poster presentation at the 2014 Appalachian Regional Cell Conference in November 2014.
- "Phenotypic plasticity in the EML culture system as a result of HSP90 inhibition", Jennifer Napper and **Vincent E. Sollars**. Poster presentation at the AACR conference Epigenetics and Chromatin in Cancer in June 2013.
- "Localization of Immune Cells in the Genital Tract of Stressed Mice during Chlamydia trachomatis Infection", Michael Bowling, Sheila Bailey, **Vincent Sollars**, and Tesfaye Belay. Poster presentation at the WV-INBRE Summer Research Symposium in Morgantown, WV on 7/29/2012.
- "Genomics Core Next Generation Sequencing," **Vincent E. Sollars**. Oral presentation at the 3rd annual Alexander B. Osborn Hematopoietic Malignancy and Transplantation Program Retreat on 8/3/2012.
- "A Role for HSP90 in Transgenerational Epigenetics and Phenotypic Plasticity." **Vincent E. Sollars**. Oral presentation at the annual Cell Development and Differentiation Center at Marshall University on 3/23/2012.
- "A Bioinformatics Approach to Leukemia." **Vincent E. Sollars**. Oral presentation at the Next Generation Sequencing & Bioinformatics Forum at Marshall University on 10/27/2011.

- "YB-1 expression in early hematopoiesis and leukemic cells." Jasjeet Bhullar and **Vincent E. Sollars**. Poster presentation at the 2010 STaR Symposium (state meeting).
- "In silico mapping for genes of interest in regulating hematopoiesis suggests that bone formation factors are critical determinants of hematopoietic stem and progenitor cell pools." Melinda Varney and **Vincent E. Sollars**. Poster presentation at the 2010 STaR Symposium (state meeting). Winner of the first place award for graduate studies in the state.
- "YB-1 expression in early hematopoiesis and leukemic cells." Jasjeet Bhullar and **Vincent E. Sollars**. Poster presentation at the 2010 AACR meeting.
- "All-trans retinoic acid mediated differentiation of neuroblastoma parallels increase in reactive oxygen species information." Anne Silvis, Jennifer Napper, **Vincent E. Sollars**, and Kelley Kiningham. Poster presentation at the 2009 Society for Free Radical Biology and Medicine 16th annual meeting.
- "High omega-3 fatty acid diets have different effects on early and late stage myeloid progenitors in the bone marrow of mice." Melinda E. Varney, James T. Buchanan, W. Elaine Hardman, and **Vincent E. Sollars**. Poster presentation at the 2009 AICR meeting.
- "Omega 3 fatty acids reduce myeloid progenitor cell frequency in the bone marrow of mice and promote progenitor cell differentiation" **Vincent E. Sollars**. Invited talk at the 2009 annual research retreat for the Mary Babb Randolph Cancer Center in Morgantown, WV at West Virginia University.
- "Epigenetic Regulation of RAR-ß2 during Melanoma Progression and Retinoic Acid Treatment." Adkins, N.L., Hall, J.A., Chetel, L., Varney, M., **Sollars, V.E.**, Fan, J., Niles, R. M., and Georgel, P.T. Poster presentation to the Biochemistry and Cell Biology for the International Asilomar Chromatin and Chromosome Conference, Dec. 2008,
- "Rapid Selection and Proliferation of Cancer Stem Cell in a Hydrofocusing Bioreactor: Chemotherapeutic Implications." Sarah E. Kelly, Altomare Di Benedetto, William A. Kelly, Adelaide Greco, **Vincent E. Sollars**, Michele Miranda, Candace M. Howard, Jagan V. Valluri, and Pier Paolo Claudio. Poster presentation at the 2008 Annual WV-INBRE/COBRE symposium.
- "Faculty Learning Style and Student Satisfaction." **Vincent E. Sollars.** Poster presentation at the 2008 Annual International Association of Medical Science Educators (IAMSE) conference in Salt Lake City, Utah.
- "EML Cells as a Model to Determine if Hsp90 is an Epigenetic Enabler in Leukemia." Jennifer Napper, Harsh Pratap, and **Vincent E. Sollars**. Poster presentation at the 82nd West Virginia Academy of Sciences Annual Meeting at Huntington, WV (2007).
- "Epigenetic Regulation of Wnt Pathway in Hematopoietic Cells via Hsp90." Jasjeet Bhullar and **Vincent E. Sollars**. Poster presentation at the 82nd West Virginia Academy of Sciences Annual Meeting at Huntington, WV (2007).
- "Comparing the Myeloid Progenitor Cell Compartment Among Inbred Strains of Mice to Identify Possible Leukemia Susceptibility Genes." Melinda Varney, Harsh Pratap, and **Vincent E. Sollars**. Poster presentation at the 82nd West Virginia Academy of Sciences Annual Meeting at Huntington, WV (2007).
- "EML cells as a model to determine if Hsp90 is an epigenetic enabler in leukemia." Jennifer Napper, Harsh Pratap, and **Vincent E. Sollars**. Poster presentation at the 2006 Cancer Biology Chair and Program Director's Retreat at Assilimar, CA (2006).
- "Retinoic Acid Function in Human Melanocytes and Melanoma Cell Lines Representing Different Phases of Progression." Linda L. Eastham, **Vincent Sollars**, Zalfa Abdel-Malek and Richard M. Niles. Poster Presentation at the Pan-American Society for Pigment Cell Research at Cincinnati, OH (2006).
- "Evaluation of Aldehyde Dehydrogenase Enzymatic Activity for the analysis of Stem and Progenitor Cells." Jennifer Thompson and **Vincent E. Sollars**. Poster presentation at the Summer Research Symposium for the West Virginia IDeA Network of Biomedical Research Excellence (2006).
- "DBA/2 Mice Macrophage Acitivity in Response to Pseudomonas aeruginosa." Jennifer M. Napper, Kari R. Wilson, Hongwei D. Yu, and **Vincent E. Sollars**. Poster presentation at Research Day for the Joan C. Edwards School of Medicine (2006).
- "HSP90 as an Epigenetic Enabling Mechanism in Leukemia." **Vincent E. Sollars**, Ed Pequignot, Douglas M. Ruden, and Arthur M. Buchberg. Poster presentation at the Duke/NIEHS Environmental Epigenomics, Imprinting and Disease Susceptibility Conference (2005).

