Curriculum Vitae

JEFFREY C. HANSEN

Education

1976-1978	A.S.	Biology	Delta College, University Center, MI
1978-1980	B.S.	Biological Sciences	Oakland University, Rochester, MI
1982-1986	Ph.D.	Biochemistry	University of Wisconsin, Madison

Professional Positions

7/80-8/82 **Research Technican,** *Advisor*: Richard D. Moore, Department of Biological Sciences, SUNY-Plattsburgh. *Insulin effects on active and passive Na^+ transport.*

9/82-9/86 **Graduate Research Assistant**, Department of Biochemistry, University of Wisconsin-Madison. *Advisor:* Jack Gorski. *Estrogen receptor structural dynamics.*

12/86-6/90 **Postdoctoral Fellow**, Department of Biochemistry and Biophysics, Oregon State University. *Advisor:* K.E. van Holde. *Physical biochemistry of nucleosome positioning and chromatin assembly.*

7/90-8/96 **Assistant Professor**, Department of Biochemistry, The University of Texas Health Science Center at San Antonio. *Chromatin structure/function relationships.*

5/95- /03 **Director**, **UTHSCSA Analytical Ultracentrifugation Laboratory.** The University of Texas Health Science Center. *Analytical ultracentrifugation of complex macromolecular assemblies.*

9/96-8/01 **Associate Professor**, Department of Biochemistry, The University of Texas Health Science Center.

9/01-7/03 **Professor**, Department of Biochemistry, The University of Texas Health Science Center.

8/03-present **Professor**, Department of Biochemistry and Molecular Biology, Colorado State University. *Chromatin structure/function relationships; chromatin architectural proteins; intrinsic disorder in proteins.*

4/16-present **Associate Chair for Undergraduate Studies**, Department of Biochemistry and Molecular Biology, Colorado State University.

Awards

1984-86	E.S. Steenbock Predoctoral Fellowship, University of Wisconsin
1987-90	National Research Service Award, NIH/NIGMS
1991-96	First Independent Research Transition Award, NIH/NIGMS
2004	Distinguished Alumni Achievement Award, Oakland University
2018	Provost's R. Preston Davis Award for Instructional Innovation, CSU
2020	Faculty Excellence in Undergraduate Teaching and Mentoring Award, CNS, CSU

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RESEARCH

Competitive Grant Awards (last 10 years)

			TDC
5/08-4/13	MeCP2 Structure and Function (PI) R01 GM66834	NIH/NIGMS	$851,000
5/91-8/14	Chromatin Structure and Stability in the Solution State (PI) R01 GM45916	NIH/NIGMS	$843,000
5/10-4/15	Histone Chaperones and Acetyltransferases in Chromatin Transitions. P01 GM88409 (PIs: Nyborg, Luger, Stargell; Hansen co-PI on all three projects)	NIH/NIGMS	$7,774,760
8/18-7/22	Model Studies of Chromosome Structure and Dynamics (PI)	NSF	$517, 243

Editorial Boards

1997-2003 *Member*, Editorial Board, CHEMTRACTS: BIOCHEMISTRY & MOLECULAR BIOLOGY
1998 *Guest Editor*, CHEMTRACTS, Analytical Ultracentrifugation special issue
1999-2004 *Member*, Editorial Board, JOURNAL OF BIOLOGICAL CHEMISTRY
2006-2011 *Member*, Editorial Board, JOURNAL OF BIOLOGICAL CHEMISTRY

Ad hoc Journal Referee (last 10 years; 129 total papers reviewed)

Nature, Science, Mol. Cell, Nature Chem Biol., Nature Comm., PNAS, Biochemistry, J. Biol. Chem., J. Mol. Biol., EMBO J., Mol. Cell. Biol., Nuc. Acids Res., BioEssays, Curr. Biol., Biophysical J., Protein Science, Proteins, J. Proteome Res., Eur. J. Cell Biol., Genes, Genome Biology, Methods, J. Amer. Chem. Society, Chromosoma, Mol. Biosystems, PLoS One, Trends Bioch. Sci, Curr. Opin. Strl. Biol., Nucleus

