Robert E. Pyatt, Ph.D.
Nationwide Children's Hospital
700 Childrens Dr, C0985, Columbus, OH 43205
(614) 722-2870, Robert.Pyatt@Nationwidechildrens.org

Current Position

Assistant Director, Cytogenetics/Molecular Genetics Laboratory, Nationwide Children's Hospital. 07/2008- present.

Education

ABMG Training Program in Molecular Genetics, Pathology, Ohio State University, Columbus, 07/2008. Supervisor: Dr. Thomas Prior

Ph.D., Pathology, Ohio State University, Columbus, 2001. Dissertation: Microsatellite Instability and Large, Genomic Alterations of DNA Mismatch Repair Genes in the Etiology of HNPCC and Sporadic Tumors. Advisor: Dr. Thomas Prior

Master of Science, Biology, Purdue University, Indianapolis, 1996. Dissertation: The Use of Merocyanine 540 for the Isolation of Quiescent, Primitive Human Bone Marrow Hematopoietic Progenitor Cells. Advisor: Dr. Edward Srour

Bachelor of Science, Biology, Indiana University, Bloomington, 1993. Minor: Theater

Research Experience

ABMG Molecular Genetics Fellowship, Ohio State Univ., 07/2006 - Present
Developed technologies for the DNA extraction and newborn screening of Spinal Muscular Atrophy. Managed MDA funded project identifying point mutations in individuals with Duchenne Muscular Dystrophy lacking deletions in the dystrophin gene.

Post-Doctoral, Department of Pathology, Ohio State Univ., 10/2004 - 07/2006
Developed real time PCR assays for the newborn screening and carrier detection of Spinal Muscular Atrophy. Validated molecular tests for deletions/duplications in *LKB1*.

Fellowships In Research & Science Teaching (FIRST) Fellowship, Department of Human Genetics, Emory Univ., 12/2001 - 10/2004
Described association of variation (ie SNP tagged haplotype blocks) within the collagen VIA1 and VIA2 genes with atrio-ventricular septal defects in infants with trisomy 21. Refined technique for monosomal hybrid formation from somatic cells with trisomy 21. Characterized parental origin and stage of meiotic error for chromosome 21.

Doctoral, Department of Pathology, Ohio State Univ., 08/1996 - 10/2001
Identified large, genomic alterations in mismatch repair genes in hereditary nonpolyposis colorectal cancer. Defined microsatellite instability in associated endometrial tumors. Described polymorphic variations in BAT-25 and BAT-26 microsatellites.

Masters, Department of Hemotology, I.U. Medical School, 08/1994 - 08/1996
Developed isolation techniques for hematopoietic stem cells from bone marrow, umbilical cord, and peripheral blood using Merocyanine 540 and cell sorting.

Undergraduate, Department of Biology, Indiana University, 06/1993 - 07/1993
Created biological site plans for 16th and 17th century shipwrecks off Key Largo, FL.

Teaching Experience

Near East South Asia Council of Overseas Schools (NESA) Virtual Science Fair, Faculty Mentor and Judge, Spring 2008, 2007, 2006
ASHG DNA High School Essay Contest, Essay Evaluator, Spring 2008, 2006
"On Down- Down Syndrome" lesson development for PBS series *Secrets of the Sequence*, Virginia Commonwealth University, Winter 2005
Fellow, Fellowships in Research and Science Teaching (FIRST), Emory University, Atlanta, 10/2001 - 10/2004
The Genomic Revolution exhibit, educational consultant and docent training, Fernbank Museum of Natural History, Atlanta, GA 6/2004 - 1/2005
Human / Molecular Genetics, Emory Univ. Medical School, Spring 2004, Spring 2003
General Biology II, Clark-Atlanta University, Fall 2003
Cell & Molecular Biology, Morris Brown College, Spring 2003
Cell & Molecular Biology Lab, Morris Brown College, (Developed Course) Spring 2003
Cellular & Molecular Biology, Morris Brown College, Spring 2002
The Biology of Disease, Ohio State University, Summer 2000, Summer 1999

Honors and Awards

6th Annual OSU Medical Center Research Day Postgraduate Travel Award, 2007
Ohio State University, Dept. of Pathology Graduate Student of the Year, 2002
Preparing Future Faculty (PFF) Fellowship, Ohio State University, 2000
Educational Enhancement Grant from the Indiana University-Purdue University at Indianapolis (I.U.P.U.I.) Graduate Office, 1995
Eagle Scout, Boy Scouts of America, 1985