- "Myeloid Progenitor Cell Analysis of HLB Strain Mice Using Flow Cytometry and the CFC Assay." Kelli A. Morrison, Jennifer M. Napper, **Vincent E. Sollars**. Poster Presentation at the Summer Research Symposium for the West Virginia IDeA Network of Biomedical Research Excellence (2005).
- "New Options for the Tin Man Just Over the Rainbow; Myocardial Infarction and Stem Cells." **Vincent Sollars**. A continuing medical education seminar on January 12, 2005 for the cardiology fellowship group at St. Mary's Hospital.
- "Analysis of the Late Stage Myeloid Progenitor Cell Compartment in Various Inbred Strains." **Vincent Sollars**. Research in Progress Seminar Series at the Kimmel Cancer Center (2004).
- Presentation of "Myeloid Leukemia, Approaches to Understanding Progenitor Cells and the Disease State Using the Murine Model System."
  - October 2003 – the Children's Research Institute at the Health Science Center of San Antonio, TX.
  - November 2003 – the University of Southern Mississippi in Hattiesburg, MS.
  - January 2004 – the Georgia Medical School in Augusta, GA.
  - January 2004 – the Sydney Kimmel Cancer Center in San Diego, CA.
  - February 2004 – the George Mason University in Fairfax, VA.
  - February 2004 – the Marshall University School of Medicine in Huntington, WV.
  - March 2004 – the University of Alabama Medical School, in Birmingham, AL.
- "Analysis of the Late Stage Myeloid Progenitor Cell Compartment in Various Inbred Strains." **Vincent Sollars**. Research In Progress Seminar Series at the Kimmel Cancer Center (2003).
- "Of Mice and Men: A Story of the Discovery and Characterization of a Mutation Resulting in Male-specific Lethality in the Mouse Model System." **Vincent Sollars**. Research in Progress Seminar Series at the Kimmel Cancer Center (2002).
- "The Role of Meis1 in Leukemic Transformation." **Vincent Sollars**. Research in Progress Seminar Series at the Kimmel Cancer Center (2001).
- "Characterization of a Novel Homeotic Phenotype Resulting from Mutations in Either *trithorax*-group or *Polycomb*-group Genes." **Vincent Sollars** and Douglas Ruden. Poster presentation at the 39th Annual *Drosophila* Research Conference (1998).
- "Characterization of a Novel Homeotic Phenotype Resulting from Mutations in Either *trithorax*-group or *Polycomb*-group Genes." **Vincent Sollars** and Douglas Ruden. Poster presentation at the Third Annual Sunflower Developmental Genetics Symposium (1998).
- "Genetic Characterization of Cell Cycle Genes in *Drosophila melanogaster*." **Vincent Sollars** and Douglas Ruden. Poster presentation at the Second Annual Sunflower Developmental Genetics Symposium (1997).
- "Identification of Novel Negative Regulatory Roles of *trithorax*-class Genes on Homeotic Gene Expression in the Eye." **Vincent Sollars** and Douglas Ruden. Poster presentation at the 38th Annual *Drosophila* Research Conference (1997).
- "KLP38B, a Kinesin-like Protein Required for Blastoderm Mitotic Divisions in *Drosophila*." Douglas Ruden, **Vincent Sollars**, Wei Cui, and Marina Alterman. Poster presentation at the 38th Annual *Drosophila* Research Conference (1997).
- "Identification of Novel Negative Regulatory Roles of *trithorax*-Class Genes on Homeotic Gene Expression in the Eye." **Vincent Sollars** and Douglas Ruden. Poster presentation at the SEP/ALSA Symposium Addressing Neurodegenerative Diseases, Free Radicals and Programmed Cell Death (1997).
- "Screening for Cell Cycle Mutants in *Drosophila melanogaster*." **Vincent Sollars** and Douglas Ruden. Poster presentation at the First Annual Sunflower Developmental Genetics Symposium (1996).
- "Genetic Characterization of Cell Cycle Genes in *Drosophila*." **Vincent Sollars** and Douglas Ruden. Poster presentation at the 37th Annual *Drosophila* Research Conference (1996).

National Meetings Attended

- Experimental Biology in March 2015.

- AACR conference Epigenetics and Chromatin in Cancer in June 2013.
- Chemical Systems Biology: Assembling and Interrogating Computational Models of the Cancer Cell by chemical Perturbations by AACR, June 2012.
- Genomics 2012 by Select Biosciences, April 2012.
- Environmental Epigenomics and Disease Susceptibility a Keystone Symposium, March 2011.
- Cancer Epigenetics, sponsored by AACR – 2010.
- American Institute for Cancer Research annual meeting – 2009.
- Cancer Epigenetics, sponsored by AACR – 2008.
- Molecular Targets and Cancer Therapeutics, sponsored by AACR, NCI, and EORTC – 2007.
- Genetic Analysis: Model Organsisms to Human Biology, sponsored by Genetics Society of America -2006.

Funding

Current

- R15 CA186017 (PI – Sollars, VE; 06/01/2014-5/31/2017): "Phenotypic Plasticity Associated with Inhibition of HSP90" was awarded by the NIH in the amount of $432,369.