Study Sections, Review Panels, and Other Leadership Activities

1994-95 *Member*, Special Study Section 4 (Analytical Ultracentrifugation), NIH/NCRR
1995-1998 *Member*, Advisory Panel on Biological Instrumentation & Instrument Development, NSF
1997 *Member*, Special Study Section 2 (Analytical Ultracentrifugation), NIH/NCRR
1998-2014 *Co-organizer*, Asilomar Chromatin and Chromosomes Meeting, Pacific Grove, CA
1999 *Member*, Site Visit Panel, Oak Ridge National Laboratory Biological Small Angle Neutron Scattering Proposal, Department of Energy
1999 *Ad hoc Member*, Human Immunology Program Project Grants Study Section, NIH
2001- present *Member*, Canada Research Chairs Program College of Reviewers
2002 *Member*, Extramural Site Visit Panel, NIEHS Laboratory of Developmental and Reproductive Biology
2003-2004 *Member*, Basic Cell and Molecular Biology 1 Review Panel, American Heart Association
2004 *Ad hoc Member*, Cell and Molecular Biophysics (BBCA) Study Section, NIH
2005-06 *Chair*, Basic Cell and Molecular Biology 1 Review Panel, American Heart Association
2006 *Ad hoc Member*, Nuclear Dynamics and Transport Study Section, NIH

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2007-09 *Member*, Region IV Peer Review Steering Committee, American Heart Association
2009-2011 *Member*, National Unified Peer Review Steering Committee, American Heart Association
2011 *Member*, NIH Extramural Site Visit Panel, Laboratory of Cell Biology
2011 *Member*, Emerging Technologies in Cancer Research Study Section, NCI/NIH
2011 *Ad hoc Member*, Macromolecular Structure and Function B Study Section, NIH
2015 *Ad hoc Member*, Molecular Genetics B Study Section, NIH
2018 *Member*, Genetic Mechanisms Panel, NSF
2020 *Member*, Genetic Mechanisms Panel, NSF

Invited National/International Talks

1995 Keystone Symposium: *Epigenetic Regulation of Transcription*
1996 Biophysical Society, 1996 Annual Meeting, *Advances in Sedimentation Velocity Workshop*
1997 *1st Annual Meeting on Solution Interactions of Macromolecules,* Galveston, TX
1998 Biophysical Society, 1998 Annual Meeting, *Platform Session, Theoretical, and Experimental Aspects of Folding of the 30nm Fiber*
1998 Protein Society, *Analytical Ultracentrifugation Workshop*
1998 *2nd Annual Meeting on Solution Interactions of Macromolecules,* Seattle, WA
2000 Gordon Research Conference: *Chromatin Structure and Function*
2000 Association of Biomolecular Resource Facilites annual meeting, *Solution Interactions Symposium*
2001 Juan March Foundation: Workshop on "Regulation of Chromatin Function, Madrid, Spain
2001 FASEB Conference: *Chromatin and Transcription*
2002 Rett Syndrome Research Foundation Annual Meeting
2003 Keystone Symposium: Chromatin - Organizing the Genome for Patterns of Gene Expression in Health and Disease, Big Sky, MT
2003 Biophysical Society, Annual Meeting, Symposium: *Structural Integration – Chromatin at Many Levels of Detail* (symposium Chair and organizer)
2003 FASEB Conference: *Chromatin and Transcription (talk given by P. Georgel)*
2004 Gordon Research Conference: *Reversible Associations in Structural and Molecular Biology*
2004 Gordon Research Conference: *Chromatin Structure and Function*
2005 University of Virginia, *Annual Symposium on Chromatin Structure and Function*
2005 University of Melbourne, *Biomolecular Structure and Dynamics Symposium*
2005 Lorne Symposium: *Protein Structure and Function*, Philip Island, Australia
2006 Gordon Research Conference: *Chromatin Structure and Function*
2008 Gordon Research Conference: *Biomolecular Interactions and Methods,* Session organizer and Chair
2009 *16th Conversation*, SUNY-Albany, New York
2010 German Biophysical Society Annual Meeting, Bochum, Germany
2011 International Rett Syndrome Research Symposium, Landsdowne, VA
2020 Colorado Genome Regulation Meeting (virtual)
2021 Biophysical Society, Multi-scale Genome Orgnization Symposium (virtual)

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Invited Departmental Seminars

