MNB
michigan neonatal biobank

Studies That Use Samples From the Michigan Neonatal Biobank

Study Title	***Institution/ Corporation***	***Department***	***Year Approved***	***Project Summary, Citation or Link to Publication***
Tetralogy of Fallot	*University of Michigan*	*Pediatrics*	*2014*	*This study will determine the frequency with which severe congenital cardiac defects of the conotruncal subtype are due to mutations of genes known or suspected to be involved in heart development.*
Gene-Environment Interplay and Executive Functioning	*Wayne State University*	*Psychology*	*2014*	*DNA methylation study of candidate genes linked to Executive Functioning.*
Congenital Heart Defects	*William Beaumont Hospital*	*Ob/Gyn*	*2013*	*The effect of prenatal environment exposures on health outcomes.*
Detroit Neighborhood Health Study	*U. of North Carolina and U. Wisconsin-Milwaukee*	*Epidemiology*	*2013*	*Determine whether characteristics of the local environment influence the risk of post-traumatic stress disorder and drug abuse/dependence among residents of Detroit. Explore pathways linking ecologic stressors, immune function and long term health.*
Pediatric Anxiety Disorder	*Wayne State University*	*Pediatrics*	*2013*	*Identify the epigenetic and neurobiological factors that contribute to pediatric PTSD.*
Health Outcomes in IVF Births	*Wayne State University*	*Ob/Gyn*	*2013*	*Compare DNA patterns of babies conceived by IVF to those who were not.*

Improving IRT/DNA Newborn Screening for Cystic Fibrosis to Reduce False Positives	*University of Wisconsin*	*Pediatrics*	*2013*	*Improving IRT/DNA newborn screening for Cystic Fibrosis to reduce false positives by a new molecular strategy.*
Twins and Siblings Study	*Michigan State University*	*Psychology*	*2013*	*This study aims to examine gene expression linked to prenatal androgen exposure and genetic risk for Acting Out Behaviors in adolescent twins.*
Evaluation of the Effects of Prenatal Exposure to Non- Essential Heavy Metals on Hearing	*University of Michigan*	*Environmental Health Science*	*2013*	*The effect on hearing of prenatal exposure to heavy metals.*
Lab on a Chip Assay Development	*Commercial*	*N/A*	*2013*	*Validate improved assays for newborn screening for biotinidase and galactosemia.*
Development of a screening test for SMA and MD	*University of Pittsburg*	*Pathology*	*2012*	*The purpose of this research is to develop a multiplex first-tier screening test for Spinal Muscular Atrophy and second-tier assays for Muscular Dystrophy*
Total Galactose Screening Method Comparison	*Commercial*	*N/A*	*2012*	*The purpose of this study is to validate an assay for galactosemia.*
Technology Enhancement and Implementation of Michigan Newborn Screening for SCID and Related Disorders	*Michigan Department of Community Health*	*N/A*	*2011*	*The goals of the study are to (1) provide data to contribute to evidence based laboratory protocols and follow-up strategies, (2) provide optimal screening for SCID and related disorders for Michigan newborns and (3) work cooperatively with the Newborn Screening community to share appropriate laboratory and follow-up data, methods and protocols.*

Dried Blood Spots to Determine the Effect of Pb on DNA Methylation in Children	*Wayne State University*	*Environmental Health Science*	*2011*	*The goal of this study is to determine the contribution of lead exposure to gene expression found in children. The study will also determine the reversibility of this lead-associated gene expression from birth to the time of current blood collection for both the biological mother and their child.*
Prenatal Alcohol Exposure: The Influence on Epigenetic Processes	*Wayne State University*	*Pediatrics*	*2011*	*Predicting which fetus will have Fetal Alcohol Spectrum Disorders (FASDs), understanding the variable expression of FASD, and diagnosing prenatal alcohol-affected infants and children remain difficult. The proposed research will study epigenetic factors to fill these gaps in risk, mechanisms, and diagnosis in a unique cohort of at-risk children.*
Methods Comparison of Luminex Multiplex Newborn Screening Assay to Delfia	*Commercial*	*N/A*	*2010*	*This study is a method comparison for the assistance in the development of innovative newborn screening technology.*
High Throughput Methods to Measure Disparities in Childhood Exposure to Tobacco	*University of Minnesota*	*Epidemiology*	*2010*	*The goal of this project is to study disparities in childhood exposure to second hand smoke by measuring a biomarker in 1400 dried blood spots.*
HLA-Typing of Neonatal Blood Spots	*Commercial*	*N/A*	*2010*	*This is a study to develop a new technology to perform very-low-cost HLA testing. The purpose of this study is to determine if a new microarray-based approach to HLA-typing can be used on a standard 1/8th inch dried blood spot punch from a neonatal Guthrie Card.*
DNA Methylation in Sudden Unexplained Infant Death Syndrome	*Wayne State University*	*Ob/Gyn*	*2010*	*The specific aim of this study is to determine the relationship between changes in essential gene functions in archived newborn dried blood spots of genes involved in SUIDS cases versus normals.*

