Pediatric Research Network

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I. BIOMEDICAL ENGINEERING

BOWLIN, GARY L.

Department/division: Biomedical Engineering

Email: glbowlin@vcu.edu

Research description: Tissue engineering. Primary interest is vascular tissue engineering. We are creating a variety of small diameter vascular prosthetics. Other projects: Bone tissue engineering (i.e., cleft palate repair), ligament and tendon engineering

Current research support: Industrial

*** Mentored students or junior faculty in the past. * Accepts 1st- or 2nd-year medical students during the summer. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

GULLQUIST, SCOTT D.

Department/division: Pediatrics

Email: sgullqui@vcu.edu

Research description:

NIH 1 R01 HL096882-01: Mechanical Cavopulmonary Assistance for the Failing Fontan. We are collaborators on this study working with Dr. Amy Throckmorton in the Department of Biomedical Engineering. This grant will be resubmitted this year for funding. The idea is to develop a deployable impeller to assist venous flow circulations in children who have univentricular hearts and have been palliated using cavopulmonary anastomoses.

Current research support: none

*** Mentored students or junior faculty in the past. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

LONGEST, PHILIP W.

Department/division: Mechanical Engineering

Email: pwlongest@vcu.edu

Research description:

My areas of research interest are predicting the dosimetry of inhaled aerosols and the development of respiratory drug delivery systems. My aerosol research lab in the School of Engineering focuses primarily on CFD simulations. I work in close collaboration with Dr. Michael Hindle in the VCU Department of Pharmaceutics. Dr. Hindle specializes in experimental aerosol characterization, the development and testing of respiratory drug delivery systems, and pharmaceutical aerosol formulations. Together, we have the capability to analyze respiratory drug delivery from a concurrent experimental and computational perspective. Topics related to pediatric research that I am currently investigating or have the capability to consider in the near future include development of effective respiratory drug delivery system for infants and pediatric patients. Dr. Hindle and I have an active NIH R21 grant to develop a nanoaerosol-based respiratory drug delivery system that can significantly improve the administration of inhaled pharmaceutical aerosols to all patients. This approach may be particularly beneficial for pediatric patients where reduced drug loss in the extrathoracic airways is critical. We also are studying the effect of pediatric nasal geometries on airflow efficiency, heat and mass transfer and aerosol deposition. This project is in conjunction with Dr. Rebecca Segal of the VCU Department of Mathematics. In addition, we are researching the computational fluid dynamics predictions of aerosol deposition in pediatric airways. We also are developing models of pediatric airways (healthy and diseased) form CT data and assessing airflow and particle deposition within these geometries. Our research also includes simulations of mucus clearance in healthy and diseased pediatric airways, and the generation and delivery of nano-droplet saline aerosols to treat pediatric cystic fibrosis patients.

Current research support: NIH and NSF

*** Mentored students or junior faculty in the past. * Accepts 1st- or 2nd-year medical students during the summer. * Explores collaborations with current or potential new faculty.**

MOON, PETER C.

Department/division: General Practice

Email: pcmoon@vcu.edu

Research description:

We provide lab support for pediatric dentistry graduate students. Interests include esthetic crowns, pit and fissure sealants and talks on the effects of BPA (BisPhenol A) on child/adult health. We are

working on a collaborative grant application/research with the departments of Biomedical Engineering, Orthodontics, Biochemistry and Anatomy on cleft palate repair scaffolds.

Current research support: It has been through A.D. Williams multi-department grant, which generates research that produced a good NIH R21 score (but no funding) with the research data generated. We are planning an R01 application.

*** Mentored students or junior faculty in the past. * Accepts 1st- or 2nd-year medical students during the summer.**

NAJARIAN, KAYVAN

Department/division: Computer Science

Email: knajarian@vcu.edu

Lab website: www.egr.vcu.edu/cs/Najarian_Lab/index.html

Research description:

I design computer-assisted decision-making systems for traumatic injuries. These injuries include traumatic brain injuries that are very common among children. I also focus on hemorrhagic shock among children.

Current research support: NSF and DoD

*** Mentored students or junior faculty in the past. * Accepts 1st- or 2nd-year medical students during the summer. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

PIDCOE, PETER E.

Department/division: Department of Physical Therapy

Email: pepidcoe@vcu.edu

Research description:

Design and development of a “self-initiated prone progressive crawler” (SIPPC). The device facilitates crawling movements in infants (3 to 12 months old) with disabilities.

Current research support: Private foundation

*** Mentored students or junior faculty in the past. * Explores collaborations with current or potential new faculty.**

RUBIN, BRUCE K.

Department/division: Pediatrics

Email: brubin@vcu.edu

Research description:

Interests include the following topics:

[1] Mucus biophysical and transport properties in chronic lung disease. Assessment of mucus flow as a biomaterial, and studies of the role of inflammation in affecting mucus secretion and clearance. Evaluation of novel mucoactive therapies for lung disease.

[2] Airway inflammation and immunomodulation in chronic airways disease especially chronic bronchitis and cystic fibrosis.

[3] The science and application of pulmonary aerosol therapy including clinical studies of the device-patient interface.

[4] The pathogenesis and therapy of plastic bronchitis. Management of the International Registry. Development of cell and animal models of this disease.

[5] Modeling nasal mucus secretion and developing aerosol devices for the therapy of rhinitis and sinusitis.

[6] Understanding secretory hyper-responsiveness and its role in the pathogenesis of middle lobe syndrome, chronic atelectasis and severe asthma.

Current research support: Industry

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SEGAL, REBECCA A.

Department/division: Mathematical Sciences

Email: rasegal@vcu.edu

Research description:

In collaboration with Dr. P. Worth Longest in the Department of Mechanical Engineering, I am interested in developing one or more computation models of the nasal passages in children. I have completed similar work with adults, but there are few models that reproduce the nasal passages for children. There is little data concerning the differences in uptake patterns in children of different ages. Computational fluid dynamics models can be constructed from CT or MRI data and can be used to determine airflow patterns within the respiratory system. These models can then be used to compute gas uptake and particle deposition patterns. The work has applications to air pollution risk assessment as well as aiding in the development of nasally delivered pharmaceuticals. Longest has similar research expertise but has been working primarily with the mouth, throat and lungs. Together, we could combine efforts to construct models of the entire respiratory system.

Current research support: Jeffress Memorial Trust

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SPEICH, JOHN E.

Department/division: Mechanical Engineering

Email: jespeich@vcu.edu

Lab website: http://www.engineering.vcu.edu/fac/speich/website/

Research description:

My research area is smooth muscle biomechanics, and I collaborate with Dr. Paul Ratz from the Department of Pediatrics. Our work is focused on the characterization and modeling of the complex mechanical behavior of smooth muscle and the identification of the physiological mechanisms responsible for this behavior. We work with both bladder and artery tissues.

Current research support: New York Academy of Medicine Nuclear Regulatory Commission Corporation for National and Community Service

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THROCKMORTON, AMY L.

Department/division: Mechanical Engineering

Email: althrock@vcu.edu

Lab website: http://www.people.vcu.edu/~althrock/

Research description:

Interest includes the development of three therapeutic modalities for mechanical circulatory assistance of pediatric and adult patients with congenital heart disease, specifically those having a failing Fontan physiology.

Current research support: NSF, American Heart Association, Jeffress Memorial Trust, U.S. Department of Education (graduate student funding)

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II. BIOINFORMATICS/EPIDEMIOLOGY/STATISTICS

BUCKLEY, LENORE M.

Department/division: Internal Medicine

Email: lbuckley@vcu.edu; lbuckley@mcvh-vcu.edu

Research description:

We are developing a predictive model (using autoantibodies and demographic risk factors) for the development of renal disease in childhood lupus. The model will be tested in large populations and used to determine who should receive early immunosuppressive treatment. We are also looking at ways to improve disease understanding and compliance for children with lupus and their parents.

Current research support: none

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CARRETTA, HENRY J.

Department/division: Pedodontics

Email: hjcarret@vcu.edu

Research description:

Epidemiological surveillance of asthma. Quality of care measures for pediatric asthma using medical claims. Disparities in asthma care between publicly and privately insured populations. Disparities in child oral health care using insurance claims.

Current research support: CDC

CIOS, KRZYSZTOF J.

Department/division: Computer Science

Email: kcios@vcu.edu

Lab website: http://www.egr.vcu.edu/cs/dmb/index.html

Research description:

Interests include cystic fibrosis, neuroinformatics, genomics, proteomics, bioinformatics, systems biology and data mining.

