

Division Data Summary

Research and Training Details

Number of Faculty	13
Number of Research Students	1
Number of Support Personnel	51
Direct Annual Grant Support	\$4,090,159
Direct Annual Industry Support	\$669,616
Peer Reviewed Publications	58

Clinical Activities and Training

Number of Clinical Staff	3
Number of Clinical Fellows	6
Number of Other Students	1
Outpatient Encounters	5329

Division Photo



Row 1 (seated): J Harley
 Row 2: H Brunner, J Huggins, E Morgan DeWitt, T Ting
 Row 3: E Giannini, S Thornton
 Row 4: S Thompson, D Lovell, M Hendrickson
 Row 5: A Grom

Significant Publications

Brunner HI, Huggins J, Klein-Gitelman MS. **Pediatric SLE--towards a comprehensive management plan.** *Nat Rev Rheumatol.* 7(4):225-33. Apr, 2011.

Significance: The many quality improvement initiatives and extensive experience of the Division physicians in caring for patients with systemic lupus erythematosus has led to better management of these patients, which is summarized in this review.

Sumegi J, Barnes MG, Nestheide SV, Molleran-Lee S, Villanueva J, Zhang K, Risma KA, **Grom AA**, Filipovich AH. **Gene expression profiling of peripheral blood mononuclear cells from children with active hemophagocytic lymphohistiocytosis.** *Blood.* 117(15), e151-160.

Significance: A deeper and much more fundamental understanding of the potentially deadly hemophagocytic lymphohistiocytosis is emerging. The division faculty is making a major contribution to the aggregate of this knowledge with the identification of critical elements in the pathophysiology of this condition. This study is the first genome wide study of gene expression in this syndrome.

Shen N, Fu Q, Deng Y, Qian X, Zhao J, Kaufman KM, Wu YL, Yu CY, Tang Y, Chen JY, Yang W, Wong M, Kawasaki A, Tsuchiya N, Sumida T, Kawaguchi Y, Howe HS, Mok MY, Bang SY, Liu FL, Chang DM, Takasaki Y, Hashimoto H, **Harley JB**, Guthridge JM, Grossman JM, Cantor RM, Song YW, Bae SC, Chen S, Hahn BH, Lau YL, Tsao BP. **Sex-specific association of X-linked Toll-like receptor 7 (TLR7) with male systemic lupus erythematosus.** *Proc Natl Acad Sci U S A.* 107(36): p. 15838-43. 2010.

Significance: The toll-like receptors are an important component of the innate immune response. TLR7 is a

gene on the X chromosome. Since women and girls have systemic lupus erythematosus much more frequently than men and boys (~10-fold), we would expect that genes on the X chromosome would be more important in women than it is in men. Surprisingly, variants in TLR7 are much more strongly associated with male lupus than female lupus in Asians.

Beukelman T, Patkar NM, Saag KG, Tolleson-Rinehart S, Cron RQ, DeWitt EM, Ilowite NT, Kimura Y, Laxer RM, Lovell DJ, Martini A, Rabinovich CE, Ruperto N. **2011 American College of Rheumatology recommendations for the treatment of juvenile idiopathic arthritis: Initiation and safety monitoring of therapeutic agents for the treatment of arthritis and systemic features.** *Arthritis Care & Research.* 63: 465–482. 2011.

Significance: These represent the first evidence based treatment guidelines for children with Juvenile Idiopathic Arthritis and due to the rigor of the development process they have been officially endorsed and adopted by the American College of Rheumatology. Three members of the CCHMC Division of Rheumatology (Esi Morgan Dewitt, Janalee Taylor and Daniel Lovell) were key participants in the effort.

Lovell DJ, Passo MH, Beukelman T, Bowyer SL, Gottlieb BS, Henrickson M, Ilowite NT, Kimura Y, DeWitt EM, Segerman J, Stein LD, Taylor J, Vehe RK, Giannini EH. **Measuring process of arthritis care: A proposed set of quality measures for the process of care in juvenile idiopathic arthritis.** *Arthritis Care & Research.* 63: 10–16. 2011.

Significance: These represent the first nationally developed quality measures for the care of children with juvenile idiopathic arthritis. Five members of the CCHMC Division of Rheumatology (Janalee Taylor and Drs. Giannini, Henrickson, Lovell and Morgan Dewitt) initiated and lead this national effort. These quality measures are being used by an international quality improvement network, PR-COIN, being led by a CCHMC Division of Rheumatology faculty member, Esi Morgan Dewitt, in collaboration with the CCHMC Anderson Center.

