CV
Heidi J Gill Super

Department of Biology
Minot State University
500 University Ave W
Minot, ND 58707
phone: (701) 858-3079 fax: (701) 858-3163/ (701) 858-4150 e-mail: heidi.super@ndus.edu

EDUCATION

Ph.D. 1995	University of Chicago /Molecular Genetics and Cell Biology
B.A. 1988	Carroll College, Helena Montana/ Biology/Minor Chemistry

ACADEMIC EXPERIENCE

2015-Present	Professor, Minot State University, Department of Biology
2006-2015	Associate Professor, Minot State University, Department of Biology
1999-2006	Assistant Professor, Minot State University, Department of Biology

RESEARCH EXPERIENCE

2004-Present	PI -Undergraduate Research Lab, Minot State University. Molecular genetic and epigenetic analysis of acute myeloid leukemia.
1995-1999	Postdoctoral Fellow-- Rocky Mountain Laboratories, Hamilton, MT. Intramural Research Training Award (IRTA) National Institutes of Health/National Institute of Allergy and Infectious Diseases/Laboratory of Persistent Viral Diseases Advisor: Bruce Chesebro, M.D.
1989-1995	Doctoral Candidate, University of Chicago, Chicago IL Division of Biological Sciences/ Department of Molecular Genetics and Cell Biology / Hematolgy-Oncology Advisors: Janet Rowley, M.D. and Manuel Diaz, M.D.

1988-1989 Post baccalaureate research fellowship
Oak Ridge Associated Universities (ORAU)
Oak Ridge National Lab, Oak Ridge, TN.

Advisor: Julian Preston, Ph.D.

1987 (summer)
Undergraduate research fellowship
Oak Ridge Associated Universities (ORAU)
Oak Ridge National Lab, Oak Ridge, TN.

Advisors: Wendy England, Ph.D. and Bruce Jacobson, Ph.D.

TEACHING EXPERIENCE

1999-present Department of Biology, Minot State University

Courses taught: Microbiology Lecture and Lab, Molecular biology, Lecture and Lab, Introductory Genetics Lecture and Lab, Immunology Lecture and Lab, Cancer Biology Lecture and Lab, Biology for non-majors Lecture and Lab, First-year Seminar Course.

1999 Adjunct professor, University of Montana, Division of Biological Sciences

Missoula, MT

Course taught: graduate Molecular Genetics with laboratory.

FUNDED GRANT PROPOSALS

(All awards for proposals focused on study of *MLL*-gene associated human acute leukemia)

2019-2020—Minot State University Small Research Grant. (Fund 310082150)
Teaching Old Cancer Drugs New Tricks: Using Epigenetic Modifying Compounds To Sensitize Leukemia Cells to Respond to a derivative of Vitamin A
$3000

2014-2019 (5-year award) IDeA Network of Biomedical Research Excellence (INBRE) Grant

Title: Can epigenetic modifier inhibitors sensitize AML cells to differentiation therapy?: ($125,000)

2009-2013

- IDeA Network of Biomedical Research Excellence (INBRE) Grant Establishment/maintenance of molecular core laboratory: ($300,000)

2011-2012

- Fraternal order of Eagles Cancer Research Grant ($5,000)

2008-2009

- Minot State University Research Grant ($5000)

2008-2009

- Minot State University Research Grant ($5000)

2004-2009

- IDeA Network of Biomedical Research Excellence (INBRE) Grant

Title: Analysis of *MLL* translocations and fusion genes in human acute leukemia.($650,000 for the 5-year period)

2007-2008

- Minot State University Research Grant ($3,920)

2002-03

- Minot State University Research Grant ($7300)
- National Institutes of Health Biomedical Research Infrastructure Network (BRIN) Award ($12,500)

2001-02

- Minot State University Research Grant ($1600)

SUBMITTED GRANT PROPOSALS

2007-08 National Institutes of Health Academic Research Enhancement Award (R15) ($150,000)
Title: Defining molecular interactions in *MLL* translocation breakpoint region. (Priority score 181--Did not resubmit)

POSTERS/ ORAL PRESENTATIONS FOR CONFERENCES

1. Reinholdt ML, Townsend JA, and **Super HJ** (April 28, 2005) Is topoisomerase II implicated in translocations involving the *MLL* gene? Proceedings of the 97th Annual North Dakota Academy of Science. Vol. 59, page 22.

