

DUKE UNIVERSITY MEDICAL CENTER

CURRICULUM VITAE

Date Prepared: May 24, 2020

Name: Mara L. Becker, MD MSCE

Primary Academic Appointment: Department of Pediatrics, Division of Rheumatology

Secondary Appointment: Duke Clinical Research Institute

Academic Rank and Title: Associate Professor of Pediatrics, with tenure

Date and Rank of First Duke Faculty Appointment: March 1, 2020

Medical Licensure(s): Missouri # 2006016507
Date: 2006-

Kansas # 04-31860
2006-

North Carolina # 247976
2019-

Specialty Certification(s) and Dates Pediatrics 2002; 2012

Pediatric Rheumatology 2006; 2016

Place: Carlisle, Pennsylvania, USA

Citizen of: United States of America

| Education | Institution | Date | Degree |
|------------------|--------------------------------|-------------|---------------|
| High School | State College Area High School | 1990 | Diploma |
| College | Pennsylvania State University | 1994 | B.A. |
| Medical School | Jefferson Medical College | 1999 | M.D. |
| Graduate School | University of Pennsylvania | 2007 | M.S.C.E. |

Professional Training and Academic Career

| Institution | Position/Title | Dates |
|---|---|---------------|
| Thomas Jefferson University Hospital/duPont Hospital for Children | Resident, Pediatrics | 1999-2002 |
| Thomas Jefferson University Hospital/duPont Hospital for Children | Chief Resident, Pediatrics | 2002-2003 |
| Thomas Jefferson University Hospital/duPont Hospital for Children | Fellow, Pediatric Rheumatology | 2003-2006 |
| University of Missouri, Kansas City | Assistant Professor of Pediatrics | 2006-2011 |
| Children's Mercy, Kansas City | Fellow, Pediatric Clinical Pharmacology | 2009-2012 |
| University of Missouri, Kansas City | Associate Professor of Pediatrics | 2011-2017 |
| Children's Mercy, Kansas City | Division Director, Rheumatology | 2013-2018 |
| Food and Drug Administration | Special Government Employee Arthritis Advisory Committee | 2015- |
| Children's Mercy, Kansas City | Associate Chair, Department of Pediatrics | 2016-2018 |
| University of Missouri, Kansas City | Professor of Pediatrics | 2017- 2019 |
| Children's Mercy, Kansas City | Senior Medical Director, Ambulatory Services | 2018-2019 |
| Children's Mercy, Kansas City | Interim Medical Director, Office of Faculty Development | 2018- 2109 |
| Duke Health, Department of Pediatrics Duke Clinical Research Institute | Adjunct Associate Professor | 4/2019-7/2019 |
| Duke SOM, Department of Pediatrics | Vice Chair, Faculty | 7/2019- |
| Duke University | Associate Professor of Pediatrics, with tenure | 3/2020 |

Publications

Peer Reviewed Original Research Articles:

1. van Haandel L, **Becker ML**, Leeder JS, Williams TD, Stobaugh JF."A Novel HPLC Mass Spectrometry Method for Improved Selective and Sensitive Measurement of Methotrexate Polyglutamation Status in Human Red Blood Cells," *Rapid Commun Mass Spectrom*. 2009; 23(23):3693-702. PMID 19902549
2. **Becker ML**, Rosé CD, Cron RQ, Sherry DD, Bilker WB, Lautenbach E. "Effectiveness and Toxicity of Methotrexate in Juvenile Idiopathic Arthritis: Comparison of Two Initial Dosing Regimens," *J Rheum*. 2010; 37 (4): 870-875. PMID 20194449
3. **Becker ML**, van Haandel L, Gaedigk R, Lasky A, Hoeltzel M, Stobaugh J, Leeder JS."Analysis of Intracellular Polyglutamates in Juvenile Idiopathic Arthritis: effect of Route of Administration upon

Intracellular Methotrexate Polyglutamate Variability," *Arthritis Rheum.* 2010; 62 (6): 1803-1812. PMID 20191581

4. van Haandel L, Heemskerk AAM, **Becker ML**, Leeder JS, Stobaugh JF. "Expedient Methodology for Total Methotrexate Polyglutamation Pool Determination in Human Erythrocytes," *Anal. Methods.* 2010;2: 831-836. Doi: 10.1039/C0AY00164C
5. **Becker ML**, Gaedigk R, van Haandel L, Thomas B, Lasky A, Hoeltzel M, Dai H, Stobaugh J, Leeder JS. "The Effect of Genotype on Methotrexate Polyglutamate Variability in Juvenile Idiopathic Arthritis and Association with Drug Response," *Arthritis Rheum.* 2011; 63 (1): 276-85. PMID 20954192
6. van Haandel L, **Becker ML**, Williams TD, Leeder JS, Stobaugh JF. "Measurement of Methotrexate Polyglutamates in Human Erythrocytes by Ion Pair UPLC-MS/MS," *Bioanalysis.* 2011; 3(24):2783-96. PMID 22185278
7. Mikkelsen TS, Thorn CF, Yang JJ, Ulrich CM, French D, Zaza G, Dunnenberger HM, Marsh S, McLeod HL, Giacomini K, **Becker ML**, Gaedigk R, Leeder JS, Kager L, Relling MV, Evans W, Klein TE, Altman RB. "PharmGKB summary—Methotrexate Pathway," *Pharmacogenetics and Genomics.* 2011; 21(10):679-86. PMID 21317831
8. Dai H, Bhandary M, **Becker ML**, Leeder JS, Gaedigk R, Motsinger-Reif AA. "Global Tests of P-values for Multifactor Dimensionality Reduction Models in Selection of Optimal Number of Target Genes," *BioData Mining.* 2012; 5:3 doi: 10.1186/1756-0381-5-3. PMID 22616673
9. van Haandel L, **Becker ML**, Williams TD, Stobaugh JF, Leeder JS. "Comprehensive Quantitative Measurement of Folate Polyglutamates in Human Erythrocytes by Ion Pair UPLC-MS/MS," *Rapid Comm Mass Spectrom.* 2012; 26(14): 1617-1630. PMID 22693118
10. **Becker ML**, van Haandel L, Gaedigk R, Thomas B, Hoeltzel MF, Lasky A, Dai H, Stobaugh J, Leeder JS. "Red Blood Cell Folate Concentrations and Polyglutamate Distribution in JIA: Predictors of Folate Variability," *Pharmacogenetics and Genomics.* 2012; 22(4):236-46. PMID 22344247
11. Li SC, Torok KS, Pope E, Dedeoglu F, Hong S, Jacobe HT, Rabinovich CE, Laxer RM, Higgins GC, Ferguson PJ, Lasky A, Baszis K, **Becker M**, Campillo S, Cartwright V, Cidon M, Inman CJ, Jerath R, O'Neil KM, Vora S, Zeft A, Wallace CA, Ilowite NT, Fuhlbrigge RC; Childhood Arthritis and Rheumatology Research Alliance (CARRA) Localized Scleroderma Workgroup. "Development of Consensus Treatment Plans for Juvenile Localized Scleroderma: a roadmap toward comparative effectiveness studies in juvenile localized scleroderma," *Arthritis Care and Research.* 2012; 64 (8): 1175-1185. PMID 22505322
12. Dai H, Charingo RJ, **Becker ML**, Leeder JS, Motsinger-Reif AA. "Risk Score Modeling of Multiple Gene to Gene Interactions using Aggregated-Multifactor Dimensionality Reduction," *BioData Mining.* 2013, 6(1):1. Doi:10.1186/1756-0381-6-1. PMID 23294634
13. Fox EJ, Leeder JS, Ye SQ, **Becker ML**. "Decreased Expression of Nicotinamide Phosphoribosyltransferase (NAMPT) in Juvenile Idiopathic Arthritis Patients Receiving Methotrexate," *J Rheum.* 2013; 40 (5): 741-742 PMID 23637381
14. Funk RS, van Haandel L, **Becker ML**, Leeder JS. "Low-dose Methotrexate Results in the Selective Accumulation of Aminoimidazole Carboxamide Ribotide in an Erythroblastoid Cell Line," *J Pharmacol Exp Ther.* 2013;347(1): 154-163. PMID 23887097
15. Robinson AB, Hoeltzel MF, Wahezi DM, **Becker ML**, Kessler EA, Schmeling H, Carrasco R, Huber AM, Feldman BM, Reed AM; Juvenile Myositis CARRA Subgroup, for the CARRA Registry Investigators. "Clinical Characteristics of Children with Juvenile Dermatomyositis - the Children's Arthritis and

Rheumatology Research Alliance (CARRA) Registry,” *Arthritis Care and Research*. 2014; 66(3):404-10. PMID 23983017