Division Highlights

Edward Giannini, MSc, DrPH

Dr. Giannini is the recipient of a Life-Time Achievement Award which was bestowed upon him at the Pediatric Rheumatology Symposium (PRSYM) that was held in Miami, Florida in June 2011. The Life-Time Achievement awardees are selected by a Committee representing the American Academy of Pediatrics and the American College of Rheumatology. Recipients are considered those whose career has demonstrated a sustained and lasting contribution to the field of rheumatology and rheumatology health professionals.

Esi Morgan DeWitt, MD, MSCE

PR-COIN - The Pediatric Rheumatology Care and Outcomes Improvement Network (PR-COIN) is a multi-center quality improvement learning collaborative formed to improve the outcomes of care of children with juvenile idiopathic arthritis and to accelerate adoption of evidence into medical practice. Our collaborative approach is based on the Institute of Healthcare Improvement (IHI) Breakthrough Series Collaborative Model and utilizes the Model for Improvement to guide performance improvement activities. Using the American College of Rheumatology Rheumatology Clinical Registry (ACR RCR), PR-COIN is designed to aggregate data from participating pediatric rheumatology practices to study performance of sites on both process measures of care delivery and measures of patient outcomes to better understand which disease management approaches are optimal. In the past year we formed our project team with leadership from the Division of Rheumatology in partnership with the Anderson Center for Health Systems Excellence with expertise in QI science and project management. After project launch, we customized and piloted the electronic data capture system. Twelve centers in the US and Canada have joined the collaborative. Initial project activities include collection of baseline data and training teams in performance improvement methodology, prior to testing change strategies

at team sites that are based on a chronic illness care model. Teams convene during three Learning Sessions over a 12 month period where QI experts offer intensive training and coaching. Sessions were held June 2011, and planned for September 2011 and March 2012. Site and aggregate data feedback reports are provided monthly to enable teams to assess progress on quality measures.

Division Collaboration

Allergy » Marc Rothenberg

John Harley and Marc Rothenberg collaboration: Candidate gene study of Eosinophilic esophagitis

Human Genetics » Greg Grabowski; Mehdi Keddache; Sarah Zimmerman

John Harley, Sarah Zimmerman, Mehdi Keddache, and Greg Grabowski collaboration: Genome wide association study of height from routine clinical samples

Molecular Immunology » Chris Karp

John Harley and Chris Karp collaboration: PTK association with lupus

Immunobiology » Marsha Wills Karp

John Harley and Marsha Wills Karp collaboration: Genome wide study of asthma in an isolated population

Bioinformatics » John Hutton ; Michael Wagner

John Harley Michael Wagner and John Hutton collaboration: Genetic association analysis of systemic lupus erythematosus

Anderson Center for Health Systems Excellence » Peter Margolis; Carole Lannon

Esi Morgan DeWitt, Peter Margolis and Carole Lannon collaboration: PR-COIN

Behavioral Medicine ; Pain Management; Pulmonary; Rehabilitation » Susmita Kashikar-Zuck; Kenneth Goldschneider; Michael Seid; Jilda Vargus-Adams

Esi Morgan DeWitt, Susmita Kashikar-Zuck, Kenneth Goldschneider, Michael Seid, and Jilda Vargus-Adams collaboration: The Patient Reported Outcomes Measurement Information System (PROMIS) - Cincinnati Children's Hospital Medical Center (CCHMC) is a research site in the NIH Roadmap PROMIS (Patient-Reported Outcomes Measurement Information System) cooperative network which mission is to use measurement science to create a state-of-the-art assessment system for self-reported health. The CCHMC PROMIS research project has two aims. The first aim is to perform longitudinal validation of current PROMIS pediatric PRO measures in the domains of physical function (upper extremity, mobility), pain interference, fatigue, anger, anxiety, depressive symptoms, and peer relationships in pediatric patients with chronic pain conditions, juvenile idiopathic arthritis, or cerebral palsy. An extensive qualitative interview study in children with these conditions was conducted as an initial step. The longitudinal portion of the study is well underway. The second aim is to develop new PRO item banks to measure pain behavior, and pain quality, including pain severity, in pediatric patients. Candidate items for testing have been created following a rigorous standard PROMIS methodology and are ready for large scale cross-sectional validation. The validation sample for the new pain assessment tools includes children with chronic and recurrent pain, including juvenile idiopathic arthritis, widespread musculoskeletal or regional pain syndromes, and sickle cell anemia. Use of IRT based PROMIS measures will allow for efficiency of PRO measurement, potential for increased sensitivity to measure change in health status over time, and facilitate comparison of an individual's results to population norms in patients with rheumatic diseases and other chronic disease cohorts.