Completed

- R21 CA133701 (PIs – Sollars, VE and Wilkinson, J; 01/01/2010-12/31/2011): "Alcohol and Iron Derived Oxidant Stress Impact Epigenetic Regulation" was awarded by the NIH in the amount of $323,493.
- NNG05GF80H (PI – Sollars, VE; 6/01/09-5/31/11): "Survivin as a mediator of dietary omega-3 fatty effects on hematopoiesis" was awarded by the NASA West Virginia Space Grant Consortium through the Graduate Research Fellowship Program in the amount of $24,000 direct costs. The grant was awarded as a fellowship for Melinda Varney, a Ph.D. student in my laboratory to identify genes that are involved in the regulation of survivin by fatty acids.
- R03 CA129790 (PI – Sollars, VE; 04/01/08-03/31/10): "Nostalgia in the Wnt signaling pathway; fatty acids, epigenetics, and leukemia" was awarded by the NIH in the amount of $140,000.
- NNG05GF80H (PI – Sollars, VE; 5/16/07-5/15/09): "Comparing the myeloid progenitor cell compartment among inbred strains of mice to identify possible leukemia susceptibility genes" was awarded by the NASA West Virginia Space Grant Consortium through the Graduate Research Fellowship Program in the amount of $24,000 direct costs. The grant was awarded as a fellowship for Melinda Varney, a Ph.D. student in my laboratory to identify genes that are involved in the regulation of myeloid progenitor cell frequency and thus identify possible oncogenes and tumor suppressor genes relevant to leukemia.
- NNG05GF80H (PI – Sollars, VE; 5/16/07-5/15/09): "Epigenetic gene regulation by Hsp90 in myeloid cell differentiation" was awarded by the NASA West Virginia Space Grant Consortium through the Graduate Research Fellowship Program in the amount of $24,000 direct costs. The grant was awarded as a fellowship for Jennifer Napper, a Ph.D. student in my laboratory to investigate the role of Hsp90 in epigenetic gene regulation of myeloid cell differentiation in an effort to provide better chemotherapies for leukemia.
- R03CA124637-01 (PI – Niles, RM; 10/01/06-9/30/08): "RARbeta in Melanoma: Epigenetic Regulation by Nutrients" is an NIH grant for $100,000 direct costs through the R03 mechanism. The grant was awarded to investigate epigenetic regulation of the RARβ2 promoter in response to polyphenols and isoflavones present in green and black teas. Role: Co-Investigator.
- A Pilot grant from Centers of Biomedical Research Excellence (COBRE - P20 RR020180; Niles, PI) (8/01/05 – 7/31/06) for $20,000 sponsored by NIH/NCRR. This grant supports the investigation of the role of HSP90 in progression of leukemia. Role: Co-Investigator.
- West Virginia Research Challenge Award (7/01/2004 – 6/30/2007) from the State of West Virginia for $250,000. This grant sponsors building basic and translational research components of the Joan C. Edwards School of Medicine. Role: Co-Investigator.
- While a post-doctoral fellow at Thomas Jefferson University, I was supported by an NIH Training Grant (T32-CA09678) and a March of Dimes Research Grant (658).

Improvement

- 2016 Workshop entitled "Write Winning NIH Grant Proposals" by John Robertson
- 2016 Workshop entitled "Write Winning NSF Grant Proposals" by John Robertson
- 2016 Workshop entitled "Write Winning Grants" by John Robertson
- 2005 Workshop entitled "Write Winning Grants" by David Morrison
- 2005 Workshop entitled "How to Find and Win Foundation and Corporate Grants" by David Bauer

Teaching

Experience

- 2014 – 2016 Block leader for Elements of Medicine (MDC 710) in the Fall to the first year medical students (85-95 students)
- 2012 – 2014 Assistant block leader for Elements of Medicine (MDC 710) in the Fall to the first year medical students (85-95 students)
- 2013 – present Thirteen contact hours in the clinical genetics section of Elements of Medicine (MDC 710) in the Fall to first year medical students (85-95 students)
- 2013 – present One contact hour in Principles of Disease (MED 750) in the Fall to second year medical students on cancer genetics (85-95 students)
- 2013 – present Three contact hours in the nucleic acids section of Elements of Medicine (MDC 710) in the Fall to first year medical students (85-95 students)
- 2013 – present Ten lectures (seventeen contact hours) in Advanced Molecular Genetics (BIC638) to Ph.D. students (5 students) in the Spring every other year. Developed and implemented the course. Also course director
- 2011 – present One lecture on "Research Collaboration" within BMS 644 Responsible Conduct of Research (20 students)
- 2010 – present Five lectures in Cellular and Molecular Biology for graduate students (BMS 600) on nucleic acid metabolism and the biochemistry of DNA (5-30 students)
- 2007 – present Cancer Cell Biology (BMS 651) to primarily Ph.D. students at Marshall University School of Medicine (4 lecture hours, 4-20 students). Taught in the Spring every other year
- 2006 – present Cancer Colloquium (BMS 652) each Spring and Fall. I have presented research articles in this journal club at least once a year and often each semester to assist in teaching our BMS graduate students to critically evaluate manuscripts
- 2011 – 2012 Eleven lectures in the clinical genetics section of Molecular Basis of Medicine (IDM 725) in the Fall to first year medical students (85-95 students)
- 2011 – 2012 One lecture in Approach to Patient Care (MED 725) in the Fall to second year medical students on cancer genetics (85-95 students)
- 2011 – 2013 Course director for Graduate Seminar (BMS 680) taught in the Fall and Spring semesters to all BMS graduate students (60-70 students)
- 2011 – 2012 Four lectures in the nucleic acids section of Molecular Basis of Medicine (IDM 725) in the Fall to first year medical students (85-95 students)
- 2011 Lead a case study for Cellular and Molecular Biology (BMS 600). 8 masters students
- 2009 – 2010 Eleven lectures in the clinical genetics section of Molecular Basis of Medicine (IDM 725) in the Fall to first year medical students (85-110 students)
- 2008 – 2009 One laboratory lecture and associated exercise in Molecular Cloning Laboratory (BMS 670/BSC 480) on immunofluorescence analysis and flow cytometry techniques to ten graduate/undergraduate students in the spring semesters