16. Rouster-Stevens KA, Ardoin SP, Cooper AM, **Becker ML**, Dragone LL, Huttenlocher A, Jones KB, Kolba KS, Moorthy LN, Nigrovic PA, Stinson JN, Ferguson PJ; American College of Rheumatology Pediatric Rheumatology Core Membership Group. “Choosing Wisely: The American College of Rheumatology’s “Top Five” for Pediatric Rheumatology,” *Arthritis Rheum*. 2014; 66 (5): 649-657. PMID 24756998
17. Grigoryev DN, Dalal J, **Becker ML**, Ye SQ. “Combined Meta-analysis of systemic effects of allogeneic stem cell transplantation and systemic sclerosis,” *BMC Hematology*. 2014; 14(1):7. Doi:10.1186/2052-1839-14-7. PMID 24656173
18. Funk RS, van Haandel L, Leeder JS, **Becker ML**. “Folate Depletion and Increased Glutamation in Juvenile Idiopathic Arthritis Patients Treated with Methotrexate,” *Arthritis Rheum*. 2014; 66(12):3476-3485. PMID 25186097
19. Ellis JA, Scurrah KJ, Li YR, Ponsonby AL, Chavez RA, Pezic A, Dwyer T, Akikusa JD, Allen RC, **Becker ML**, Thompson SD, Lie BA, Flatø B, Førre O, Punaro M, Wise C, Finkel TH, Hakonarson H, Munro JE. “Epistasis amongst PTPN2 and genes of the vitamin D pathway contributes to risk of juvenile idiopathic arthritis,” *J Steroid Biochem Mol Biol*. 2015; 145:113-20. PMID 25460303
20. Chiaroni-Clarke RC, Li YR, Munro JE, Chavez RA, Scurrah KJ, Pezic A, Akikusa JD, Allen RC, Piper SE, **Becker ML**, Thompson SD, Lie BA, Flatø B, Forre O, Punaro M, Wise C, Saffery R, Finkel TH, Hakonarson H, Ponsonby AL, Ellis JA. “The Association of PTPN22 rs2476601 with Juvenile Idiopathic Arthritis is Specific to Females,” *Genes and Immunity*. 2015; 16(7): 495-498. PMID 26291515
21. Li YR, Li J, Zhao SD, Bradfield JP, Mentch FD, Maggadottir SM, Hou C, Abrams DJ, Chang D, Gao F, Guo Y, Wei Z, Connolly JJ, Cardinale CJ, Bakay M, Glessner JT, Li D, Kao C, Thomas KA, Qiu H, Chiavacci RM, Kim CE, Wang F, Snyder J, Richie MD, Flatø B, Førre Ø, Denson LA, Thompson SD, **Becker ML**, Guthery SL, Latiano A, Perez E, Resnick E, Russell RK, Wilson DC, Silverberg MS, Annese V, Lie BA, Punaro M, Dubinsky MC, Monos DS, Strisciuglio C, Staiano A, Miele E, Kugathasan S, Ellis JA, Munro JE, Sullivan KE, Wise CA, Chapel H, Cunningham-Rundles C, Grant SF, Orange JS, Sleiman PM, Behrens EM, Griffiths AM, Satsangi J, Finkel TH, Keinan A, Prak ET, Polychronakos C, Baldassano RN, Li H, Keating BJ, Hakonarson H. “Meta analysis of shared genetic architecture of pediatric autoimmune disease,” *Nature Medicine*. 2015; 21(9):1018-1027. PMID 26301688
22. Li YR, Zhao SD, Li J, Bradfield JP, Mohebnasab M, Steel L, Kobie J, Abrams DJ, Mentch FD, Glessner JT, Guo Y, Wei Z, Connolly JJ, Cardinale CJ, Bakay M, Li D, Maggadottir SM, Thomas KA, Qui H, Chiavacci RM, Kim CE, Wang F, Snyder J, Flatø B, Førre Ø, Denson LA, Thompson SD, **Becker ML**, Guthery SL, Latiano A, Perez E, Resnick E, Strisciuglio C, Staiano A, Miele E, Silverberg MS, Lie BA, Punaro M, Russell RK, Wilson DC, Dubinsky MC, Monos DS, Annese V, Munro JE, Wise C, Chapel H, Cunningham-Rundles C, Orange JS, Behrens EM, Sullivan KE, Kugathasan S, Griffiths AM, Satsangi J, Grant SF, Sleiman PM, Finkel TH, Polychronakos C, Baldassano RN, Luning Prak ET, Ellis JA, Li H, Keating BJ, Hakonarson H. “Genetic sharing and heritability of paediatric age of onset autoimmune diseases,” *Nat Commun*. 2015; Oct 9; 6:8442 doi:10.1038/ncomms9442 PMID 26450413
23. Pasnoor M, He J, Herbelin L, Burns TM, Nations S, Bril V, Wang AK, Elsheikh BH, Kissel JT, Saperstein D, Shaibani JA, Jackson C, Swenson A, Howard JF Jr², Goyal N, David W, Wicklund M, Pulley M, **Becker M**, Mozaffar T, Benatar M, Pazcuzzi R, Simpson E, Rosenfeld J, Dimachkie MM, Statland JM, Barohn RJ, Methotrexate in MG Investigators of the Muscle Study Group. “A Randomized Controlled Trial of Methotrexate for Patients with Generalized Myasthenia Gravis,” *Neurology*. 2016; 87(1):57-64. PMID 27306628

24. Finkel TH, Li J, Wei Z, Wang W, Zhang H, Behrens EM, Reuschel EL, Limou S, Wise C, Punaro M, **Becker ML**, Munro JE, Flatø B, Førre Ø, Thompson SD, Langefeld CD, Glass DN, Glessner JT, Kim CE, Frackelton E, Shivers DK, Thomas KA, Chiavacci RM, Hou C, Xu K, Snyder J, Qiu H, Mentch F, Wang K, Winkler CA, Lie BA, Ellis JA, Hakonarson H. "Variants in CXCR4 associate with juvenile idiopathic arthritis susceptibility," *BMC Med Genet*. 2016; Mar 22; 17:24. doi: 10.1186/s12881-016-0285-3 PMID 27005825
25. Funk RS, Singh R, Pramann L, Gigliotti N, Islam S, Heruth D, Ye S, Chan M, Leeder, JS, **Becker, ML**. "Nicotinamide Phosphoribosyltransferase Attenuates Methotrexate Response in Juvenile Idiopathic Arthritis and In Vitro," *Clinical and Translational Science*. 2016; 9(3):149-57. PMID 27166432
26. Kessler ES, Sherman AK, **Becker, ML**. "Decreasing patient cost and travel time through pediatric rheumatology telemedicine visits," *Pediatr Rheumatol Online J*. 2016;14(1):54. Doi:10.1186/s12969-016-0116-2 PMID 27646340
27. Hinks A, Bowes J, Cobb J, Ainsworth HC, Marion MC, Comeau ME, Sudman M, Han B; Juvenile Arthritis Consortium for Immunochip, **Becker ML**, Bohnsack JF, de Bakker PI, Haas JP, Hazen M, Lovell DJ, Nigrovic PA, Nordal E, Punaro M, Rosenberg AM, Rygg M, Smith SL, Wise CA, Videm V, Wedderburn LR, Yarwood A, Yeung RS, Prahalad S, Langefeld CD, Raychaudhuri S, Thompson SD, Thomson W. "Fine Mapping the MHC locus in juvenile idiopathic arthritis (JIA) reveals genetic heterogeneity corresponding to distinct adult inflammatory arthritic diseases," *Ann Rheum Dis*. 2017; 76(4):765-772. PMID 27998952
28. Funk, RS, Chan MA, **Becker, ML**. "Cytokine Biomarkers of Disease Activity and Therapeutic Response in Juvenile Idiopathic Arthritis," *Pharmacotherapy*. 2017; 37(6):700-711. PMID 28475276
29. Moncrieffe H, Bennett MF, Tsoras M, Luyrink LK, Johnson AL, Xu H, Dare J, **Becker ML**, Prahalad S, Rosenkranz M, O'Neil KM, Nigrovic PA, Griffin TA, Lovell DJ, Grom AA, Medvedovic M, Thompson SD. "Transcriptional profiles of JIA patient blood with subsequent poor response to methotrexate," *Rheumatology*. 2017; 56(9): 1542-1551. PMID 28582527
30. McIntosh LA, Marion MC, Sudman M, Comeau M, **Becker ML**, Bohnsack JF, Fingerlin TE, Griffin TA, Haas JP, Lovell DJ, Maier LA, Nigrovic PA, Prahalad S, Punaro M, Rose CD, Wallace CA, Wise CA, Moncrieffe H, Howard TD, Langefeld CD, Thompson ST. "Genome-wide association meta-analysis reveals novel juvenile idiopathic arthritis susceptibility Loci," *Arthritis Rheumatol*. 2017; 69(11):2222-2232. PMID 28719732
31. Singh RK, van Haandel L, Heruth DP, Ye SQ, Leeder JS, **Becker ML**, Funk RS. "Nicotinamide Phosphoribosyltransferase Deficiency Potentiates the Anti-proliferative Activity of Methotrexate through Enhanced Depletion of Intracellular ATP," *JPET*. 2018; 365(1):96-106. PMID 29420256
32. Hinks A, Marion MC, Cobb J, Comeau ME, Sudman M, Ainsworth HC, Bowes J, Juvenile Arthritis Consortium for Immunochip, **Becker ML**, Bohnsack JF, Haas JP, Lovell DJ, Mellins ED, Nelson JL, Nordal E, Punaro M, Reed AM, Rose CD, Rosenberg AM, Rygg M, Smith SL, Stevens AM, Videm V, Wallace CA, Wedderburn LR, Yarwood A, Yeung RSM, Langefeld CD, Thompson SD, Thomson W, Prahalad S. "The genetic profile of RF-positive polyarticular juvenile idiopathic arthritis (JIA) resembles adult rheumatoid arthritis (RA)," *Arthritis Rheumatol*. 2018; 70(6):957-962. PMID 29426059
33. Brunner HI, Tzaribachev N, Vega-Cornejo G, Louw I, Berman A, Calvo Penadés I, Antón J, Ávila-Zapata F, Cuttica R, Horneff G, Foeldvari I, Keltsev V, Kingsbury DJ, Viola DO, Joos R, Lauwerys B, Paz Gastañaga ME, Rama ME, Wouters C, Bohnsack J, Breedt J, Fischbach M, Lutz T, Minden K²⁴, Miraval T, Ally MMTM, Rubio-Pérez N, Solau Gervais E, van Zyl R, Li X, Nys M, Wong R³⁰, Banerjee S, Lovell DJ¹, Martini A, Ruperto N; **Becker ML**, Ilowite NT, Dare JA, Morris PK, Beukelman TG, Wagner-Weiner L, Zemel L, Quartier P, Kone-Paut I, Belot A, Gerloni V, Ferrandiz M, Van Rensburg DJ, Scheibel IM, Goldstein-Schainberg C, Silva C, Terreri MTSELA, Gamir

M, Burgos Vargas R, Faugier Fuentes E, Cimaz R, Alessio M, Espada G and Paediatric Rheumatology International Trials Organisation (PRINTO) and the Pediatric Rheumatology Collaborative Study Group (PRCSG). Subcutaneous Abatacept in Patients with Polyarticular-Course Juvenile Idiopathic Arthritis: Results From a Phase III Open-Label Study *Arthritis and Rheumatol*. 2018. 70(7):1144-1154.