2. **Super HJ,** Reinholdt, MA, Townsend JA, Mueller S, and Pankratz K. (April 28, 2005) Studies of chromosome rearrangement and gene fusions involving the human Myeloid Lymphoid

Leukemia gene (*MLL*). Proceedings of the 97th Annual North Dakota Academy of Science. Vol. 59, page 22.

3. Mueller S, Lepp C, Pankratz K, and **Super HJ** (April 28, 2005) Does Topoisomerase II bind in the *MLL* breakpoint cluster region? Proceedings of the 97th Annual North Dakota Academy of Science. p. 21

4. **Super HJ** and Lepp CA (April 2006) Targeting *Mll* Fusion Genes Using RNA Interference. Proceedings, 98th Annual North Dakota Academy of Science Meeting, p. 19.

5. Mueller SM, Watson V, Lepp CA, Pankratz K and **Super HJ** (April 2006) Does DNA topoisomerase II bind in the *MLL* translocation breakpoint cluster region? Proceedings, 98th Annual North Dakota Academy of Science Meeting, p. 16

6. Olander AL * Lepp CA and **Super HJ** (March 2006) EVIDENCE FOR DNA CLEAVAGE BY DNA TOPOISOMERASE II INHIBITORS IN THE *AF4* GENE TRANSLOCATION BREAKPOINT REGION. Annual Research Symposium, Minot State University. (Poster presentation).

7. Olander AL, Lepp CA, **Super HJ** (July 2006) In Vitro DNA Cleavage By DNA Topoisomerase Ii Inhibitors In The AF4 Gene Translocation Breakpoint Region. Proceedings of the National IDeA symposium of Biomedical Research Excellence IDeA meeting, Washington DC. P. 7

8., Olander AL * Lepp CA, **Super HJ.** (April, 2007) DNA cleavage by DNA topoisomerase II in the *AF4* gene translocation breakpoint region. Proceedings, 99th Annual North Dakota Academy of Science Meeting, p. 13. *Ist place winner in undergraduate oral presentation.

9. Olander AL. *, Lepp CA., **Super HJ.** (April, 2007) DNA cleavage in vitro by DNA topoisomerase II in the *AF4* gene translocation breakpoint region. Annual meeting of the American Association of Cancer Research (AACR). Proceedings, Undergraduate Research Caucus, p. 31.

10. Aldrich, A, Anderson AL and **Super HJ,** (October, 2007) Analysis of protein binding in the Myeloid-Lymphoid Leukemia gene translocation breakpoint cluster region. Proceedings, Undergraduate Research in the Molecular Sciences (Joint ASBMB and ASC meeting--NDSU / Moorhead MN).

11. Aldrich, A, Anderson AL and **Super HJ, (** April, 2008) Analysis of protein binding in the Myeloid-Lymphoid Leukemia gene translocation breakpoint cluster region. Proceedings, American Association for Cancer Research (AACR) p. 1029 *Winner Thomas Bardos Travel Award for undergraduate research and 2nd place Undergraduate Caucus.

12. Aldrich, A, Anderson AL and **Super HJ,** (April, 2008) Analysis of protein binding in the *MLL* translocation breakpoint region Proceedings, 100th Annual North Dakota Academy of Science Meeting, p. 51.

13. Conway, P., **Super H**., and Gonnella T., (June 2008) The impact of the North Dakota INBRE project on undergraduate research and student out comes. Proceedings 12th CUR Conference: Frontiers and Challenges in Undergraduate Research. P. 8.

14. JC. Horrell, Aldrich, A, Anderson AL and **Super HJ** (2009) Analysis of Chromatin structure in the Myeloid-Lymphoid Leukemia Gene translocation breakpoint cluster region. Proceedings, 101st Annual North Dakota Academy of Science Meeting, p.29

15. **Gill Super HJ,** Lepp CA, Lockrem TL**.** (2009) Knockdown of expression of the MLL-AF9 fusion gene in the cell line Mono Mac 6: Effects on downstream target genes and cell growth. Proceedings, American Association for Cancer Research (AACR) p. 2011.

16. JC. Horrell, Aldrich, A, Anderson AL and **Super HJ** (2010) Analysis of Chromatin structure in the Myeloid-Lymphoid Leukemia Gene translocation breakpoint cluster region. Proceedings, American Association for Cancer Research (AACR) p. 730.