1994 N.I.H. Technology Transfer Series: *Analytical Ultracentrifugation*
1994 Iowa State University, Department of Biochemistry & Biophysics
1994 Mayo Clinic, Department of Pharmacology
1994 N.I.H., Laboratory of Molecular Embryology
1995 University of Connecticut, *National Analytical Ultracentrifuge Facility*
1996 University of Connecticut, *National Analytical Ultracentrifuge Facility*
1996 University of Iowa, Department of Biochemistry
1997 University of Wisconsin, Department of Biochemistry
1998 The Johns Hopkins University, Department of Biology
1998 University of Massachusetts Medical Center, Department of Biochemistry
1998 University of Missouri, Department of Biochemistry
1999 Texas A&M University, Department of Biochemistry and Biophysics
1999 Kansas State University, Department of Biochemsitry
1999 University of Rochester, Department of Biochemistry and Biophysics
2000 University of Mississippi Medical Center, Department of Biochemistry
2000 National Institutes of Health, Laboratory of Molecular Embryology
2000 Emory University, Department of Pathology
2001 NIEHS, Laboratory of Developmental and Reproductive Toxicology
2001 Oregon Health Sciences University, Department of Biochemistry
2001 University of Vermont, Department of Biochemistry
2002 Colorado State University, Department of Biochemistry and Molecular Biology
2003 Johns Hopkins University, Department of Cell Biology
2003 Oakland University, Department of Biological Sciences, Rochester, MI
2003 Michigan State University, Department of Biochemistry and Molecular Biology
2004 National Institutes of Health, Laboratory of Molecular Embryology
2004 Department of Pathology, University of Wisconsin-Madison
2005 Dept. of Biochemistry and Molecular Genetics, University of Colorado Health Science Center
2007 University of Colorado Health Sciences Center, Program in Biomolecular Structure
2007 Cross Cancer Center, University of Alberta
2008 Pennsylanvania State School of Medicine, Department of Biochemistry
2008 Albert Einstein College of Medicine, Department of Cell Biology
2010 Institute of Enzymology, Hungarian Academy of Sciences, Budapest
2011 Department of Molecular Biology and Biochemistry, Wesleyan University
2012 Oregon State University, Department of Biochemistry and Biophysics
2015 University of Victoria (Canada), Department of Biochemistry
2018 Johns Hopkins University, Department of Biology

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PUBLICATIONS (127 TOTAL)

h-index = 65; i-10 index = 110; Total citations = 13,797 (as of 1/12/22; Google Scholar)

Research Papers (2010-2021)

1. McBryant, S.M., Lu, X., and *Hansen, J.C.* (2010) Multifunctionality of the linker histones: an emerging role for protein-protein interactions. **Cell Research** 20, 519-28. Epub 2010 Mar 23.
2. Hansen, J.C., Nyborg, J.K, Luger, K., and Stargell, L.A. (2010) Histone Chaperones, histone acetylation, and the fluidity of the chromogenome. **J. Cell. Physiol.**, 224, 289-99.
3. *Hansen, J.C.*, Ghosh, R., and Woodcock, C.L. (2010) Binding of the Rett Syndrome protein, MeCP2, to methylated and unmethylated DNA and chromatin. **IUBMB *Life***, 62, 732-738.
4. Watanabe, S., Resch, M., Lilyestrom, W., Clark, N., *Hansen, J. C.*,* Peterson C.*, and Luger, K.* (2010) Structural characterization of H3K56Q nucleosomes and nucleosomal arrays. **Bioch. Bioph. ACTA** 1799, 480-486. (*co-submitting authors)
5. Ghosh, R.P., Nikitina, T., Horowitz-Scherer, R.A., Gierasch, L.M., Uversky, V.L., Hite, K., *Hansen, J.C.* and Woodcock, C.L. (2010) Unique properties and interactions of the domains of the methylated DNA binding protein 2 (MeCP2). **Biochemistry***,* 49, 4395-4410.
6. Szerlong, H.J., Prenni, J.E., Nyborg, J.K., and *Hansen, J.C.* (2010) Activator-dependent p300 acetylation of chromatin in vitro: Enhancement of transcription by disruption of repressive nucleosome-nucleosome interactions. **J. Biol. Chem.,** 285, 31954-64.
7. Yang**,** C**.**, van der Woerd**,** M**.**, Muthurajan**,** U**.**M., *Hansen*, *J.C* and Luger*,* K. (2011) Biophysical analysis and small-angle x-ray scattering-derived structures of MeCP2–nucleosome complexes**. Nuc Acid Res.,** 39, 4122-35, Jan 29. [Epub ahead of print].
8. *Hansen, J.C.*, Wexler, B., Rogers, D.J., Hite, K., Panchenko, T., Ajith, and Black, B.E. (2011) DNA binding restricts the instrinsic conformational flexibility of MeCP2. **J. Biol. Chem**., 286, 18938-48.
9. Muthurajan, U.M., McBryant, S.M., Lu, X., *Hansen, J.C.* and Luger, K. (2011) The linker region of macroH2A promotes self-association of nucleosomal arrays. **J. Biol. Chem**., 286, 23852-64.
10. Panchenko, T., Sorensen, T.C., Woodcocky, C.L., Kan, Z-y, Luger, K., Englander, S.W., *Hansen, J.C.*, and Black, B.E. (2011) Nucleosomal superhelical termini are loosened when CENP-A replaces histone H3 in folded nucleosomal arrays. **Proc. Natl. Acad. Sci.**, 108, 16588-16593.
11. Hite, K., Kalashnikova, A.A., and Hansen, J.C. (2012) Coil-to-helix transitions in intrinsically disordered methyl CpG binding protein 2 (MeCP2) and its isolated domains. **Protein Sci.,** 21, 531-8.
12. Szerlong, H.J. and *Hansen, J.C.* (2011) Nucleosome distribution and linker DNA: connecting nuclear function to dynamic chromatin structure. **Biochem. Cell Biol**., 89, 24-34.
13. McBryant, S.M. and *Hansen, J.C.* (2012) Dynamic fuzziness during linker histone action. **Adv Exp Med Biol.** 725, 15-26.
14. Szerlong, H.J. and *Hansen, J.C.* (2012) Activator-Dependent Acetylation of Chromatin Model Systems. **Methods Mol Biol.** 833, 289-310.
15. *Hansen, J.C.* (2012) Human mitotic chromosome structure: what happened to the 30-nm fibre? **EMBO J** 31, 1621-3.
16. Kalashnikova, A.A., Winkler, D.D. McBryant, S.J., Henderson, R.K., Herman, J.A., DeLuca, J.G., Luger, K., Prenni, J.E., and *Hansen, J.C.* (2013) Linker histone H1.0 interacts with an extensive network of proteins found in the nucleolus. **Nuc Acid Res.,** 41, 4026-35.
17. Hansen, J.C. and Curthoys, N.P. (2013) *book review* of Mathews *et al Biochemistry*. **Biochemistry Molecular Biology Education**. 41, 63-64.