34. Jones JT, Talib N, Lovell D, **Becker ML**. "Clinical Features and Treatment of Arthropathy of Down Syndrome," *Pediatric Drugs*. 2019; 21(1):33-39. PMID 30547384
35. Ramsey LR, Moncrieffe H, Smith CN, Sudman M, Marion MC, Langefeld CD, **Becker ML**, Thompson SD. "Association of SLCO1B1*14 allele with poor response to methotrexate in juvenile idiopathic arthritis patients," *ACR Open Rheumatology*. 2019;1(1):58-62.
36. Cooper A, Horwitz, M, **Becker, ML**. "Improving the Safety of Teratogen Prescribing Practices in a Pediatric Rheumatology Clinic," *Pediatrics*. 2019;143(4): e20180803; DOI: 10.1542/peds.2018-0803 PMID 30837294
37. Ringold S, Angeles-Han ST, Beukelman T, Lovell D, Cuello Garcia CA, **Becker ML**, Colbert RA, Feldman B, Ferguson P, Gewanter H, Gray T, Guzman J, Horonjeff J, Nigrovic PA, Ombrello M, Passo M, Stoll M, Rabinovich E, Schneider R, Halyabar O, Hays K, Aakash Shah A, Sullivan N, Szymanski A, Turgunbaev M, Miller AS, Reston J. "2018 American College of Rheumatology/Arthritis Foundation Recommendations for the Treatment of Juvenile Idiopathic Arthritis; Therapeutic Approaches for Non-Systemic Polyarthritis, Sacroiliitis, and Enthesitis," *Arthritis and Rheumatol*. 2019; 71 (6): 846-863. DOI:10.1002/acr.23870 PMID 31021537
38. Ringold S, Angeles-Han ST, Beukelman T, Lovell D, Cuello Garcia CA, **Becker ML**, Colbert RA, Feldman B, Holland G, Ferguson P, Gewanter H, Gray T, Guzman J, Horonjeff J, Nigrovic PA, Ombrello M, Passo M, Stoll M, Rabinovich E, Sen N, Schneider R, Halyabar O, Hays K, Aakash Shah A, Sullivan N, Szymanski A, Turgunbaev M, Miller AS, Reston J. "2018 American College of Rheumatology/Arthritis Foundation Guideline for the Screening, Monitoring, and Treatment of Juvenile idiopathic Arthritis-Associated Uveitis," *Arthritis and Rheumatol*. 2019; 71 (6): 864-877. PMID 31021511
39. Singh RK, vanHaandel L, Kiptoo P, Leeder, JS, **Becker, ML**, Siahaan TJ, Funk RS. "Methotrexate Disposition, Anti-folate Activity and Efficacy in the Collagen-induced Arthritis Mouse Model," *European Journal of Pharmacology*. 2019;15(853):264-274 PMID: 30951714
40. Li SC, Fuhlbrigge RC, Laxer RM, Pope E, Ibarra MF, Stewart K, Mason T, **Becker ML**, Hong S, Dedeoglu F, Torok KS, Rabinovich CE, Ferguson PJ, Punaro M, Feldman BM, Andrews T, Higgins GC. For the CARRA Registry Investigators. "Developing Comparative Effectiveness Studies for a rare, understudied pediatric disease, lessons learned from the CARRA juvenile localized scleroderma consensus treatment plan study". *Pediatric Rheumatology*. 2019.17(43) <https://doi.org/10.1186/s12969-019-0350-5>
41. Li SC, Torok KS, Rabinovich CE, Dedeoglu F, **Becker, ML**, Ferguson PJ, Hong SD, Ibarra MF, Steward K, Pope E, Higgins GC, Laxer RM, Mason T, Fuhlbrigge RC, Li X, Andrews T, For the CARRA Registry Investigators. "Initial Results from a Comparative Effectiveness Pilot Study of Three Methotrexate-Based Consensus Treatment Plans for Juvenile Localized Scleroderma" *J Rheum*. 2019; Oct 15. doi: 10.3899/jrheum.190311. PMID: 31615917
42. Funk RS, Singh R, **Becker, ML**. Metabolomic Profiling to Identify Molecular Biomarkers of Cellular Response to Methotrexate, In Vitro. *Clinical and Translational Science*. 2019; DOI:10.1111/cts.12694 PMID 31651077
43. Funk RS, Talib, N, Zimmerman, KO, van Haandel L, **Becker, ML**. Altered Folate Homeostasis in Children with Down syndrome: A Potential Basis for Enhanced Methotrexate Toxicity. *J Peds*.2020; 221:235-239.

44. Nicek A, Talib N, Lovell D, Smith C, **Becker ML**, Jones JT. Assessment and Treatment of Down syndrome-associated arthritis: A Survey of Pediatric Rheumatologists *Pediatric Rheumatology*, *accepted 2020*
45. Pasnoor M, Heim AJ, Herbelin L, Statland J, Dimachkie MM, **Becker M**, Barohn RJ. Methotrexate in MG Investigators of the Muscle Study Group* Methotrexate Polyglutamation in a Myasthenia Gravis Clinical Trial *Kans J Med*. 2020; Feb 26; 13(Suppl 2): 10-13 PMID:32256969

Peer-Reviewed Review Articles:

1. **Becker ML** and Rose CD Blau Syndrome and other genetic disorders causing childhood arthritis. *Current Rheumatology Reports*. 2005; 7(6):427-433. PMID 16303101
2. **Becker ML** and Leeder JS. "Identifying Developmental and Genomic Causes of Adverse Drug Reactions in Children," *Pharmacogenomics*. 2010; 11 (11): 1591-1602. PMID 21121777
3. **Becker ML** and Leeder JS. "Developmental Pharmacogenetics in Pediatric Rheumatology: Utilizing a New Paradigm to Effectively Treat Patients with Juvenile Idiopathic Arthritis with Methotrexate," *Human Genomics and Proteomics*. 2010; Jun 22;2010:257120. doi: 10.4061/2010/257120 PMID 20981233
4. Neville, KA, **Becker, ML**, Goldman JL, Kearns GL. "Developmental Pharmacogenomics," *Pediatric Anesthesia*. 2011; 21 (3): 255-265. PMID 21320234
5. Goldman J, **Becker ML**, Jones B, Clements M, Leeder JS. "Development of Biomarkers to Optimize Pediatric Patient Management: what makes children different?," *Biomarkers in Medicine*. 2011; 5(6): 781-94. PMID 22103612
6. **Becker ML**. "Optimization of Pediatric Rheumatology Therapeutics," *Clin Pharm Ther*. 2012, Apr 91(4): 597-606. PMID 22398972
7. **Becker, ML**. "Pharmacogenomics in Pediatric Rheumatology," *Curr Opin Rheumatol*. 2012; 24(5):541-547. PMID 22732686
8. **Becker ML**. "Role of Methotrexate in Juvenile Idiopathic Arthritis: where we have been and where we are going," *International Journal of Clinical Rheumatology*. 2013; Feb 8(1):123-135.
9. Polk BI and **Becker ML**. "Pharmacogenomics in childhood rheumatic disorders: a foundation for future individualized therapy," *Discov Med*. 2013;16(90):267-75. PMID 24324494
10. Hashkes PJ, **Becker ML**, Cabral D, Laxer RM, Pallor A, Rabinovich E, Turner D, Zulian F. "Methotrexate: New Uses for an Old Drug," *Journal of Pediatrics*. 2014;164(2): 231-236. PMID 24286573
11. Kessler EA, **Becker ML**. "Therapeutic Advancements in Juvenile Idiopathic Arthritis," *Best Pract Res Clin Rheumatol*. 2014; 28(2):293-313. PMID 24974064
12. **Becker ML** Methotrexate Metabolites to Make Clinical Decisions in JIA. *Current Treatment Options in Rheumatology*, 2015; 1 (4), pp 381-395
13. Funk, RS and **Becker ML**. "Disease Modifying Anti-Rheumatic Drugs in Juvenile Idiopathic Arthritis: Striving for Individualized Therapy," *Exp Rev Prec Med Drug Dev*. 2016; 1(1): 53-68. DOI: [10.1080/23808993.2016.1133234](https://doi.org/10.1080/23808993.2016.1133234)

14. Balevic, SJ, **Becker, ML**, Cohen-Wolkowicz M, Schanberg LE. Clinical Trial Design in Juvenile idiopathic Arthritis. *Pediatric Drugs*. June 13 DOI 10.1007/s40272-017-0244-2
15. **Becker ML** and Funk RS. Reverse Translation in Advancing Pharmacotherapy in Pediatric Rheumatology: A logical approach in rare diseases with limited resources. *Clinical and Translational Science*. 2018; 11(2): 106-108. PMID 29193724
16. Zimmerman KO, Benjamin DK, **Becker, ML**. Neonatal Therapeutics: Considerations for Dosing. *Am J Perinatol*, 2019;36(suppl S2):S18–S21.

Peer-Reviewed Case Reports and Letters:

1. **Becker M**, Rosé CD, McIlvain-Simpson G. "Niacin Like Reaction to Infliximab Infusion in Systemic Juvenile Rheumatoid Arthritis". *J Rheum*. 2004; 31(12): 2529-30. PMID 15570667
2. **Becker ML**, Martin TM, Doyle T, Rosé, CD. "Interstitial pneumonitis in Blau syndrome with a documented mutation in CARD15," *Arthritis Rheum*. 2007; 56(4):1292-1294. PMID 17393391
3. **Becker ML** and Rosé CD. May Thurner Syndrome. *Consultant for Pediatricians*. 2009; 8(6): 236-237.
4. Patel D, Cook N, Newell B, **Becker ML**. "Fever, Irritability, and Ulcerations in an Infant," *Pediatric Dermatology*. 2013; 30 (6):e278-8. PMID 23013324
5. Lund RM, **Becker ML**, Shapiro S, Allison T, Harris JG. "Scurvy Presenting with Limp and Weakness: a case report," *BMC Pediatrics*, 2019; 19:228 <https://doi.org/10.1186/s12887-019-1605-5>

Chapters in Books

1. **Becker ML**. Skin Target Lesion, Case 69 in Visual Diagnosis in Emergency and Critical Care Medicine, 1st edition. CP Holstege, AB Baer, JM Pines, WJ Brady(Eds.) BMJ Press, Blackwell Publishing; 2006, 2011: p45
2. **Becker ML**. Rash and Joint Pain in a Child, Case 59 in Visual Diagnosis in Emergency and Critical Care Medicine, 1st edition. CP Holstege, AB Baer, JM Pines, WJ Brady(Eds.) BMJ Press, Blackwell Publishing; 2006, 2011: p38-39
3. **Becker ML**. Joint Swelling, On Call Problem 59 in Pediatrics On Call. CA Pohl, CA Callahan, JC Gartner, KK Bradford, LG Gomella(Eds.) Lange Medical Books/McGraw-Hill; 2006: p268-270
4. **Becker ML**. Limp, On Call Problem 64 in Pediatrics On Call. CA Pohl, CA Callahan, JC Gartner, KK Bradford, LG Gomella(Eds.) Lange Medical Books/McGraw-Hill; 2006: p291-294
5. **Becker ML**, Lovell, D, Leeder JS. Pharmacology and Drug Therapy: Nonbiologic Therapies. In Textbook of Pediatric Rheumatology, 7th edition. Petty, Laxer, Lindsley, Wedderburn (Eds.). Philadelphia: Elsevier; 2015, p 140-160
6. Funk RS, Balevic S, Cooper J, **Becker, ML**. Pharmacology and Drug Therapy: Nonbiologic Therapies. In Textbook of Pediatric Rheumatology, 8th edition. Petty, Laxer, Lindsley, Wedderburn (Eds.). Philadelphia: Elsevier; 2019,p XXX

Non-authored Publications:

1. Kingsmore SF, Dinwiddie DL, Miller NA, Soden S, Saunders C and the Children's Mercy Genomic Medicine Team. "Adopting orphans: comprehensive genetic testing of Mendelian diseases of childhood by next generation sequencing," *Expert Rev. Mol. Diagn.* 2011;11(8): 855-868 PMID 22022947
2. Kishi, T., Rider, L. G., Pak, K., Barillas-Arias, L., Henrickson, M., McCarthy, P. L., Shaham, B., Weiss, P. F., Horkayne-Szakaly, I., Targoff, I. N., Miller, F. W., Mammen, A. L. and for the Childhood Myositis Heterogeneity Study Group. "Association of Anti-3-Hydroxy-3-Methylglutaryl-Coenzyme A Reductase Autoantibodies With DRB1*07:01 and Severe Myositis in Juvenile Myositis Patients," *Arthritis Care & Research.* 2017; 69(7):1088–1094. PMID 28129483

Non-Refereed Publications:

1. **Becker ML**, Anti-tumor necrosis factor- α therapy and malignancy: balancing benefits, risks in children, AAP NEWS Vol 31 (10) October, 2010
2. **Becker ML**, *Drug treatment duration may not reduce relapse rate in patients with idiopathic arthritis* (2010). Orthopedics Today Europe. Posted on ORTHOSuperSite April, 9 2010. Available at <http://www.orthosupersite.com/print.aspx?rid=62806>. Commentary on: JAMA 303 (13): 1266-1273 (2010).