Invited Presentations

"How to use Genetic Databases to Assist in Interpretation of Patient Results", Ohio Genetic Counselors Annual Meeting, 09/2008
"Newborn Screening & SMA", Ohio Genetic Counselors Annual Meeting, 11/ 2007
"DNA & Behavior: Is Our Fate in Our Genes?", The Science of DNA Profiling: An Expert Forum, 6th Annual Conference, 08/2007
"The Use of DNA in Forensic Investigations", Crimetime (Forensic and Criminalistics Society), 05/2007
"Screening Newborns for Spinal Muscular Atrophy: Molecular Biology in Clinical Medicine" Department of Biology seminar series, Wright State University, 04/2006
"From the Bench Top to the Bedside; the Molecular Genetics of Hereditary Colon Cancers " Department of Biology seminar series, College of Wooster, 10/2000

Academic Service

Ohio State Univ., College of Medicine Research Day Organizing Committee, 2007
Ohio State Univ., Office of Minority Affairs Undergraduate Mentoring Program, 2005-06, 2006-07.
Organizing Committee, Institutional Research and Academic Career Development Awards (IRACDA) Annual Meeting, Emory Univ., 2004.
Emory University, Undergraduate Mentoring for Excellence Program, 2002-03, 2003-04.
Student Advisor, Preparing Future Faculty Program, 2000-01.
President, OSU Assoc. of Pathology Graduate Students, 1999-00.
Student Representative, OSU College of Medicine Library Committee, 1999-00.

Professional Experience

Consultant, forensic evaluation of DNA evidence, 4/04-Present
Contributing writer, The Science of Sci-Fi, *Sci-Fi Studios Magazine*, 08/2006-01/2008
Laboratory Technician, Indiana Univ. Medical School, Indianapolis, 6/1994-8/1996
Writer/Director, Filmsmith Television Productions, Indianapolis, 1/1994-1/1995

Professional Memberships

American Society of Human Genetics (ASHG)
National Science Teachers Association (NSTA)
Association for Molecular Pathology (AMP)

Abstracts (*****Presented in Person) (**#** Both Poster and Oral Presentations)

1. ***Pyatt, R.E,** Mihal, D.C., and Prior, T.W. Comparison of liquid microbead arrays for the molecular identification of individuals with Spinal Muscular Atrophy in newborn screening programs. J Mol Diag 9(5), p655, 2007.

2. Rosser, T.C., **Pyatt, R.E**., and Powell, K.R. Training students to be the teachers: Using peer led team learning to instruct undergraduate students as science museum docents. ASHG Meeting Report, 2007, #830, p184.

3. ***Pyatt, R.E,** Mihal, D.C., and Prior, T.W. Assessment of liquid microbead arrays for the newborn screening of Spinal Muscular Atrophy. ASHG Meeting Report, 2007, #2408, p455.

4. Prior, T.W. and **Pyatt, R.E**. The spectrum of deletions in Kearns Sayre Syndrome. ASHG Meeting Report, 2007, #500, p128.

5. ***Pyatt, R.E,** Mihal, D.C., and Prior, T.W. Molecular identification of individuals with Spinal Muscular Atrophy through newborn screening to benefit clinical trial efficacy. ASHG Meeting Report, 2006, #2000, p366.

6. Mihal, D.C., Bridgeman, S.J., **Pyatt, R.E.**, and Prior, T.W. Sequence analysis of small SMN1 mutations in SMA compound heterozygotes. ASHG Meeting Report, 2006, #1165, p224.

7. ***Pyatt, R.E**., Pilarski, R., and Prior, TW. Mutation screening in juvenile polyposis syndrome. ASHG Meeting Report, 2005, #402, p95.

8. Prior, T.W., and **Pyatt, R.E**. Real Time PCR strategy for newborn screening in Spinal Muscular Atrophy. ASHG Meeting Report, 2005, #1163, p224.

9. ***Pyatt, R.E.**, Gupte, M., Lee, M., Torfs, C., Capone, G., Dooley, K., Freeman, S.B., and Sherman, S.L. Genetic variation in COL6A1 in Down Syndrome individuals with congenital heart defects and their parents. ASHG Meeting Report, 2004, #393.

10. Morris, L.G., **Pyatt, R.E.**, Giver, C., and Eisen A. A model for the next generation of science educators: bringing postdoctoral scientists into the classroom. National Science Teachers Association (NSTA) National Convention, 3-16-2004.

11. ***Pyatt, R.E.**, Gupte, M., Torfs, C., Capone, G., Dooley, K., Freeman, S.B., and Sherman, S.L. Genetic variation in the Collagen 6A1 and 6A2 genes in individuals with Down Syndrome with and without atrioventricular septal defects. AM J Hum Gen, 73 (5), p2153, 2003.