Experimental Hematology ; Human Genetics » Matthew Flick ; Xiaoyang Qi

Sherry Thornton Collaboration: with Dr. Matthew Flick in Experimental Hematology and Dr. Xiaoyang Qi, Division of Human Genetics CCHMC and now Division of Hematology-Oncology-UC College of Medicine on a

project funded by the local CTSA entitled SapC-DOPS Agents: Imaging in Arthritis. This project involves assessment of the ability of SapC-DOPS fluorescently labeled agent to localize to arthritic joints. A manuscript will be submitted in the very near future describing our findings that SapC-DOPS localizes to arthritic joints. In addition a revision of an R21 has been submitted which determines whether SapC-DOPS can detect subclinical arthritis and can be used as a clinical marker to assess response to therapy in arthritis models.

Experimental Hematology » Matthew Flick

Sherry Thornton and Matthew Flick Collaboration: assessment of hemostatic factors in arthritis which generated a manuscript

Faculty Members

John Harley, MD, PhD, Professor

Division Director

Research Interests

Hermine Brunner, MD, MSc, Associate Professor

Research Interests

Edward H. Giannini, MSc, DrPH, Professor

Research Interests

David N. Glass, MD, Professor

Research Interests

Thomas Griffin, MD, PhD, Associate Professor

Research Interests

Alexei A. Grom, MD, Associate Professor

Research Interests

Michael Henrickson, MD, MPH, Associate Professor

Clinical Director

Research Interests

Jennifer Huggins, MD, Assistant Professor

Fellowship Director

Research Interests

Daniel Joe Lovell, MD, MPH, Professor

Joseph E. Levinson Endowed Chair in Pediatric Rheumatology

Research Interests

Esi Morgan DeWitt, MD, MSCE, Assistant Professor

Research Interests

Susan Thompson, PhD, Associate Professor

Associate Director

Research Interests

Sherry Thornton, PhD, Assistant Professor

Research Interests

Tracy Ting, MD, Assistant Professor

Research Interests

Clinical Staff Members

- Janalee Taylor, MSN, RN, CNP

Trainees

- Lu Pai-Yue, MD, PGY-IV, Cincinnati Children's Hospital Medical Center
- Moussa El-Hallak, MD, PGY-IV, Memorial University Medical Center
- Rina Mina, MD, PGY-VI, Downstate Medical Center New York
- Annette Lopez-Martinez, MD, PGY-VI, University of Puerto Rico Pediatric Hospital
- David Moser, DO, PGY-V, United States Army, Pediatrics
- Keith Sikora, MD, PGY-V, Johns Hopkins Hospital

Significant Accomplishments

Division and CAGE Achieve Milestones

The Division of Rheumatology and the Center for Autoimmune Genomics and Etiology (CAGE) achieved many milestones this past year.

Work led by Alexei Grom, MD, identified a pathway that is important for the development of the sometimes deadly macrophage activation syndrome. Susan Thompson, PhD, led work that provided deep genetic insight into the variations of DNA that predispose to juvenile onset idiopathic arthritis. Dan Lovell, MD, MPH, Ed Giannini, DrPH, and Hermine Brunner, MD, MSc, have shown that the new biological therapies are spectacularly successful; their critically important work has become the new standard of therapy and is helping many thousands of afflicted children avoid the life-long disability of chronic destructive arthritis.

Esi Morgan DeWitt, MD, MSc, has achieved better compliance and therapeutic outcomes in juvenile onset rheumatoid arthritis by applying quality-improvement interventions. DeWitt and Brunner are co-leading efforts to effectively align research, clinical care and quality improvement to provide high-value care locally and are leading international initiatives to develop quality indicators and benchmarks for pediatric rheumatology care with focus on systemic lupus erythematosus and juvenile idiopathic arthritis.