Selected Abstracts:

1. McIlvain-Simpson G, **Becker ML**, Rose C. Niacin-Like Effect Associated with Infliximab therapy in Systemic JRA. Poster presentation at the Pediatric Rheumatology-Park City and Beyond academic meeting, Snowmass, CO, 2003
2. **Becker M**, Rosé CD, Doyle T, *et al.* Early Onset Sarcoid Arthritis and Blau Syndrome are Genetically Linked. Podium presentation at the American College of Rheumatology academic meeting, San Antonio, TX, 2004
3. **Becker ML**, Rosé CD, Martin T, *et al.* CARD15 Mutation in Blau Syndrome Families: Experience Between Two Centers. Poster presentation at the American College of Rheumatology academic meeting, San Antonio, TX, 2004
4. **Becker ML**, Athreya B, Rosé CD, *et al.* P46L Mutation in Tumor Necrosis Factor Receptor- Associated Periodic Syndrome: A Clinical Description of Three African-American patients. Poster presentation at the American College of Rheumatology academic meeting, San Antonio, TX, 2004
5. **Becker ML**, Cron RQ, Lautenbach E, *et al.* High dose vs. Standard dose Methotrexate in JIA: Effects on Liver Toxicity and Clinical Response. Poster presentation at the American College of Rheumatology academic meeting, Washington, DC, 2006
6. **Becker ML**, Cron RQ, Lautenbach E, *et al.* Hepatic Enzyme Abnormalities in Children with JIA Receiving High Dose Methotrexate. Poster presentation at the American College of Rheumatology academic meeting, Washington, DC, 2006
7. **Becker ML**, Rosé CD, Cron, RQ *et al.* Association of Methotrexate Dose with Hepatic Enzyme Abnormality in Juvenile Idiopathic Arthritis. Poster presentation at the Pediatric Academic Society Meeting, Toronto, Canada, 2007
8. Chastain K, Gaedigk R, Lasky A, Schindel B, Leeder JS, **Becker ML**. Folate Gene Polymorphism is Down Syndrome patients with Arthritis. Poster presentation at the Midwest Society for Pediatric Research, October 16, 2008

9. **Becker ML**, Gaedigk R, Lasky A, *et al.* Folate Polymorphisms in Juvenile Idiopathic Arthritis. Plenary Session I at Midwest Society for Pediatric Research, October 16, 2008
10. **Becker, ML**, van Haandel L, Lasky A, *et al.* Analysis of Intracellular Methotrexate Polyglutamates in Juvenile Idiopathic Arthritis. Poster presentation at the American College of Rheumatology academic meeting, Philadelphia, PA, October 2009
11. **Becker, ML**, Gaedigk R, van Haandel L, *et al.* Effect of Route of Administration On Intracellular Methotrexate Polyglutamate Patterns in Juvenile Idiopathic Arthritis. Poster presentation at the American College of Rheumatology academic meeting, Philadelphia, PA, October 2009
12. **Becker, ML**, van Haandel L, Gaedigk, R, *et al.* Effect of Methotrexate and Genotype on RBC Folate Concentrations and Polyglutamate Distribution in JIA. Poster presentation at the ACR academic meeting, Atlanta, Georgia, November 2010
13. **Becker ML**, Gaedigk R, van Haandel L, *et al.* Genetic Variation Associated with Methotrexate Response in Juvenile Idiopathic Arthritis: Role of the Mitochondrial and Purine Synthesis Pathway. Poster presentation at the ACR academic meeting, Atlanta, Georgia, November 2010
14. Finkel T, Zhang H, Lie B, **Becker, ML**, *et al.* Discovery and Replication of JIA Predisposition Genes by Genome-Wide Association and Validation of Candidates in Fibroblast-Like Synoviocytes, Podium presentation ACR academic meeting, Atlanta, November, 2010
15. **Becker ML**, Gaedigk R, van Haandel L, *et al.* Folate Pathway Genes that Predict Methotrexate Polyglutamate Patterns and Response in Juvenile Idiopathic Arthritis, Podium presentation 4th Annual Translational Research in Pediatric Rheumatology (TRiPR) meeting, Genoa Italy, May 27, 2010
16. **Becker ML**, Gaedigk R, van Haandel L, *et al.* Genetic Predictors of Methotrexate Polyglutamate Patterns in Juvenile Idiopathic Arthritis, Podium presentation. Pediatric Academic Society meeting, Vancouver, Canada, May 4, 2010
17. **Becker ML**, Gaedigk R, van Haandel L, *et al.* Clinical and Genetic Predictors of Methotrexate Polyglutamate Patterns in Juvenile Idiopathic Arthritis, Podium presentation. ASCPT meeting, Atlanta Georgia, March 20, 2010
18. Hoeltzel MF, **Becker ML**, *et al.* Clinical Characteristics of Children with Juvenile Dermatomyositis Recruited within the First 11 Months of the Children's Arthritis and Rheumatology Research Alliance Registry (CARRAnet). Poster presentation at ACR Nation Meeting, Chicago, November 9, 2011
19. Robinson A, Hoeltzel MF, **Becker ML**, *et al.* Diagnostic evaluation and medication usage in a cohort of subjects with JDM Recruited within the First 11 Months of the Children's Arthritis and Rheumatology Research Alliance Registry (CARRAnet). Poster presentation at ACR Nation Meeting, Chicago, November 9, 2011
20. Rizk VTE, **Becker ML**, Hoeltzel, MF Olitsky S, Lasky A. Comparison of Idiopathic and Secondary Uveitis Patients seen in a Dual Pediatric Rheumatology-Ophthalmology Clinic. ACR/ARHP Pediatric Rheumatology Symposium (PRYSM), Miami, Florida, June, 2011
21. Hoeltzel MF, **Becker ML**, Robinson AB, Huber A, Feldman BM Reed AM. Clinical Characteristics of Children with Juvenile Dermatomyositis Recruited within the First 7 Months of the CARRAnet Registry. ACR/ARHP Pediatric Rheumatology Symposium (PRYSM), Miami, Florida, June, 2011

22. Hoeltzel MF, **Becker ML**, Robinson AB, Huber A, Feldman BM Reed AM. Race is a Risk Factor for Calcinosis in Patients with JDM-Early Results from the CARRAnet Registry Study. ACR/ARHP Pediatric Rheumatology Symposium (PRYSM), Miami, Florida, June, 2011
23. **Becker ML**, van Haandel L, Talib, N, Lasky, A, Hoeltzel, MF, Leeder, JS. Intracellular Folate Concentrations in Down Syndrome Patients with Arthritis. ACR/ARHP Pediatric Rheumatology Symposium (PRYSM), Miami, Florida, June, 2011
24. vanHaandel L, Leeder, JS, **Becker ML**. Measurement of Methotrexate Metabolites in Peripheral Blood Mononuclear Cells in Juvenile Idiopathic Arthritis: Hope for Individualization of Therapy? Poster presentation at ACR Nation Meeting, Chicago, November 7, 2011
25. Hoeltzel MF, **Becker ML**, et al. Race is a Risk Factor for Calcinosis in Patients with Juvenile Dermatomyositis: Early Observations from the Children's Arthritis and Rheumatology Research Alliance Registry (CARRAnet). Poster presentation at ACR Nation Meeting, Chicago, November 9, 2011
26. Fox, E* (resident mentee), Gibson M, Zhang LQ, Ye SQ, Leeder JS, **Becker ML** Decreased Expression of Nicotinamide Phosphoribosyltransferase (NAMPT) in Active Juvenile Idiopathic Arthritis Patients Receiving Methotrexate. Podium presentation. American College of Rheumatology annual meeting, Chicago November 6, 2011
27. Patel D *(medical student mentee), Newell B, **Becker ML**. 9 day old infant with oral ulcerations, fever and irritability. Case of the year presentation at Society for Pediatric Dermatology meeting, July, 2011
28. Poola A* (medical student mentee), vanHaandel L, Gaedigk R, Talib N, Leeder JS, **Becker ML**. Intracellular Folate Concentration and Polyglutamate Distribution in Down Syndrome, Podium presentation. Pediatric Academic Society Meeting, Denver Colorado, May 2, 2011
29. Bi C., **Becker ML**, Leeder JS. Derivation of Minimum Best Sample Size from Microarray Data Sets: A Monte Carlo Approach. IEEE CIBCB, 2011 Symposium on Computational Intelligence in Bioinformatics and Computational Biology, Paris France
30. Patel D *(medical student mentee), vanHaandel L, Lasky A, Hoeltzel MF, Leeder JS, **Becker ML** The relationship of Folate and Methotrexate with Drug Response in Juvenile Idiopathic Arthritis. Plenary Session at Midwest Society for Pediatric Research, Madison, WI. October 7, 2011
31. Funk RS *(post doc mentee), van Haandel L, **Becker ML**, Leeder JS, Low-Dose Methotrexate and the Selective Accumulation of Intracellular Aminoimidazolecarboxamide Ribotide American College of Rheumatology annual meeting, Washington, DC November 14, 2012
32. Reliability of Scoring a Disease Damage Measure for Juvenile Localized Scleroderma American College of Rheumatology annual meeting, Washington, DC November 14, 2012
33. Initial Evaluation of a Localized Scleroderma (LS) Clinical Activity Measure American College of Rheumatology annual meeting, Washington, DC November 14, 2012
34. van Haandel L*(post doc mentee), Funk RS, Ibarra MI, Hoeltzel MF, Lasky A, Dai D, Gaedigk R, Leeder JS, **Becker ML** Degree of Initial Intracellular Folate Depletion May Predict Methotrexate Response in Juvenile Idiopathic Arthritis. Podium presentation. American College of Rheumatology annual meeting, Washington, DC November 14, 2012
35. Li SC, Torok KS, **Becker ML** et al. A Pilot Study of Juvenile Localized Scleroderma (jLS) Consensus Treatment Plans. American College of Rheumatology annual meeting, San Diego, CA, October 2013