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18. Ryan A. Rogge, Anna A. Kalashnikova, Uma M. Muthurajan, Mary E. Porter-Goff, Karolin Luger, *Jeffrey C. Hansen* (2013) Assembly of Nucleosomal Arrays from Recombinant Core Histones and Nucleosome Positioning DNA. **J. Visual. Exp.,** Sep 10;(79).
19. Anna A. Kalashnikova, Mary Porter-Goff, Uma Muthurajan, Karolin Luger, and *Jeffrey C. Hansen* (2013) The role of the nucleosome acidic patch in modulating higher order chromatin structure. **J. Royal Soc. Interface,** 10(82):20121022.
20. Szerlong, H.J. and *Hansen, J.C.* (2013) Chromatin structure and dynamics. **Encyclopedia of Biophysics** (Springer), pp. 306-310.
21. Szerlong H.J., Herman J.A., Krause, C.M, DeLuca, J.G., Skoultchi, A., Winger, Q.A., Prenni, J.E., and *Hansen, J.C.* (2015) Proteomic characterization of the nucleolar linker histone interaction network. **J. Mol. Biol.,** 427, 2056-71.
22. Rogge, R.A. and *Hansen, J.C.* (2015) Sedimentation velocity analysis of large oligomeric chromatin complexes using interference detection. **Meth. Enzmol.** 562, 349-62.
23. Kalashnikova, A.A., Rogge, R.A. and *Hansen, J.C.* (2015) linker histones and protein-protein interactions **Biochim Biophys ACTA**, 1859:455-61.
24. Maeshima, K., Rogge, R.A., Joti, Y., Tamura., S., Hikima, T., Szerlong, H.J, Krause, C., Herman, J, Ishikawa, T., DeLuca, J, and *Hansen, J.C.* (2016) Nucleosomal arrays assemble into globular structures lacking 30 nm fibers, **EMBO J**., 35:1115-32.
25. Imai R, Komeda S, Shimura M, Tamura S, Matsuyama S, Nishimura K, Rogge R, Matsunaga A, Hiratani I, Takata H, Uemura M, Iida Y, Yoshikawa Y, *Hansen JC*, Yamauchi K, Kanemaki MT, Maeshima K. (2016) Chromatin folding and DNA replication inhibition mediated by a highly antitumor-active tetrazolato-bridged dinuclear platinum(II) complex. **Sci Rep.** 6:24712.
26. Mishra LN, Pepenella S, Rogge R, *Hansen JC*, Hayes JJ (2016) Acetylation Mimics Within a Single Nucleosome Alter Local DNA Accessibility in Compacted Nucleosome Arrays. **Sci Rep.** 6:34808.
27. *Hansen JC*, Connolly M, McDonald CJ, Pan A, Pryamkova A, Ray K, Seidel E, Tamura S, Rogge R, Maeshima K. (2018) The 10-nm fiber and its relation to interphase chromosome organization. **Biochem. Soc. Trans.** 46:67-76.
28. Li S, Almeida AR, Radebaugh CA, Zhang L, Chen X, Huang L, Thurston AK, Kalashnikova AA, *Hansen JC*, Luger K, Stargell LA. (2018) The elongation factor Spn1 is a multifunctional chromatin binding protein. **Nucleic Acids Res.** 46:2121-2134.
29. Tolsma, T.O and *Hansen, J.C.* (2019) Post-translational modifications and chromatin dynamics. **Essays Biochem** 63: 89-96.
30. Maeshima, K., Tamura, S., *Hansen, J.C.*, Itoh, Y. (2020) Fluid-like chromatin: toward understanding the real chromatin organization present in the cell. **Curr. Opin. Cell Biol.** 64:77-89.
31. *Hansen, J.C.* (2020) Silencing the genome with linker histones. **Proc. Natl. Acad. Sci.** 117: 15388-90
32. Strickfaden H, Tolsma, T.O., Sharma, A., Underhill, D.A., *Hansen, J.C.**, Hendzel M.J.* (2020) Condensed chromatin behaves like a solid on the mesoscale in vitro and in living cells. **Cell**: 183:1772-1784e.13 (*communicating authors).
33. *Hansen, J.C.,* Maeshima, K, and Hendzel, M.J. (2021) The solid and liquid states of chromatin. **Epigenetics & Chromatin** 14:50