Current research support: NIH

*** Mentored students or junior faculty in the past. * Mentors pediatric residents and fellows.**
*** Explores collaborations with current or potential new faculty.**

FERREIRA-GONZALEZ, ANDREA

Department/division: Pathology

Email: aferreira-gonzalez@mcvh-vcu.edu

Lab website: http://www.pathology.vcu.edu/clinical/moldx/index.html

Research description:

Molecular Diagnostics Laboratory provides services and support for a number of different researchers at VCU that are interested in genomic research. We have the capability to design and run different assays in many different platforms such as real time, allelic discrimination, sequencing, microarray expression, SNP, etc.

Current research support: unfunded

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HARLESS, DAVID W.

Department/division: Economics

Email: dwharles@vcu.edu

Research description:

I've worked on two projects related to child patients:

1. "Nurse Staffing and Adverse Events in Hospitalized Children," (with Barbara A. Mark and Wallace Berman). This project concerned evaluating how measures of quality of care for hospitalized children (In-hospital mortalities, post-operative cardiopulmonary complications, post-operative pneumonia, post-operative urinary tract infections, post-operative septicemia and other infections) were affected by the level of nurse staffing.

2. "The Impact of Enrollment Characteristics on Dental Utilization in Medicaid" (with Tegwyn Brickhouse). This project deals with utilization of pediatric dental services (any claim, preventative claims, restorative claims) in the Medicaid program are affected by enrollment continuity: interruptions in enrollment/eligibility and changes in payer type (managed care versus fee-for-service).

Current research support: Subcontract from Agency for Healthcare Research and Quality grant, Barbara Mark, program director, University of North Carolina, Chapel Hill

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KECMAN, VOJISLAV

Department/division: Computer Science

Email: vkecman@vcu.edu

Lab website: http://www.people.vcu.edu/~vkecman/

Research description:

Interests include data mining, machine learning and statistical data analysis as well as data analysis, prediction and pattern recognition of all patients. In 1993, I received the Fulbright Professorship at MIT, Cambridge, Mass.

Current research support: Arrived in U.S. in 2011 and have not yet received projects

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LAPANE, KATE L.

Department/division: Epidemiology and Community Health

Email: kllapane@vcu.edu

Research description:

Many of the issues with geriatrics (systematically excluded from clinical trials) are also true with pediatrics. I am working with Gary Francis to study pediatric obesity and Derek Chapman to study the relation between preterm birth and school readiness.

Current research support: AHRQ

*** Mentored students or junior faculty in the past. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

MCDANIEL, MICHAEL A.

Department/division: Management

Email: mamcdani@vcu.edu

Lab website: http://www.people.vcu.edu/~mamcdani/CV_and_Research_Publications.htm

Research description:

I am a meta-analysis (systematic review) methods person. I teach meta-analysis in VCU's CARMA methods series each May.

Current research support: unfunded

*** Mentored students or junior faculty in the past. * Explores collaborations with current or potential new faculty.**

III. CLINICAL

ADLER, STUART P.

Department/division: Pediatrics/Infectious Diseases

Email: sadler@vcu.edu

Research description:

Our research involves all aspects of Cytomegalovirus as it relates to pregnancy and/or infection of the newborn. This includes basic science, vaccine development and clinical trials, natural history and pathogenesis, and epidemiology.

Current research support: NIH, March of Dimes, International AIDS Vaccine Initiative, CMV Foundation and industry.

*** Mentored students or junior faculty in the past * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

BACHMANN, LORIN M.

Department/division: Pathology

Email: lbachmann@mcvh-vcu.edu

Lab website: http://www.pathology.vcu.edu/clinical/index.html

Research description:

The VCU Health System's Clinical Laboratories offer a wide variety of laboratory services, including a new LC-MS/MS platform capable of analyzing testosterone and low levels of steroid hormones and vitamins found in children. We have recently launched a new service intended to provide specimen processing, laboratory testing and consultation services for VCU investigators. We are well equipped to handle, process and test standard research samples such as blood, urine and body fluids.

Current research support: unfunded

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BRICKHOUSE, TEGWYN H.

Department/division: Pedodontics

Email: thbrickhouse@vcu.edu

Lab website: http://www.dentistry.vcu.edu/pedsdent/research/Default.aspx

Research description:

Interests include population-based studies on oral health disparities in publicly insured children, oral health literacy of pregnant mothers, risk factors for early childhood caries and preventive dental services.

Current research support: A.D. Williams Grant, NIH/NIDCR, VCU Institute of Women's Health CBPR Pilot Grant, Industry-Dentsply

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DOWNS, ROBERT W.

Department/division: Internal Medicine

Email: rdowns@mcvh-vcu.edu

Research description:

Interests include metabolic bone disease, osteoporosis, bone health, vitamin D and bone densitometry. Currently, our research does not involve pediatric subjects, but we are open to the possibility. Current projects are clinical.

Current research support: NIH

*** Mentored students or junior faculty in the past. * Explores collaborations with current or potential new faculty.**

DUSING, STACEY C.

Department/division: Physical Therapy

Email: scdusing@vcu.edu

Lab website: http://www.vcu.edu/pt/research/research_motor.html

Research description:

I am a member of the Department of Physical Therapy as well as a faculty member of the VA-Leadership Education in Neurodevelopment Disabilities (LEND) program. I am also the director of the Motor Development Lab. My primary research interests include the impact of prematurity on motor control and coordination, parent education in the NICU and physical therapy interventions for infants. I am in the process of completing a K12 funded project as part of the Comprehensive Opportunities in Rehabilitation Research Training, (CORRT) program. My current projects focus on the development of postural control, head control and reaching in full-term and preterm infants in the first year of life. I work with a national consortium of researchers investigating interventions to advance sitting, reaching, cognition and school readiness in infants and children with motor impairments.

Current research support: American Physical Therapy Association, Section on Pediatrics, Planning Grant; NIH/NCMRR/NICHD/NINDS; MCHB; CReFF; VCU General Clinical Research Center; one study under review by the Department of Education

*** Accepts 1st- or 2nd-year medical students during the summer. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

FISHER, ROBERT A.

Department/division: Surgery

Email: rafisher@vcu.edu

Lab website: http://www.vcuhealth.org/?id=401&sid=1

Research description:

SPLIT - Studies of Pediatric Liver Transplantation is a research effort that was organized in 1995 by a group of physicians and surgeons committed to the success of pediatric liver transplantation. The group represents a cooperative effort between transplant centers in the U.S. and Canada to prospectively collect and analyze information required to advance the science of pediatric liver transplantation. LTCDS is a liver and cell tissue repository from several centers across the country. The tissue bank contains portions of tissue gathered from transplant surgeries and other surgical

procedures. The transplant registry is a database registry containing information from transplanted individuals at VCU.

Current research support: NIH/NIDDK

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FRANCIS, GARY L.

Department/division: Pediatrics

Email: glfrancis@vcu.edu

Research description:

Interests include the following:

1. Trialnet Diabetes prevention involves screening children and adult first degree relatives of T1DM for antibody and then enrolling those participants with antibody into oral insulin or placebo.

2. Type 1 Diabetes Genetics Consortium looks for genes in African-American and Hispanic type 1 subjects.

3. Investigate GAD vaccine for new onset type 1 diabetes to reverse disease process.

4. Pending with Macrogenics, a study to use Anti-CD3 in new onset type 1 diabetes to reverse disease process.

5. Pending with Bayer, a study to use alpha-1-antiprotease in type 1 diabetes to reverse disease process.

6. I serve as the co-investigator on a study focusing on the impact of psychology services on diabetes outcome.

7. I serve as the co-investigator on a study focusing on thyroid ultrasound abnormalities in children.

8. I serve as the principal investigator for the T.E.E.N.S. Program on overcoming barriers to effective weight loss in children.

Current research support: T.E.E.N.S. - Virginia Premier, Trial Net and T1DM Consortium from NIH and GAD vaccine, antiCD3 and alpha1-antiprotease from industry

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KENNEDY, MARY J.

Department/division: Pharmacy

Email: mjkennedy@vcu.edu

Research description:

Interests include projects related to pediatric clinical pharmacology/developmental pharmacology:

1. Urinary Proteomics in Aminoglycoside-Treated Newborns: The major goal of this project is to characterize the urinary protein expression pattern in aminoglycoside-treated newborns with and without biochemical evidence of nephrotoxicity.

2. Evaluation of genetic biomarkers of aminoglycoside-induced kidney injury in newborn infants: The major goal of this project is to identify potential genetic markers of susceptibility to kidney injury in infants treated with aminoglycoside antibiotics.