- 2008 – 2009 Eleven lectures in the clinical genetics section of Approach to Patient Care (MED 725) in the Fall of 2008 and 2009 to second year medical students (85-90 students)
- 2007 – 2009 Served on the Ad-Hoc Integration Committee to integrate the courses Human Genetics, Biochemistry, and Cell Biology into one course for the medical students
- 2006 – 2008 Human Genetics (IDM 724/BMS 614) in the Spring of 2006, 2007, and 2008, as well as the Fall of 2008 and 2009 to second year medical students, forensic science students, and Ph.D. students at Marshall University School of medicine (15 lectures, 90 students)
- 2005 – 2008 Two lectures in Medical Cell Biology (IDM 720) on cancer cell biology in the Fall of 2005-2008 to 70-80 first-year medical and graduate students
- 2005 – 2007 One laboratory lecture and associated exercise in Molecular Cloning Laboratory (BMS 670/BSC 480) on immunofluorescence analysis and microscopy techniques to four-six graduate students in the spring of 2005-2007
- 2006 Cancer Colloquium (BMS 679) in the Spring of 2006. Served as course director in a structured journal club course that I developed for the Cancer Research Cluster, four enrolled students with 15-20 total participants
- 2005 "New Options for the Tin Man Just Over the Rainbow; Myocardial Infarction and Stem Cells." A continuing medical education seminar on January 12, 2005 for the cardiology fellowship group at St. Mary's Hospital, Huntington, WV
- 2005 Course director for MCB622 Current Topics in Molecular Biology for the Spring of 2005 at the Joan C. Edwards School of Medicine. One credit hour, graduate student level, ten students
- 2004 Seminar for the biomedical sciences seminar series (BMS680) at the Joan C. Edwards School of Medicine on October, 2004 entitled "Searching for New Chemotherapeutic Approaches to Myeloid Leukemia: Quantitative Trait Loci Analysis of Differentiation of Myeloid Progenitor Cells in Murine Bone Marrow"
- 2004 "An Introduction to Microarray Analysis." One lecture (2 hours) in Introduction to Molecular Genetics (GE 612) at Thomas Jefferson University. Three credit hours, graduate student level, fifteen students
- 1998 Laboratory in Introduction to Genetics for one semester at the University of Kansas as assistant instructor. Two credit hours, undergraduate level, thirty students
- 1996 – 1997 Laboratory in Introduction to Biology (for majors) for two semesters at the University of Kansas as primary instructor for three sections. Two credit hours, undergraduate level, seventy-five students
- 1994 – 1996 Laboratory in Introduction to Biology (for non-majors) for three semesters from at the University of Kansas as primary instructor for three sections. Two credit hours, undergraduate level, seventy-five students

Improvement

- 2013 A two hour training session on proctoring the National Board of Medical Examiners web-based examinations. On May 31, 2013 I was a chief proctor for the year 1 exam for our medical students.
- 2012 A semester course "Pedagogy of Teaching & Learning Online: Teaching Online Matters" to introduce and teach instructors how to properly implement an online course to pass the Quality Matters criteria for online teaching.
- 2012 Two hour workshop entitled "Building Small Group Facilitation" by Dr. Elza Mylona.
- 2012 Three-day Workshop entitled "Compass Program for Academic Advancement" presented for the Academy for Academic Leadership. This program provides early to mid-career faculty with one-on-one academic advancement guidance and an understanding of the culture of higher education.
- 2011 Workshop entitled "How to use clickers? "(audience response system)" by Turning Technology.

- 2009 Workshop entitled "How to Make Competencies Work for You (and Not Just Jump Through Hoops)" by Drs. Jim Clardy and Eugene Smith for the Accreditation Council for Graduate Medical Education
- 2007–2008 Accepted as a candidate into the Academy of Medical Educators at Marshall University School of Medicine in the summer of 2007. I ended up graduating from this program in the Spring of 2008 as a Master Educator and a member of the Academy of Medical Educators
- 2007 Workshop entitled "ABC's of Teaching and Learning in Medicine" by Drs. Nancy Searle and Teri Lee Turner from Baylor College of Medicine
- 2007 Workshop entitled "Using the NBME Format - How to write and analyze the Test items?" by Dr. Carolyn Cambor, M.D. from University of Pennsylvania School of Medicine
- 2006 Six session workshop provided to the medical school faculty by Dr. Steven Fish in the summer for improvement of medical teaching
- 2006 Workshop entitled "How to Promote Self Directed Learning?" by Dr. Charles H. Rohren from Mayo Clinic (2hrs)
- 2005 Teaching workshop at Marshall University presented by Dr. L. Dee Fink titled "A Self-Directed Guide to Designing Courses for Significant Learning"
- 2004 Workshop entitled "Creating your Style: What is your Teaching Perspective/Learning Perspective" by Dr. Nancy Bennett from Harvard Medical School (2hrs)
- 2004 Faculty improvement workshop entitled "Identifying and Mentoring at Risk Students" organized by Winifred Black at Marshall University

Mentoring

Marshall University, a primarily undergraduate institution, is the second largest university in West Virginia (WV) with an enrollment of more than 9,500 undergraduate and 3,900 graduate students. West Virginia is the only state located entirely within Appalachia and is consistently one of the four lowest ranked US states in terms of income, employment and poverty. Marshall University students are typically from rural communities and over 70% of our students are first generation college students. These factors pose some unique challenges for undergraduate and graduate research activities. A majority of our biology science majors (the enrollment is above 500 students) are either unaware or often disheartened about a pursuing scientific research career. Nevertheless, many of these students are talented and have the potential to become gifted scientists. One of the ways of motivating undergraduate students into scientific research career paths is to encourage their participation in research activities in the laboratory.