Biomarker development efforts are synergistic with development of clinical trial outcome measures that set the stage for testing novel medications for children with SLE. John Harley, MD, PhD, has led an effort to identify the genes that cause systemic lupus erythematosus, now numbering more than 40, followed by progress in discovering the mechanisms and pathways through which they cause lupus.

Division Publications

1. Adrianto I, Wen F, Templeton A, Wiley G, King JB, Lessard CJ, Bates JS, Hu Y, Kelly JA, Kaufman KM, Guthridge JM, Alarcon-Riquelme ME, Anaya JM, Bae SC, Bang SY, Boackle SA, Brown EE, Petri MA, Gallant C, Ramsey-Goldman R, Reveille JD, Vila LM, Criswell LA, Edberg JC, Freedman BI, Gregersen PK, Gilkeson GS, Jacob CO, James JA, Kamen DL, Kimberly RP, Martin J, Merrill JT, Niewold TB, Park SY, Pons-Estel BA, Scofield RH, Stevens AM, Tsao BP, Vyse TJ, Langefeld CD, Harley JB, Moser KL, Webb CF, Humphrey MB, Montgomery CG, Gaffney PM. **Association of a functional variant downstream of TNFAIP3 with systemic lupus erythematosus.** *Nat Genet.* 2011; 43:253-8.
2. Antonchak MA, Saoudian M, Khan AR, Brunner HI, Luggen ME. **Cognitive dysfunction in patients with systemic lupus erythematosus: a controlled study.** *J Rheumatol.* 2011; 38:1020-5.

3. Ardoin SP, Schanberg LE, Sandborg C, Yow E, Barnhart HX, Mieszkalski K, Ilowite NT, von Scheven E, Eberhard A, Levy DM, Kimura Y, Silverman E, Bowyer SL, Punaro L, Singer NG, Sherry DD, McCurdy D, Klein-Gitelman M, Wallace C, Silver R, Wagner-Weiner L, Higgins GC, Brunner HI, Jung LK, Imundo L, Soep JB, Reed AM. **Laboratory markers of cardiovascular risk in pediatric SLE: the APPLE baseline cohort.** *Lupus*. 2010; 19:1315-25.
4. Barnes MG, Grom AA, Thompson SD, Griffin TA, Luyrink LK, Colbert RA, Glass DN. **Biologic similarities based on age at onset in oligoarticular and polyarticular subtypes of juvenile idiopathic arthritis.** *Arthritis Rheum*. 2010; 62:3249-58.
5. Beukelman T, Patkar NM, Saag KG, Tolleson-Rinehart S, Cron RQ, DeWitt EM, Ilowite NT, Kimura Y, Laxer RM, Lovell DJ, Martini A, Rabinovich CE, Ruperto N. **2011 American College of Rheumatology recommendations for the treatment of juvenile idiopathic arthritis: initiation and safety monitoring of therapeutic agents for the treatment of arthritis and systemic features.** *Arthritis Care Res (Hoboken)*. 2011; 63:465-82.
6. Bruner BF, Vista ES, Wynn DM, Harley JB, James JA. **Anti-neutrophil cytoplasmic antibodies target sequential functional proteinase 3 epitopes in the sera of patients with Wegener's granulomatosis.** *Clin Exp Immunol*. 2010; 162:262-70.
7. Brunner HI, Higgins GC, Klein-Gitelman MS, Lapidus SK, Olson JC, Onel K, Punaro M, Ying J, Giannini EH. **Minimal clinically important differences of disease activity indices in childhood-onset systemic lupus erythematosus.** *Arthritis Care Res (Hoboken)*. 2010; 62:950-9.
8. Brunner HI, Huggins J, Klein-Gitelman MS. **Pediatric SLE--towards a comprehensive management plan.** *Nat Rev Rheumatol*. 2011; 7:225-33.
9. Chung SA, Taylor KE, Graham RR, Nititham J, Lee AT, Ortmann WA, Jacob CO, Alarcon-Riquelme ME, Tsao BP, Harley JB, Gaffney PM, Moser KL, Petri M, Demirci FY, Kamboh MI, Manzi S, Gregersen PK, Langefeld CD, Behrens TW, Criswell LA. **Differential genetic associations for systemic lupus erythematosus based on anti-dsDNA autoantibody production.** *PLoS Genet*. 2011; 7:e1001323.
10. Clancy RM, Marion MC, Kaufman KM, Ramos PS, Adler A, Harley JB, Langefeld CD, Buyon JP. **Identification of candidate loci at 6p21 and 21q22 in a genome-wide association study of cardiac manifestations of neonatal lupus.** *Arthritis Rheum*. 2010; 62:3415-24.
11. Clericuzio C, Harutyunyan K, Jin W, Erickson RP, Irvine AD, McLean WH, Wen Y, Bagatell R, Griffin TA, Shwayder TA, Plon SE, Wang LL. **Identification of a novel C16orf57 mutation in Athabaskan patients with Poikiloderma with Neutropenia.** *Am J Med Genet A*. 2011; 155A:337-42.
12. Crowe SR, Ash LL, Engler RJ, Ballard JD, Harley JB, Farris AD, James JA. **Select human anthrax protective antigen epitope-specific antibodies provide protection from lethal toxin challenge.** *J Infect Dis*. 2010; 202:251-60.
13. Crowe SR, Garman L, Engler RJ, Farris AD, Ballard JD, Harley JB, James JA. **Anthrax vaccination induced anti-lethal factor IgG: fine specificity and neutralizing capacity.** *Vaccine*. 2011; 29:3670-8.
14. Dillon S, Aggarwal R, Harding JW, Li LJ, Weissman MH, Li S, Cavett JW, Sevier ST, Ojwang JW, D'Souza A, Harley JB, Scofield RH. **Klinefelter's syndrome (47,XXY) among men with systemic lupus erythematosus.** *Acta Paediatr*. 2011; 100:819-23.
15. Dinan MA, Compton KL, Dhillon JK, Hammill BG, Dewitt EM, Weinfurt KP, Schulman KA. **Use of patient-reported outcomes in randomized, double-blind, placebo-controlled clinical trials.** *Med Care*. 2011; 49:415-9.
16. Flick MJ, Chauhan AK, Frederick M, Talmage KE, Kombrinck KW, Miller W, Mullins ES, Palumbo JS, Zheng X, Esmon NL, Esmon CT, Thornton S, Becker A, Pelc LA, Di Cera E, Wagner DD, Degen JL. **The development of inflammatory joint disease is attenuated in mice expressing the anticoagulant prothrombin mutant W215A/E217A.** *Blood*. 2011; 117:6326-37.