36. Funk RS*(post doc mentee), van Haandel L, Chan M, Rosenwasser L, Lasky A, Ibarra MF, Hoeltzel, MF, Leeder JS, **Becker ML**. Plasma Cytokine Concentrations are Associated with Folate Perturbations and Methotrexate polyglutamate Accumulation in the peripheral Blood of Juvenile Idiopathic Arthritis Patients Treated with Low Dose Methotrexate. American College of Rheumatology annual meeting, San Diego, CA, October 2013
37. Funk RS*(post doc mentee), van Haandel L, Chan M, Rosenwasser L, Lasky A, Ibarra MF, Hoeltzel, MF, Ye SQ, Leeder JS, **Becker ML**. Plasma Nicotinamide Phosphoribosyltransferase Correlates with Markers of Inflammation and may Predict Early Therapeutic response to Low Dose Methotrexate. American College of Rheumatology annual meeting, San Diego, CA, October 2013
38. van Haandel L *(post doc mentee), Funk RS, **Becker ML**, Leeder JS. Cellular Folate polyglutamation Distribution is Altered in Response to Methotrexate. ASCPT annual meeting, 2013
39. Funk RS *(post doc mentee), van Haandel L, **Becker ML**, Leeder JS A Paradoxical Dose-Response Relationship for Methotrexate-mediated Accumulation of Intracellular Aminoimidazole carboxamide Ribotide *in vitro*. ASCPT annual meeting, 2013
40. van Haandel L... **Becker ML**. Baseline Erythrocyte Folate Status is Associated with Methotrexate Response in Juvenile Idiopathic Arthritis at 3 Months. Pediatric Academic Society Annual Meeting, Vancouver BC, May 2014
41. **Becker ML** et al. Subcutaneous Methotrexate Dosing Results in Improved Early Response in Juvenile Idiopathic Arthritis. Pediatric Academic Society Annual Meeting, Vancouver BC, May 2014
42. Prahalad S et al. The Autoimmune Genetic Architecture of Childhood Onset Rheumatoid Arthritis. PRYSM Pediatric Rheumatology Meeting, Orlando FL April, 2014
43. Cooper AM, Watters H, **Becker, ML**. Implementing a Risk Education Strategy for Adolescent Girls Treated with Teratogenic Medications in the Pediatric Rheumatology Clinic. PRYSM Pediatric Rheumatology Meeting, Orlando FL. April, 2014
44. Funk RS*(post doc mentee), van Haandel L, Chan M, Rosenwasser L, Lasky A, Ibarra MF, Hoeltzel, MF, Leeder JS, **Becker ML**. Plasma Cytokine Levels Correlate with Six Month Response and Erythrocyte Methotrexate Disposition in Juvenile Idiopathic Arthritis American Society of Clinical Pharmacology and Therapeutics annual meeting, March, 2014
45. Van Haandel L, Leeder, JS, **Becker ML**. Untargeted Metabolomic Profiling of Baseline Plasma Samples from Juvenile Idiopathic Arthritis Patients with Extreme Response Profiles to Methotrexate Therapy. Midwest SPR Annual Meeting, Kansas City, MO. October 29, 2015
46. Funk RS, van Haandel L, Leeder JS, **Becker ML** Methotrexate Polyglutamation in Synovial Fibroblasts from Patients with Juvenile Idiopathic Arthritis. Midwest SPR Annual Meeting, Kansas City, MO. October 29, 2015
47. Cooper AM, Harris J, **Becker, ML** Sustained Improvement in Teratogenic Risk Education in a Pediatric Rheumatology Clinic American College of Rheumatology annual meeting, San Francisco, CA November 10, 2015
48. Riebschleger M, **Becker ML**, ...Hong S The Pediatric Rheumatology Workforce in 2015 American College of Rheumatology annual meeting, San Francisco, CA November 9, 2015
49. Kessler EA, Sherman, A, Smith CN, **Becker ML** Cost Savings and Interest in Pediatric Rheumatology Telemedicine Visits American College of Rheumatology annual meeting, San Francisco, CA November 9, 2015

50. **Becker, ML.** Riebschleger M... Hong, S. Factors That Impact Job Selection in Pediatric Rheumatology American College of Rheumatology annual meeting, San Francisco, CA November 9, 2015
51. R Manne* (medical student mentee), L vanHaandel, RS Funk, JS Leeder, **ML Becker** Predictors of Extreme Early Response to Methotrexate in Juvenile Idiopathic Arthritis, Midwest SPR Annual Meeting, Kansas City, MO. October 29, 2015
52. Kessler EA, Smith C, Anderson R, **Becker M.** Cost of Care Associated With Pediatric Rheumatology Clinic Visits and Interest in Telemedicine. Pediatric Academic Societies, San Diego, CA, April 27, 2015
53. **Becker, ML,** van Haandel L, Funk RS, Gaedigk, R, Leeder, JS. Disruptions in Folate Homeostasis May Lead to Increased Risk for Methotrexate Intolerance in Juvenile Idiopathic Arthritis, Podium presentation. American College of Rheumatology annual meeting, San Francisco, CA November 8, 2015
54. Li, S, Torok KS, Hong SD, Ferguson PJ, Rabinovich E, **Becker ML** et al... Initial Results of a Pilot Juvenile Localized Scleroderma (jLS) Comparative Effectiveness Study. Podium presentation. American College of Rheumatology annual meeting, San Francisco, CA November 10, 2015
55. Kessler EA, Smith C, Anderson R, **Becker M.** Cost of Care Associated With Pediatric Rheumatology Clinic Visits and Interest in Telemedicine. Podium presentation. American Telemedicine Association Conference, Los Angeles, CA, May 5, 2015
56. Singh RK, vanHaandel L, Kiptoo P, **Becker, ML** et al. Evaluation of the Relationship between Methotrexate Polyglutamation and Efficacy in the Collagen-induced Arthritis Mouse Model. American College of Rheumatology annual meeting, Washington, DC, November 2016
57. Funk RS, Shakhnovich V, **Becker, ML.** Variability in Serum Trough Infliximab Levels Among Pediatric Patients. ACCP Annual Meeting. October, 2017. Published Pharmacotherapy December 2017.
58. Van Haandel L, Singh RK, Kiptoo P, Siahaan TJ, **Becker ML,** Funk RS. Tissue Folate Dysregulation is Associated with Disease Activity and methotrexate Response in Collagen-Induced Arthritis American College of Rheumatology annual meeting, San Diego, CA 2017
59. Funk RS, Shakhnovich V, van Haandel L, **Becker, ML.** Infliximab Use in JIA and Uveitis: Does Methotrexate Help or Hinder? American College of Rheumatology annual meeting, San Diego, CA 2017
60. Jones JT, Danawala L, Talib N, **Becker, ML.** Treatment Outcomes of Down Syndrome Arthropathy American College of Rheumatology annual meeting, San Diego, CA 2017
61. Shakhnovich V, Van Haandel L, **Becker M,** Funk R. Combination Therapy with Methotrexate Does Not Change Infliximab Pharmacokinetics in Children with Inflammatory Bowel Disease. *Inflamm Bowel Dis.* 2017 Feb;23 Suppl 1:S2. doi: 10.1097/01.MIB.0000512515.46092.5c.
62. Funk, RS... **Becker, ML.** Evaluation of the Relationship between Methotrexate co-administration and Infliximab concentrations in the Pediatric Patient Population. ASCPT National Meeting, Washington DC, March 2017 *Clin Pharm Ther,* Feb. 2017, Vol. 101(Supp1): S46
63. Sivaraman V et al.... **Becker ML...** Impact of Juvenile Localized Scleroderma on Longitudinal Quality of Life. ACR Annual Meeting, Chicago Illinois, October, 2018
64. Jones J... **Becker ML.** treatment and response of Down Syndrome Arthropathy. ACR Annual Meeting, Chicago Illinois, October, 2018

65. Shakhnovich V, Casini R, Morrow R, Gress K, van Haandel L, **Becker, M**, Funk R. Infliximab monotherapy vs. combination therapy with immunomodulators for maintenance treatment and pediatric inflammatory bowel disease: An evolving role for Methotrexate polyglutamate monitoring. Podium presentation NASPGHAN meeting, Hollywood, FL, October 27, 2018
66. Jones J, Lovell DJ, Smith CN, **Becker, ML**. The Down syndrome Arthropathy Cohort in the new Childhood Arthritis and Rheumatology Research Alliance (CARRA) Registry: Clinical Characteristics, Treatment and Outcomes. Annual ACR meeting, Atlanta, GA, 2019
67. Balevic S, Cohen-Wolowiez M, Eudy A, **Becker ML**, Schanberg L, Clowse M. Optimal Hydroxychloroquine Drug Levels in Pregnant Women with Systemic Lupus Erythematosus. Annual ACR meeting, Atlanta, GA, 2019
68. Zhao Y, Beukelman T, Kimura Y, **Becker M**, Ringold S, Dennis A, Schanberg L. Patients with Juvenile Idiopathic Arthritis in the Childhood Arthritis and Rheumatology Research Alliance (CARRA) Registry: Clinical Characteristics and Inception Cohorts. Poster Presentation at the 2020 Pediatric Rheumatology Symposium, April 30, 2020. New Orleans, LA
69. Li S, **Becker ML**, Hong S, Ferguson P, Nyrienda T, Andrews T, Steward K, Rabinovich CE, Fuhlbrigge R, Mason T, Pope E, Ibarra M, Dedeoglu F, Higgins G, Laxer RM, Punaro M, Torok K. Reliability and Validity of a New Skin Activity Measure for Localized Scleroderma. Poster Presentation at the 2020 Pediatric Rheumatology Symposium, April 30, 2020. New Orleans, LA
70. Li S, Patel A, Pope E, Mason T, Sivaraman V, Dedeoglu F, Trok K, Stewart K, Higgins G, Rabinovich CE, Fuhlbrigge R, Ibarra M, Hong S, Ferguson P, **Becker ML**, Feldman BM, Laxer RM. Capturing the Range of Disease Involvement in Localized Scleroderma: The Total Morbidity Score Poster Breakout Presentation at the 2020 Pediatric Rheumatology Symposium, April 30, 2020. New Orleans, LA
71. Funk RS, **Becker ML**. Association of Plasma Metabolomic Profiles with Methotrexate Response in Juvenile Idiopathic Arthritis Poster Breakout Presentation at the 2020 Pediatric Rheumatology Symposium, April 30, 2020. New Orleans, LA

Scholarly Societies

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| Phi Beta Kappa National Honor Society |
| American Academy of Pediatrics, Section on Rheumatology |
| American College of Rheumatology |
| Society for Pediatric Research |
| Childhood Arthritis and Rheumatology Research Alliance (CARRA) |
| American Society for Clinical Pharmacology and Therapeutics |
| Midwest Society for Pediatric Research (MWSPR) |
| Pediatric Rheumatology Collaborative Study Group (PRCSG) |
| Pediatric Rheumatology Care & Outcomes Improvement Network (PR-COIN) |

Professional Awards and Special Recognitions

Citizenship/Clinical:

1. Humanitarian Award/Thomas Jefferson University Hospital/ duPont Hospital for Children, 2002
2. Included in the Best Doctors in America database, 2009-2019
3. Named as a Kansas City Best Doctor, 2010-2019
4. Selected into Cambridge Who's Who 2010, 2012-19
5. Selected into Arthritis Foundation "My Doc Rocks", 2011
6. Super Doctors, Kansas City, 2012-2019
7. Named South 435 Magazine Best Doctor, 2013-2019
8. Nominated as a "Kindest Kansas Citian" in the 26th annual Kindest Kansas Citian Contest, 2016

Research:

