

MICHAEL KANE COOPER
CURRICULUM VITAE

OFFICE ADDRESS: Department of Neurology
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DATE AND PLACE OF BIRTH: June 28, 1964, Minneapolis, MN

EDUCATION:

1987 B.S. Biology, Rhodes College, Memphis, TN

1992 M.D. University of Alabama School of Medicine, Birmingham, AL

1989-1990 Howard Hughes Medical Student Research Training Fellowship with Jeffrey C. Hall, Brandeis University, Waltham, MA

1992-1993 Medicine Intern, Ochsner Clinic, New Orleans, LA

1993-1995 Neurology Resident, Johns Hopkins Hospital, Baltimore, MD

1995-1996 Neurology Chief Resident, Johns Hopkins Hospital, Baltimore, MD

1996-1999 Howard Hughes Postdoctoral Research Fellowship for Physicians with Philip A. Beachy, Johns Hopkins University School of Medicine, Baltimore, MD

LICENSURE AND CERTIFICATION:

1997-2002 State of Maryland Licensed Physician

2002-present State of Tennessee Licensed Physician

2001 Diplomate of the American Board of Psychiatry and Neurology, Inc.

ACADEMIC APPOINTMENTS:

1999 Research Associate, Department of Molecular Biology and Genetics, Johns Hopkins University School of Medicine, Baltimore, MD

- 1999 Research Associate, Department of Neurology, Johns Hopkins University School of Medicine, Baltimore, MD
- 2000 Active Staff, Department of Neurology, Johns Hopkins University School of Medicine, Baltimore, MD
- 2002 Assistant Professor, Department of Neurology, Vanderbilt University Medical Center, Nashville, TN
- 2002 Member, John F. Kennedy Center for Research on Human Development, Vanderbilt University Medical Center, Nashville, TN
- 2002 Member, Neuroscience Graduate Program, Vanderbilt University Medical Center, Nashville, TN
- 2002 Member, Center for Molecular Neuroscience, Vanderbilt University Medical Center, Nashville, TN
- 2002 Member, Developmental Biology Program, Vanderbilt University Medical Center, Nashville, TN

HOSPITAL APPOINTMENTS:

- 2000 Active Staff, Johns Hopkins Hospital, Baltimore, MD
- 2002 Active Medical Staff, Vanderbilt University Medical Center, Nashville, TN

AWARDS AND HONORS:

- 1989-1990 Howard Hughes Medical Institute Medical Student Research Fellowship
- 1990-1992 Howard Hughes Medical Institute Continued Support for Completion of Medical Studies
- 1992 Samuel Clements Little Award, University of Alabama School of Medicine, Department of Neurology
- 1996 Jay Slotkin Award for Excellence in Research, Johns Hopkins University School of Medicine, Department of Neurology
- 1996-1999 Howard Hughes Medical Institute Postdoctoral Research Fellowship for Physicians
- 1999-2005 Burroughs Wellcome Fund Career Award in Biomedical Science
- 2005-2007 Basal O'Connor Starter Scholar Reserch Award, March of Dimes
- 2006-2009 Doris Duke Clinical Scientist Development Award

PROFESSIONAL ORGANIZATIONS:

2003 American Academy of Neurology

2003 The Movement Disorders Society

2003 Society for Developmental Biology

2003 American Association for the Advancement of Science

PROFESSIONAL ACTIVITIES, INTRAMURAL:

2003 Curriculum Committee for Neurology Resident Neuroscience Course, Vanderbilt University Medical Center

Hospital Activities

2000-2002 Attending physician on the Johns Hopkins Hospital Neurology Consult Services (one month per year)

2000-2002 Clinical Preceptor for 3rd and 4th year medical students, Johns Hopkins Outpatient Center

2003- Attending physician on Vanderbilt Hospital Neurology Services (one month per year)