17. Fu Q, Zhao J, Qian X, Wong JL, Kaufman KM, Yu CY, Mok MY, Harley JB, Guthridge JM, Song YW, Cho SK, Bae SC, Grossman JM, Hahn BH, Arnett FC, Shen N, Tsao BP. **Association of a functional IRF7 variant with systemic lupus erythematosus**. *Arthritis Rheum*. 2011; 63:749-54.
18. Furnrohr BG, Wach S, Kelly JA, Haslbeck M, Weber CK, Stach CM, Hueber AJ, Graef D, Spriewald BM, Manger K, Herrmann M, Kaufman KM, Frank SG, Goodmon E, James JA, Schett G, Winkler TH, Harley JB, Voll RE. **Polymorphisms in the Hsp70 gene locus are genetically associated with systemic lupus erythematosus**. *Ann Rheum Dis*. 2010; 69:1983-9.
19. Giannini EH, Ilowite NT, Lovell DJ, Wallace CA, Rabinovich CE, Reiff A, Higgins G, Gottlieb B, Chon Y, Zhang N, Baumgartner SW. **Effects of long-term etanercept treatment on growth in children with selected categories of juvenile idiopathic arthritis**. *Arthritis Rheum*. 2010; 62:3259-64.
20. Gottlieb AB, Gordon K, Giannini EH, Mease P, Li J, Chon Y, Maddox J, Weng HH, Wajdula J, Lin SL, Baumgartner SW. **Clinical trial safety and mortality analyses in patients receiving etanercept across approved indications**. *J Drugs Dermatol*. 2011; 10:289-300.
21. Grom AA, Mellins ED. **Macrophage activation syndrome: advances towards understanding pathogenesis**. *Curr Opin Rheumatol*. 2010; 22:561-6.
22. Heinlen LD, Ritterhouse LL, McClain MT, Keith MP, Neas BR, Harley JB, James JA. **Ribosomal P autoantibodies are present before SLE onset and are directed against non-C-terminal peptides**. *J Mol Med*. 2010; 88:719-27.
23. Hinks A, Martin P, Flynn E, Eyre S, Packham J, Barton A, Worthington J, Thomson W. **Subtype specific genetic associations for juvenile idiopathic arthritis: ERAP1 with the enthesitis related arthritis subtype and IL23R with juvenile psoriatic arthritis**. *Arthritis Res Ther*. 2011; 13:R12.
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29. Lessard CJ, Adrianto I, Kelly JA, Kaufman KM, Grundahl KM, Adler A, Williams AH, Gallant CJ, Anaya JM, Bae SC, Boackle SA, Brown EE, Chang DM, Criswell LA, Edberg JC, Freedman BI, Gregersen PK, Gilkeson GS, Jacob CO, James JA, Kamen DL, Kimberly RP, Martin J, Merrill JT, Niewold TB, Park SY, Petri MA, Pons-