Assessment of the SMN1 and 2 Genets in Spinal Muscular Atrophy Affected Patients and a Carrier Frequency Study	*ARUP Laboratories*	*N/A*	*2010*	*All forms of SMA are inherited as autosomal recessive traits, although 1/3 of SMA3 patients show an autosomal dominant pattern. De-identified dried blood spots are being provided by the Michigan Neonatal Biobank for development of a reliable test suitable for newborn screening programs.*
Metabolic Newborn Screening for Congenital Heart Defects	*Wayne State University*	*Ob/Gyn*	*2008 and 2010*	*The specific aim of this study is to determine whether there is a relationship between changes in essential gene functions in archived newborn dried blood spots and the presence of CHD. This would provide insight into changes in genes associated with complex disorders such as CHD and therefore the potential causes and mechanisms of the disorder may be determined.*
Microarray Analysis of Neonatal Blood Spots: Optimization and Application to Birth Outcomes	*Van Andel Institute*	*N/A*	*2009*	*This is a pilot study to perform gene expression analysis of neonatal blood spot samples from 10 full-term neonates who subsequently developed neuroblastoma in the first year of life, and 10 full-term neonates who did not develop any malignancy. By correlating the gene expression in blood spots with risk of disease we will gain new insights into the perinatal risk factors contributing to a wide range of neonatal and childhood conditions.*
Newborn Screening Multiplex Immunoassay	*Commercial*	*N/A*	*2009*	*Assay development.*
Mercury Levels in Blood from Newborns in the Lake Superior Basin	*Minnesota Department of Health*	*N/A*	*2009*	*This is a study to measure mercury exposure in newborns from communities surrounding Lake Superior. Samples from Michigan, Wisconsin and Minnesota were used. Link to a summary of the results from this study: http://www.health.state.mn.us/divs/eh/hazardous/topics/studies/newbornhglsp.html*
The Genetic Basis & Pathophysiology of Neonatal Persistent Pulmonary Hypertension	*Wayne State University*	*Pediatrics*	*2004*	*The broad long term objective of this research is to identify the genetic basis for neonatal persistent pulmonary hypertension of the newborn.*

Whole Genome DNA Amplification from Stored DBS	*Wayne State University*	*Applied Genomics*	*2008*	*DNA yield from historical dried blood spot samples.*
Tandem Mass Spectrometry Prediction of Newborn Birth Defects	*Wayne State University*	*Ob/Gyn*	*2007*	
The Use of T Cell Receptor Excision Circles to Detect Missed Cases of Severe Combined Immunodeficiency	*Wayne State University*	*unspecified*	*2007*	
Analysis of Environmental Contaminants in Dried Blood Spots	*Centers for Disease Control*	*N/A*	*2007*	
ID of Genetic Markers in Blood Spots of Guthrie Newborn Screening Cards	*Children's Hospital of Michigan*	*Oncology*	*2006*	*Gruhn B, Taub JW, et al. Prenatal origin of childhood acute lymphoblastic leukemia, association with birth weight and hyperdiploidy. Leukemia. 2008 Sep; 22(9): 1692-7*
Feasibility and Validity of Obtaining Guthrie Cards for Molecular Epidemiology Studies	*University of Minnesota*	*Pediatrics/ Epidemiology*	*2005*	*http://www.health.state.mn.us/newbornscreening/research*

New Paradigms of Cerebral Palsy	*Michigan State University*	*Epidemiology*	*2005 to date*	*Archived unfrozen neonatal blood spots are amenable to quantitative gene expression analysis.*
Prevalence of Three Hereditary Hemochromatosis Mutant Alleles in the Michigan Caucasian Population	*Michigan State University*	*unspecified*	*2000 to 2002*	*Barry, E., Derhammer, T., Elsea, S. Prevalence of Three Hereditary Hemochromatosis Mutant Alleles in the Michigan Caucasian Population. Community Genet 2005; 8:173-179*
Maternal Microchimerism and HLA Compatibility in Juvenile Diabetes and Autism	*Children's Hospital of Michigan*	*unspecified*	*2001*	