
Standing at the Crossroads: The Genetics of Morphology.

Richard J. Sherwood, Dana L. Duren, Co-Organizers

The morphological sciences have served as one of the primary cores of biological anthropological research since Blumenbach began examining the relationships between the geographic distribution of populations and the shape of the human cranium in the 18th and 19th centuries. Since that time, biological anthropological research has focused on characterizing the extent and sources of morphological variation. One of the primary sources for this variation is, of course, the underlying genetic architecture for morphological traits. In the past two decades, advances in techniques and technology have expanded our understanding of the genetic control of morphology. This symposium seeks to examine the genetic basis for morphological traits at every level and to document the many approaches researchers are using to explore this important area of research. Importantly, the applications of findings from the research presented have broad relevance to anthropology, evolutionary biology, and biomedicine.

Friday, April 3, 2009

Time	Title	Authors
1:00	The genetics of morphology	R.J. Sherwood, D.L. Duren, Lifespan Health Research Center, Boonshoft School of Medicine, Wright State University.
1:15	The quantitative genetics of frontal curvature: evolutionary implications.	B.F.B. Algee-Hewitt ¹ , E.A. Carson ² . ¹ Department of Anthropology, University of Tennessee, ² Department of Anatomy and Neurobiology, Washington University in St. Louis School of Medicine.
1:30	The geometry and architecture of craniofacial inheritance.	K.P. McNulty ¹ , D.L. Duren ² , J. Blangero ³ , T. Dyer ³ , S.A. Cole ³ , M. Lee ² , R.M. Siervogel ² , B. Towne ² , R.J. Sherwood ² . 1) Dept. of Anthropology, University of Minnesota; 2) Dept. of Community Health, Wright State University School of Medicine; 3) Dept. of Genetics, Southwest Foundation for Biomedical Research.
1:45	Development of morphological integration of brain and skull: evidence from mouse models for craniosynostosis	Joan T. Richtsmeier ¹ , Ethylin Wang Jabs ² , Christopher Percival ¹ , Cheryl A. Hill ¹ , Ying Li Wang ² , Ran Xiao ² , Kristina Aldridge ³ ¹ The Pennsylvania State University, University Park, PA, 16801, ² Mt. Sinai School of Medicine, New York, NY 10029, ³ University of Missouri-Columbia, Columbia, MO, 65212
2:00	The Developmental Determinants of Craniofacial Variation Structure	Benedikt Hallgrímsson, Department of Cell Biology and Anatomy and the Bone and Joint Institute, University of Calgary, Calgary, Alberta, CANADA T2N 4N1
2:15	Digit Identity is independent of Digit Position: What does Gene Expression tells us about the Individuality of morphological Characters?	G. P. Wagner ¹ , V. Caputo ² , M. Giovanotti ² , R. Young ¹ , and A. Vargas ¹ ¹ Department of Ecology and Evolutionary Biology, Yale University, ² Istituto di Biologia e Genetica, Università Politecnica delle Marche.
2:30	Discussion	Neil Shubin, Organismal Biology and Anatomy, University of Chicago. The Field Museum.

2:45	Genetics of tooth morphology: Assessing the diversity of gene expression patterns for early tooth development in mammals.	Brooke A. Armfield, Christopher J. Vinyard, J.G.M. Thewissen Department of Anatomy and Neurobiology, Northeastern Ohio Universities Colleges of Medicine and Kent State Biomedical Science; Rootstown, Ohio.
3:00	The Genetics of Morphology: The Primate Dentition	L.J. Hlusko ¹ , O.T. Rizk ¹ , M.C. Mahaney ² . ¹ Dept. of Integrative Biology, University of California, Berkeley, ² Dept. of Genetics, Southwest Foundation for Biomedical Research
3:15	Break	
3:30	How many genes does it take to make mammalian dental diversity?	J. Jernvall ^{1,2} , I. Salazar-Ciudad ³ , S.J. King ² , I. Corfe ¹ Institute of Biotechnology, University of Helsinki, Finland, ² Dept. of Anthropology, Stony Brook University, NY, ³ Dept. of Genetics and Microbiology, Universitat Autònoma de Barcelona, Spain
3:45	The contribution of genes to variation in bone morphology: Considerations of co-adaptation of traits.	H.L. Hansen ¹ , L.M. Havill ² . ¹ Department of Anthropology, Indiana University, ² Department of Genetics, Southwest Foundation for Biomedical Research
4:00	Human bipedality and the genetic architecture of a locomotor system.	D.L. Duren, R.J. Sherwood, M. Lee, R.M. Siervogel, B. Towne. Lifespan Health Research Center, Wright State University Boonshoft School of Medicine.
4:15	Masticatory stress and the functional genomics of the TMJ articular disc in mammals	M.J. Ravosa ¹ , J. Ning ¹ , R.A. Menegaz ¹ , M.S. Stack ¹ & G. Schultz ² ¹ Pathology and Anatomical Sciences, University of Missouri School of Medicine; ² Obstetrics and Gynecology, University of Florida
4:30	Discussion	Steven C. Ward