Graduate School Courses

2003 NURO 345 Cellular and Molecular Neuroscience Course, "Parkinson's Disease: Genetics and Therapies" lecture

2003 Neurology Resident Neuroscience Course, Curriculum Committee and lecturer

2004 NURO 345 Cellular and Molecular Neuroscience Course, Neurodevelopment Flextime Preceptor

2004 Molecular Developmental Biology CB 342, Co-director of a one-month module

2004 NURO 340 Systems Neuroscience Course, "Learning and memory: Alzheimer's Disease and related syndromes" lecture

2005 NURO 345 Cellular and Molecular Neuroscience Course, Neurodevelopment Flextime Preceptor

2005 NURO 340 Systems Neuroscience Course, "Learning and memory: Alzheimer's Disease and related syndromes" lecture

2006 NURO 345 Cellular and Molecular Neuroscience Course, Neurodevelopment Flextime Preceptor

2006 Molecular Developmental Biology CB342,
Lecture, "Wnt signaling in neural development"

Faculty Thesis Advisor

2003-2004 Mika Bellana Garrett, Neuroscience Graduate Program

2004-Present Vandana Grover, Neuroscience Graduate Program

2005-Present Anuraag Sarangi, Neuroscience Graduate Program

Ph.D. Qualifying Exam and Thesis Committee Member

2004 Elizabeth Page Tweedy, Department of Molecular Physiology and
Biophysics

2004 Payal Ray, Department of Biological Sciences

2004 Karen McFarland, Department of Biological Sciences

2004 Choya Yoon, Neuroscience Graduate Program (qualifying exam
committee member only)

2005 Curtis Thorne, Department of Cell and Developmental Biology

2005 Niranjana Vijayakrishnan, Neuroscience Graduate Program
(qualifying exam committee member only)

2005 Denise Zannino, Department of Biological Sciences

2006 Julia Snyder, Department of Biological Sciences

2006 Xi Huang, Department of Cell and Developmental Biology

Student Rotation Host

2002 Mika Bellana Garrett, Vanderbilt Interdisciplinary Graduate
Program

2003 Vandana Grover, Vanderbilt Interdisciplinary Graduate Program

2003 Brandon Kirby, Vanderbilt Interdisciplinary Graduate Program

2004 Michael Edgeworth, VUMC Neurology Residency Program

2004 Shaun Cole, Vanderbilt Interdisciplinary Graduate Program

2005 Julia Snyder, Vanderbilt Interdisciplinary Graduate Program

2005 Alison Hanson, VUMC MSTP

2005 Anuraag Sarangi, Vanderbilt Neuroscience Graduate Program,
Integrative/Cognitive Track

2005 Guy Watkins, Vanderbilt Interdisciplinary Graduate Program

2006 Tim Simmons, Vanderbilt Interdisciplinary Graduate Program

PROFESSIONAL ACTIVITIES, EXTRAMURAL:

2006 Member, NIEHS Special Emphasis Panel ZES1 TN-A (P1)

2006 Ad Hoc Member, National Parkinson Foundation Scientific
Advisory Board

RESEARCH SUPPORT 1999-PRESENT:

#992893 9/1/99 to 12/31/05
Burroughs Wellcome Fund
Modulation of Sonic hedgehog signal transduction by cholesterol homeostasis
Role: P.I.

K08 NS02133-03 9/1/99 to 8/31/02
NIH-NINDS
Teratogens as probes of Sonic hedgehog signaling
Role: P.I.

K08 NS02133-04 (Continuation Award) 4/30/03 to 5/1/06
NIH-NINDS
Teratogens as probes of Sonic hedgehog signaling
Role: P.I.

Vanderbilt Kennedy Center 11/1/04 to 10/31/05
Hobbs Discovery Grant
Role: P.I.
EFFORT: 10%

March of Dimes 2/1/05 to 1/30/07
Basil O'Connor Starter Scholar Research Award
Role: P.I.
Shaping a morphogen gradient
Effort: 10%

Doris Duke Charitable Foundation 8/1/06 to 7/31/09
Clinical Scientist Development Award
Role: P.I.
Monitoring and Manipulating Hh signaling in gliomas
Effort: 50%

K02 NS053614 7/1/06 to 6/30/11
NIH-NINDS
Shaping a Shh morphogen gradient

Role: P.I.