Current research support: NIH (R21 grant); internal grants

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KOCH, WILLIAM C.

Department/division: Pediatrics

Email: wkoch@mcvh-vcu.edu

Research description:

Currently my research activity involves phase II and III clinical trials of antimicrobial agents and vaccines in pediatric patients. There are two open projects at present:

1. Phase III Study to Evaluate the Safety and Efficacy of Tigecycline v. Clindamycin for Treatment of Complicated Skin and Skin Structure Infections, including MRSA, in Subjects Ages 8-17 Years Old

2. Phase III Study to Evaluate the Safety of Tigecycline v. a Ceftriaxone Regimen in the Treatment of Complicated Intra-abdominal Infections and Community-acquired Pneumonia in Subjects 8-17 Years Old.

In past years I had an NIH sponsored program of research involving the transmission and epidemiology of parvovirus B19 but this project is no longer active.

Current research support: The clinical trials are industry sponsored with funding for patient recruitment and research materials; no investigator funding.

*** Mentored students or junior faculty in the past. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

LINDAUER, STEVEN J.

Department/division: Orthodontics

Email: sjlindau@vcu.edu

Research description:

Interests include clinical orthodontics research, mostly clinical outcomes, treatment and craniofacial growth measures. We also have a population of patients in treatment and post-treatment with cleft lip/palate/craniofacial anomalies. We currently submitted a proposal to study the development of white spot lesions in adolescents during orthodontic treatment.

Current research support: NIH

*** Mentored students or junior faculty in the past. * Explores collaborations with current or potential new faculty.**

MARSHALL, BETH C.

Department/division: Pediatrics

Email: bmarshall@mcvh-vcu.edu

Research description:

We examine reinfection with CMV in young children. The significance of this study is that understanding reinfection in these young children will determine the feasibility of immunizing children less than two years of age against CMV infections, as this group will ultimately be the group targeted by a successful universal immunization program. Hypothesis: In spite of understood diminished

immune responses of children less than two years of age to CMV antigens, these children are protected against reinfection when compared to children who have never been infected with CMV. Specific aims: To test our study hypothesis, we will perform a case-controlled study comparing the rate of CMV reinfections in infants less than 12 months in age (infants shedding CMV at enrollment) to infants of the same (matched) age who are not infected with CMV at enrollment. Methods: Subjects are being enrolled through our network of daycare centers in Central and Tidewater Virginia. As this will be a case-controlled study, we will enroll children shedding CMV as the cases who will be matched to enrolled children not shedding CMV.

Current research support: NIH/NIAID

*** Mentored students or junior faculty in the past. * Explores collaborations with current or potential new faculty.**

NESTLER, JOHN E.

Department/division: Internal Medicine

Email: jnestler@mcvh-vcu.edu

Lab website: http://www.vcu.edu/pcos

Research description:

I study insulin resistance, especially as it relates to polycystic ovary syndrome (PCOS). There is an increasing incidence of PCOS in adolescent girls, and there is great potential in this area for research and grant applications, since relatively few investigators have focused on adolescent PCOS. One of my trainees is Dr. Edmond “Trey” Wickham, who is double boarded in internal medicine and pediatrics. He is an assistant professor in my division (Endocrinology) and directs the T.E.E.N.S. Program.

Current research support: R01; K24; U54 (SCCPRIR grant); D43 (Fogarty grant)

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SCHMIDT, HOWARD J.

Department/division: Pediatrics

Email: hschmidt@mcvh-vcu.edu

Research description:

Studies in cystic fibrosis include collaborations with industry and other universities. University collaborations include with University of North Carolina in genetic markers of CF liver disease, with The Johns Hopkins University in genetic markers of disease severity in twins and siblings, and with University of Miami in depression incidence in CF patients and caregivers. Industry sponsored studies in CF include Phase II and III clinical trials of denufosol, mannitol, aztreonam, Ultrase and VX770.

Current research support: Industry sponsors, collaborations with other universities and a Therapeutics Development Network grant from the CF Foundation.

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VANMETER, TIMOTHY E.

Department/division: Surgery/Neurosurgery

Email: tvanmeter@mcvh-vcu.edu

Lab website: http://www.neurosurgery.vcu.edu/services/pediatric/tumorresearch.html

Research description:

VCU Pediatric Neuro-Oncology Research Program investigators include Timothy Van Meter, Ph.D. (lead scientist), Gary Tye, M.D., and Asadhullah Khan, M.D. Ongoing projects include the following:

1. Translational research in pediatric brain tumors: Continue to investigate/publish subsequent papers supporting preclinical agents in pediatric brain tumor models, in vivo. (AKT, NOS/Inflammation and Notch pathways-Collaborators in Radiation Oncology, Complegen, Inc., CellDex Therapeutics, Keryx). This area is one of the major foci of the program, reflective of its ultimate mission. Clinical trial goals (near future): Participate in Phase II/III clinical trials/grants for perifosine in collaboration with Sloan Kettering Cancer Center as lead institution.

2. Novel Angiogenesis and epigenetic regulators in ependymoma: Genomics, epigenetics. Private foundation grant support received and major NIH support pending-epigenomics (subsequent well-scored but unfunded RO1-in revision). Funded goals: Develop epigenetic transgenic models for ependymoma, epigenomic comparison of pediatric ependymoma with age-matched progenitor rich areas of pediatric postnatal human brain samples-Neurosurgical Cell and Tissue Banking Facility, IRB 3031.

3. Radiation-Oncology Program Project Group: Inflammation in normal tissues (lung, brain) and cancer-lung, HNSCC and Glioma (PO1 pending, normal and cancer response to radiotherapy).

4. Consortium-Pediatric Brain Tumor Genomics: Primary tissue, xenograft genomics. International network/research consortium, collaborative funding pending from private BT Foundations.

5. Biomarkers in high-grade glioma: Follow-up mechanistic studies on prognostic significance of novel identified biomarkers (R21 pending revision).

Current research support: Presently through private foundation grants, to a small extent through NIH grants (Co-PI), and pending for two of the projects, in revision for a third. This program is in development, but making significant headway, and could benefit from the right collaborators and/or mentees.

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WICKHAM, EDMOND

Department/division: Department of Internal Medicine/Division of Endocrinology and Metabolism

Email: ewickham@mcvh-vcu.edu

Lab website: http://www.vcu.edu/teens/index.html, http://www.vcu.edu/pcos/research.htm

Research description:

I am a clinical researcher in adult/pediatric endocrinology at VCU and my research areas directly relate to child health:

T.E.E.N.S. (Teaching, Encouragement, Exercise, Nutrition, Support) Healthy Weight Management Program, VCU Department of Pediatrics. Role: Co-principal investigator. Ongoing lifestyle modification research intervention for overweight and obese adolescents ages 11 to 18 years and their families. More than 500 subjects have enrolled in the program to date.

Adiponectin and Endothelial Dysfunction in Adolescents. (K23HD053742) Role: Principal investigator. Dates: 7/10/09-6/30/14. To determine the role of alterations in multimers of the adipocytokine, adiponectin, in the development of early vascular injury in obese adolescents (ages 11 to 18 years).

Insulin and the Polycystic Ovary Syndrome. (R01HD35629) Role: Co-investigator. Dates: 7/01/97-2/28/12. To investigate mechanisms on insulin resistance in women with the polycystic ovary syndrome.

Current research support: The T.E.E.N.S. Program is supported by an annual renewable grant from Virginia Premier, Inc.; the VCU Department of Pediatrics; the VCU School of Education,

Department of Health and Human Performance; and the VCU Center for Clinical and Translational Research. The K23 and R01 grants are funded by the NIH/NICHD.

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ZHANG, XUEJIE

Department/division: Pharmacy

Email: xzhang3@vcu.edu

Lab website: http://www.pharmacy.vcu.edu/pharmacy/facdetail.aspx?id=839

Research description:

Currently, I am funded in part by a NIH R01, in collaboration with a state university in Michigan, to lead a component of cost-effectiveness analysis on treatment to address the disparities in asthma in children. I also am in development of a new NIH R01, in collaboration with a different group of researchers in the aforementioned state university in Michigan, as a co-investigator, to assess the cost-effectiveness of alternative treatment modality to asthma in the population of children. Additionally, I am in development of a grant proposal, examining the off-label drug use in pediatric population, to be funded by a big pharmaceutical company.