12. Prior, T.W., Sedra, M., Fuchik, M.B., and ***Pyatt, R.E.** Protocols for the investigation of large, genomic rearrangements in the DNA mismatch repair gene MLH3 by Southern blot analysis. Am J Hum Gen, 69 (4 suppl 1), p255, 2001.

13. ***Pyatt, R.E.**, Hampel, H., Sedra, M., Schafer R.W., Fuchik, M.B., Comeras, I., de la Chapelle, A., and Prior T.W. Identification of a deletion in the DNA mismatch repair gene MSH2 by Southern blot analysis. Am J Hum Gen, 69 (4 suppl 1), p254, 2001.

14. Proca, D.M., **Pyatt, R.E.**, Prior, T.W., and Frankel, W.L. Microsatellite Instability in Neuroendocrine Tumors of the Pancreas. Mod Path, 14(1), p202A, 2001.

15. ***Pyatt, R.E.**, Sedra, M., Schafer, R.W., de la Chapelle, A., and Prior, T.W. Protocols for the investigation of large, genomic alterations in the DNA mismatch repair genes MLH1, MSH2, and MSH6 by Southern blot analysis. Am J Hum Gen, 67(4 suppl 2), p88, 2000.

16. [#]***Pyatt, R.**, Chadwick, R.B., Johnson, C.K., Niemann, T.H., Hampel, H., Graham, J.S., de la Chapelle, A., and Prior, T.W., (Spon: W.J. Waldman). The occurrence of microsatellite instability and DNA mismatch repair gene mutations in endometrial carcinoma. Faseb J, 14(4), pA789, 2000.

17. ***Pyatt, R.E.**, Chadwick, R.B., Johnson, C.K., Adebamowo, C., de la Chapelle, A., and Prior, T.W. Polymorphic Variation at the Bat-25 and Bat-26 Loci in Individuals of African Origin: Implications for Microsatellite Instability Testing. Am J Hum Gen, 65(4 suppl 1), pA317, 1999.

18. Chadwick, R.B., Prior, T.W., **Pyatt, R.**, Johnson, C.K., Niemann, T.H., Hampel, H., Graham. J.S., and de le Chapelle, A. Absence of germline MSH6 mutations in hereditary nonpolyposis colorectal cancer (HNPCC) and endometrial cancer kindreds. Am J Hum Gen, 65(4), pA121, 1999.

19. Gothot, A., **Pyatt, R.**, McMahel, J., Grigsby, S., and Srour, E.F. The hematopoietic potential of CD34+ cells is directly related to their position within the G0/G1 phase of the cell cycle. Blood, 88(10 suppl 1), p541a, 1996.

20. Gothot, A., **Pyatt, R.**, McMahel, J., Grigsby, S., and Srour, E.F. Re-entry of CD34+ cells into mitotic quiescence following in vitro proliferation is not sufficient for the restoration of primitive hematopoietic potential. Exp Hem, 24(9), p1031, 1996.

21. Gothot, A., **Pyatt, R.**, McMahel, J., Grigsby, S., and Srour, E.F. Activation and proliferation kinetics of single quiescent CD34+ cells residing in G0. Exp Hem, 24(9), p1031, 1996.

22. Ladd, A.C., **Pyatt, R.**, Traycoff, C.M., and Srour, E. Orderly process of sequential cytokine stimulation is required for activation and maximal proliferation of primitive human CD34+ hematopoietic progenitor cells residing in G0. Exp Hem, 24(9), p1031, 1996.

23. Ladd, A.C., **Pyatt, R.**, Grigsby, S., McMahel, J., Traycoff, C.M., and Srour, E.F. Activation and proliferation of primitive human hematopoietic progenitor cells residing in G0 follows an orderly process which requires sequential cytokine stimulation. Blood, 86(10 suppl 1), p494a, 1995.

24. Cheatham, A., **Pyatt, R.**, Grigsby, S., McMahel, J., Mantel, C., Traycoff, C.M., and Srour, E.F. Isolation of human bone marrow CD34+ cells residing in the G0 phase of the cell cycle using DNA staining with Hoechst 33342 and RNA labeling with Pyronin Y. Exp Hem, 23(8), p900, 1995.

25. ***Pyatt, R.**, Jenski, L.L., Cornetta, K., Grigsby, S., Traycoff, C.M., and Srour, E.F. Use of Merocyanine 540 for the Isolation of quiescent primitive human bone marrow hematopoietic progenitor cells. Exp Hem, 23(8), p817, 1995.

General Media Science Publications

1. **Pyatt. R.E.** Pubmed Goes to the Movies! Why see the film when you can read the article? *Annals of Improbable Research*. 14(5), 18-20, 2008.

2. **Pyatt, R.E.** The Eaters of the Boogers. *Sci Fi Studios Magazine*. Spring Issue, 2007.

