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**Education**

Ph.D., The University of Texas Southwestern Medical Center (Biochemistry)  
Postdoctoral Fellowship, Baylor College of Medicine (Human Molecular Genetics)  
Postdoctoral Fellowship, The University of Texas Southwestern Medical Center at Dallas  
(Human Molecular Genetics)

**Research Interests****Genetics of Spinal Deformity**

One area of interest is the genetics and biology of pediatric spinal deformities. Scoliosis is the most common pediatric spinal deformity affecting about three percent of school-aged children, and if left untreated it can be disfiguring and life-threatening. Most scoliosis is “idiopathic,” or of unknown cause, but appears to be strongly influenced by genetic factors. We are identifying and studying such genetic factors using family-based and case-control methods in very large patient cohorts. This is a powerful approach for uncovering the pathogenesis of this disease and to providing new insights into pathways controlling postnatal spinal development.

**Genetics of Inflammatory Diseases of Skin and Joints**

We are also interested in pediatric inflammatory diseases. Joint inflammation or arthritis in children is particularly debilitating and can cause severe and permanent damage. We previously identified a gene called *PSTPIP1* that is responsible for a form of early onset disease of joints and skin known as PAPA syndrome (see <http://dermnetnz.org/systemic/papa.html> for more information). Ongoing studies are aimed at understanding cellular pathways altered in the blood of patients with PAPA syndrome and the biochemical relationship of PAPA syndrome with other forms of pediatric arthritis.

**Other Skeletal Disorders**

In collaboration with the Michael Bober, M.D., of the skeletal dysplasia program at the Nemours/Alfred I. duPont Hospital for Children, and the Potentials Foundation, we are developing a repository of DNA samples for patients and families with Majewski Osteodysplastic primordial skeletal growth disorders. Samples in this repository are being used in genetic and functional analyses. For more information on these and other growth disorders

please see (<http://www.nemours.org/hospital/de/aidhc/service/skeletal.html>) and (<http://www.potentialsfoundation.org>). We are also applying gene identification methods for other skeletal growth disorders such as familial osteofibrous dysplasia.

### **Selected Peer-reviewed Publications**

- Lupski, J. R., **Wise, C. A.**, Kuwano, A., Pentao, L., Parke, J. T., Glaze, D. G., Ledbetter, D. H., Greenberg, F., & Patel, P. I. (1992). Gene dosage is a mechanism for Charcot-Marie-Tooth disease type 1A. *Nat Genet*, 1, 29-33. PMID: 1301995
- Wise, C. A.**, Garcia, C. A., Davis, S. N., Heju, Z., Pentao, L., Patel, P. I., & Lupski, J. R. (1993). Molecular analyses of unrelated Charcot-Marie-Tooth disease patients suggest a high frequency of the CMT1A duplication. *Amer J Hum Gen*, 53, 853-863. PMID: 8105684
- Wise, C. A.**, Chiang, L. C., Paznekas, W. A., Sharma, M., Musy, M. M., Ashley, J. A., Lovett, M., & Jabs, E. W. (1997). TCOF1 gene encodes a putative nucleolar phosphoprotein that exhibits mutations in Treacher Collins Syndrome throughout its coding region. *Proc Natl Acad Sci USA*, 94, 3110-3115. PMID: 9096354
- Wise, C. A.**, Barnes, R., Gillum, J., Herring, J. A., Bowcock, A. M., & Lovett, M. (2000). Localization of susceptibility to familial idiopathic scoliosis. *Spine*, 25 (18), 2372-2380. PMID: 10984791
- Wise, C. A.**, Bennett, L.B., Pascual, V., Gillum, J. D., & Bowcock, A. M. (2000). Localization of a gene for familial recurrent arthritis. *Arthritis Rheum*, 43 (9), 2041-2045. PMID: 11014354
- Wise, C.A.**, Gillum, J.D., Seidman, C.E., Lindor, N. M., Veile, R., Bashiardes, S., & Lovett, M. (2002). Mutations in CD2BP1 disrupt binding to PTP PEST and are responsible for PAPA Syndrome. *Hum Mol Genet*, 11 (8), 961-969. PMID: 11971877
- Bashiardes, S., Veile, R., Allen, M., **Wise, C. A.**, Dobbs, M., Szappanos, L., Herring, J. A., Bowcock, A. M., & Lovett, M. (2004). SNTG1, the gene encoding gamma1-syntrophin: a candidate gene for idiopathic scoliosis. *Hum Genet*, 115, 81-89. PMID: 15088139
- Karol, L. A., Brown, D. S., **Wise, C. A.**, & Waldron, M. (2005). Familial osteofibrous dysplasia. A case series. *J Bone Joint Surg Am*, 87(10), 2297-307. PMID: 16203897
- Zhang, D., Herring, J. A., Swaney, S. S., McClendon, T.B., Gao, X., Browne, R. H., Rathjen, K. E., Johnston, C. E., Harris, S., Cain, N. M., & **Wise, C. A.** (2006). Mutations responsible for Larsen syndrome cluster in the FLNB protein. *J Med Genet*, 43, 24-27. PMID: 16648377
- Gao, X., Gordon, D., Zhang, D., Browne, R., Helms, C., Gillum, J., Weber, S., Devroy, S., Swaney, S., Dobbs, M., Morcuende, J., Sheffield, V., Lovett, M., Bowcock, A., Herring,

J. A., & **Wise, C.A.** (2007). *CHD7* gene polymorphisms are associated with susceptibility to idiopathic scoliosis. *Am J Hum Genet*, 80(5), 957-65. PMID: 17436250.

Gurnett, Christina A., Alaei, Farhang, Kruse, Lisa, Desruisseau, David, Hecht, Jacqueline T., **Wise, Carol A.**, Saccone, Nancy L., Bowcock, Anne M., Dobbs, Matthew B. (2008). Role of bicoid-related homeodomain gene PITX1 in clubfoot. *American Journal of Human Genetics*, 83, 616-622. PMID: 18950742

### **Honors and Activities**

1998 - 2008	Assistant professor, orthopedic surgery, The University of Texas Southwestern Medical Center at Dallas
2000 - present	Member, Genetics education committee, The University of Texas Southwestern Medical Center at Dallas
2001- 2003	Chair, Research Advisory Panel, TSRHC
2003 - 2006	Board of Directors, Texas Genetics Society
2007	“Lone Star Leader”, WFAA and Sewell Cadillac; YWCA Centennial Award; “Texan of the Year” nominee, <i>The Dallas Morning News</i>
2007 - 2008	President, Texas Genetics Society
2008	“Texas Trailblazer” Award, The Family Place
2008 - present	Associate professor, The University of Texas Southwestern Medical Center at Dallas
2009	Member, NIH grant review committee, National Institute of General Medical Sciences

### **Funding**

Eunice Kennedy Shriver National Institute of Child Health and Human Development  
1997 Crystal Charity Ball  
2008 Crystal Charity Ball  
Cain Foundation  
Scoliosis Research Society