Current research support: NIH

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IV. MOLECULAR BIOLOGY/BIOCHEMISTRY/GENETICS

ABUBAKER, A. OMAR

Department/division: Oral and Maxillofacial Surgery

Email: abubaker@vcu.edu

Research description:

I have no active research at this time but am interested in collaborating in some research activities that involve the growth of children and specifically, the growth of the facial skeleton and jaws.

Current research support: none

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ELSEA, SARAH H.

Department/division: Pediatrics

Email: selsea@vcu.edu

Research description:

We are currently working on several interrelated projects involving Smith-Magenis syndrome (SMS), brachydactyly mental retardation syndrome and other phenotypically similar genomic disorders we have recently characterized that include associations with autism, ADHD, schizophrenia and bipolar disorder that include gene and pathway identification. Overlapping projects include animal models (mouse and zebrafish) of SMS and Potocki-Lupski syndrome (PTLS) where we are studying sleep, behavior and obesity and the investigation of therapeutic treatments to increase expression of the *BDNF* gene to ameliorate behavioral issues related to food intake and cognition. We are also working with the T.E.E.N.S. Program to investigate variants in the *RAI1* gene as a cause of childhood onset obesity. New collaborative projects with Dr. Gary Francis involve genetic associations with gestational diabetes and Type 1 diabetes mellitus.

Current research support: Jerome Lejeune Foundation, NIH

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FINE, MICHAEL L.

Department/division: Biology

Email: mfine@vcu.edu

Lab website: http://www.has.vcu.edu/bio/people/bios/fine.html

Research description:

Have done neurodevelopment work on sound-producing systems in fishes.

Current research support: unfunded

*** Mentored students or junior faculty in the past. * Accepts 1st- or 2nd-year medical students during the summer. * Explores collaborations with current or potential new faculty.**

FOX, MICHAEL A.

Department/division: Anatomy

Email: mafox@vcu.edu

Research description:

We study the developmental of the mammalian nervous system and emphasize axonal targeting and synapse formation. Many neurological disorders (i.e., autism, epilepsy, mental retardation) result from errors in these two developmental processes.

Current research support: A.D. Williams Grant

*** Mentored students or junior faculty in the past. * Accepts 1st- or 2nd-year medical students during the summer. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

GERK, PHILIP

Department/division: Pharmaceutics

Email: pmgerk@vcu.edu

Lab website: www.pharmacy.vcu.edu/pharmaceutics/facdetail.aspx?id=45

Research description:

My research is focused on the role of ATP-binding cassette (ABC) transporters in the transplacental passage of drugs, endobiotics and xenobiotics.

Current research support: Jeffress Trust, NIH (P60 pilot project; PI: Jerry Strauss)

*** Mentored students or junior faculty in the past. * Accepts 1st- or 2nd-year medical students during the summer. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

GRIDER, JOHN R.

Department/division: Physiology and Biophysics

Email: jgrider@vcu.edu

Research description:

We are studying the enteric nervous system with regard to the mechanism of sensation of intraluminal contents (gut "taste") and how luminal signals initiate peristalsis. We are also studying the role of the neurotrophins, especially BDNF and GDNF, in regulating the growth and phenotypic plasticity on the enteric nervous system. The latter project has involved question as to how the enteric nerves re-innervate gut muscle and mucosa after inflammation and how this relates to innervation during embryonic development. Also, the latter project would seem directly related to child health and is a collaborative with members of the pediatrics department at Washington University, St. Louis. Finally, although the project is in the conceptual stage, we are interested in looking at changes in neuromuscular aspects of gut function in Autism as there seems to be good evidence for an increased incidence of gut-related dysfunction.

Current research support: NIDDKD

*** Mentored students or junior faculty in the past. * Accepts 1st- or 2nd-year medical students during the summer. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

HAUSER, KURT F.

Department/division: Pharmacology and Toxicology

Email: kfhauser@vcu.edu

Lab website: www.vcu.edu/pharmtox/faculty/faculty_bios/hauser.htm

Research description:

We have had long-standing past interests in the mechanisms by which drug abuse causes lasting changes in CNS organization and function. During development, as well as in the mature brain, we have found that drug abuse can disrupt the production and organization of neurons and glia. During the past eight years, we've focused more drug-induced modulation of human immunodeficiency virus type 1 (HIV-1) CNS pathogenesis but plan to increasingly return to developmental plasticity studies. Development: NIH, R01 DA06204, The role of abused opiate drugs in neural development (1990-2000) KY Tobacco Res. Institute "Effects of Nicotine on Neurogenesis and Apoptosis" (19982-002; $120K per year); multiple grants on opioid-HIV CNS comorbidity.

Current research support: NIH

*** Mentored students or junior faculty in the past. * Accepts 1st- or 2nd-year medical students during the summer. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

JACKSON-COOK, COLLEEN K.

Department/division: Pathology

Email: ccook@mcvh-vcu.edu

Lab website: www.pathology.vcu.edu/faculty.html - J

Research description:

I have three primary studies that are related to child health:

1. Studies of the phenotypic variation and causes of mosaicism for trisomy 21.

2. Studies of the long-term changes to DNA (micronuclei frequencies; telomere shortening; and/or methylation changes) that arise from childhood adversity (sexual abuse; physical abuse, etc.).

3. Studies to determine the baseline frequency of acquired chromosomal abnormalities in children and adults.

Current research support: NIH

*** Mentored students or junior faculty in the past. * Accepts 1st- or 2nd-year medical students during the summer. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

JACOBS, KIMBERLE M.

Department/division: Anatomy

Email: kmjacobs@vcu.edu

Lab website: http://www.people.vcu.edu/~kmjacobs/Res.htm

Research description:

The focus of my lab is on understanding the neuronal mechanisms that contribute to seizures, hyperexcitability, dyslexia and cognitive decline in children with developmental cortical

malformations. We employ techniques of whole cell patch clamp, field potential recordings, EEG recordings, immunohistochemical and neuroanatomical staining to study rodent and ferret models of polymigrogyria. Our work has led to a number of clinically relevant findings, including that the interictal activity may begin adjacent rather than within the malformation. We have recently identified a receptor that may be a useful target for anti-epileptogenic medications. Below is my grant abstract:

Malformed cortex produces a spectrum of neurological deficits, from dyslexia and mild retardation to cerebral palsy, with epileptic seizures comorbid throughout this range. Epilepsies associated with developmental malformations are among the most difficult forms to treat with currently available anti-epileptic medications. Animal models specific to these types of epilepsies have been useful in identifying circuit abnormalities that contribute to hyperexcitability, including enhanced excitatory afferent input. Possible alterations in cortical inhibitory systems have been more controversial. Despite the presence of the altered excitatory circuits early in development, onset of epileptiform activity is delayed and does not occur in every case. This suggests that additional mechanisms are required for expression of the hyperexcitability. We hypothesize that differential changes in selective interneuron subgroups would potently enhance the expression of increased excitatory input. Specifically, we hypothesize that fast-spiking cells (FS) that normally prevent horizontal spread of excitatory activity are reduced in effectiveness, while low threshold-spiking cells (LTS) that effect vertical inhibition are enhanced in malformed cortex. The enhancement of vertical inhibition could produce hypersynchrony within a cortical column, thereby coordinating local excitatory activity and increasing the probability of spread. The reduction in FS cell effectiveness would further potentiate the spread of excitatory activity. The overall goal of these studies is to examine the role of inhibitory interneuron subtypes in normal and malformed, epileptogenic cortex. We propose the following three specific aims:

- Aim 1: To determine whether the synaptic input to FS and LTS cells is altered in the epileptogenic zone associated with cortical malformation.
- Aim 2: To isolate vertical (columnar) and horizontal cortical inhibitory output systems to determine if they are differentially affected in malformed cortex.
- Aim 3: To determine if there is a change in proportion or identity of interneuron subtypes in malformed cortex.

We expect that these experiments will identify a new target for development of novel anti-epileptogenic treatments.

Current research support: NIH 5R01NS054210

*** Mentored students or junior faculty in the past. * Accepts 1st- or 2nd-year medical students during the summer. * Mentors pediatric residents and fellows.**

KNAPP, PAMELA

Department/division: Anatomy

Email: peknapp@vcu.edu

Research description:

My laboratory has historically had strong interests in brain development, with our main interest being in glial cell development and glial-neuronal interactions including myelination. This area of research had led us to study several disease processes relating to glial cell development, including pediatric HIV (and co-morbidity with drug abuse) and leukodystrophies.