3. **Pyatt, R.E.** Beware of Strange Physicians Wearing Ties. *Sci Fi Studios Magazine*. Fall/Winter Issue, 2006.

Peer Reviewed Publications

1. **Pyatt, R.E.** Haploid Analysis (Monosomal Hybrid Technique). *Encyclopedia of Diagnostic Genomics and Proteomics*. Marcel Dekker, New York, 2005.

Peer Reviewed Articles

2. **Pyatt, R.E.**, Rosser, T., and Powell, K. Undergraduates as science museum docents: training students to be the teachers using peer led team learning. American Biology Teacher (in Press).

3. **Pyatt, R.E.**, Mihal, D.C., and Prior, T.W. Assessment of liquid microbead arrays for the screening of newborns for Spinal Muscular Atrophy. Clin Chem, 53, 1879-85, 2007.

4. **Pyatt, R.E.** and Prior, T.W. A feasibility study for the newborn screening of Spinal Muscular atrophy. Genet Med, 8, 428-37, 2006.

5. **Pyatt, R.E.**, Pilarski, R., and Prior, T.W. Mutation screening in Juvenile Polyposis Syndrome. J Mol Diag, 8, 84-88, 2006.

6. Holtzclaw, J.D., Morris, L., **Pyatt, R.E.**, Giver C., Hoey, J., Gunn, R., Eaton, D., Haynes, J.K., and Eisen, A. FIRST: A New Model for Developing Future Science Faculty. J Coll Sci Teach, 34, 24-29, 2005.

7. Kerstann, K.F., Feingold, E., Freeman, S.B., Bean, L.J., **Pyatt, R.**, Meltzer, M., Heffner, A., Capone, G., and Sherman, S.L. Linkage disequilibrium mapping in trisomic populations, analytical approaches and an application to congenital heart defects in Down Syndrome. Genet Epidemiol, 27, 240-251, 2004.

8. **Pyatt, R.E.**, Nakagawa H., Hampel H., Sedra M., Fuchik M.B., Comeras I., de al Chapelle, A., and Prior T.W. Identification of a deletion in the mismatch repair gene, MSH2,using mouse-human cell hybrids monosomal for chromosome 2. Clin Genet, 63, 215-218, 2003.

9. Chadwick, R.B., **Pyatt, R.E.**, Niemann, T.H., Richards, S.K., Johnson, C.K., Meek, J.E., Stevens, M.W., Hampel, H., Prior, T.W., and de la Chapelle, A. Hereditary and Somatic DNA Mismatch Repair Gene Mutations in Sporadic Endometrial Carcinoma. J Med Genet, 38, 461-466, 2001.

10. Adebamowo, C.A., Adeyi, O., **Pyatt, R.**, Prior, T.W., Chadwick, R.W., and de la Chapelle, A. Case Report on Hereditary Non-Polyposis Colon Cancer (HNPCC) in Nigeria. African J Med Med Sci, 29, 71-73, 2000.

11. **Pyatt, R.**, Chadwick, R.B., Johnson, C.K., Adebamowo, C., de la Chapelle, A., and Prior, T.W. Polymorphic Variation at the Bat-25 and Bat-26 Loci in Individuals of African Origin: Implications for Microsatellite Instability Testing. Am Journal Path, 155, 349-353, 1999.

12. **Pyatt, R.E.**, Jenski, L.L., Allen, R., Cornetta, K., Abonour, R., Traycoff, C.M., and Srour, E.F. Use of Merocyanine 540 For the Isolation of Quiescent, Primitive Human Bone Marrow Hematopoietic Progenitor Cells. J Hematotherapy, 8, 189-198, 1999.

13. Gothot, A., **Pyatt, R.**, McMahel, J., Rice, S., and Srour, E.F. Assessment of Proliferative and Colony-Forming Capacity after Successive in vitro Divisions of Single Human CD34+ Cells Initially Isolated in G0. Exp Hem, 26, 562-570, 1998.

14. Gothot, A., **Pyatt, R.**, McMahel, J., Rice, S., and Srour, E.F. Functional Heterogeneity of Human CD34+ Cells Isolated in Subcompartments of the G0/G1 Phase of the Cell Cycle. Blood, 90, 4384-4393, 1997.

15. Ladd, A.C., **Pyatt, R.**, Gothot, A., Rice, S., McMahel, J., Traycoff, C.M., and Srour, E.F. Orderly Process of Sequential Cytokine Stimulation is Required for Activation and Maximal Proliferation of Primitive Human Bone Marrow CD34+ Hematopoietic Progenitor Cells Residing in G0. Blood, 90, 658-668, 1997.