17. JC. Horrell, Aldrich, A, Anderson AL and **Super HJ** (2010) Analysis of Chromatin structure in the Myeloid-Lymphoid Leukemia Gene translocation breakpoint cluster region. ** Proceedings of the National IDeA symposium of Biomedical Research Excellence (2010) IDeA meeting. P. 52

18. **Super, HJ.** (2010) Knockdown of Expression of the *MLL-AF9* Fusion Gene in the MM6 Cell Line: Effects on Downstream Target Genes and Cell Growth. *Highlighted Posters* : Proceedings of the National IDeA symposium of Biomedical Research Excellence (2010) IDeA meeting, Washington DC. P. 8.

19. Rosin J, Wheeling E, McClure H, Gill **Super HJ** (2012) Determining the importance of *MLL-AF9* splice variants on cell proliferation in the Mono Mac 6 acute leukemia cell line. North Dakota INBRE Annual Symposium for Undergraduate Research. Proceedings.

20. Rosin J, Wheeling E, McClure H and **Heidi J. Gill Super** (2013) Determining the importance of *MLL-AF9* splice variants on cell proliferation in the Mono Mac 6 acute leukemia cell line. Proceedings, American Association for Cancer Research (AACR), Undergraduate Research Caucus, Poster Competition.

21. **Super, HJ,** Schillo J, and Dobroski MA. (2014) Analyzing Chromatin Accessibility in the Myeloid-Lymphoid Leukemia Gene Chromosome Translocation Breakpoint Cluster Region . North Dakota INBRE Annual Symposium for Undergraduate Research. Proceedings.

22. Kalsi K. Heimdal[1], Edjay Ralph A. Hernandez[1], Dr. Heidi J. Super[1]. **Effects of Epigenetic Modifier Inhibitors on AML Cell Sensitivity to Differentiation Therapy**
Presented at the INBRE annual meeting. UND Oct. 14-15, 2017

23. ***Sarvenaz Taghavi****1 Rhea Desai1*, Jenny Chien, PhD,* ***Heidi Super****, PhD, Peter Browett, MBChB3, Purvi M Kakadia, PhD1* and Stefan K. Bohlander,* MD **Characterization of Cooperating Mutations in Murine Acute Leukemias: Towards Establishing Leukemia Models with Genetic Lesions in Defined Cellular Pathways** Presented at the annual meeting of the American Society for Hematology (ASH) December 11, 2017 Atlanta Georgia.

24. Bikalpa Ghimire,[1] Kalsi K. Heimdal[1], Edjay Ralph A. Hernandez[1], Dr. Heidi J. Super[1]. **Effects of Epigenetic Modifier Inhibitors on AML Cell Sensitivity to Differentiation Therapy**
[1]Department of Biology, Minot State University
Presented at the North Dakota INBRE annual meeting. UND Oct. 2018

25. Kalsi K. Heimdal, Edjay Ralph A. Hernandez, Heidi J. Gill Super. **Effects of epigenetic modifier inhibitors on AML cell sensitivity to differentiation therapy [abstract].** In: Proceedings of the American Association for Cancer Research Annual Meeting 2018; 2018 Apr 14-18; Chicago, IL. Philadelphia (PA): AACR; *Cancer Res* 2018;78(13 Suppl):Abstract nr 870.
DOI: 10.1158/1538-7445.AM2018-870

26. Kalsi K. Heimdal[1], Edjay Ralph A. Hernandez[1], and Heidi J. Super[1]. **Effects of epigenetic modifier inhibitor N-acetyl-dinaline on AML cell sensitivity to differentiation therapy.**
American Association for Cancer Research Annual Meeting 2018: Apr 14-18; Chicago, IL. Undergraduate Student Caucus and Poster Presentation.

27. Edjay Ralph A. Hernandez[1], Kalsi K. Heimdal[1] and Heidi J. Super[1]. **Effects of epigenetic modifier inhibitor trancypromine on AML cell sensitivity to differentiation therapy.** American Association for Cancer Research Annual Meeting 2018: Apr 14-18; Chicago, IL. Undergraduate Student Caucus and Poster Presentation.

28. Edjay Ralph A. Hernandez[1], Kalsi K. Heimdal[1] and Heidi J. Super[1]. **Effects of epigenetic modifier inhibitor trancypromine on AML cell sensitivity to differentiation therapy.** April 2018. Proceedings of the 110th Annual Meeting of the North Dakota Academy of Science. Volume 72: p. 67.

