

CURRICULUM VITAE

NAME: Charles Stanley Hemenway

DATE OF BIRTH: May 29, 1959

PLACE OF BIRTH: New Orleans, Louisiana

CITIZENSHIP: United States

OFFICE ADDRESS: Department of Pediatrics
Loyola University Chicago Health Sciences Division
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Maywood, IL 60153

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HOME ADDRESS: 5360 North Lowell Avenue
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Chicago, IL 60630

EDUCATION: B.A., Environmental Studies, 1981
Middlebury College
Middlebury, VT

M.D., 1987
University of Massachusetts
Worcester, MA

Ph.D., Genetics, 1996
Duke University
Durham, NC

WORK EXPERIENCE: Secondary School Teacher, 1981-1983
The Cambridge School
Weston, Massachusetts

**INTERNSHIP/
RESIDENCY:** Intern and Resident, 1987-1991
Internal Medicine and Pediatrics
University of Florida/Shands Hospital
Gainesville, FL

FELLOWSHIP: Fellow, 1991-1995
Pediatric Hematology/Oncology
Duke University Medical Center
Durham, NC

LICENSURE: Louisiana State Medical License #11774R (inactive)
Illinois State Medical License # 036 119086

CERTIFICATION: American Board of Pediatrics, 1991

Certificate # 46807, Re-certified 1998
American Board of Pediatrics
Sub-board of Pediatric Hematology/Oncology, 1994
Certificate # 1108, Re-certified 2000, 2008 (currently active)

**POSITIONS/
APPOINTMENTS:**

1995-1996: Associate in Pediatrics
Duke University Medical Center
Durham, NC

1996-2001: Assistant Professor of Pediatrics
2001-2007: Associate Professor of Pediatrics
School of Medicine
Tulane University, New Orleans, LA

2001-2007: Faculty, Biomedical Sciences Program
School of Medicine
Tulane University, New Orleans, LA

2002-2007: Director, Tulane Physician/Scientist (combined
M.D./Ph.D) Program
School of Medicine
Tulane University, New Orleans, LA

2007-present Professor of Pediatrics
Stritch School of Medicine
Loyola University Chicago
Maywood, IL

2007-present Director, Division of Pediatric Hematology/Oncology
Stritch School of Medicine
Loyola University Chicago
Maywood, IL

2008-present Ronald McDonald House Charities Endowed Professor in
Pediatric Oncology
Stritch School of Medicine
Loyola University Chicago
Maywood, IL

2009-present Director, Combined M.D./Ph.D. Program
Stritch School of Medicine
Loyola University Chicago
Maywood, IL

HOSPITAL STAFF: Loyola University Medical Center, Maywood, IL

St. Alexis Medical Center, Hoffman Estates, IL

HONORS/AWARDS: Phi Beta Kappa, Middlebury College, 1981

Hewlett-Packard Company Award,
University of Massachusetts, 1987

American Cancer Society Clinical Oncology Fellowship

Duke University Medical Center, 1991

Harry Hutchinson Gibson Fellow in Cancer
Duke Comprehensive Cancer Center, 1994

American Society of Hematology Scholar Award, 1995

National Cancer Institute, Howard Temin Scholar Award, 1999

The Mauvernay Research Excellence Award,
Debiopharm Pharmaceuticals, 2003

The Golden Apple Teaching Award
Loyola Pediatrics Residents, 2017

**PROFESSIONAL
ORGANIZATIONS:**

American Society of Hematology, 1993-present

Children's Oncology Group, 1997-present

Society for Pediatric Research, 2000-present

**INTRAMURAL
COMMITTEES:**

Tulane University School of Medicine

School of Medicine Research Advisory Committee
2006-2007

School of Medicine Biomedical Sciences Steering Committee
2006-2007

Tulane University Hospital and Clinics Transfusion Committee
2002-2003

School of Medicine Student Affairs Committee
2002-2007

Tulane Cancer Center Advisory Committee
2002-2007

Department of Pediatrics Research Committee
2000-2007

Loyola University Chicago

Task Force on Graduate Student Family Leave
2012

Loyola University Chicago Stritch School of Medicine (SSOM)