I have extensive experience in mentoring students at all levels. I am a tenured faculty member in the Department of Biochemistry and Microbiology at the Joan C. Edwards School of Medicine at Marshall University. As a graduate student I was often involved in the training and supervision of undergraduate students, as the senior graduate student in the laboratory. I also was on a teaching assistantship for seven semesters of my graduate work in laboratory settings as the principal teacher responsible for teaching the students the techniques and theory behind the investigations. Since my arrival to Marshall University in July 2004, I have mentored supervised the research work of many undergraduate and graduate students, including three Ph.D. students. Their research projects have been diverse and have encompassed cell culture, animal models, nutritional studies, and molecular/cell biology. I have served on the thesis committees of nine students. As the director of the Flow Cytometry Core at the medical school I have extensive experience describing scientific theory and teaching laboratory techniques to researchers of various skill levels, from professors learning new techniques to undergraduates undertaking their first laboratory experience.

The Sollars' laboratory has provided research experience to many successful undergraduate students. Marshall University requires all students pursuing the baccalaureate degree to complete a "Capstone Project." The Capstone is essentially a senior research thesis to be completed in the student's major field of study and provides excellent opportunity for undergraduate students to participate in cutting-edge biomedical research. I have supervised the Capstone research projects of three students. My first Capstone student, James Buchanon, is currently in medical school. Additionally, Marshall University, is the lead institution in an INBRE grant containing an undergraduate summer research experience to stimulate research interest in colleges in the area that do not have sizeable research programs. Students in the program

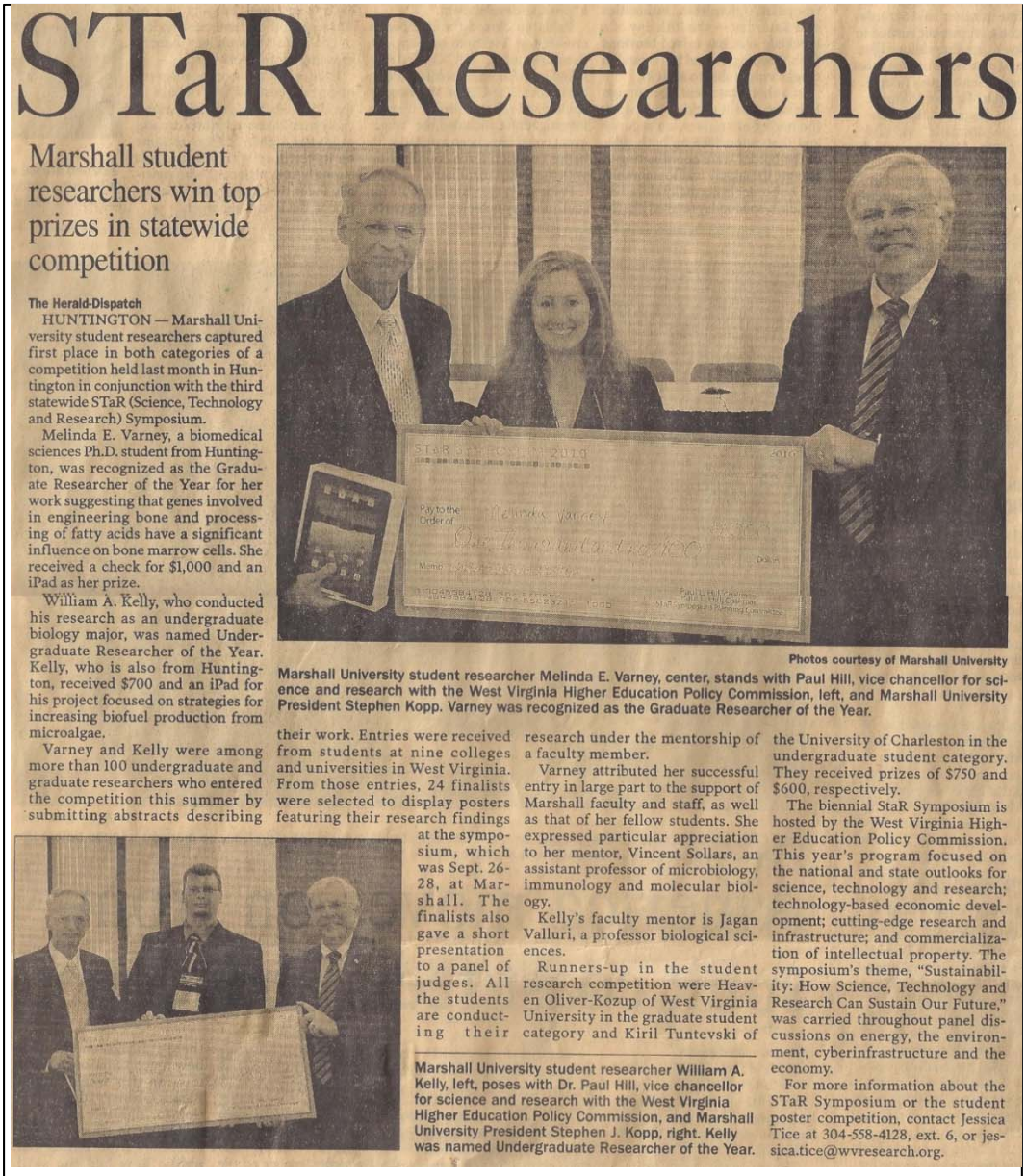
have an eight week project in laboratories at Marshall University and West Virginia University, followed by a symposium where they present their research in oral talks and poster presentations. I have mentored three students in this program, two of which are currently in medical school. I plan on offering students from both of these programs opportunities to conduct research. Our most recently funded project was an R21 project involving an extensive pair feeding program with mice, where we provided many undergraduate students research experiences. Table 1 lists their names and post-graduate placement. **The Sollars' laboratory has provided research experience to many successful graduate students.** Marshall University has a Ph.D. program in the Biomedical Sciences Program. I have mentored three Ph.D. students, Drs. Jennifer Napper, Melinda Varney, and Jasjeet Bhullar, all of which successfully graduated the program and are pursuing active careers with their degrees. My first doctoral student, Dr. Jennifer Napper, is currently a professor at Shawnee State University. While a graduate student in my laboratory, she was the recipient of the university's Presidential Scholar award twice for best overall graduate student in the Biomedical Sciences Program. She also obtained a fellowship for her graduate studies from the NASA West Virginia Space Grant Consortium through the Graduate Research Fellowship Program. She was also president and vice president of the graduate student organization at various times while in the program. My second doctoral student, Dr. Melinda Varney, is currently undertaking her first post-doctoral position. She also obtained two fellowships for her graduate studies from the NASA West Virginia Space Grant Consortium through the Graduate Research Fellowship Program. Melinda also received the honor of being the first place winner of the state-wide graduate student research presentation in the 2010 STAR Symposium. She was also president of the graduate student organization for two years while in the program. My third doctoral student, Dr. Jasjeet Bhullar, is currently undertaking her first post-doctoral position.