PUBLICATIONS AND PRESENTATIONS:

Articles in refereed journals

- 1.) Miyasaka M, Pabst R, Dudler L, **Cooper M** and K Yamaguchi. 1990. Characterization of lymphatic and venous emigrants from the thymus. *Thymus* **16**, 29-43.
- 2.) Roncella S, Ramarli D, **Cooper MK**, Forni M, Coretto P, Rowe M, Francia di Celle P, Sessarego M, Foa R, Forni G, Burrows P, Pistoia V and M Ferrarini. 1990. Establishment of an EBV-positive lymphoblastoid cell line that grows as a lymphoma in nude mice and expresses membrane CD2 molecules. *International Journal of Cancer* **45**, 299-307.
- 3.) **Cooper MK**, Hamblen-Coyle M, Liu X, Rutila J and JC Hall. 1994. Dosage compensation of the *period* gene in *Drosophila melanogaster*. *Genetics* **138**, 721-732.
- 4.) Beachy PA, **Cooper MK**, Young KE, von Kessler DP, Park WJ, Hall TM, Leahy DJ, Porter JA. 1997. Multiple roles of cholesterol in hedgehog protein biogenesis and signaling. *Cold Spring Harb Symp Quant Biol* **62** 191-204.
- 5.) **Cooper MK**, Porter JA, Young KE and Beachy PA. 1998. Teratogen-mediated inhibition of target-tissue response to *Shh* signaling. *Science* **280**, 1603-1607.
- 6.) Chiang C, Swan RZ, Grachtchouk M, Bolinger M, Litingtung Y, Robertson EK, **Cooper MK**, Gaffield W, Westphal H, Beachy PA, Dlugosz AA. 1999. Essential Role for Sonic hedgehog during Hair Follicle Morphogenesis. *Dev Biol* **205**, 1-9.
- 7.) Taipale J, Chen JK, **Cooper MK**, Wang B, Mann RK, Milenkovic L, Scott MP, Beachy PA. 2000. Effects of oncogenic mutations in *Smoothened* and *Patched* Can be reversed by cyclopamine. *Nature* **406**, 1005-1009.
- 8.) Munoz-Sanjuan I, **Cooper MK**, Beachy PA, Fallon JF, Nathans J. 2001. Expression and regulation of chicken fibroblast growth factor homologous factor (FHF)-4 during craniofacial morphogenesis. *Dev Dyn.* **220**, 238-45.
- 9.) Taipale J, **Cooper MK**, Maiti T, Beachy PA. 2002. Patched acts catalytically to suppress the activity of Smoothened. *Nature* **418**, 892-6.
- 10.) Berman DM, Karhadkar SS, Hallahan AR, Pritchard JI, Eberhart CG, Watkins DN, Chen JK, **Cooper MK**, Taipale J, Olson JM, Beachy PA. 2002. Medulloblastoma growth inhibition by hedgehog pathway blockade. *Science* **297**,1559-61.
- 11.) Chen, JK, Taipale J, **Cooper MK**, Beachy PA. 2002. Inhibition of Hedgehog signaling by direct binding of cyclopamine to Smoothened. *Genes and Development.* **16**, 2743-2748.
- 12.) **Cooper MK**, Wassif CA, Krakowiak PA, Taipale J, Gong R, Kelley RI, Porter, FD and Beachy PA. 2003. A defective response to Hedgehog signaling in disorders of cholesterol biosynthesis. *Nature Genetics.* **33**, 508-513.

Invited Presentations at Scientific Meetings

- 1.) Human Molecular Genetics Gordon Research Conference, “Hedgehog, Cholesterol and Holoprosencephaly”, August 12, 1997, New Port, RI.
- 2.) Duel Conference on Lipids, “The Role of Cholesterol in Sonic Hedgehog Signaling”, March 9, 1999, Borrego Springs, CA.
- 3.) 2nd NIH Conference on Holoprosencephaly and Early Embryonic Development, “Hedgehog, Cholesterol and Holoprosencephaly”, April 8, 2002, Bethesda, MD.
- 4.) Symposium on Inborn Errors of Cholesterol Synthesis, “A Defective Response to Hedgehog Signaling in Disorders of Cholesterol Biosynthesis”, November 14, 2002, Bethesda, MD.
- 5.) American College of Medical Genetics Annual Meeting Plenary Session, “Cholesterol in Hedgehog Signaling.” March 15, 2003, San Diego, CA.
- 6.) The American Society of Human Genetics Annual Meeting, Platform Presentation. “Defective hedgehog signaling in disorders of cholesterol biosynthesis.” October 27, 2004, Toronto, Canada .