29. **Kalsi Heimdal, Bikalpa Ghimire,** Edjay Ralph Hernandez, and Heidi J. Gill Super. Epigenetic manipulation can sensitize AML cells to differentiate with ATRA. ***Cancer Research:*** Proceedings: AACR Annual Meeting 2019; March 29-April 3, 2019; Atlanta, GA **DOI:** 10.1158/1538-7445.AM2019-3064 Published July 2019. Main Poster Session

30. **Kalsi Heimdal,** Bikalpa Ghimire, and Heidi J. Gill Super. Epigenetic manipulation can sensitize AML cells to differentiate with ATRA. Proceedings: AACR Annual Meeting 2019; 14th Undergraduate Research Caucus. *

31. **Bikalpa Ghimire,** Kalsi Heimdal, , and Heidi J. Gill Super. Epigenetic manipulation can sensitize AML cells to differentiate with ATRA. Proceedings: AACR Annual Meeting 2019; 14th Undergraduate Research Caucus . *

RECENT ORAL PRESENTATIONS:

Kalsi K. Heimdal[1], Edjay Ralph A. Hernandez[1], and Heidi J. Super[1]. **Effects of epigenetic modifier inhibitor N-acetyl-dinaline on AML cell sensitivity to differentiation therapy.** Oral presentation: Proceedings of the 110th Annual Meeting of the North Dakota Academy of Science. **2018** Volume 72: p. 20.

30. **Heidi J. Gill Super** , Rhea Desai, Sarvenaz Taghavi, , Jenny Chien, Purvi M. Kakadia, and Stephan K. Bohlander: **Whole Exome sequencing for characterization of cooperating mutations in murine acute leukemias.** Oral presentation: Proceedings of the 110th Annual Meeting of the North Dakota Academy of Science. **2019** Volume 72: p. 52. (Sabbatical Research)

Bikalpa Ghimire, Kalsi Heimdal, Heidi Super. Sensitizing AML cells to differentiate with ATRA. Proceedings, North Dakota Academy of Science, Volume 73: **2019**. **2rd Place A. Rodger Denison Communications Competition:

AWARDS/HONORS/ INVITED TALKS

- (2005-2006) Northwest Art Center Series Lecture "Cancer Research in the 21st Century: The Search for Magic Bullets in Cancer Treatment. October 13th, 2005

- Key-note address: North Dakota Science Teachers Association, Spring Conference. March 2008 "Current State of Cancer Research"

- Honoree, 2010 Symposium on Excellence in Nurturing Undergraduate Research. North Dakota State University, Fargo, ND. October 2010.

PUBLICATIONS

1. **Gill**, H. J., Nida, D. L., Dean, D. A., England, M. W., and Jacobson, K. B. (1989) Resistance of Drosophila to cadmium: Biochemical factors in resistant and sensitive strains. *Toxicology*, 56: 315-321.

2. Ziemin-van der Poel, S., McCabe, N. R., **Gill** H. J., Espinosa R. III, Patel, Y., Harden, A., Rubinelli P., Smith, S. D., Le Beau, M. M., Rowley, J. D., and Diaz, M. O. (1991) Identification of a gene, MLL, that spans the breakpoint in 11q23 translocations associated with human leukemias. *PNAS USA*, 88: 10735-10739.

3. McCabe, N.R., Burnett, R.C., **Gill**, H. J., Thirman, M. J., Mbangkollo, D., Kipiniak, M., van Melle, E., Ziemin-van der Poel, S., Rowley, J.D., and Diaz, M. O. (1992). Cloning of cDNAs of the MLL gene that detect rearrangements and altered RNA transcripts in human leukemic cells with 11q23 translocations. *PNAS USA,* 89: 11794-11798.

4. Sait, S. N. J., Raimondi, S C., Look, A. T., **Gill**, H. J., Thirman, M. J., Diaz, M. O., and Shows, T. B. (1993) A t(11;12) 11q23 leukemic breakpoint that disrupts the MLL gene. *Genes, Chromosomes and Cancer* 7: 28-31.

5. Sanford, J. P., Sait, S. N. J., Pan, L., Nowak, N. J., **Gill**,H.J., Le Beau, M. M., Diaz, M. O., Zabel, B., and Shows, T. B. (1993) Characterization of two 11q23.3-11q24 deletions and mapping of associated anonymous DNA markers. *Genes Chromosomes and Cancer* 7: 67-73.

6. Kobayashi, H., Espinosa, R. III., Thirman, M. J., **Gill,** H. J., Fernald, A. A., Diaz, M. O., LeBeau, M. M., and. Rowley, J.D. (1993) Heterogeneity of

breakpoints of 11q23 rearrangements in hematologic malignancies identified with fluorescence in situ hybridization. *Blood* 82: 547-551.