One of the major advantages of my research is that a large portion of the research work provides ample research opportunities for undergraduates. Undergraduates normally have substantial course loads with exam and assignment deadlines often clustered within the semester. Therefore, they often cannot commit fully to projects that involve long continuous procedures. I have a focused research training plan which will provide insightful hands-on research experiences to undergraduate students working in my laboratory. The major highlights of my undergraduate research training program are: (1) after joining my laboratory, initially, the undergraduate students will perform mentored, independent projects, which will enable them to explore scientific phenomena of interest to them. During this time, they will be guided to a considerable extent, so that they can grasp biological concepts and understand the complexities involved. (2) The next step will be to teach them the actual research techniques they will use for their projects. These will be cell and molecular biology techniques involving state-of-the-art equipment, technology and software. I believe such hands-on research experience will encourage the students to pursue careers in biological research. (3) The third objective of my research training plan is to develop scientific communication skills of undergraduate students via lab meetings, journal clubs, and research-in-progress seminars. This will also sharpen their analytical skills and ability to interpret data. (4) I encourage students to apply for fellowships, research grants and travel grants. These grants are offered by multiple agencies like the NASA, Sigma-Xi, American Society of Pharmacology and Experimental Therapeutics (ASPET). (5) Finally, I ensure that each of my students attends a conference a national level where they will present a poster or a seminar. These conferences will also give them opportunities to interact with researchers in their field, and their scientific peers all over the world. Such research experiences are commonly available at universities in more affluent states; however, they are still relatively uncommon in West Virginia, which presents specific challenges to aspiring scientists.

List of publications having undergraduate and graduate students as authors (the undergraduate and graduate student authors have been indicated in bold in the publications listed below):

- YB-1 expression and function in early hematopoiesis (2011). **Jasjeet Bhullar** and Vincent E. Sollars. Immunogenetics 63, 337-350. PMID:21369783.
- A high omega-3 fatty acid diet has different effects on early and late stage myeloid progenitors (2011). **Melinda E. Varney**, **James T. Buchanan**, Yulia Dementieva, W. Elaine Hardman and Vincent E. Sollars. Lipids 46(1), 47-57. PMID: 21038084.
- 17-N-Allylamino-17-demethoxygeldanamycin induces a diverse response in human acute myelogenous cells (2010). **Jennifer Napper** and Vincent E. Sollars. Leukemia Research 34(11), 1493-1500. PMID: 20646760.
- Silencing and Re-expression of Retinoic Acid Receptor Beta2 in Human Melanoma (2010). Jun Fan, **Linda Eastham**, **Mindy Varney**, **Adam Hall**, **Nicolas L. Adkins**, Vincent E. Sollars, Phillipe Georgel, Richard M. Niles. Pigment Cell Melanoma Research 23 (3), 419-429. PMID: 20374520.

- Rapid selection and proliferation of CD133(+) cells from cancer cell lines: chemotherapeutic implications (2010). **Sarah E. Kelly**, **Altomare Di Benedetto**, **Adelaide Greco**, Candace M. Howard, Vincent E. Sollars, Donald A. Primerano, Jagan V. Valluri, Pier Paolo Claudio. PLoS One 5(4): e10035. PMID: 20386701.
- Omega 3 fatty acids reduce myeloid progenitor cell frequency in the bone marrow of mice and promote progenitor cell differentiation (2009). **Melinda E. Varney**, W. Elaine Hardman, and Vincent E. Sollars. Lipids in Health and Disease 8(9). PMID: 19296839.
- Defect in early lung defense against Pseudomonas aeruginosa in DBA/2 mice is associated with acute inflammatory lung injury and reduced bactericidal activity in naïve macrophages (2007). **Kari R. Wilson**, **Jennifer M. Napper**, James Denvir, Vincent E. Sollars, and Hongwei D. Yu. Microbiology 153(4), pp. 968-979. PMID: 17379707.



STaR Researchers

Marshall student researchers win top prizes in statewide competition

The Herald-Dispatch

HUNTINGTON — Marshall University student researchers captured first place in both categories of a competition held last month in Huntington in conjunction with the third statewide STaR (Science, Technology and Research) Symposium.

Melinda E. Varney, a biomedical sciences Ph.D. student from Huntington, was recognized as the Graduate Researcher of the Year for her work suggesting that genes involved in engineering bone and processing of fatty acids have a significant influence on bone marrow cells. She received a check for $1,000 and an iPad as her prize.

William A. Kelly, who conducted his research as an undergraduate biology major, was named Undergraduate Researcher of the Year. Kelly, who is also from Huntington, received $700 and an iPad for his project focused on strategies for increasing biofuel production from microalgae.

Varney and Kelly were among more than 100 undergraduate and graduate researchers who entered the competition this summer by submitting abstracts describing their work. Entries were received from students at nine colleges and universities in West Virginia. From those entries, 24 finalists were selected to display posters featuring their research findings at the symposium, which was Sept. 26-28, at Marshall. The finalists also gave a short presentation to a panel of judges. All the students are conducting their research under the mentorship of a faculty member.