- Estel BA, Ramsey-Goldman R, Reveille JD, Song YW, Stevens AM, Tsao BP, Vila LM, Vyse TJ, Yu CY, Guthridge JM, Bruner GR, Langefeld CD, Montgomery C, Harley JB, Scofield RH, Gaffney PM, Moser KL. **Identification of a systemic lupus erythematosus susceptibility locus at 11p13 between PDHX and CD44 in a multiethnic study.** *Am J Hum Genet.* 2011; 88:83-91.
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 31. Martini A, Lovell DJ. **Juvenile idiopathic arthritis: state of the art and future perspectives.** *Ann Rheum Dis.* 2010; 69:1260-3.
 32. Mellins ED, Macaubas C, Grom AA. **Pathogenesis of systemic juvenile idiopathic arthritis: some answers, more questions.** *Nat Rev Rheumatol.* 2011; 7:416-26.
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 37. Rasmussen A, Sevier S, Kelly JA, Glenn SB, Aberle T, Cooney CM, Grether A, James E, Ning J, Tesiram J, Morrissey J, Powe T, Drexel M, Daniel W, Namjou B, Ojwang JO, Nguyen KL, Cavett JW, Te JL, James JA, Scofield RH, Moser K, Gilkeson GS, Kamen DL, Carson CW, Quintero-del-Rio AI, del Carmen Ballesteros M, Punaro MG, Karp DR, Wallace DJ, Weisman M, Merrill JT, Rivera R, Petri MA, Albert DA, Espinoza LR, Utset TO, Shaver TS, Arthur E, Anaya JM, Bruner GR, Harley JB. **The lupus family registry and repository.** *Rheumatology (Oxford).* 2011; 50:47-59.
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42. Sagcal-Gironella AC, Fukuda T, Wiers K, Cox S, Nelson S, Dina B, Sherwin CM, Klein-Gitelman MS, Vinks AA, Brunner HI. **Pharmacokinetics and pharmacodynamics of mycophenolic acid and their relation to response to therapy of childhood-onset systemic lupus erythematosus.** *Semin Arthritis Rheum*. 2011; 40:307-13.
 43. Sanchez E, Webb RD, Rasmussen A, Kelly JA, Riba L, Kaufman KM, Garcia-de la Torre I, Moctezuma JF, Maradiaga-Cecena MA, Cardiel-Rios MH, Acevedo E, Cucho-Venegas M, Garcia MA, Gamron S, Pons-Estel BA, Vasconcelos C, Martin J, Tusie-Luna T, Harley JB, Richardson B, Sawalha AH, Alarcon-Riquelme ME. **Genetically determined Amerindian ancestry correlates with increased frequency of risk alleles for systemic lupus erythematosus.** *Arthritis Rheum*. 2010; 62:3722-9.
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Grants, Contracts, and Industry Agreements

Grant and Contract Awards	Annual Direct / Project Period Direct
BRUNNER, H	
Early Aggressive Therapy in Juvenile Idiopathic Arthritis	
National Institutes of Health(Children's Hosp & Reg Med Ct-Seattle)	
R01 AR 049762	07/01/10-06/30/11
	\$12,859
Early Aggressive Therapy in Juvenile Idiopathic Arthritis	
National Institutes of Health(Children's Hosp & Reg Med Ct-Seattle)	
R01 AR 049762	07/01/10-06/30/11
	\$4,372
Family Study of Pediatric AutoImmunity	
Children's Hosp & Reg Med Ct-Seattle	
	08/01/09-07/31/11
	\$2,200
Myositis Registry	
Centers for Disease Control and Prevention(The Myositis Association)	
H75 DP 001743	09/01/10-08/31/11
	\$78,536
Towards Measures of Lupus Nephritis Activity & Damage in Children	
National Institutes of Health	
U01 AR 059509	08/08/10-05/31/13
	\$135,002