Department of Pediatrics Executive Committee
2007-present

Department of Medicine Chairman's Search Committee
2008

Committee for Academic Rank and Tenure
2008-2016

Cardinal Bernardin Cancer Center Executive Advisory Board
2008-present

Research Advisory Committee
2009-2015

Graduate School Council
2011-present

Medical Student Leadership Council
2012-2017

Research Funding Committee
2015-present

Department of Pediatrics Clinical Competency Committee
2016-present

Central Curricular Authority
2019-present

Loyola University Medical Center

Loyola University Medical Center Chemotherapy Administration
Performance Improvement Committee
2007-present

**GRADUATE
STUDENTS:**

Tulane University

Rajanarayana S. Srinivasan, Interdisciplinary Program in Molecular and
Cellular Biology, 2000-2003
Ph.D. awarded 12/03

Tara Arrowood, Interdisciplinary Program in Molecular and
Cellular Biology, 2004-2006
M.S. awarded 05/06

Jacqueline B. Nesbit, Department of Biochemistry,
2003-2007
Ph.D. awarded 12/07

Cecily Bennett, Department of Biochemistry,
2005-2008
Ph.D. awarded 05/08

Jeffrey Lin, Department of Biochemistry
2005-2010
Ph.D. awarded 05/11

Ming-Jin Chang, Department of Biochemistry
2006-2011

Ph.D. awarded 05/11

Amanda Winters, Physician/Scientist (M.D./Ph.D) Program
2006-2009
M.D. and Ph.D. awarded 05/11

Loyola University Chicago

Bhavna Lumba, Department of Cellular and Molecular Biochemistry
2009-2013
Ph.D. awarded 12/13

Nisha Barretto, Department of Cellular and Molecular Biochemistry
2008-2013
Ph.D. awarded 05/14

**POSTDOCTORAL
FELLOWS:**

Christine M. Palermo (Ph.D., University of Rochester, 2004)
2004-2007
National Research Service Award Recipient, 2006

**GRADUATE
THESIS
COMMITTEES:**

Tulane University, Doctoral student thesis committees:
Served on more than 25 doctoral student committees (completed)

Loyola University Chicago, Doctoral student thesis committees:
Past member of eight doctoral student committees

TEACHING:

Department of Pediatrics, Tulane University

Pediatric Residency Program, Hosea Doucet, M.D., Director
Residents' Journal Club
Faculty director/supervisor of monthly journal club
1999-2007

Pediatric Clerkship, Scott Davis, M.D., Director
Preceptor for General Pediatric Clerkship (3rd year students)
1-2 weekly sessions during one 10-week block per year
1998-2007

School of Medicine/Graduate School, Tulane University

Principles of Pharmacology (GHPR 724), Krishna Agrawal, Ph.D.,
Director
Immunopharmacology lectures
1998-2005

Biochemical Genetics (GBCH 718), Arthur Lustig, Ph.D., Director
Genetic foundations, DNA repair lectures
1999-2000

Molecular Basis of Disease (MCBP 777/750), Mouhamad Awayda, Ph.D.,
Director
Hemoglobinopathy lectures
2001, 2004

Graduate Biochemistry (BMS 601), William Wimley, Ph.D., Director
Gene expression, RNA processing, protein synthesis lectures
2007

Loyola University Chicago

Molecular Biochemistry (BMSC410)
Hemoglobin structure and function lectures and problem sets
2015-2019
Contact time 2 hours, preparation time 6 hours

Molecular Biology of Oncogenesis (MBIO 590), Maurizio Bocchetta,
Ph.D., Director
Chromosome translocations, Pediatric cancers lectures
2009-2019
Contact time 3 hours, preparation time 10 hours

Patient Centered Medicine (PCM) 2 preceptor, 2010-11, 2012-2013
Clinical preceptor to one 2nd year medical student
Patient Centered Medicine (PCM) 1 preceptor, 2017-18
Clinical preceptor to two 1st year medical students