7. Thirman, M.J., **Gill** H.J., Burnett R.C., Mbangkollo D., McCabe N.R., Kobayashi H., Ziemin-van-der Poel S., Kaneko Y., Morgan R., Sandberg A.A., Chaganti R.S.K, Larson R.A., LeBeau M.M., Diaz M.O., Rowley J.D. (1993). Rearrangement of the MLL gene in acute lymphoblastic and acute myeloid leukemias with 11q23 chromosomal translocation. *New England J. Med.* 329: 909-914.

8. **Gill Super** H.J., McCabe N. R., Thirman M. J., Larson R. A., Le Beau M. M., Pedersen-Bjergaard J., Philip P., Diaz M. O., and Rowley J. D. (1993). Rearrangements of the MLL gene in therapy-related acute myeloid leukemia in patients previously treated with agents targeting DNA-topoisomerase II. *Blood*, 82: 3705-3711.

9. **Gill Super**, H.J., Rothberg, P. G., Kobayshi, H., Freeman, A. I., Diaz, M., O., and Rowley, J. D. (1994) Clonal, nonconstitutional rearrangements of the MLL gene in infant twins with acute lymphoblastic leukemia: In Utero chromosome rearrangements of 11q23. *Blood* 83: 641-644.

10. McCabe, N. R., Kipiniak, M., Kobayashi, H., Thirman, M. J., **Gill**, H. J., Rowley, J. D., and Diaz, M. O., (1994) DNA rearrangements and altered transcripts of the MLL gene in a human T-ALL cell line Karpas 45 with a t(X;11)(q13;q23). *Genes, Chromosomes and Cancer* 9: 221-224.

11. **Gill Super** H.J., Martinez-Climent J., Rowley J. D., (1994) Molecular analysis of the Mono Mac 6 cell line: Detection of an MLL-AF9 fusion transcript. *Blood,* 85: 855.

12. Broeker P., **Gill Super** H. J., Thirman M. J., Pomykala H., Yonebayashi Y., Tanabe S., Zeleznik-Le N., Rowley, J. D., (1996) Distribution of 11q23 breakpoints within the MLL breakpoint cluster region in de novo acute leukemia and in treatment-related acute myeloid leukemia: Correlation with scaffold attachment regions and topoisomerase II consensus binding sites. *Blood,* 87: 1912-1922.

13. **Gill Super** H.J., Strissel P. L., Sobulo O. M., Burian D., Reshmi S. C., Roe B., Zeleznik-Le N.J., Diaz M.O., and Rowley J. D. (1997) Identification of complex genomic breakpoint junctions in the t(9;11) MLL-AF9 fusion gene in acute leukemia. *Genes Chromosomes and Cancer*, 20: 185-195.

14. **Super** H.J., Brooks D., Hasenkrug, K., and Chesebro, B. (1998) Requirement for CD4+ T-cells in the Friend murine retrovirus neutralizing antibody response: Evidence for functional T-cells in genetic low recovery mice. *J. Virol*, 71: 9400-9403.

15. **Super** H. J., Hasenkrug, K., Simmons, S., Brooks, D., Konzek, R., Sarge, K., Morimoto, R., Jenkins, N. A., Gilbert, D. J., Copeland, N. G., Frankel, W., and Chesebro, B. (1999) Fine

mapping of the Friend murine leukemia retrovirus resistance gene, *Rfv3*, on mouse chromosome 15. *J. Virol* 73:7848-7852.

16. Sato Y., Kobayashi H., Suto Y., Olney HJ., Davis EM., **Gill Super H.**, Espinosa R. III, Le Beau MM, Rowley, JD. (2001) Chromosomal instability in chromosome band 12p13: multiple breaks leading to complex rearrangements including cytogenetically undetectable sub-clones. *Leukemia* 15:1193-1202.

17. **Gill Super H.J.** (2015) A role for epigenetics in the formation of chromosome translocations in acute leukemia. *Cancer Genetics* 208 (15): 230–236.

PROFESSIONAL MEMBERSHIPS

American Association of Cancer Research (AACR)
Women in Cancer Research

PROFESSIONAL DEVELOPMENT

January- June 2017. Sabbatical. University of Auckland, Leukaemia & Blood Cancer Research Unit /Department of Molecular Medicine ,School of Medical Sciences.
Whole exome sequencing of acute myeloid leukemia. Monitoring minimum residual disease.
Mentor: Stefan Bohlander, MD.