1. Amgen Pediatric Rheumatology Training Award, 2003
2. Paula de Merieux Rheumatology Fellowship Award, 2005
3. Distinguished Fellow Award, American College of Rheumatology, 2006
4. Midwest SPR Southerland Award for Young Investigators, 2008
5. "Notable Poster" scoring top 15% for: *Analysis of Intracellular Methotrexate Polyglutamates in Juvenile Idiopathic Arthritis* at The American College of Rheumatology Meeting, Philadelphia, PA, 2009
6. David J. Goldstein Trainee Award – ASCPT, 2010
7. Presidential Trainee Award – ASCPT, 2010
8. Marie Curie Grant to attend the Translational Research in Pediatric Rheumatology meeting; Genoa Italy, May 27-30, 2010
9. National Institutes of Health Pediatric Loan Repayment Program
 - a. 2011-2013
 - b. 2013-2015
 - c. 2013-2017
10. Kreamer Research Excellence Award, Children's Mercy Hospital, 2012
11. First place poster: *Developing a Risk Education Strategy for Adolescent Girls Treated with Teratogenic Medications in the Pediatric Rheumatology Clinic* at National Healthcare Quality Week, CMH, November 2014
12. Selected by the Rheumatology Research Foundation as one of 30 influential rheumatologists who made an impact in the world through their work with the Foundation: 30 over 30, 2015
13. Senior Research Achievement Award, Children's Mercy Faculty Award, Jan 24th 2018

Teaching/Mentorship/Professional Development:

1. Accepted into AAMC Early Career Women Faculty Professional Development Seminar, Washington, DC, 2007
2. Invited to the Heart of Leadership Faculty Development Course, held by Executive Education Group, Children's Mercy Hospitals and Clinics, 2008
3. Invited to the UMKC Bloch Executive Education School Mentorship Development Program, Children's Mercy Hospitals and Clinics, 2013
4. Amgen Pediatric Rheumatology Visiting Professorship Award, Rheumatology Research Foundation, 2013
5. Golden Apple award for mentorship to a resident at CMH, 2013
6. Accepted Harvard University Leadership Development for Physicians in Academic Health Centers, Boston, MA. Nov 2-16, 2014
7. Accepted into the AMSPDC 7th cohort for Pediatric Leadership Development Program, 2018-2019

Editorial Experience

1. Section Editor for Pediatric Rheumatology section for *Current Treatment Options in Rheumatology* 2016-2018
2. Ad Hoc Journal Reviewer:
 - Respiration
 - Pediatrics
 - Clinical Pharmacology and Therapeutics
 - Journal of Rheumatology
 - Current Drug Safety
 - Pharmacogenetics and Genomics
 - Medical Science Monitor
 - Arthritis Care and Research
 - British Journal of Dermatology
 - British Journal of Pharmacology
 - Arthritis and Rheumatology

Organizations and Committee Participation and Leadership

Local:

1. Medical Staff Benefits Committee, Children's Mercy Hospitals and Clinics 2006-2010
2. Residency Selection Committee and Interviewer, Children's Mercy Hospitals and Clinics 2006-2010
3. Medical Staff Research Committee, Children's Mercy Hospitals and Clinics, 2007-2009
4. Resident Individualized Learning Plan Committee member, 2007-

5. Selection Committee for General Pediatrics Section Chief, Children's Mercy Kansas City, 2011
6. Selection Committee for Cardiology Section Chief, Children's Mercy Kansas City, 2011
7. Co-Chair Employee Giving Campaign, Children's Mercy Kansas City, 2013-2015
8. Children's Mercy Psychosocial Taskforce, 2017-2019
9. Member of the Faculty Affairs Steering Committee, Duke University School of Medicine, 2019-
10. Faculty Interviewer, Duke Pediatric Residency Program 2019-
11. Member of the Duke Children's Ambassador's Group, 2019-
12. Search Committee for Executive Director, Duke Clinical Research Institute 2019-2020

National:

1. AAP Section of Rheumatology Executive Committee member 2009-2015
 - a. Membership chair
 - b. Section Program Chairperson
2. ASCPT Scientific Program Committee 2010-2012
 - a. Chair ASCPT session 2012 meeting, Washington DC
3. Selected as an expert reviewer for ARHQ report "Comparative Effectiveness of disease-modifying anti-rheumatic drugs (DMARDs) in children with juvenile idiopathic arthritis (JIA)" 2010
4. Council Member MWSPR 2010-2013
 - a. Chair MWSPR session, Madison, WI 2011
5. CARRA Consensus Treatment Planning Workgroup: Juvenile Localized Scleroderma, 2011-
6. American College of Rheumatology Special Committee on Ped. Rheumatology, 2011-2014
7. American College of Rheumatology JIA treatment guidelines Task Force Panel, 2012
8. Co-chair: Best Pharmaceuticals for Children Act (BPCA) Rheumatology Working group, 2012
9. Acting Chairman for the 8th annual Pediatric Rheumatology Fellows Meeting, JA conference, July 17-19th, Anaheim, CA, 2013
10. Abstract reviewer: Muscle Biology, Myositis and Myopathies; American College of Rheumatology Annual Scientific Meeting; Boston, MA, November 2014
11. Rheumatology Research Foundation (RRF) Strategic Planning Task Force Member, 2015
12. SPR Council member (elected) representing Allergy, Immunology and Rheumatology, 2015-2018
13. Moderator, CARRA Pediatric Rheumatology Fellow's Conference, Austin TX, 2015
14. Abstract reviewer: Pediatric Rheumatology-Clinical and Therapeutic Aspects; American College of Rheumatology Annual Scientific Meeting; San Francisco, CA, November, 2015
15. PR-COIN core workgroup member, Div. of Rheumatology Children's Mercy Hospital, 2015-2019
16. FDA Arthritis Advisory Committee (AAC), 2015- current (re-elected 2019)
17. Moderator for ACR Updates in Pharmacologic Therapies Press Conference at the American College of Rheumatology Annual Scientific Meeting; San Francisco, CA, November, 2015

18. Abstract session moderator Pediatric Rheumatology-Clinical and Therapeutic Aspects I: Juvenile Idiopathic Arthritis at American College of Rheumatology Annual Scientific Meeting; San Francisco, CA, November, 2015
19. Rheumatology Research Foundation grant reviewer for the Disease Targeted Research Initiative, 2016
20. American College of Rheumatology Committee on Education, 2015-2019
 - a. Chair, Educational Meetings Subcommittee of ACR Committee on Education 2016-2019
21. Abstract reviewer: Pediatric Rheumatology-Clinical and Therapeutic Aspects; American College of Rheumatology Annual Scientific Meeting; Washington, DC, November, 2016
22. CARRA Elections Committee member, 2016-2019
23. Nominations Committee, AAP Section on Rheumatology, 2016-2018
24. Co-chair of the Pediatric Rheumatology-Clinical and Therapeutic Aspects Abstract Session for the American College of Rheumatology Annual Meeting, 2017
25. Member of American College of Rheumatology JIA Guideline Development Task Force, 2017- current
26. American College of Rheumatology Pediatric Rheumatology Symposium Planning Committee (PRYSM), 2018-2020
 - a. Moderator PRYSM Annual Meeting, New Orleans, LA April 2020
27. Chair, CARRA JIA Committee, 2019-2022
28. American Board of Pediatrics, Pediatric Rheumatology Subboard, 2020-2025
29. Planning committee for FDA-CERSI Collaborative Workshop on Accelerating Drug Development for Polyarticular Juvenile Idiopathic Arthritis (pJIA), October 2, 2019
30. Rheumatology Research Foundation Board of Directors, Member at Large 2019-2022
31. Co-leader for Clinical Trial Readiness Working Group, NIH INCLUDE initiative 2019-2020

Data and Safety Monitoring Board Experience

1. Data and Safety Committee member for OPT-JIA: Ondansetron Premedication Trial in Juvenile Idiopathic Arthritis (PI J. Guzman, funding source, Canadian Arthritis Society) 2019-

Grants and Extramural Research Awards

Completed Research Support

Educational Innovation Grant (EIG)

(PI: Becker)

Sponsor: Nemours Foundation

Date: 2003

Title: *"Retreat on Death and Dying for second year pediatric residents"*

This grant was obtained during my chief resident year to fund a retreat on death and dying for the pediatric residents.

Katharine B. Richardson Grant (PI: Becker)
Sponsor: Children's Mercy Hospitals and Clinics
Date: 6/2007-6/2008
Title: "*Methotrexate Polyglutamation and Juvenile Idiopathic Arthritis*"
This study funded the validation of methods to detect MTX polyglutamates in REBs and began a cross-sectional sample cohort of MTX polyglutamation profiles in a JIA cohort.

Patton Trust Grant (PI: Becker)
Sponsor: Kansas City Area Life Sciences
Date: 7/2008-7/2009
Title: "*A Folate Pharmacogenomic Signature in Juvenile Idiopathic Arthritis*"
This study began to investigate cellular folate concentrations in JIA patients not currently receiving MTX.

Young Investigator Research Award (PI: Becker)
Sponsor: Children's Mercy Hospital
Date: 7/2008-7/2009
Title: "*A Folate Pharmacogenomic Signature in Juvenile Idiopathic Arthritis*"
This study supplemented the work on measuring detailed cellular folate signatures in patients with arthritis.

Paul and Betty Henson Award for Research in Immunology and Inflammation (PI: Becker)
Sponsor: Children's Mercy Hospital
Date: 7/2009-7/2010
Title: "*Impact of Genomic Variation on Intracellular Methotrexate Polyglutamate Concentrations in Juvenile Idiopathic Arthritis*"
This study began to explore the genetic associations with various folate and MTX signatures in JIA.

PhRMA Foundation Award for training in Clinical Pharmacology (PI: Becker)
Sponsor: PhRMA Foundation
Date: 7/2009-7/2011
Title: "*Sources of Variability in Methotrexate Polyglutamation in Children with JIA*"
This grant funded my salary to complete my formal Pediatric Clinical Pharmacology fellowship.

Rheumatology Investigator Award (PI: Becker)
Sponsor: ACR REF
07/2011-06/2014
Title: "*Signature of Response to Methotrexate in JIA*"
The goals of this project are to incorporate folate concentrations and folate polyglutamation patterns into the observed variability of response to methotrexate seen in JIA in a prospective study of patients newly prescribed methotrexate

Innovative Research Grant (PI: Li)
Sponsor: Arthritis Foundation
Role: Co-investigator/Site PI
Date: 7/2012-7/2014
Title "*Developing Tools for Localized Scleroderma Comparative effectiveness Studies*"
This grant funded pilot consensus treatment plan implementation in juvenile localized scleroderma and work to assess features of clinical response and disease damage.

Innovative Research Grant (PI: Kimura)
Sponsor: Arthritis Foundation
Role: Co-investigator/Site PI
Date: 7/2012-7/2014
Title: "*CARRA Consensus treatment Plan for Systemic Juvenile idiopathic Arthritis (CTP-sJIA)*"
This grant funded pilot consensus treatment plan implementation in systemic JIA work to assess response to 3 commonly used treatment strategies. This work helped to pave the way to guidelines for the treatment of SJIA.

R01 FD 003538 (PI: Barohn)
Sponsor: FDA Orphan Products Division
Role: Collaborator for MTX polyglutamate analyses
Title: Phase II Trial of Methotrexate in Myasthenia Gravis (IND # 101,306)
This trial aimed to assess the steroid sparing effects of MTX in patients with myasthenia gravis.