1. R01 DA024461: Heroin abuse increases the risk of HIV infection and may exacerbate HIV encephalitis (HIVE). Since a large percentage of newly infected HIV patients abuse opiates, this enhancement of disease process has serious medical and social consequences. Little is known about cellular mechanisms by which opiates accelerate and enhance the CNS neuropathology associated with HIV infection, and synergism may be multifactorial. Recent evidence from our labs and others suggests that precursors of CNS cells can be targets of HIV-mediated toxicity. Our central hypothesis is that HIV proteins and/or HIV can target glial precursors in the CNS, and that opiates act synergistically to enhance the toxic effects of HIV. Even modest toxicity toward this population would, over time, alter the balance of glial cells and glial-neuronal relationships in the mature CNS. The net consequences would depend upon the differential sensitivity of glial precursors at each stage of maturation, and likely would be influences by the onset and duration of disease, and timing of therapeutic regimens. Based on initial data showing that glial precursors and their progeny have different responses to Tat and morphine exposure, we propose aims that test if HIV viral proteins or HIV in combination with opiates alter production and/or survival of progenitors in vivo, thereby altering CNS mature glial populations (Aims 1 & 2). We also use in vitro approaches in isolated cells and more complex systems to assess intracellular pathways activated by viral toxins and opiates in glial progenitors (Aim 3). Aims 1 and 2 utilize three in vivo mouse models. The first is an inducible transgenic mouse expressing HIV-1 Tat in astroglia. The second is a gp120 i.c.v. injection model. The third is a SCID mouse injected with HIV-infected human monocytes. These aims assess glial progenitors in mature and neonatal mice, to understand the effects of HIV exposure on progenitors and glial populations in adult v. pediatric situations. Human HIV tissue is also studied. Aim 3 uses pharmacologic and molecular strategies to explore disruptions in intracellular signaling in murine and human cells in vitro. Studies assess lethal and sub-lethal effects, and include pharmacological and genetic approaches to show that opiate-HIV synergism is mediated through mu-opioid receptors. In summary, there are compelling reasons to explore HIV-opiate synergy. Our comprehensive approach will provide accurate data about the susceptibility of glial precursors to HIV and opiate exposure in vivo, and may have particular relevance to pediatric HIV patients.

Current research support: NIH; European Leukodystrophy Foundation

*** Mentored students or junior faculty in the past. * Accepts 1st- or 2nd-year medical students during the summer. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

LISTER, JAMES A.

Department/division: Genetics

Email: jalister@vcu.edu

Lab website: http://www.gen.vcu.edu/faculty/faculty/lister.html

Research description:

My lab studies the zebrafish as a model organism for developmental genetics and human genetic disease. My primary interest is in neural crest development and particularly pigment cells, focusing on the function of the transcription factor MITF, mutations which are associated with Waardenburg syndrome type IIA. I am also interested in the role that this gene plays during eye development. In addition to these studies, I am collaborating with other investigators at VCU to establish zebrafish models of two human disorders, Treacher-Collins syndrome (with Rita Shiang, Ph.D.) and Smith-Magenis syndrome (with Sarah Elsea, Ph.D.).

Current research support: A portion of my research program is funded by NIH/NICHD, and a portion is funded by the Concern Foundation for Cancer Research.

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MANJILI, MASOUD

Department/division: Microbiology and Immunology

Email: mmanjili@vcu.edu

Lab website: http://www.vcu.edu/micro/manjili.htm

Research description:

Title: To identify signatures of immune function genes differentially expressed in children with low risk neuroblastoma v. those with high-risk neuroblastoma, and evaluate their prognostic value (Drs. Godder, Gowda, Manjili). In this study, we seek to detect signatures of innate immune function genes v. adaptive immune function genes using microarray analysis of the tumor lesions. Serum

cytokines/chemokines will also be used as a marker of gene activity. Identification of these biomarkers of prognosis would enable physicians with better decision-making tools for the treatment of children with neuroblastoma. These signatures would also improve our understanding of the role of immune system in promoting or regressing the tumors, and therefore, offer novel immunotherapeutic approaches for the induction of protective immunity against neuroblastoma.

Current research support: Maynard Foundation and Massey/Pediatrics Cancer Research Fund

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MAYER, DARLY C.

Department/division: Biology

Email: gmayer@vcu.edu

Lab website: http://www.has.vcu.edu/bio/pages/gmayer/research.html

Research description:

My research focuses on the molecular mechanisms of malaria pathogenesis, a disease that affects mostly children in third-world countries.

Current research support: Jeffress Foundation

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MCVOY, MICHAEL A.

Department/division: Pediatrics/Infectious Diseases

Email: mmcvoy@vcu.edu

Lab website: www.people.vcu.edu/~mmcvoy/cmvcafe.htm

Research description:

Human cytomegalovirus (CMV) is a common cause of intrauterine infection affecting 0.5-3 percent of all newborns worldwide. Every year, just in the U.S., an estimated 8,000 babies develop severe complications of congenital CMV infection. Most infants with CMV disease survive; however, 80 to

90 percent develop subsequent complications including hearing loss, vision impairment and varying degrees of mental retardation. Another 6 to 23 percent of infants born infected but asymptomatic at birth will develop sensorineural hearing loss and mental or coordination problems that are often progressive. Overall, congenital CMV infections account for one-fourth of all cases of sensorineural hearing loss in the U.S. Currently there is no vaccine for preventing CMV infections, and no safe and effective drugs for treating infants in utero. Our lab is approaching this problem through two avenues: first, understanding the basic mechanisms of herpesvirus genome replication and maturation, with an aim toward development of novel antiviral drugs; and second, exploring novel approaches to vaccine design.

1. DNA Maturation as a Target for Development of Novel Herpesvirus Antivirals. The goals of this project are to express and purify recombinant CMV terminase proteins, evaluate their biochemical activities in vitro, and assess the impact of mutations targeting critical amino acids both on terminase activities in vitro and virus replication.

2. Human CMV alkaline nuclease (pUL98): potential antiviral target? The goals of this project are to investigate the potential of the viral alkaline nuclease (pUL98) as a target for the development of novel antivirals by evaluating the impact on viral replication of genetically inactivating the enzymatic activities of alkaline nuclease.

3. Ability of CMV Vaccines to Induce Antibodies that Block Endocytic Entry. The goals of this project are to evaluate the ability of vaccines to induce antibodies that neutralize entry of human CMV into endothelial and epithelial cells and to clone the Towne-long vaccine strain as an infectious BAC and characterize both the genetics and mechanistics of its endothelial and epithelial tropism.

4. Guinea pig CMV as a model for vaccines that target endocytic entry. The goal of this project is to determine if entry of guinea pig cytomegalovirus into endothelial or epithelial cells utilizes an alternative entry mechanism similar to that of human CMV.

5. Viral immunomodulation and rational CMV vaccine design. The goals of this project are to evaluate the impact of viral immune evasion genes on vaccine efficacy in the context of a live attenuated CMV vaccine using the guinea pig CMV) model.

Current research support: NIH

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MEDINA DE JESUS, ALEXANDRE

Department/division: Anatomy

Email: amedina@vcu.edu

Research description:

I am interested on how external insults (such as alcohol and some medications) can affect the developing brain (third trimester exposure). Importantly, I try to identify ways to improve neuronal plasticity after the insult period (as juveniles) in order to ameliorate the neurological deficits observed. We use multiple animal models (ferrets, rats and mice). To test our hypothesis, we use multiple techniques such as viral-mediated gene transfer, ex vivo gene delivery, in vivo optical imaging of intrinsic signals (Similar to a FMRI), in vivo extracellular electrophysiology, monotypic cell cultures, confocal laser microscopy and multiple biochemical and molecular assays.

Current research support: NIH/NIAAA Thrasher Research Fund

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OH, YOUNGMAN

Department/division: Pathology

Email: yoh@vcu.edu

Lab website: http://www.pathology.vcu.edu/research/oncogenomics/index.html

Research description:

My major research focuses on GH-IGF-IGFBPs in human disease such as asthma, metabolic syndrome, cancer and growth.

Current research support: Department of Defense

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RAO, RAJ R.

