

<b>BIOGRAPHICAL SKETCH</b>			
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NAME Ali Shilatifard, Ph.D.		POSITION TITLE Investigator, Stowers Institute for Medical Research	
eRA COMMONS USER NAME			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Oklahoma Medical Research Foundation	Postdoc.	1997	Biochemistry
University of Oklahoma	Ph.D.	1994	Biochemistry
University of Georgia		1989-82	Biochemistry
Kennesaw State University	B.S.	1989	Organic Chemistry

## **A. Positions and Honors**

### **Positions**

2007-present Investigator, Stowers Institute for Medical Research  
 2004-present Instructor, Cold Spring Harbor Laboratory, Gene Expression Course  
 2002-2007 Associate Director for Basic Sciences, Saint Louis University Cancer Center  
 2005-2007 Professor of Biochemistry, Saint Louis University School of Medicine  
 2002-2005 Associate Professor of Biochemistry, Saint Louis University School of Medicine  
 Oct1997-2002 Assistant Professor of Biochemistry, Saint Louis University School of Medicine  
 1995-1997 Jane Coffin Childs Postdoctoral Fellow, Program in Molecular Biology, Oklahoma Medical Research Foundation

### **Honors:**

2007 Under 40 Innovation Award, Academy of Sciences, St. Louis  
 2006 ASBMB-AMGEN Award  
 2006 American Cancer Society Award of Excellence  
 2006 Stohlman Scholar, Leukemia & Lymphoma Society  
 (Due to schedule conflict was not able to accept)  
 2002 Recipient of the Sword of the American Cancer Society  
 2001-2006 Scholar of the Leukemia and the Lymphoma Society  
 1999-2002 Edward Mallinckrodt, Jr. Young Investigator  
 1995-1997 Jane Coffin Childs Postdoctoral Fellow

### **Study Section/Editorial Board Responsibilities**

- Editor, *Molecular and Cellular Biology* (2007-2012)
- Member, MGB/CDF1 study section National Institute of Health (2004-2007)
- Editorial Board Member, *Journal of Biological Chemistry*, (2002-2007)
- Member, Genetic Mechanisms in Cancer (GMC) study section, American Cancer Society (2003-2005)

- Ad hoc reviewer, *Cell, Science, Nature, Molecular Cell, Nature Cell Biology, Nature Structural and Molecular Biology, Genes and Development*, and *Proceedings of the National Academy of Sciences*.

## **B. Selected Peer-Reviewed Publications**

Smith E. R., Lee M. G., Winter B., Droz N. M., Eissenberg J. C., Shiekhattar R., Shilatifard A. (2008) Drosophila UTX is a histone H3 Lys27 demethylase that colocalizes with the elongating form of RNA polymerase II. *Mol Cell Biol.* 28,1041-6.

Wang P., Bowl M. R., Bender S., Peng J., Farber L., Chen J., Ali A., Zhang Z., Alberts A. S., Thakker R. V., Shilatifard A., Williams B. O., The B. T. (2008) Parafibromin, a component of the human PAF complex, regulates growth factors and is required for embryonic development and survival in adult mice. *Mol Cell Biol.* 28, 2930-40.

Eissenberg, J. C., Lee, M. G., Schneider, J., Ilvarsonn, A. R., Shiekhattar, R., and Shilatifard, A. (2007) The trithorax-group gene in Drosophila little imaginal discs encodes a trimethylated histone H3 Lys 4 demethylase. *Nature SMB*, 14, 344-346.

Bhaumik, S. R., Smith, E., and Shilatifard, A. (2007) Covalent modifications of histones during development and disease pathogenesis. *Nature SMB*, 14, 1008-1016.

Allis, C. D., Berger, S. L., Jenuwien, T., Kouzarides, T., Pillus, L., Reinberg, D., Roth, S., Shi, Y., Shiekhattar, R., Shilatifard, A., Workman, J and Zhang, Y. (2007) New nomenclature for chromatin-modifying enzymes. *Cell*, 131, 633-636.

Lee, M. G., Norman, J., Shilatifard, A., and Shiekhattar, R. (2007) Physical and functional association of a trimethyl H3K4 demethylase and Ring6a/MBLR, a polycomb-like protein. *Cell*, 128, 877-887.

Lee J. S., Shukla A., Schneider, J., Swanson, S. K., Washburn, M. P., Laurence Florens, L., Bhaumik S. R., and Shilatifard, A. (2007) Translating histone crosstalk between H2B monoubiquitination and H3 methylation by COMPASS. *Cell*, 131 1084-1196.

Smith, E., and Shilatifard, A. (2007) The A, B, Gs of Silencing. *Genes Dev.*, 21, 1141-1144.

Wood, A., Shukla, A., Schneider, J., Lee J. S., Stanton, J. D., Dzuiba, T., Swanson, S. K., Florens, L., Washburn, M. P., Wyrick, J., Bhaumik, S. R., and Shilatifard, A. (2007) Ctk complex mediated regulation of histone methylation by COMPASS. *Mol. Cell Biol.*, 27, 709-720.