**JOURNALS
REVIEWED:**

ad hoc reviewer for:
*American Journal of Pathology, Analytical Biochemistry,
Biochimica et Biophysica Acta, Blood, British Journal of Haematology,
Cancers, Experimental Hematology, FEBS Letters, Frontiers in Oncology,
Gene, International Journal of Cancer, Journal of Hematology and
Oncology, Leukemia, Molecular Microbiology, Pediatric Blood and
Cancer, PloS One*

**GRANTS
REVIEWED:**

ad hoc reviewer for NIH RC1 Challenge Grants, Oncology-2 Translational
Clinical IRG, 2009

Department of Defense Peer Reviewed Medical Research Program
Blood Cancer Panel C FY09

ad hoc reviewer for NIH Cancer Molecular Pathobiology (CAMP) Study
Section, September 2009, June 2010

ad hoc reviewer for NIH Basic Mechanisms of Cancer Therapeutics
(BMCT), October 2010

Reviewer for the Leukemia and Lymphoma Society Translational
Research Program, May 2012, May 2013, May 2014, May 2015, March
2019

ad hoc reviewer for NIH Special Emphasis Panel ZRG1 EMNR-D 55 (Translational Research in Pediatric and Obstetric Pharmacology and Therapeutics), April 2015

ad hoc reviewer for NIH Cancer Genetics (CG) Study Section, October 2015, October 2016, March 2017, June 2017

ad hoc reviewer for NIH Provocative Questions in Pediatric Cancer Study Section, April 2017, November 2017, April 2018

ad hoc reviewer for NIH Special Emphasis Panel ZRG1 OBT-D 55 R (Cancer Research Workforce Diversity), March 2018

ad hoc reviewer for NIH Fusion Oncoproteins in Childhood Cancer (FusOnC2) Study Section, April 2019

ad hoc reviewer for NIH Mechanisms of Cancer Therapeutics (MCT1) Study Section, February 2019, October 2019

FUNDING AND SUPPORT:

ACTIVE

National Institutes of Health/National Cancer Institute

1 R01 CA233749

Multiple Principal Investigators: Bushweller, J.H., Figueroa, M.E., Hemenway, C.S., Zeleznik-Le, N.J.

“AF9 (MLLT3) function in leukemia and normal hematopoiesis”

\$929,513 direct costs (SSOM sub-contract), 07/01/19-06/30/24

INACTIVE

Harry Hutchinson Gibson Fellow in Cancer

Duke Comprehensive Cancer Center

P.I.: C.S.H.

\$4,000 direct costs, 01/01/94-12/31/94

American Society of Hematology Scholar Award

P.I.: C.S.H.

\$80,000 direct costs, 07/01/95-06/30/97

Cancer Association of Greater New Orleans

“Characterization of the proto-oncogene, *bmi-1*”

P.I.: C.S.H.

\$13,636 direct costs, 01/01/97-02/28/98

Cancer Association of Greater New Orleans

“Analysis of protein interactions mediated by the oncoprotein, *Bmi-1*”

P.I.: C.S.H.

\$4,739 direct costs, 03/01/98-06/30/98

Louisiana Board of Regents Support Fund

LEQSF(1998-01)-RD-A-32
"RING finger proteins in lymphomagenesis"
P.I.: C.S.H.
\$88,489 direct costs, 06/01/98-06/30/01
Grant relinquished 07/01/99 due to NIH funding.

Ladies Leukemia League
"Characterization of a novel gene, *MPc3*"
P.I.: C.S.H.
\$10,000 direct costs, 07/01/99-06/30/00

National Institutes of Health/National Cancer Institute
1 K01 CA78318
"Bmi-1 interacting proteins in neoplastic transformation"
P.I.: C.S.H.
\$456,703 direct costs, 07/01/99-06/30/03

National Childhood Cancer Foundation/Children's Cancer Group
Chairman's Award
U10 CA13539; Subcontract No. 8018
"Peptide inhibitors of MLL fusion proteins"
P.I.: C.S.H.
\$30,000 direct costs, 12/01/00-11/30/01