Varney attributed her successful entry in large part to the support of Marshall faculty and staff, as well as that of her fellow students. She expressed particular appreciation to her mentor, Vincent Sollars, an assistant professor of microbiology, immunology and molecular biology.

Kelly's faculty mentor is Jagan Valluri, a professor biological sciences.

Runners-up in the student research competition were Heaven Oliver-Kozup of West Virginia University in the graduate student category and Kiril Tuntevski of the University of Charleston in the undergraduate student category. They received prizes of $750 and $600, respectively.

The biennial StaR Symposium is hosted by the West Virginia Higher Education Policy Commission. This year's program focused on the national and state outlooks for science, technology and research; technology-based economic development; cutting-edge research and infrastructure; and commercialization of intellectual property. The symposium's theme, "Sustainability: How Science, Technology and Research Can Sustain Our Future," was carried throughout panel discussions on energy, the environment, cyberinfrastructure and the economy.

For more information about the STaR Symposium or the student poster competition, contact Jessica Tice at 304-558-4128, ext. 6, or jessica.tice@wvresearch.org.

Photos courtesy of Marshall University

Marshall University student researcher Melinda E. Varney, center, stands with Paul Hill, vice chancellor for science and research with the West Virginia Higher Education Policy Commission, left, and Marshall University President Stephen Kopp. Varney was recognized as the Graduate Researcher of the Year.

Marshall University student researcher William A. Kelly, left, poses with Dr. Paul Hill, vice chancellor for science and research with the West Virginia Higher Education Policy Commission, and Marshall University President Stephen J. Kopp, right. Kelly was named Undergraduate Researcher of the Year.

Figure 1: Newspaper clipping of Melinda Varney's award ceremony. Mindy is in the middle along with the president of the university, Dr. Stephon Kopp (right), and Paul Hill, vice chancellor for science and research with the West Virginia Higher Education Policy Commision (left).

List of conference abstracts having undergraduate and graduate students as authors. (the undergraduate and graduate student authors have been indicated in bold in the citations listed below):

- "Differentiation Kinetics of Hematopoietic Stem Cells in Hypoxic Conditions", Seth Deskins, Abdalla Lawag, Sarah Govender, and Vincent E. Sollars. Poster presentation at the 2015 West Virginia IDeA Network of Biomedical Research Excellence Summer Research Symposium in July 2015.

- "Immunophenotyping of Differentiating Hematopoietic Stem Cells in Hypoxia", Seth Deskins and Vincent E. Sollars. Oral presentation at the 2015 West Virginia IDeA Network of Biomedical Research Excellence Summer Research Symposium in July 2015.
- "Phenotypic plasticity associated with HSP90 inhibition", Abdalla Lawag, Jennifer M. Napper, and Vincent E. Sollars. Poster presentation at the 2014 Appalachian Regional Cell Conference in November 2014.
- "Hypoxia effect on hematopoietic stem cells", Sarah Govender, Abdalla Lawag, and Vincent E. Sollars. Poster presentation at the 2014 Appalachian Regional Cell Conference in November 2014.
- "Phenotypic plasticity in the EML culture system as a result of HSP90 inhibition", Jennifer Napper and **Vincent E. Sollars**. Poster presentation at the AACR conference Epigenetics and Chromatin in Cancer in June 2013.
- "Localization of Immune Cells in the Genital Tract of Stressed Mice during Chlamydia trachomatis Infection", **Michael Bowling**, **Sheila Bailey**, Vincent Sollars, and Tesfaye Belay. Poster presentation at the WV-INBRE Summer Research Symposium in Morgantown, WV on 7/29/2012.
- "YB-1 expression in early hematopoiesis and leukemic cells." **Jasjeet Bhullar** and Vincent E. Sollars. Poster presentation at the 2010 STaR Symposium (state meeting).
- "In silico mapping for genes of interest in regulating hematopoiesis suggests that bone formation factors are critical determinants of hematopoietic stem and progenitor cell pools." **Melinda Varney** and Vincent E. Sollars. Poster presentation at the 2010 STaR Symposium (state meeting). Winner of the first place award for graduate studies in the state.
- "YB-1 expression in early hematopoiesis and leukemic cells." **Jasjeet Bhullar** and Vincent E. Sollars. Poster presentation at the 2010 AACR meeting.
- "All-trans retinoic acid mediated differentiation of neuroblastoma parallels increase in reactive oxygen species information." **Anne Silvis**, **Jennifer Napper**, Vincent E. Sollars, and Kelley Kiningham. Poster presentation at the 2009 Society for Free Radical Biology and Medicine 16th annual meeting.
- "High omega-3 fatty acid diets have different effects on early and late stage myeloid progenitors in the bone marrow of mice." **Melinda E. Varney**, **James T. Buchanan**, W. Elaine Hardman, and Vincent E. Sollars. Poster presentation at the 2009 AICR meeting.
- "Epigenetic Regulation of RAR-ß2 during Melanoma Progression and Retinoic Acid Treatment." **Adkins, N.L., Hall, J.A., Chetel, L., Varney, M.**, Sollars, V.E., Fan, J., Niles, R. M., and Georgel, P.T. Poster presentation to the Biochemistry and Cell Biology for the International Asilomar Chromatin and Chromosome Conference, Dec. 2008,
- "Rapid Selection and Proliferation of Cancer Stem Cell in a Hydrofocusing Bioreactor: Chemotherapeutic Implications." **Sarah E. Kelly, Altomare Di Benedetto, William A. Kelly, Adelaide Greco**, Vincent E. Sollars, Michele Miranda, Candace M. Howard, Jagan V. Valluri, and Pier Paolo Claudio. Poster presentation at the 2008 Annual WV-INBRE/COBRE symposium.
- "EML Cells as a Model to Determine if Hsp90 is an Epigenetic Enabler in Leukemia." **Jennifer Napper**, Harsh Pratap, and Vincent E. Sollars. Poster presentation at the 82nd West Virginia Academy of Sciences Annual Meeting at Huntington, WV (2007).
- "Epigenetic Regulation of Wnt Pathway in Hematopoietic Cells via Hsp90." **Jasjeet Bhullar** and Vincent E. Sollars. Poster presentation at the 82nd West Virginia Academy of Sciences Annual Meeting at Huntington, WV (2007).
- "Comparing the Myeloid Progenitor Cell Compartment Among Inbred Strains of Mice to Identify Possible Leukemia Susceptibility Genes." **Melinda Varney**, Harsh Pratap, and Vincent E. Sollars. Poster presentation at the 82nd West Virginia Academy of Sciences Annual Meeting at Huntington, WV (2007).
- "EML cells as a model to determine if Hsp90 is an epigenetic enabler in leukemia." **Jennifer Napper**, Harsh Pratap, and Vincent E. Sollars. Poster presentation at the 2006 Cancer Biology Chair and Program Director's Retreat at Assilimar, CA (2006).
- "Retinoic Acid Function in Human Melanocytes and Melanoma Cell Lines Representing Different Phases of Progression." **Linda L. Eastham**, Vincent Sollars, Zalfa Abdel-Malek and Richard M. Niles. Poster Presentation at the Pan-American Society for Pigment Cell Research at Cincinnati, OH (2006).