MC-MTX. 16/HF Children (PI: Medac GmbH)
Sponsor: Medac GmbH
Role: Principal Coordination Investigator
Date: 7/2013-7/2014
Title: *"Human Factors Study for the Evaluation of the Penmet Prefilled Pen for Subcutaneous Injection in Pediatric and Adolescent Patients with Juvenile Idiopathic Arthritis"*
The purpose of this grant was to study the ease of administration and usability of the pre-filled methotrexate injection pen.

NIH U34 Clinical Trial Planning Grant (PI: Ilowite/Beukelman)
Sponsor: NIAMS
Role: Advisor/Trial Design/biospecimens
09/2014-08/2015
Title: *"PREVENT: Prospective Randomized Trial of the Effectiveness of Methotrexate to Prevent Extension of Limited JIA"*
The purpose of this grant was to plan the randomized double blind placebo controlled clinical trial to study oral methotrexate as an effective agent to prevent extension or uveitis in limited JIA.

IM101-301-0012 (PI: Bristol-Myers Squibb)
Sponsor: Bristol-Myers Squibb
Role: Site PI
Date: 7/2013-7/2016
Title: *"Phase 3 Multi-center, Open-Label Study to Evaluate Pharmacokinetics, Efficacy and Safety of Abatacept Administered Subcutaneously (SC) in Children and Adolescents with Active Polyarticular Juvenile Idiopathic Arthritis (pJIA) and Inadequate Response (IR) to biologic or non-biologic Disease Modifying Anti-Rheumatic Drugs (DMARDs)"*
This study was an open label phase 3 study of subcutaneous Abatacept in the pediatric population.

2 PO1 AR048929-06 (PI: Thompson)
Sponsor: NIAMS
Role: Site PI
Date: 2013-2018
Title: *"Gene Expression in Pediatric Arthritis"*
Project 2- Advanced Therapies in JIA towards Predictive Treatment
This project investigated gene expression profiling for predictive biomarkers of response with initiation or discontinuation of therapy in JIA.

R Bridge Award (PI: Becker)
Sponsor: ACR Rheumatology Research Foundation
Date: 08/2014-08/2016
Title: *"Integrated Approach to Individualizing therapy with MTX in JIA"*
This project integrates clinical and non-clinical approaches to understand the mechanistic basis for difference in response to MTX.

CARRA Small Grant Award (PI: Becker)
Sponsor: CARRA
Date: 02/2017-02/2018

Title: *"Pharmacogenomic Predictors of MTX Polyglutamation"*

This grant is to fund sample collection for MTXGlu_(n) at 6 months within the CARRA and PCORI funded STOP JIA cohort

Young Investigator Award

(PI: Funk)

Sponsor: American College of Clinical Pharmacy Research Institute

Role: Mentor

Date: 09/15/16-09/14/17

Etanercept Trough Level Monitoring and Therapeutic Response in Juvenile Arthritis

This project seeks to evaluate the relationship of serum trough levels of etanercept and circulating TNF α levels with therapeutic response in juvenile arthritis as the basis for an individualized approach to drug therapy.

CARRA Registry

(PI: Schanberg, Kimura)

Sponsor: CARRA Inc.

Role: Site PI, CMH

Effort: 1%

Date: 7/2014-current

Title: The CARRA Registry

The Registry is a cornerstone of CARRA and provides disease and treatment data on children with a variety of rheumatic diseases. CARRA aims to make it possible for all affected children in North America to have the opportunity to participate in meaningful and high quality clinical and translational research.

Research Starter Grant in Pharmacology/Toxicology

(PI: Funk)

Sponsor: PhRMA Foundation

Role: Mentor

Effort: N/A

Date: 01/2018-01/2019

Title: *"A Biochemical Strategy to Mitigate Methotrexate Toxicity in Patients with Down Syndrome"*

This study utilizes in vitro and ex-vivo methods to investigate folate homeostasis in patients with Down syndrome as it relates to anti-folate effects of MTX. The goal is to understand and fine tune future dosing of MTX in this vulnerable population.

Present Extramural Research:

1R01 HD089928-01A1

(PI: Becker and Thompson)

Sponsor: NICHD

Effort 15%

Date: 09/2017- 08/2022

Title: *"Identifying Pharmacogenomic Predictors of Methotrexate Response and Metabolite Biotransformation in JIA"*

This study will collect DNA and cellular markers of MTX biotransformation in the largest cohort of JIA patients receiving MTX to date. Associations between clinical response and non-response to MTX as it relates to genotype and MTX metabolism will be explored. We will develop a clinical prediction tool based on the genetic and clinical information available that can be tested in future studies.

KU Frontiers CTSA KL2

(PI: Funk)

Sponsor: CTSA/NCATS

Role: Mentor

Effort: N/A

Date: 8/2017-7/2019

Title: *"Metabolic Markers of Methotrexate Response in Autoimmune Arthritis"*

Metabolic Markers of methotrexate Response in Autoimmune Arthritis

This scope of this study includes investigating the metabolomic profile of JIA patients, pre and post MTX use and in responders and non-responders to MTX to assess in a non-targeted fashion novel MOA and biomarkers for MTX response. As part of this work, *in vitro* and animal models have been developed to refine these methods.

1P20GM130423-01 Kansas Institute for Precision Medicine COBRE

(PI: Funk)

Sponsor: NIGMS

Role: Mentor

Effort: N/A

Date: 8/2019-7/2022

Title: *Metabolomic Markers of Disease Activity and Therapeutic Response in Autoimmune Arthritis*

This scope of this study includes investigating the metabolomic profile of JIA, RA and IBD patients, pre and post MTX use and in responders and non-responders to MTX to assess in a non-targeted fashion novel MOA and biomarkers for MTX response. As part of this work, *novel microfluidic testing for biomarker identification will be investigated.*

1U24TR001608-02

(PI: Benjamin)

Sponsor: NCATS

Role: Co-Investigator, DOSE Protocol Chair

Effort 20%

Dates: 7/1/2016 - 6/30/2023

Title: *Center for Innovative TRIals in ChilDrEN and AdulTs (TRIDENT)*

Scope: Implement a novel multi-site clinical trials platform and combine it with state-of-the-art clinical trials operations to increase multi-site trial quality and efficiency across the CTSA

As Protocol Chair of the Dexmedetomidine Opioid Sparing Effects in Mechanically Ventilated Children (DOSE) study, which is a pilot study for the HEAL Pain ERN, I oversee the study conduction. The DOSE study is a randomized, placebo-controlled trial to assess opioid sparing effects of Dexmedetomidine in mechanically ventilated children. There are currently 19 sites enrolling into the DOSE trial.

HHSN275201800003I TO6

(PI: Becker/Benjamin)

Sponsor: NICHD

Role: PI

Effort: 10%

Dates: 09/12/2019 – 09/11/2022

Title: *PTN2-TO#6 Clinical Pharmacokinetics and Safety Trials in Individuals with Down syndrome*

Scope: To develop a network of investigators to study drug safety and efficacy in children with Down syndrome and create a platform to perform therapeutic clinical trials. The deliverables of this task order are to develop a bidirectional educational platform between the PTN and DS clinicians/investigators, to activate DS sites into an opportunistic PK/PD study (POP02), and to develop a prospective protocol to study a therapeutic of interest in the pediatric DS population.

Mentoring Activities

| Faculty: | |
|---------------------------------|--|
| Daniel Horton, MD: 2015- | Pediatric Rheumatology, UMDNJ Rheumatology and Pharmacoeipi research <ul style="list-style-type: none"> • K23 recipient • R01 recipient |
| Stephen Balevic, MD: 2016- | Med/Peds Rheumatology, Duke University Rheumatology and Clinical Pharmacology research <ul style="list-style-type: none"> • Rheumatology Research Foundation funded • K23 anticipated |
| Ryan Funk, PharmD, PhD: 2014- | Research Scientist, University of Kansas Clinical Pharmacology Research in Ped Rheumatology <ul style="list-style-type: none"> • KU CTSA KL2 recipient • PhRMA Foundation Award recipient • ACCP Investigator Award recipient • Kansas Institute for Precision Medicine COBRE |
| Angela Myers, MD MPH: 2018-2019 | Div. Director, Infectious Disease, CMH Physician Lean Leadership Development |
| Jennifer Colombo, MD: 2018-2019 | Associate Div. Director, GI, CMH Physician Lean Leadership Development |
| Manish Kotecha, MD: 2018-2019 | Director of US, Department of Radiology, CMH Physician Lean Leadership Development |
| Joe Huffman, MD: 2018-2019 | Cardiac Anesthesia, CMH Physician Lean Leadership Development |

| Duke Faculty Mentoring committees: | |
|---|--|
| Heather Van Mater, MD | Pediatric Rheumatology 2020- |
| Jennifer Rothman, MD | Pediatric Hematology Oncology 2020- |
| Kathleen Richards, MD | Pediatric Emergency Medicine 2019- |
| Kanecia Zimmerman, MD | Pediatric Intensive Care 2020- |
| Areeg El-Garbawy, MD (chair) | Medical Genetics 2020- |
| Sharla Rent, MD (chair) | Neonatology 2020- |
| Rachel Greenberg, MD | Neonatology/DCRI 2020- |

| | |
|--------------------------------------|---|
| Fellows, Doctoral, Post docs: | |
| Leon van Haandel, PhD: 2010-2013 | Analytical Chemist, University of Kansas Clinical Pharmacology 2010-2013 Currently in Industry |
| Ryan Funk, Pharm D, PhD: 2011-2014 | Pharmacy Research Scientist Clinical Pharmacology Current Assistant Professor, University of Kansas |
| Matthew McLaughlin, MD: 2017- 2019 | Pediatric Rehabilitation and Physical Medicine, CMH Clinical Pharmacology mentee (SOC member) Current Assistant Professor of Pediatrics Pediatric Rehab |
| Laura Cannon, MD: 2019- | Pediatric Rheumatology Fellow, Duke SOC member |
| Residents: | |
| Cara Hoffart, DO: 2007-2010 | Pediatric Resident, CMH Current Associate Professor of Pediatrics Pediatric Rheumatology |
| Katherine Chastain, MD: 2008-2009 | Pediatric Resident, CMH Currently in Industry Pediatric Hematology/Oncology |
| Emily Fox, MD: 2012-2014 | Pediatric Resident, CMH Current Assistant Professor of Pediatrics Pediatric Rheumatology |
| Medical students: | |
| Devika Patel (MS V, UMKC) | “9 day old infant with oral ulcerations, fever and irritability (Neonatal Behcet’s) “The Relationship of Folate and Methotrexate with Drug Response in Juvenile Idiopathic Arthritis” Fellowship: Dermatology |
| Ashwini Poola (MS III, UMKC) | “Intracellular Folate Concentration and Polyglutamate Distribution in Down Syndrome” Fellowship: Pediatric Surgery |
| Radhika Manne (MS III, UMKC): | Folate Homeostasis in Down Syndrome Patients Residency: Rehabilitation and Physical Medicine |