Ladies Leukemia League
"Development of a model of infant leukemia for targeted
therapeutics"
P.I.: C.S.H.
\$34,187 direct costs, 06/01/03-05/31/04

National Institutes of Health
P20 RR020152
"Mentoring a program in cancer genetics"
P.I.: Prescott Deininger; C.S.H., co-investigator
\$7,500,000 direct costs, 09/01/04-09/30/07

Leukemia and Lymphoma Society
Translational Research Grant 6146-05
"Small molecule inhibitors of t(4;11) leukemia"
P.I.: C.S.H.
\$326,790 direct costs, 10/01/04-09/30/07

National Institutes of Health/National Cancer Institute
1 R01 CA131081
"Disrupting the AF4-AF9 protein complex in MLL leukemias"
P.I.: C.S.H.
\$174,000 direct costs, 03/12/08-02/28/10

Leukemia and Lymphoma Society
Specialized Center of Research Grant 7372-07
"Targeted therapies for infant leukemias"
P.I.: Carolyn Felix, Children's Hospital of Philadelphia;
C.S.H., co-investigator
\$6,500,000 direct costs, 10/01/06-09/30/11

Hyundai Hope on Wheels Foundation
P.I.: C.S.H.
“Pre-clinical testing of a peptide inhibitor of MLL leukemia”
\$100,000 direct costs, 10/01/11-09/30/13

National Institutes of Health/National Cancer Institute
R01 CA098459
P.I.: C.S.H.
“Targeted therapy for 11q23 acute leukemias”
\$543,128 direct costs, 07/01/09-04/30/13

National Institutes of Health/National Cancer Institute
R01 CA155328
Multiple Principal Investigators: Bushweller, J.H., Hemenway,
C.S., Zeleznik-Le, N.J.
“Structure/function of AF9 and MLL-AF9”
\$847,719 direct costs (SSOM sub-contract), 08/03/11-06/30/16

Hyundai Hope on Wheels Foundation
P.I.: C.S.H.
“MLLT11 in high-risk childhood AML”
\$250,000 direct costs, 10/01/2014-09/30/2016

**INVITED
EXTRAMURAL
PRESENTATIONS:**

Children’s Oncology Group
Fall Meeting, St. Louis, MO, October 2002
“A Peptide Inhibitor of t(4;11) Leukemia”

University of Pennsylvania
Hematologic Malignancies Translational Research Group,
February 2003
“The AF9 Transactivation Domain as a Therapeutic Target
for Acute leukemia”

University of Texas/M. D. Anderson Cancer Center
Pediatric Grand Rounds, February 2004
“Acute Leukemia in a Little Baby- a Big Problem”

University of North Carolina/Lineberger Cancer Center,
June 2004
“MLL fusion partners as therapeutic targets for leukemia”

Memorial Sloan-Kettering Cancer Center
Pediatric Grand Rounds, December 2004
“A strategy to identify inhibitors of t(4;11) leukemia”

Loyola University/Cardinal Bernardin Cancer Center
Cancer Center Seminar Series, January 2007
“Helping babies with leukemia: how we might do better”

University of Miami/Sylvester Cancer Center
March 2007
“Serendipity strikes 11q23 leukemia dead”

Workshop on Clinical Translation of Epigenetics in Cancer Therapy
Coral Gables, FL
January 2009
“AF4-AF9 protein complexes in MLL leukemia”

Georgetown University
Symposium on Targeted Therapies for Childhood Cancers
April 2009
“Targeted therapy to MLL fusions”

University of Chicago/Division of Pediatric Hematology-Oncology
September 2009
“Protein interactions in Multilineage leukemia”

CureSearch Foundation
October 2014
“What mixed lineage leukemia has helped teach us”

University of Massachusetts Department of Pediatrics
September 2015
“MLL leukemia: a rare disease that has taught us much”

PATENTS: U.S. Patent No. 7189691 (issued 03/13/2007)
“Methods and Compositions for Treating Leukemia”