Department/division: **C**hemical Engineering

Email: rrrao@vcu.edu

Lab website: http://www.engineering.vcu.edu/rao-lab

Research description:

Human pluripotent stem cells (hPSC) that include human embryonic stem cells (hESC) and human induced pluripotent stem cells (hiPSC) possess dual properties of limitless self-renewal and potential differentiation into multilineage tissue types. These cells have garnered a lot of attention in the public eye, primarily because of their potential uses in (a) cell-based therapies (b) drug development and (c) research tools for basic biology. Stem-cell bioengineering primarily involves integration between basic biology and engineering design principles. A particular challenge for the bioengineering field involves the development of appropriate microenvironments for efficient survival, self-renewal and uniform differentiation of hESC. Ongoing research projects in the Stem Cell Bioengineering Laboratory (http://www.engineering.vcu.edu/rao-lab) include (1) propagation systems for generation of chromosomally stable hPSCs, (2) systems biology approaches to quantify and characterize pluripotency, genomic stability and early differentiation, (3) biomaterial-based approaches to engineer microenvironments to determine stem cell fate and (4) development of disease-specific stem cells for neurodegenerative disorders. Our lab utilizes interdisciplinary bioengineering approaches toward a mechanistic understanding of stem cell self-renewal, genomic integrity and use of biochemical/biophysical cues to commitment to specialized cell types.

Current research support: National Science Foundation

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RATZ, PAUL H.

Department/division: Biochemistry

Email: phratz@vcu.edu

Lab website: http://www.vcu.edu/biochem/faculty/ratz.shtml

Research description:

1) Regulation of vascular smooth muscle contraction as it relates to hypercontractile disorders, particularly hypertension and vasospasm (NIH funded). 2) Regulation of bladder smooth muscle contraction as it relates to overactive bladder disorder (previously NIH funded; new grant application to be submitted soon).

Current research support: NIH (R01)

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RICE, ANN C.

Department/division: Neurology

Email: acrice@vcu.edu

Research description:

Excessive neonatal hyperbilirubinemia can result in devastating neurological dysfunction of the auditory pathway resulting in auditory processing abnormalities and the basal ganglia resulting in cerebral palsy-like movement disorders. Our lab is trying to understand the mechanism of how bilirubin damages specific regions of the developing brain.

Current research support: none

*** Mentored students or junior faculty in the past. * Accepts 1st- or 2nd-year medical students during the summer. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

ROZYCKI, HENRY J.

Department/division: Pediatrics

Email: hrozycki@mcvh-vcu.edu

Research description:

1. Role of NF-kB in premature hyperoxic lung injury. Using a mutant dominant negative IkBa gene attached to a surfactant protein promoter, I am investigating pulmonary oxygen toxicity in premature mice.

2. Endogenous ligands and BPD-inflammation is an early phase in the development of chronic lung injury in premature infants. The TLR receptor pathway(s) are prominently involved in this inflammatory response. TLRs respond to exogenous pathogenic molecules and also to endogenous ligands that are often released due to tissue injury. We will measure two of these ligands, low molecular weight hyaluronan and HMBG1 in lung aspirates of intubated preterm infants and compare levels in those who do and do not get BPD.

3. Necrotizing enterocolitis is a major problem in premature neonates. The causes are multifactorial but inflammation is a prominent feature. To investigate the role of TLR receptors in NEC, especially TLR 4, we will pharmacologically block TLR4 activation in a newborn mouse model of necrotizing enterocolitis.

4. The microprocessors in mechanical ventilation provide a great deal of information but it is not always clear how accurate or relevant the information may be. Flow sensors on ventilators record

tidal volumes. In newborns, with uncuffed tubes, this recording may be inaccurate. Furthermore, different ventilators record tidal volumes at different parts of the circuit. We will analyze tidal volume and minute ventilation measurements against blood pCO2 in two different ventilators to assess its clinical utility of these measures.

Current research support: unfunded

*** Mentored students or junior faculty in the past. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

SCHWARTZ, LAWRENCE B.

Department/division: Internal Medicine

Email: lbschwar@vcu.edu

Research description:

We study the development, function and molecular biology of mast cells. These cells are involved in disorders such as asthma, urticaria, anaphylaxis and mastocytosis.

Current research support: NIH

*** Mentored students or junior faculty in the past. * Accepts 1st- or 2nd-year medical students during the summer. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

SHALL, MARY S.

Department/division: Physical Therapy

Email: msshall@vcu.edu

Lab website: http://www.vcu.edu/pt/whoweare/snydershall.html

Research description:

I have researched vestibular function (particularly the saccule) using the VEMP and motor development among children with hearing impairments. I have studied 4- to 6-year-olds and want to extend that to 6-month-olds. In animal models I have studied the effect of artificial feeding on tongue muscle fiber development and influences of other pharmacological and surgical manipulation on muscle fibers.

Current research support: DOD

*** Mentored students or junior faculty in the past. * Accepts 1st- or 2nd-year medical students during the summer. * Explores collaborations with current or potential new faculty.**

TOMBES, ROBERT M.

Department/division: Biology

Email: rtombes@vcu.edu

Lab website: http://www.people.vcu.edu/~rmtombes

Research description:

We study Wnt/Ca pathways in early development of zebrafish embryos. We are currently using immunolocalization, mass spectrometry, tissue-specific expression, microinjections to understand the role of these pathways in development of the circulatory, digestive and sensory systems.

Current research support: NSF, NIH, others

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WILLIAMS, DAVID C.

Department/division: Pathology

Email: dcwilljr@gmail.com

Research description:

Structural analysis and targeting of a methyl cytosine binding regulatory complex: MBD2-NuRD. We are studying the molecular details of a protein complex that binds to methylated DNA and silences expression of embryonic/fetal globins. We have recently developed a small peptide that disrupts the function of this complex and augments fetal/embryonic globin expression. The ultimate goal is to develop such inhibitors as potential therapeutic agents for the treatment of beta globinopathies (i.e., sickle cell anemia and beta thalassemias) as well as leukemia. Hence this work has translational potential for the treatment of childhood disease.

Current research support: American Society of Hematology Junior Faculty Scholar Award

*** Mentored students or junior faculty in the past. * Accepts 1st- or 2nd-year year medical students during the summer. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

WINDLE, JOLENE J.

Department/division: Genetics

Email: jjwindle@vcu.edu

Research description:

My research involves generating and studying genetically modified mouse models of disease, in particular, cancer and Paget's disease of bone. My research doesn't directly relate to child health. However, I direct the VCU Transgenic/Knockout Mouse Core, which could be a resource that could be used for studies related to child health.

Current research support: NIH NIAMS

*** Mentored students or junior faculty in the past. * Explores collaborations with current or potential new faculty.**

WYNNE, KENNETH J.

Department/division: Chemical Engineering

Email: kjwynne@vcu.edu

Lab website: http://www.engineering.vcu.edu/wynne-la

Research description:

Interests include the development of antimicrobial coatings and non-cytotoxic, soluble antimicrobials. Separately, these new water soluble antimicrobials have been shown to be antiprotozoal. This research is not specific to children.

Current research support: NSF

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V. PSYCHIATRY/BEHAVIOR

ACCARDO, PASQUALE

Department/division: Pediatrics

Email: paccardo@mcvh-vcu.edu

Research description:

We just completed a project on persistent toe walking and autism, and have just submitted case reports on a benign roalndic epilepsy study. We are currently in the process of developing a project on the development of screening protocol for ADHD in clinical setting.

Current research support: CDC; HRSA; Association of University Centers on Disability

*** Mentored students or junior faculty in the past. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

AMERINGER, SUZANNE W.

Department/division: Family and Community Health Nursing

Email: swameringer@vcu.edu

Research description:

My research focuses on pain and symptom management in adolescents and young adults with cancer and sickle cell disease. I am interested in understanding the biobehavioral factors that influence symptom severity in order to improve self-management of symptoms. One aspect of self-management I am particularly interested in facilitating is direct communication with technology between the adolescent and the provider.

Current research support: NIH

*** Mentored students or junior faculty in the past. * Explores collaborations with current or potential new faculty.**

BELGRAVE, FAYE Z.

Department/division: Psychology

Email: fzbelgra@vcu.edu

Lab website: http://www.ccep.vcu.edu/

Research description:

My research focuses on the reduction of risky behaviors such as sex and drug use among African-American youth (mostly youth in early adolescence).

Current research support: SAMHSA, Office on Women's Health

*** Mentored students or junior faculty in the past. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

BODURTHA, JOANN N.

Department/division: Genetics

Email: bodurtha@vcu.edu; jbodurtha@mcvh-vcu.edu

Research description:

1. “Enabling Family Communication about Cancer: Do You Know Your Kin Facts?” The purpose of this project is to test an intervention of an educational module about family cancer risk communication in a gynecology health clinic setting with diverse women.

2. “Virginia Congenital Anomaly Tracking and Prevention Improvement CATPIP 2 project” The purpose of this project is to improve the ascertainment, reporting and family-centeredness of birth defects surveillance in Virginia and reduce folic acid-preventable birth defects.