Educational Activities

Didactic classes

1. Third /Fourth year medical student didactic lecture series UMKC Pediatric Rheumatology: Medical Student Orientation, bimonthly lectures: (2006-2009)
2. Invited lecture topics for Residents and Pharmacy Students (2003-current)
 - JIA and Pharmacologic Management
 - Pediatric SLE and Pharmacologic Management
 - The Pharmacology of Rheumatology
 - The Musculoskeletal Exam

- Rheumatology Board Review
 - Juvenile Idiopathic Arthritis
 - Juvenile Dermatomyositis
 - Limp in Children
 - Henoch Schonlein Purpura
 - Granulomatous Arthritis in Children
 - Metabolic Arthropathies
 - Lyme Disease
 - The Classification of Childhood Arthropathies
 - Celiac Sprue
 - Retroperitoneal Fibrosis
 - Juvenile Scleroderma
3. Mentored Resident Professor Rounds, CMH (2006-2019)
- Juvenile Dermatomyositis (9/08, 5/07, 9/06)
 - Wegener's Granulomatosis (1/07)
 - Henoch Schonlein Purpura (4/07)
 - ADEM (4/07)
 - Systemic Lupus Erythematosus (1/08, 2/10, 12/12, 9/18)
 - Systemic Onset JIA (3/08)
 - Microscopic Polyangiitis (10/08)
 - Scurvy (5/16)

Educational Program Development

1. Co-developer: **Pediatric Visual Diagnosis CD-ROM**, duPont Hospital for Children, Nemours Health System. This CD-ROM was developed to aid in physical diagnosis for residents and medical students. 2002

Coaching/Mentorship Program Development

2. Co-director: **BRNSTRM program**, Children's Mercy, Kansas City. This is a mentoring program for residents interested in research at Children's Mercy Pediatric residency program, where residents interested in research are matched with faculty who can mentor them in a research project and academic endeavors. 2007-2013
3. Co-developer: **Physician Lean Leadership Development Program**, Children's Mercy Kansas City. This is a pilot program designed to encourage and develop physician leadership with purposeful engagement in lean culture and principles. It was developed as part of the AMSPDC Pediatric Leadership Development Program: 2018- 2019

Invited Lectures and Presentations

Named Lectures:

1. The Sue Bowyer Honorary Grand Rounds: **Harnessing Clinical Variability to Fuel Discoveries: Research Inspired by everyday observations in Rheumatology**. Riley Children's Hospital. January 25, 2017

Visiting Professorships:

1. **The Personalized Pediatrics Predicament:** How Can We Use Developmental Pharmacology and Pharmacogenomics to Improve Therapy for Pediatric Patients? Grand Rounds speaker at duPont Hospital for Children, Wilmington, DE, May 26th, 2010
2. **Making a Difference: Challenges of Incorporating Pharmacogenomics into the Treatment of Juvenile Idiopathic Arthritis** Pediatric Pharmacogenomics and Personalized Medicine Conference, April 30, 2010
3. **Searching for Answers to Clinical Variability: Incorporating Pharmacogenomics into the Treatment of Juvenile Idiopathic Arthritis.** Grand Round speaker at Indiana University, Riley Children's Hospital, January 12, 2011
4. **Research Update: 2012** Arthritis Foundation 2012 National Juvenile Arthritis Conference, July 20, 2012 St. Louis, MO
5. **The "Alphabet Soup" of Rheumatologic Labs: the Significance and Implications of a Positive ANA, HLA B27, CCP and RF- when to order and how to interpret** 2nd Annual James and Nancy Cassidy Rheumatology Symposium, Columbia, MO. Sept 5, 2014
6. **Rapid Rheumatologic Consultation: An Approach to Common Complaints seen in the office.** RRF Pediatric Rheumatology Visiting Professorship, our Lady of the Lake Hospital, Baton Rouge, LA, March 28th, 2014
7. **Pediatric Rheumatology Jeopardy.** RRF Pediatric Rheumatology Visiting Professorship, our Lady of the Lake Hospital, Baton Rouge, LA, March 27th, 2014
8. **Methotrexate Polyglutamates vs. cellular Folate: Can Markers of MTX biotransformation Predict Clinical response in JIA?** P30 Cincinnati Rheumatic Diseases Resource Center and The Center for Autoimmune Genomics and Etiology conference; Cincinnati Children's September 22, 2016
9. **Pediatric Rheumatology Jeopardy.** Pediatric Rheumatology Visiting Professorship, Riley Children's Hospital, January 25, 2017
10. **Harnessing Clinical Variability to Fuel Discoveries: Research Inspired by everyday observations in Rheumatology.** Grand rounds at UNC Department of Pediatrics, August 2018

International Meetings:

1. **Methotrexate Polyglutamation and Folate pathway Polymorphisms: Can we use genotype and phenotype to predict outcomes in JIA?** Children's Hospital of British Columbia, August 9, 2009, Vancouver, Canada
2. **Identifying Genomic Causes of Adverse drug Reactions in Children** at the Golden Helix Symposium on Pharmacogenomics, October 13, 2009, Athens, Greece
3. **Treatment of the Child with Enthesitis and/or Sacroiliitis: When to Start Biologics** at the 26th European Paediatric Rheumatology Congress, September 24, 2020, Prague

National Scientific Meetings (invited):

1. **Using Pharmacogenomics to Improve Therapy for Pediatric Patients:** For ARHP lecture at the American College of Rheumatology Annual Meeting, Atlanta, Georgia, November 10, 2010
2. **Pediatric Systemic Lupus Erythematosus- Meet The Professor session** at the 2011 American College of Rheumatology Annual meeting, November 2011, Chicago, IL
3. **Juvenile Idiopathic Arthritis for Adult Rheumatologists- Meet The Professor session** at the 2011 American College of Rheumatology Annual meeting, November, 2011, Chicago, IL
4. **Juvenile Idiopathic Arthritis for Adult Rheumatologists- Meet The Professor session** at the 2012 American College of Rheumatology Annual meeting, Washington, DC November 14, 2012
5. **A Signature of Response to Methotrexate in Juvenile Idiopathic Arthritis.** Disease Targeted Research: An RRF Special Session. American College of Rheumatology Annual Scientific Meeting; San Francisco, CA, November 10, 2015
6. **PTN-DS: Clinical Pharmacokinetics and Safety Trials in Down Syndrome** at the Clinical Trials in Down Syndrome-NIH INCLUDE Project Virtual Workshop. May 8, 2020

National Instructional Courses, workshops, symposiums:

1. **Rheumatology: Common Problems** for PREP Audio: Clinical Conversations With Pediatric Experts Vol 3: No 5: 2008
2. **AAP PREP** the Course, Anaheim CA, June 12, 2010
3. **AAP PREP** the Course, Pittsburgh PA, September 11, 2010
4. **Rheumatologic Tests: Navigating your way through the Myths and Realities** Pediatrics for the Practitioner, Hawaii, October 20,21, 2010
5. **Cutaneous Manifestations of Rheumatic Disease** Pediatrics for the Practitioner, Hawaii, October 20,21, 2010
6. **All that Limps is not a Sprain: Review of Limb Pain in Childhood** Pediatrics for the Practitioner, Hawaii, October 20,21, 2010
7. **Henoch Schonlein Purpura: Point and Counterpoint** Pediatrics for the Practitioner, Hawaii, October 20,21, 2010
8. **AAP PREP** the Course, Baltimore MD 2012
9. **AAP PREP** the Course, Portland OR 2013
10. **Rapid fire RVU, Work Life Balance, and Networking as a Pediatric rheumatologist** at the 8th Annual Pediatric Rheumatology Fellows Meeting at the 2013 Juvenile Arthritis Conference, July 17-19, Anaheim, CA
11. **Hands on Rheumatology Workshop for the Pediatrician** AAP 2013 National Conference and Exhibition. Orlando FL Oct 26-29, 2013

12. **Time Management: A Work in Progress.** CARRA Fellow's Meeting at CARRA annual meeting, April 22-23, 2015, Austin TX
13. **Pearls for the Job Search and Interviewing Skills** CARRA Fellow's Meeting at CARRA annual meeting, April 27, 2020 (virtual).

Regional presentations:

1. **Therapeutic Updates in JIA** at Intercontinental Hotel to Midwest Rheumatology Association, November 2006
2. **The Pharmacology of Rheumatology** at Children's Mercy Pharmacy noon lecture, March, 2007
3. **More than Skin Deep: Dermatologic Manifestations of Rheumatic Disease** at 3rd Annual Pediatric Dermatology Symposium, September 29, 2007, Children's Mercy Hospital
4. **Ordering and Interpreting the Antinuclear Antibody Test** at Clinical Advances in Pediatrics, November 15th, 2007, Children's Mercy Hospital
5. **Diagnosis and Treatment of Juvenile Idiopathic Arthritis** at Children's Mercy South Hospital, February 6, 2008, CME lecture
6. **Henoch Schonlein Purpura** at Truman Lakewood Family Medicine program, March 27, 2008, CME lecture
7. **Juvenile Idiopathic Arthritis and the Use of Laboratory Tests** at Children's Mercy Hospital Laboratory Section CME lecture, June 18, 2008
8. **The Musculoskeletal Exam** for Children's Mercy Hospital Resident lecture, annually 2008-2015
9. **The Basic Principles of Pediatric Research** for Children's Mercy Resident lecture, September 18, 2008
10. **Dermatologic Manifestations of Connective Tissue Diseases** for KU med Dermatology Division, January 29, 2009
11. **Rheumatology Review** (Lyme Disease, Sjogren's Syndrome, Scleroderma and UCTD) for CMH Allergy Fellows CMH, March 27, 2009
12. **Not Getting Lost in Translation: Building Effective Teams for Translational Research** for KU Med Institute for Advancing Medical Innovation, September 30, 2009
13. **Pediatric ACR Update** for Midwest Rheumatology Association, November 19, 2009
14. **Folate as a Physiologic Biomarker: Exploring Methotrexate Variability in Juvenile Idiopathic Arthritis** for CMH Academic Scholarship Conference August 12, 2011
15. **The Quest for Cellular Biomarkers of Response and Toxicity to Methotrexate in Juvenile Idiopathic Arthritis: From Bench to Bedside and Beyond** KUMC Clinical and Translational research Seminar, May 2012
16. **Time Management for the Clinician Scientist** CMH PICU fellowship lecture, August 7, 2012
17. **Pediatric Vasculitis** Vasculitis Foundation Vasculitis Symposium, July 12, 2014. KU Edwards Campus

18. **Making Big Life Decisions while Sleep Deprived and Stressed: Is a pediatric subspecialty right for you?** Children's Mercy PL-2 retreat. Kansas City, MO. August 22, 2015, repeated 2018
19. **Applying Appreciative Inquiry to Optimize the Work Environment** Micro-session for Office of Faculty Development, Children's Mercy, Kansas City, September 12, 2018
20. **Scholarship Inspired by Front Line Clinical Work: A "Rheumaholiday" Perspective**, Duke Pediatrics Grand Rounds, December 10, 2019
21. **Vasculitis in the Pediatric Patient** at Duke Children's Community Symposium: Updates in Pediatric Rheumatologic Disease, Durham, NC, March 7, 2020