Plastic Surgery

Division Data Summary

Research and Training Details

Number of Faculty	**7**
Number of Joint Appointment Faculty	**1**
Number of Research Students	**1**
Number of Support Personnel	**2**
Direct Annual Grant Support	**$192,967**
Direct Annual Industry Support	**$362,197**
Peer Reviewed Publications	**14**

Clinical Activities and Training

Number of Clinical Staff	**6**
Number of Clinical Fellows	**1**
Inpatient Encounters	**288**
Outpatient Encounters	**4586**

Division Photo

Row 1: Y Lan, D Billmire, M Visscher, S Brugmann
Row 2: R Jiang, A Schwentker, B Pan, C Gordon, D Jones

Significant Publications

Faculty Members

David Billmire, MD, Professor
Director, Pediatric Plastic Surgery
Research Interests

Samantha Brugmann, PhD, Assistant Professor
Research Interests

Christopher Gordon, MD, Assistant Professor
Research Interests

Donna Jones, PhD, Assistant Professor
Research Interests

Ann Schwentker, MD, Associate Professor
Research Interests

Marty Visscher, PhD, Associate Professor
Director, Skin Sciences Program
Research Interests

Kevin Yakuboff, MD, Professor
Co-Director, Hand and Upper Extremity Center
Research Interests

Clinical Staff Members

- Dawn Rothchild, RN, PNP
- Stacey Ruth, RN, MSN, CFNP

Trainees

- T. Kevin Cook, MD, Resident, 2004, University of Texas, PGY6
- Haithem Elhadi, MD, Resident, 2000, Kasturba Medical College, PGY5
- Darlene Guse, MD, Resident, 2010, Mayo Clinic, PGY1
- Jason Hedrick, MD, Resident, 2006, Loma Linda University, PGY4
- Audrey Kesselring, MD, Resident, 2007, University of Cincinnati, PGY4
- Brian Pan, MD, Resident, 2009, University of Cincinnati, PGY6
- Scott Rapp, MD, Resident, 2008, Medical College of Ohio, PGY3
- Chris Runyan, MD, Resident, 2009, Univeristy of Cincinnati, PGY2
- Elizabeth Tran, MD, Resident, 2009, Tulane University, PGY8

Significant Accomplishments

Faculty Recruitment

Samantha Brugmann, PhD, joined the Division of Plastic Surgery in January 2011. She came from Stanford University and is studying the molecular and cellular basis of craniofacial patterning in avian and murine models.

In January 2011, we welcomed Marty Visscher, PhD, and the Skin Sciences Program, formerly housed in Neonatology/Pulmonary Biology. Visscher is the cofounder, scientific investigator and director of the Skin Sciences Program. She works collaboratively with General Pediatrics, Hemangioma and Vascular Malformations and Dermatology. Visscher has developed industry relationships (e.g., Procter & Gamble, O'Keeffe's Co./Gorilla Glue Co., Medline Industries Inc.) and obtained external funding for skin sciences research.

Craniofacial Anomalies Team

The craniofacial anomalies team is an interdisciplinary clinical team comprised of Genetics, Plastic Surgery, Physical Therapy, Speech Pathology, Audiology, Dentistry, Psychiatry, Neurosurgery, Otolaryngology and Nursing. Our primary goal is to improve the health outcome for patients with craniofacial abnormalities, such as cleft lip/palate. The Division of Plastic Surgery along with leaders from Genetics and Speech Pathology are leading the effort to reinvigorate the craniofacial anomalies team. The division is collaborating with Developmental Biology in creating a world-class research program.

Research Projects and Collaborations

Christopher Gordon, MD, and a visiting research scientist, Armando Uribe-Rivera, in collaboration with Bruce Aronow, PhD, are investigating the role of microRNAs as master controllers of craniofacial development. They have identified several families of miRs that can be manipulated to re-create prototypical craniofacial anomalies and are currently characterizing molecular pathways that are under miR control. The ultimate goal is to permit manipulation of these canonical pathways to protect against facial clefts and other malformations.

Donna Jones, PhD, and Chris Runyan, MD, PhD, are researching methods to improve bone allograft revitalization, utilizing stem cells, growth factors and periosteum in a swine model. Runyan and Jones have engineered tissue that replicates the form and function of bone, as well as the capacity to heal. The preliminary results indicate that a combination of stem cells and growth factors, in the presence of periosteum, facilitate the most growth, but either factor generates revitalization on its own. Revitalization is a vast improvement, as current reconstructive techniques require additional surgeries when the nonrevitalized allograft fails due to aggregate microfractures that do not heal.