3. “VaLEND program” The purpose of this project is to train future leaders in the field of interdisciplinary care and research for children with neurodevelopmental disabilities.

4. “Knowledge to Action Engaging Health Professionals and Families in Evidence-Based Research” The purpose of this project is to develop informational modules to enhance clinicians, educators and families understanding about the opportunities available for research participation for children with neurodevelopmental disabilities, genetic disorders and autism.

5. “Building Interdisciplinary Research Careers in Women’s” The purpose of this project is to train interdisciplinary scholars to be successfully funded women’s health researchers.

Current research support: NIH, CDC, MCHB

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BROOKMAN, RICHARD R.

Department/division: Pediatrics

Email: rbrookma@vcu.edu

Research description:

I have previously participated in research projects where other faculty members were the principal investigator, and Adolescent Health Service was a site for recruiting study participants.

Current research support: unfunded

*** Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

BRUBAKER, SARAH J.

Department/division: L. Douglas Wilder School of Government and Public Affairs

Email: sbrubaker@vcu.edu

Research description:

Interests include health care experiences of pregnant teens, sexual assault/dating violence among teens and mental health issues among girls at-risk for involvement in juvenile justice system.

Current research support: unfunded

*** Mentored students or junior faculty in the past. * Accepts 1st- or 2nd-year medical students during the summer. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

BRUNZELL, DARLENE H.

Department/division: Pharmacology and Toxicology

Email: dbrunzell@vcu.edu

Research description:

My basic research laboratory is interested in identifying mechanisms of and treatments for substance abuse and mental health disorders. One focus of our work is on adolescent nicotine/tobacco addiction. I am the primary investigator on a grant from the Virginia Foundation for

Healthy Youth that questions the efficacy of exercise as a prevention and cessation strategy for nicotine use in rodents. As part of this project, we are exploring the regulation of cytokines and growth factors by nicotine, and using a combination of behavioral and neurochemical techniques to identify mechanisms that contribute to vulnerability to nicotine use and to exercise as a successful cessation/prevention strategy.

Current research support: NIH/NIDA, Virginia Foundation for Healthy Youth, Jeffress Foundation

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CHAPMAN, DEREK A.

Department/division: Epidemiology and Community Health

Email: dachapman@vcu.edu

Research description:

1. “Virginia Assessment Initiative Project (VAIP)” The purpose of this project is to improve community health assessment practices in Virginia by building assessment capacity at the state and local levels, including 1) standardizing maternal and child health (MCH) surveillance and reporting, 2) adding GIS capability to reporting, 3) designing and deploying extranet web-based query systems.

2. “Virginia State Systems Development Initiative (SSDI) Project” This project will establish new and innovative maternal and child health (MCH) surveillance efforts by 1) improving timeliness, accuracy and access to key MCH datasets, 2) creating new linked datasets and 3) fostering collaborative relationships and reporting in all MCH-related divisions in Virginia.

3. “Virginia Congenital Anomalies Tracking and Prevention Improvement Project II” This project will enhance the Virginia Congenital Anomalies Reporting and Education System (VaCARES) and utilization of VaCARES data to prevent birth defects and improve access to health care services, including health and early intervention services.

4. “Virginia Pregnancy Risk Assessment Monitoring System (VA-PRAMS)” This project will (1) establish surveillance of selected maternal behaviors and experiences that occur around the time of pregnancy and early infancy and (2) implement a point-in-time surveillance project that surveys women about selected maternal behaviors and experiences.

5. “Impact of Hearing Loss and Comorbidity on Virginia’s Children and Families” The purpose of this project is to 1) to determine how comorbid congenital anomalies affect the identification, evaluation

and treatment of children with hearing loss and 2) to assess the overall impact of a dual diagnosis of hearing loss and other congenital anomaly on the child and the family.

6. “The Effect of Preterm/Low Birthweight on School Readiness” The overall goal of this project is to inform the development of innovative interventions to improve developmental and school outcomes children born preterm (PT) or low birthweight (LBW). We are particularly interested in investigating whether the quality of mother-child interactions, including mother-child attachment pattern, mediates or moderates the relationship between PT/LBW and various indicators of school readiness.

Current research support: CDC; HRSA; Association of University Centers on Disability

*** Mentored students or junior faculty in the past. * Explores collaborations with current or potential new faculty.**

CORONA, ROSALIE A.

Department/division: Psychology

Email: racorona@vcu.edu

Research description:

My general area of research focuses on health promotion and risk reduction, primarily among African-American and Latino youth. Specifically, I have conducted qualitative and quantitative community-based research to identify individual, peer, family and community risk and protective factors for adolescent and young adult sexual and substance use behavior. I have also been involved in the development and evaluation of prevention programs aimed at increasing family communication about youth risk behaviors and a family’s health-related history. My primary interests have been in (a) emotional and behavioral health, (b) family communication and (c) adjustment of children whose parents have HIV/AIDS.

Current research support: NIH training supplement; American Cancer Society Internal Grant

*** Mentored students or junior faculty in the past. * Accepts 1st- or 2nd-year medical students during the summer. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

DOWDY, EARL E.

Department/division: Psychology

Email: eedowdy@vcu.edu

Research description:

Tobacco use and poor dietary habits remain the top two causes of preventable deaths in the U.S. These unhealthy behaviors are prevalent among adolescents, especially those who live in rural areas. Improvements in school curricula, based on current scientific evidence from substance-abuse-prevention and health-promotion research, offer promising means to affect these at-risk youth at critical stages in their behavioral development. Research on the diffusion of innovations shows that a prime factor in the widespread deployment of evidence-based practices is buy-in by key decision-makers in organizations slated for change; and this buy-in is best assured by participation of decision-makers in the formulation and implementation of plans for change. In 2003, the commonwealth of Virginia promulgated Standards of Learning and technical assistance guidelines for K-10 health education in public schools; however, no concerted effort has been mounted to develop and disseminate specific best-teaching practices in health education. The VCU Life Skills Center has extensive experience in designing and testing evidence-based health-promotion programs for schools. We propose in this study to engage a cadre of public school administrators and teachers in all phases of an effort to create, test, deploy and promote a model curriculum.

Current research support: Virginia Foundation for Healthy Youth (formerly the Virginia Tobacco Settlement Foundation)

*** Mentored students or junior faculty in the past. * Accepts 1st- or 2nd-year medical students during the summer. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

FRIEDMAN, ALLAN D.

Department/division: Pediatrics

Email: dfriedman@mcvh-vcu.edu

Research description:

Interest includes anxiety and depression in children, working currently with Richard Brookman, M.D., from the Department of Pediatrics, and Michael Southam-Gerow, Ph.D., from the Department of Psychology.

Current research support: unfunded

*** Mentored students or junior faculty in the past. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

HOLMES, CLARISSA S.

Department/division: Psychology

Email: cholmes@richmond.edu

Research description:

1. “Prevention of Self-Care Deterioration in Early Adolescents with Diabetes” Major goals of this project are to establish the efficacy of a brief, office-based prevention program for youths and their parents during a high-risk period of early adolescence (11 to 14 years) when parental involvement and self-care deterioration occurs. An authoritative parenting approach that emphasizes continued parental involvement in daily disease care will be facilitated with dyadic coping skills of communication, problem solving, conflict resolution and attitude and behavior change. These coping skills also should enhance behavioral maintenance. The prevention program of Teamwork Coping Skills should maintain more parental involvement and more frequent disease care behaviors and yield better physiologic adaptation (glycohemoglobin levels, fewer adverse events) compared to an Education Control group.

2. “Parents of Very Young Children with Type 1 Diabetes: An Intervention Program” The major goal of this project is to evaluate a newly developed parent support program for parent of very young children (ages 1 to 6) diagnosed with Type 1 diabetes using a randomized controlled trial. Our hypothesis is that parents completing a parent support intervention will report lower levels of psychosocial distress (depressive symptoms, anxiety, diabetes-related parenting stress, perceived social support) and a higher quality of life, and the children of participating parents will demonstrate higher quality of life and improved metabolic control. The long-term goal is improved health outcomes for both parents and children.

Current research support: NIH

*** Mentored students or junior faculty in the past. * Accepts 1st- or 2nd-year medical students during the summer. * Mentors pediatric residents and fellows.**

KLIEWER, WENDY L.