Shilatifard, A. (2006) Histone methylation and ubiquitination: Implications in the regulation of gene expression. *Ann. Rev. Biochem.* 75, 243-269.

Schneider, J., Bajwa, P., Johnson, F. C., Bhaumik, S. R., and Shilatifard, A. (2006) Rtt109 is required for proper H3K56 acetylation: A chromatin mark associated with the elongating RNA polymerase II. *J. Biol. Chem.* 281, 37270-37274.

Wendt, K. D., and Shilatifard, A. (2006) Packing for the Germ: The role of histone 4 serine 1 phosphorylation in chromatin condensation and germ cell development. *Genes Dev.* 20, 2487-2491.

Steward, M. M., Lee, J. S., O'Donovan, A., Wyatt, M., Bernstein, B. E., and Shilatifard, A. (2006) Molecular Regulation of H3K4 trimethylation by ASH2, a shared subunit of MLL complexes. *Nature SMB* 13, 853-854.

Tenney, K., Gerber, M., Ilvarson, A., Schneider, J., Gause, M., Dorsett, D., Eissenberg, J., and Shilatifard, A. (2006) Drosophila Rtf1 functions in histone methylation, gene expression and Notch signaling. *Proc. Natl. Acad. Sci. U.S.A.* 103, 11970-11974.

Schneider, J., and Shilatifard, A. (2006) Histone demethylation by hydroxylation: Chemistry in action. *ACS Chem. Biol.* 1, 75-81.

Wood, A., and Shilatifard, A. (2006) Bur1/Bur2 and the Ctk complex in yeast: the split personality of mammalian P-TEFb. *Cell Cycle* 5, 1066-1068.

Eissenberg, J., and Shilatifard, A. (2006) Leaving a mark: the many footprints of the elongating RNA Polymerase II. *Current Opin. Genetics & Dev.* 16, 184-90.

Pavri, R., Zhu, B., Trojer, P., Mandal, S., Shilatifard, A., and Reinberg, D. (2006) Histone H2B monoubiquitination functions cooperatively with FACT to regulate elongation by RNA polymerase II. *Cell* 125, 703-717.

Krogan, N., Cagney, G., Yu, H., Zhong, G., Guo, X., . . . Shilatifard, A., *et al.*, (2006) Global landscape of protein complexes in the yeast *saccharomyces cerevisiae*. *Nature* 440, 637-643.

Wood, A., and Shilatifard, A. (2006) Transcriptional blackjack with p21. *Genes Dev.* 20, 643-647.

Wood, A., Schneider, J., Dover, J., Johnston, M., and Shilatifard, A. (2005) The Bur1/Bur2 complex is required for histone H2B monoubiquitination by Rad6/Bre1 and histone methylation by COMPASS. *Mol. Cell* 19, 589-599.

Wood, A., and Shilatifard, A. (2005) Guided by COMPASS on a journey through chromosome segregation. *Nature SMB.* 12, 839-840.

Gerber, M., Tenney, K., Conaway, J.W., Conaway, R.C., Eissenberg, J. C., and Shilatifard, A. (2005) Regulation of heat shock gene expression by RNA polymerase II elongation factor, elongin A. *J. Biol. Chem.* 280, 4017-4020.

Emre, N.C., Ingvarsdottir, K., Wyce, A., Wood, A., Krogan, N., Henry, K. W., Li, K., Marmorstein, R., Greenblatt, J., Shilatifard, A., and Berger, S. L. (2005) Maintenance of low histone ubiquitylation by ubp10 correlates with telomere-proximal sir2 association and gene silencing. *Mol. Cell.* 17, 585-894.

Wood, A., Schneider, J., and Shilatifard, A. (2005) Cross-talking Histones: Implications in the regulation of gene expression and DNA repair. *Biochem. Cell Biol.* 83, 460-467.

Kong, S., Banks, C. A., Shilatifard, A., Conaway, J.W., and Conaway, R.C. (2005) ELL-associated factors 1 and 2 are positive regulators of RNA polymerase II elongation factor ELL. *Proc. Natl. Acad. Sci. U.S.A.* 102, 10094-10098.

Wiederschain, D., Kawai, H., Shilatifard, A., and Yuan, Z.M. (2005) MLL fusion proteins suppress p53-mediated response to DNA damage. *J. Biol. Chem.* 280, 24315-24321.

Tenney, K., and Shilatifard, A. (2005) A COMPASS in the voyage of defining the role of trithorax/MLL-containing complexes: Linking leukemogenesis to covalent modifications of chromatin. *J. Cell Biochem.* 95, 429-436.

Gerber, M., Shilatifard, A., and Eissenberg, J. (2005) Mutational analysis of an RNA Polymerase II elongation factor in *Drosophila melanogaster*. *Mol. Cell Biol.* 25, 7803-7811.

Baillat, D., Hakimi, M.A., Naar, A., Shilatifard, A., Cooch, N., and Shiekhattar, R. (2005) Integrator, a multiprotein mediator of small nuclear RNA processing associates with the C-terminal repeat of RNA polymerase II. *Cell* 123, 265-276.