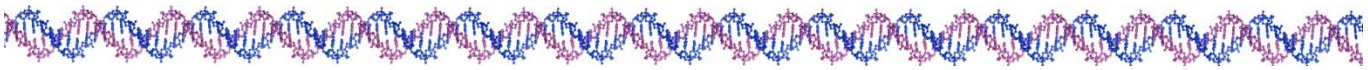
- "Evaluation of Aldehyde Dehydrogenase Enzymatic Activity for the analysis of Stem and Progenitor Cells." **Jennifer Thompson** and Vincent E. Sollars. Poster presentation at the Summer Research Symposium for the West Virginia IDeA Network of Biomedical Research Excellence (2006).
- "DBA/2 Mice Macrophage Acitivity in Response to Pseudomonas aeruginosa." **Jennifer M. Napper, Kari R. Wilson**, Hongwei D. Yu, and Vincent E. Sollars. Poster presentation at Research Day for the Joan C. Edwards School of Medicine (2006).
- "Myeloid Progenitor Cell Analysis of HLB Strain Mice Using Flow Cytometry and the CFC Assay." **Kelli A. Morrison, Jennifer M. Napper**, Vincent E. Sollars. Poster Presentation at the Summer Research Symposium for the West Virginia IDeA Network of Biomedical Research Excellence (2005).

I have mentored students at both the undergraduate and graduate levels. These include the following:

- Volunteered as a mentor for the WV-INBRE Summer Research Program for undergraduates. Resulted in the mentoring of Seth Deskins in this program (Summer of 2015)
- Mentor for Sarah Govendar, an undergraduate student in the laboratory (2014-present)
- Secondary mentor for Jessie Thornton , a M.S. student in Dr. John Wilkinson's (2012-2013)
- Mentor for Trevor Bartlett, an undergraduate student in the laboratory (2011-2013)
- Secondary mentor for Jarrod Pennington , a M.S. student in Dr. Elmer Price's laboratory (2007-2009)
- Volunteered as a mentor for the WV-INBRE Summer Research Program for undergraduates. Resulted in the mentoring of Nikki Reed in this program (Summer of 2008)
- Secondary mentor for Sara Elizabeth Daron Kelly , a masters student in Dr. Pier Pablo Claudio's laboratory (2007-2009)
- Secondary mentor for Nick Adkins, a BMS Ph.D. student in Dr. Phillipe Georgel's laboratory (2007-present)
- Secondary mentor for Yue Huang, a BMS Ph.D. student in Dr. Guo-Zhang Zhu's laboratory (2006-present)
- Secondary mentor for Sandeep Sudhakue Joshi, a BMS Ph.D. student in Dr. Richard Nile's laboratory (2006-present)
- Served as a mentor for Jill Taylor, an entering medical student, interested in research in the Summer of 2006
- Volunteered as a mentor for the WV-INBRE Summer Research Program for undergraduates. Resulted in the mentoring of Jennifer Thompson in this program (Summer of 2006). Accepted into medical school the following year
- Primary mentor for Jasjeet Bhullar, a BMS Ph.D. student in my laboratory (2005-2011)
- Primary mentor for Melinda Varney, a BMS Ph.D. student in my laboratory (2005-2010)
  - First place winner of the state-wide graduate student research presentation in 2010 at the STaR Symposium.
  - President for two terms (2006 and 2007) of the graduate student organization
- Volunteered as a mentor for the WV-INBRE Summer Research Program for undergraduates. Resulted in the mentoring of Kelli Morrison in this program (Summer of 2005). Accepted into medical school the following year
- Primary mentor for Jennifer Napper, a BMS Ph.D. student in my laboratory (2004-2010)
  - Recipient of the Presidential Scholar award twice (University award for best graduate student)
  - President (2008) and vice president (2007) of the graduate student organization
- Secondary mentor for Kari Wilson, a BMS Ph.D. student in Dr. Hongwei Yu's laboratory (2004-2009)

I have also been involved in mentoring faculty at my institution. These include the following:

- Belay Tesfaye, Ph.D.: I was a senioir faculty mentor for this professor through the WV-INBRE grant training program (2012-2014).
- Piyali Dasgupta, Ph.D. : I was a senior faculty mentor for this associate professor in a funded grant entitled "Acetylcholine transport in human NSCLCs" from the University of Kentucky CCTS program in the amount of $25,000 in 2015.



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