**PEER REVIEWED
MANUSCRIPTS:**

- Sleasman, J.W., Hemenway, C., Klein, A.S., Barrett, D.J.: Corticosteroids improve survival of children with AIDS and *Pneumocystis carinii* pneumonia. *Am J Dis Child* 147:30-34, 1993. PMID 8093422
- Breuder, T., Hemenway, C.S., Movva, N.R., Cardenas, M.E., Heitman, J.: Calcineurin is essential in cyclosporin A and FK506 sensitive yeast strains. *Proc Natl Acad Sci USA* 91:5372-5376, 1994. PMID 7515500
- Heitman, J., Cardenas, M.E., Breuder, T., Hemenway, C., Muir, R.S., Lim, E., Goetz, L., Zhu, D., Lorenz, M., Dolinski, K.: Antifungal effects of cyclosporine and FK506 are mediated via immunophilin dependent calcineurin inhibition. *Transplant Proc* 26:2833-2834, 1994. PMID 7524220
- Cardenas, M.E., Hemenway, C., Muir, R.S. Ye, R., Fiorentino, D., Heitman, J.: Immunophilins interact with calcineurin in the absence of exogenous immunosuppressive ligands. *EMBO J* 13:59445957, 1994. PMID 7529175
- Hemenway, C.S., Dolinski, K., Cardenas, M.E., Hiller, M.A., Jones, E.W., Heitman, J.: *vph6* Mutants of *Saccharomyces cerevisiae* require calcineurin for growth and are defective in vacuolar H⁺-ATPase assembly. *Genetics* 141:833-844, 1995. PMID 8582630
- Hemenway, C.S.: FK506 in bone marrow transplantation. *Blood* (letter) 86:3611-3612, 1995.
- Hemenway, C.S., Heitman, J.: Immunosuppressant target protein FKBP12 is required for P-glycoprotein function in yeast. *J Biol Chem* 271:18527-18534, 1996. PMID 8702500
- Hemenway, C.S., Halligan B.W., Levy L.S.: The Bmi-1 oncoprotein interacts with dinG and MPh2: the role of RING finger domains. *Oncogene* 16:2541-2547, 1998. PMID 9627119