Wynder, C., Epstein, J. A., Shilatifard, A., and Shiekhattar, R. (2005) Recruitment of MLL by HMG-domain protein iBRAF promotes neural differentiation. *Nature Cell Biol.* 7, 1113-1117.

Schneider, J., Wood, A., Lee, J. S., Schuster, R., Dueker, J., Maguire, C., Swanson, S., Florens, L., Washburn, M. P., and Shilatifard, A. (2005) Molecular regulation of histone H3 trimethylation by COMPASS and the regulation of gene expression. *Mol. Cell* 19, 849-856.

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Wiederschain, D., Kawai, H., Gu, J., Shilatifard, A., and Yuan, Z. M. (2003) Molecular basis of p53 functional inactivation by the leukemic protein MLL-ELL. *Mol Cell Biol.* 23, 4230-4246.

Henry, K.W., Wyce, A., Lo, W.S., Duggan, L.J., Emre, N.C., Kao, C.F., Pillus, L., Shilatifard, A., Osley, M. A., Berger, S.L. (2003) Transcriptional activation via sequential histone H2B ubiquitylation and deubiquitylation, mediated by SAGA-associated Ubp8. *Genes Dev.* 17, 2648-2663.

Wood, A., Schneider, J., Dover, J., Johnston, M., and Shilatifard, A. (2003) The Paf1 complex is essential for histone monoubiquitination by the Rad6-Bre1 complex, which signals for histone methylation by COMPASS and Dot1p. *J. Biol. Chem.* 278, 34739-34742.

Gerber, M., and Shilatifard, A. (2003) Transcriptional elongation control and histone methylation. *J. Biol. Chem.* 278, 26303-26306.

Shilatifard, A., Conaway, R. C., and Conaway, J. W. (2003) The RNA polymerase II elongation complex. *Ann. Rev. Biochem.* 72, 693-715.

Kong, S.E., Shilatifard, A., Conaway, R. C., and Conaway, J. W. (2003) Preparation and assay of RNA polymerase II elongation factors elongin and ELL. *Methods Enzymol.* 371, 276-283.

Krogan, N., Dover, J., Wood, A., Schneider, J., Heidt, J., Boateng, M.-A., Dean, K., Golshani, A., Johnston, M., Greenblatt, J. F., and Shilatifard, A. (2003) The Paf1 complex is required for histone methylation by COMPASS and Dot1P: Linking transcription elongation to histone methylation. *Mol. Cell* 11, 721-729.

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Eissenberg, J. C., Ma, J., Gerber, M. A., Christensen, A., Kennison, J.A., and Shilatifard, A. (2002) dELL, an essential RNA polymerase II elongation factor with a general role in development. *Proc. Natl. Acad. Sci. U.S.A.* 99, 9894-9899.

Krogan, N. J., Kim, M., Ahn, S. H., Zhong, G., Kobor, M. S., Cagney, G., Emili, A., Shilatifard, A., Buratowski, S., and Greenblatt, J. F. (2002) NA polymerase II elongation factors of *Saccharomyces cerevisiae*: a targeted proteomics approach. *Mol Cell Biol.* 22, 6979-6992.

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Elmendorf, B. J., Shilatifard, A., Yan, Q., Conaway, J. W., and Conaway, R. C. (2001) Transcription factors TFIIIF, ELL and Elongin negatively regulate SII-induced nascent transcript cleavage by non-arrested RNA polymerase II elongation intermediates. *J. Biol. Chem.* 276, 23109-23114.

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Shilatifard, A.,<sup>‡</sup> Caslini, C.,<sup>‡</sup> Yang, L., and Hess, J. L. (2000) The amino terminus of the mixed lineage leukemia (MLL) protein promotes cell cycle arrest and monocytic differentiation. *Proc. Natl. Acad. Sci. U.S.A.* 97, 2797-2800. <sup>‡</sup>Equal contributing authors, referenced as Caslini *et al.*

DiMartino, J. F., Miller, T., Ayton, P., Landewe, T., Hess, J. L., Cleary, M. L., and Shilatifard, A. (2000) The C-terminal domain of ELL is required and sufficient for immortalization of myeloid progenitor by the MLL-ELL chimera. *Blood* 96, 3887-3893.

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## **C. Research Support**

### **Active Funding**

- 2001-2010 National Institutes of Health, and the National Cancer Institute, "The ELL and MLL Proteins and Human Cancer" 2R01CA89455 (PI)  
*The aims of this application are the biochemical and molecular characterization of MLL-chimeras found in patients suffering from Acute Myeloid Leukemia (AML). There are no overlaps between this grant and GM069905.*
- 2004-2008 National Institute of Health, General Medicine, 1R01GM069905, "Chromatin Modification by Histone Ubiquitination" (PI)  
The PI is requesting

### **Previous Funding**

- 1999-2002 The Edward Mallinckrodt Foundation, "Molecular Basis of Acute Human Leukemia", (P.I.)
- 2001-2006 Scholar Award from The Leukemia and Lymphoma Society, "Role of MLL protein in the development of Acute Human Leukemia" (P.I.)