Division Publications

1. Brugmann SA, Cordero DR, Helms JA. **Craniofacial ciliopathies: A new classification for craniofacial disorders**. *Am J Med Genet A*. 2010; 152A:2995-3006.
2. Cordero DR, Brugmann S, Chu Y, Bajpai R, Jame M, Helms JA. **Cranial neural crest cells on the move: their roles in craniofacial development**. *Am J Med Genet A*. 2011; 155A:270-9.
3. Davis JA, Visscher MO, Wickett RR, Hoath SB. **Role of TNF-alpha polymorphism -308 in neurosensory irritation**. *Int J Cosmet Sci*. 2011; 33:105-12.
4. Davis JA, Visscher MO, Wickett RR, Hoath SB. **Influence of tumour necrosis factor-alpha polymorphism-308 and atopy on irritant contact dermatitis in healthcare workers**. *Contact Dermatitis*. 2010; 63:320-32.
5. Levi B, James AW, Nelson ER, Brugmann SA, Sorkin M, Manu A, Longaker MT. **Role of Indian hedgehog signaling in palatal osteogenesis**. *Plast Reconstr Surg*. 2011; 127:1182-90.
6. Maercks RA, Runyan CM, Jones DC, Taylor JA. **The vastus intermedius periosteal (VIP) flap: a novel flap for osteoinduction**. *J Reconstr Microsurg*. 2010; 26:335-40.
7. Rada-Iglesias A, Bajpai R, Swigut T, Brugmann SA, Flynn RA, Wysocka J. **A unique chromatin signature uncovers early developmental enhancers in humans**. *Nature*. 2011; 470:279-83.
8. Sriwiriyanont P, Hachiya A, Pickens WL, Moriwaki S, Kitahara T, Visscher MO, Kitzmiller WJ, Bello A, Takema Y, Kobinger GP. **Effects of IGF-binding protein 5 in dysregulating the shape of human hair**. *J Invest Dermatol*. 2011; 131:320-8.
9. Visscher M, Robinson M, Wickett R. **Stratum corneum free amino acids following barrier perturbation and repair**. *International Journal of Cosmetic Science*. 2011; 33:80-9.
10. Visscher M, Robinson M, Wickett RR. **Regional variation in the free amino acids in the stratum corneum**. *Journal of Cosmetic Science*. 2010; 61:303-9.
11. Visscher MO, Robinson M, Fugit B, Rosenberg RJ, Hoath SB, Randall Wickett R. **Amputee skin condition: occlusion, stratum corneum hydration and free amino acid levels**. *Arch Dermatol Res*. 2011; 303:117-24.
12. Visscher MO, Utturkar R, Pickens WL, LaRuffa AA, Robinson M, Wickett RR, Narendran V, Hoath SB. **Neonatal skin maturation--vernix caseosa and free amino acids**. *Pediatr Dermatol*. 2011; 28:122-32.
13. Warner P, Fields AL, Braun LC, James LE, Bailey JK, Yakuboff KP, Kagan RJ. **Thrombocytopenia in the pediatric burn patient**. *J Burn Care Res*. 2011; 32:410-4.
14. Yuki T, Hachiya A, Kusaka A, Sriwiriyanont P, Visscher MO, Morita K, Muto M, Miyachi Y, Sugiyama Y, Inoue S. **Characterization of tight junctions and their disruption by UVB in human epidermis and cultured keratinocytes**. *J Invest Dermatol*. 2011; 131:744-52.

Grants, Contracts, and Industry Agreements

Grant and Contract Awards	Annual Direct / Project Period Direct

BRUGMANN, S

The Role of Primary Cilia in Craniofacial Development
National Institutes of Health
R00 DE 019853 02/01/11-01/31/14 $162,967

TAYLOR, J

Periosteal Allograft Revitalization Using Mesenchymal Stem Cells
American Association of Plastic Surgeons
07/01/10-06/30/12 $30,000

Current Year Direct **$192,967**

Industry Contracts

VISSCHER

KAO Corporation $348,722
Medline Industries, Inc. $13,475

Current Year Direct Receipts **$362,197**

Total **$555,164**