- [Hemenway, C.S.](#), Halligan, B.W., Gould, G.C.D.: A method to generate full-length cDNA molecules from yeast two-hybrid clones and RACE products. *Anal Biochem* 268:161-162, 1999. PMID 10036178
- [Hemenway, C.S.](#), Heitman J.: Calcineurin. Structure, function, and inhibition. *Cell Biochem Biophys* 30:115-151, 1999. PMID 10099825
- [Hemenway, C.S.](#), Heitman, J.: LIC4, a nuclear phosphoprotein that cooperates with calcineurin to regulate cation homeostasis in *Saccharomyces cerevisiae*. *Mol Gen Genet* 261:388-401, 1999. PMID 10102375
- [Hemenway, C.S.](#), Halligan, B.W., Gould, G.C.D., Levy, L.S.: Identification and analysis of a third mouse *Polycomb* gene, *MPc3*. *Gene* 242:31-40, 2000. PMID 10721694
- [Hemenway, C.S.](#), de Erkenez, A.C., Gould, C.G.D.: The Polycomb protein MPC3 interacts with AF9, an MLL fusion partner in t(9;11)(p22;q23) acute leukemias. *Oncogene* 20:3798-3805, 2001. PMID 11439343
- Srinivasan, R.S., de Erkenez, A.C., [Hemenway, C.S.](#): The Mixed Lineage Leukemia fusion partner AF9 binds specific isoforms of the BCL-6 corepressor. *Oncogene* 22:3395-3406, 2003. PMID 12776190
- Erfurth, F., [Hemenway, C.S.](#), de Erkenez, A.C., Domer, P.H.: MLL fusion partners AF4 and AF9 interact at subnuclear foci. *Leukemia* 18:92-102, 2004. PMID 14603337
- Srinivasan, R.S., Nesbit, J.B., Marrero, L., Erfurth, F., LaRussa V.F., [Hemenway, C.S.](#): The synthetic peptide PFWT disrupts AF4-AF9 protein complexes and induces apoptosis in t(4;11) leukemia cells. *Leukemia* 18:1364-1372, 2004. PMID 15269783
- Reiser, J., Zhang, X.-Y., [Hemenway, C.S.](#), Mondal, D., Pradhan, L., La Russa, V.F.: Potential of mesenchymal stem cells in gene therapy approaches for inherited and acquired diseases. *Expert Opin Biol Ther* 5:1571-84, 2005. PMID 16318421
- Zhang, W., Xia, X., Reisenauer, M.R., [Hemenway, C.S.](#), Kone, B.C.: DOT1a-AF9 complex mediates histone H3 K79 hypermethylation and repression of ENaC α in an aldosterone-sensitive manner. *J Biol Chem* 281:18059-18068, 2006 PMID 16636056
- Karras, N., [Hemenway, C.S.](#): Hurricane Katrina's impact on pediatric and adult patients with sickle cell disease. *J Health Care Poor Underserved* 18:382-393, 2007 PMID 17483566
- Palermo, C.M., Bennett, C.A., Winters, A.C., [Hemenway, C.S.](#): The AF4-mimetic peptide, PFWT, induces necrotic cell death in MV4-11 leukemia cells. *Leukemia Res* 32:633-642, 2008 PMID 17875318
- Bennett, C.A., Winters, A.C., Barretto, N.N., [Hemenway, C.S.](#): Molecular targeting of MLL-rearranged leukemia cell lines with the synthetic peptide PFWT synergistically enhances the cytotoxic effect of established chemotherapeutic agents. *Leukemia Res* 33:937-947, 2009 PMID 19232721
- Lin, J.J., [Hemenway, C.S.](#): Hsp90 directly modulates the spatial distribution of AF9/MLLT3 and affects target gene expression. *J Biol Chem* 285:11966-11973, 2010 PMID 20159978
- Chang, M-j., Wu, H., Achille, N.J., Reisenauer, M.R., Chou, C-W., Zeleznik-Le, N.J., [Hemenway, C.S.](#), Zhang, W.: The Histone H3 Lysine 79 Methyltransferase Dot1 is Required for Immortalization by MLL Oncogenes. (Co-corresponding authors) *Cancer Res* 70:10234-10242, 2010 PMID 21159644
- Malik, B., [Hemenway, C.S.](#): CBX8, a component of the Polycomb PRC1 complex, modulates DOT1L gene expression through AF9/MLLT3. *FEBS Lett* 587:3038-3044, 2013 PMID 23891621
- Lokken, A.A., Achille, N.J., Chang, M-j, Lin, J.J., Kuntimaddi, A., Leach, B.I., Malik, B., Nesbit, J.B., Zhang, S., Bushweller, J.H., Zeleznik-Le, N.J., [Hemenway, C.S.](#): Importance of a Specific Amino Acid Pairing for Murine MLL Leukemias Driven by MLLT1/3 or AFF1/4. *Leukemia Res* 38:1309-1315, 2014 PMID: 25282333
- Barretto, N.N., Karahalios, D.S., You, D., [Hemenway, C.S.](#): An AF9/ENL-targeted peptide with therapeutic potential in mixed lineage leukemias. *J Exp Ther Oncol* 10:293-300, 2014 PMID: 25509985

- Kuntimaddi, A., Achille, N., Thorpe, J., Lokken, A., Singh, R., Hemenway, C., Adli, M., Zeleznik-Le, N., Bushweller J.H.: Degree of Recruitment of DOT1L to MLL-AF9 Defines Level of H3K79 Di- and Trimethylation on Target Genes and Transformation Potential. *Cell Reports* 11:808-820, 2015 PMID: 25921540
- Mehrhoff, C.J., Hemenway, C.S., Suh, E.: Emergence of a Ph-negative Clone in a Child with Ph+ ALL. *J Pediatr Hematol Oncol.* 2019 May 29. doi: 10.1097/MPH.0000000000001521. [Epub ahead of print] PMID:31149920