Graduate Student, Undergraduate, and Post-doctoral Trainees Mentored

Ph.D. Students

1991- 1995	Terace Fletcher
1995-1999	Chris Tse
1995-2000	Lenny Carruthers
1999-2003	Xu Lu
1999-2004	Faye Gordon
2003-2008	Michael Resch
2006-2012	Kris Hite
2007-2010	Troy Sorensen
2010-2016	Ryan Rogge
2019-present	Amanda Keurzi

M.S Students

2005-2006	Joshua Klonski
2007-2008	Rob Smith
2016-2017	Charles McDonald
2016-2018	Erik Seidel
2019-2020	Mark Connelly
2019-2020	Abigail McVay
2019-present	Kaliraj Vimalkannen

Undergraduate Students

2003-2005	Joshua Klonoski
2005-2007	Sere Williams
2005-2008	Sarah Norskog
2006-2007	Rob Smith
2007	Vermali Rodriguez
2009-2011	Joshua Fainsod
2012	Lindsey Jones
2016-2017	Anyu Pan
2015-2017	Anna Prymokova
2016-2018	Kyle Ray
2016-2018	Mark Connelly
2017	Jordan Nelson
2017-2018	Abigail McVay
2017-2019	Lilia Maeda
2017-2020	Kevin Nurzinski-Loth
2018	Jake Stapleton
2018	Thomas Martinez

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2018	Habbakuk Sekhar
2018-2019	Edris Sidiqian
2018-2020	Grant Zimmerman
2018-2020	Ashley Oxford
2019-2021	Matthew Funk
2020-2021	Charlie Nims
2020-present	Dawn Meade
2020-present	Sara Garcia
2021-present	Kelly Britton
2021-present	Kelly Derken
2021-present	Katie Power

Post-doctoral Trainees

1992-1996	Borries Demeler
1999-2003	Philippe Georgel
2003-2007	Valerie Adams
2003-2010	Steve McBryant
2011-2015	Mary Porter-Goff
2012-2015	Anna Kalishnikova
2014-2016	Heather Szerlong
2018-2021	Thomas Tolsma

TEACHING

2006-present	Comprehensive Biochemistry 1 (BC 401)	3 cr	Course director/ sole instructor
2006-present	BC401 Honors Recitation (BC496)	1 cr	Course director/ sole instructor
2015-2017	Intro. Molecular Genetics (LIFE 201B)	3 cr	Course director/ sole instructor
2015-2017	LIFE 201 Honors Recitation (LIFE202B)	1 cr	Course director/ sole instructor

SERVICE

Department

2016-present	Associate Chair for Undergraduate Studies
2014-present	Executive Committee
2015-present	Undergraduate Affairs Committee
2010-2016	Graduate Recruitment Committee

College

2017-present	College of Natural Sciences Curriculum Committee

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