GIANNINI, E**Early Aggressive Therapy in Juvenile Idiopathic Arthritis**

National Institutes of Health(Children's Hosp & Reg Med Ct-Seattle)

R01 AR 049762

05/01/10-09/22/11

\$113,924

GRIFFIN, T**HLA-B27 Misfolding an the UPR in Spondyloarthritis**

National Institutes of Health

R01 AR 046177

09/01/06-06/30/11

\$273,473

HARLEY, J**Genetic Linkage in Lupus**

National Institutes of Health

R37 AI 024717

09/07/10-02/28/15

\$207,939

Genetic Linkage in Lupus

National Institutes of Health

R37 AI 024718

09/16/10-08/31/11

\$153,900

Genetic Linkage in Lupus

National Institutes of Health

R37 AI 024719

09/07/10-02/28/15

\$258,680

Illumina iScan System for the OMRF Microarray Research Facility

National Institutes of Health

S10 RR 027190

06/10/10-06/09/11

\$413,350

Genome-Wide Association Study in African-Americans with Systemic Lupus Erythematosus

Department of Defense

09/01/10-08/31/13

\$269,095

HUGGINS, J**ACR REF/Amgen/Wyeth Rheumatology Fellowship Training Award**

American College of Rheumatology Research & Education Foundation

07/01/10-06/30/11

\$25,000

LOVELL, D**Multidisciplinary Clinical Research Center**

National Institutes of Health

P60 AR 047784

08/18/08-07/31/13

\$847,406

Lovell, D	Administrative Core	\$70,938
Giannini, E	Methodology Core	\$112,710
Brunner, H	Project 1	\$179,060
Lovell, D	Project 2	\$178,593
Grom, A	Project 3	\$163,409
Seid, M	Project 4	\$142,696

MORGAN DEWITT, E**Enhancing PROMIS in Pediatric Pain, Rheumatology, and Rehabilitation Research**

National Institutes of Health

U01 AR 057940

02/01/11-07/31/13

\$72,262

Enhancing PROMIS in Pediatric Pain, Rheumatology, and Rehabilitation Research

National Institutes of Health

U01 AR 057940

09/30/09-07/31/13

\$367,410

Juvenile Arthritis Improvement Network for Clinical Excellence & Safety

Arthritis Foundation

07/01/10-06/30/12

\$92,593

THOMPSON, S

CARRA: Accelerating Toward an Evidence Based Culture in Pediatric Rheumatology

National Institutes of Health(Duke University)

RC2 AR 058934 09/30/09-08/31/11 \$19,634

Cincinnati Rheumatic Disease Core Center

National Institutes of Health

P30 AR 047363 09/01/06-06/30/11 \$388,400

Thompson, S Administrative Core \$45,464

Thompson, S Core 1 - Tissue \$30,791

Degen, J Core 2 - Animal Models of
Arthritis/Inflammatory Disease \$66,736

Thornton, S Core 3 - Phenotyping \$85,332

Wagner, M Core 4 - Informatics \$57,743

UC subcontract Pilot & Feasibility \$78,500

Strait, R Pilot & Feasibility \$50,000

Cincinnati Rheumatic Diseases Center

National Institutes of Health

P30 AR 047363 09/01/10-06/30/11 \$307,031

Genetics of Juvenile Idiopathic Arthritis and Subtypes

National Institutes of Health(Wake Forest University)

R01 AR 057106 09/24/09-08/31/11 \$47,093

Current Year Direct \$4,090,159**Industry Contracts****BRUNNER**

Pfizer, Inc \$47,356

Abbott Laboratories \$30,389

Centocor, Inc. \$44,617

LOVELL

Pfizer, Inc \$127,777

Roche Laboratories, Inc. \$230,781

Novartis Pharmaceuticals \$181,363

Hoffman-LaRoche, Inc \$7,333

Current Year Direct Receipts \$669,616**Total \$4,759,775**