Department/division: Psychology

Email: wkliewer@vcu.edu

Lab website: http://www.preventionresearchlab.vcu.edu/index.html

Research description:

I have several research studies related to health of children. Project COPE is a NIDA-funded longitudinal study of risk and protective factors for adolescent substance use. We also assess other problem behaviors in our protocol. Writing for Health is a NIMH-funded, middle-school-based intervention to reduce the negative sequelae associated with community violence exposure and peer victimization. We assess a number of physical and mental health outcomes in this intervention study. The Family Health and Coping Project, on which I collaborate with Dr. Rosalie Corona, examines coping transmission and communication about sexual health in families with 14- to 17-year-old children where a parent is HIV+.

Current research support: NIH (NIDA on one study; NIMH on another)

*** Mentored students or junior faculty in the past. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

KUBARYCH, THOMAS S.

Department/division: Psychiatry

Email: tkubarych@vcu.edu

Lab website: http://www.neurosurgery.vcu.edu/services/pediatric/tumorresearch.html

Research description:

I do statistical analysis of psychiatric disorders. I have so far done these in adult populations, but the methods are applicable to children.

Current research support: Presently through private foundation grants, to a small extent through NIH grants (Co-PI), and pending for two of the projects, and in revision for a third. This program is in development, but making significant headway, and could benefit from the right collaborators and/or mentees.

*** Mentored students or junior faculty in the past. * Accepts 1st- or 2nd-year medical students during the summer. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

LANE, SHELLY J.

Department/division: Occupational Therapy

Email: sjlane@vcu.edu; reynoldsse3@vcu.edu

Lab website: http://www.sahp.vcu.edu/occu/research.htm

Research description:

Within the Department of Occupational Therapy, School of Allied Health Professions, we have a Sensory Processing and Stress Evaluation Lab. The SPASE Lab is part of a research collaborative run by scientists invested in developing a better understanding of sensory processing disorder (SPD). The Sensory Integration Research Collaborative (SIRC) is comprised of scientists in the six lab settings around the country; each lab research sensory processing but with a slightly unique focus. The SPASE lab investigates the neurophysiology of SPD through the use of electrophysiologic and stress system measures. Sensory processing is the ability to take in sensory information (through touch, movement, hearing, vision, smell and taste) and organize and interpret that information in a way that allows us to interact in our world. An inability to accurately process sensory information from the environment can lead to difficulties in learning, attention, motor skill development and social-emotional development. SPD is commonly associated with diagnoses such as autism, ADHD, Asperger's Syndrome and Fragile X syndrome; although it is believed that SPD occurs in at least 5 percent of the typical population. We have just completed two projects, one with children with autism and one with children with ADHD in the SPASE Lab, and have some data analysis completed. We are only beginning to understand what causes SPD and how to best treat children with this disorder. The aims of the SPASE Lab at VCU are to:

- Conduct research into the causes and prevalence of SPD
- Determine whether SPD is a valid syndrome separate from other conditions such as autism and ADHD
- Identify what neurologic, physiologic and biochemical mechanisms are affected in SPD
- Determine how SPD can best be treated

Current research support: Internal, A.D. Williams.

*** Mentored students or junior faculty in the past. * Explores collaborations with current or potential new faculty.**

MCGRATH, JACQUELINE M.

Department/division: Family and Community Health Nursing

Email: jmmcgrath@vcu.edu

Lab website: http://www.nursing.vcu.edu/people/fchn/JacquelineMMcGrath.htm

Research description:

Jacqueline McGrath, Ph.D., RN, is faculty in the Department of Family and Community Health Nursing. She teaches research, evidence-based practice and nursing concepts. She is a federally

funded researcher and a neonatal nurse practitioner. Her research is focused on interventions to support developing preterm infants including oral feeding readiness and parent delivered preterm infant massage. She is considered a national expert on integration of developmental interventions with infants and families. She is the co-author of the book, “Developmental Care of Newborns and Infants: A Guide for Health Professional” 2nd ed. (in press). The text is used for multidisciplinary care provision in many NICUs across the country as well as a textbook in several NNP programs. She is a very active member of NANN where she is the project director for the implementation of an Advanced Competency in Developmental Care in the NICU. This credential is available to neonatal care providers who meet the criteria. Implementation of developmental care with preterm infants and their families has been and continues to be the driving force of her nursing research and practice. She is the neonatal expert, column editor, for the Journal of Perinatal and Neonatal Nursing and the Family Issues, column editor for Newborns and Infants Nursing Reviews. McGrath is an enthusiastic teacher, who believes learning should be fun. Her teaching is focused primarily in research integration across the curriculum. She has a passion for neonatal care giving and provides guest lectures in several classes. She hopes to offer more neonatal content to School of Nursing students in the future. Previously, she has initiated and coordinated a neonatal nursing specialty area in graduate education. She has a passion for mentoring students at all levels and has published several articles with students.

Current research support: NIH/NINR

*** Mentored students or junior faculty in the past. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

MONASTERIO, EUGENIO

Department/division: Physical Medicine and Rehabilitation/Pediatric Rehabilitation

Email: emrehab@chva.org

Research description:

Interest includes adapted access to video games for children with motor disorders, natural history and quality of life in muscular dystrophy.

Current research support: NIH, MDA

*** Mentored students or junior faculty in the past. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

MYERS, BARBARA J.

Department/division: Psychology

Email: bmyers@vcu.edu

Research description:

Interests are in two areas involving children, youth and families at high risk: families with children with autism and families affected by incarceration.

Current research support: unfunded

*** Mentored students or junior faculty in the past. * Explores collaborations with current or potential new faculty.**

PICKLER, RITA H.

Department/division: School of Nursing

Email: rpickler@vcu.edu

Research description:

1. “Feeding Readiness in Preterm Infants” This study uses a randomized trial in the NICU and after discharge and employs biobehavioral measures. Focus is on improved outcomes, including improved neurobehavioral function.

2. “Center for Biobehavioral Approaches to Symptom Management” This multi-project study focuses on biobehavioral measures of fatigue across populations. We are developing a model of feeding fatigue.

Current research support: NIH

*** Mentored students or junior faculty in the past. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

PRICE, SARAH K.

Department/division: M.S.W. Program, School of Social Work

Email: skprice@vcu.edu

Research description:

My broad research area (within the School of Social Work) is women's mental and emotional well-being during and around the time of pregnancy, with an emphasis on fetal/infant mortality and perinatal depression. My research encompasses women, families and community-level factors and thus interrelates greatly with issues of child health and well-being.

Current research support: K12 scholar award through the Center for Clinical and Translational Research; Robins Foundation via CHIP of Greater Richmond

*** Explores collaborations with current or potential new faculty.**

RICE, LORI G.

Department/division: L. Douglas Wilder School of Government and Public Affairs

Email: lgrice@vcu.edu

Lab website: http://vcu.edu/cppweb/tstc

Research description:

Our research involves investigation of motor vehicle crashes, including some crashes in which children are involved as passengers. These are usually fatal crashes, although the child may not be the victim, especially if restrained properly.

Current research support: Grant funded from NHTSA through the Virginia Highway Safety Office at the Department of Motor Vehicles

*** Mentored students or junior faculty in the past. * Explores collaborations with current or potential new faculty.**

SOUTHAM-GEROW, MICHAEL A.

Department/division: Psychology

Email: masouthamger@vcu.edu

Lab website: www.people.vcu.edu/~masouthamger

Research description:

1. “Treatment Integrity Measurement Study (TIMS)” In collaboration with Dr. Bryce McLeod’s lab, we are the second year of an NIMH-funded R01 project developing and testing the utility of observational measures of treatment integrity for evidence-based treatment programs for children.

2. “The Chesterfield-VCU Adaptation of Depression and Anxiety Psychological Treatments for Children (ADAPT) Project” We have just completed the third of four phases of a multi-year project testing a multi-focus therapy for childhood with comorbid internalizing and externalizing disorders in an area community mental health clinic (Chesterfield CSB).

3. “Pediatric Primary Care Studies” In collaboration with Drs. Friedman and Brookman in the Department of Pediatrics, we have completed screening studies and stakeholder interviews. Data analyses are ongoing for these two projects and we are working with faculty in Pediatrics and Psychiatry to coordinate a consultation behavioral health service in pediatric primary care.

Current research support: NIMH

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SUTHERLAND, KEVIN S.

Department/division: School of Education/Department of Special Education and Disability Policy

Email: kssuther@vcu.edu

Research description:

We primarily conduct intervention research to prevent and ameliorate problem behavior in children with or at-risk for disabilities in school settings. Also, we conduct work in intervention development for middle school violence prevention.

Current research support: Institute for Education Sciences

*** Accepts 1st- or 2nd-year medical students during the summer. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**

WIJESOORIYA, NIRAN

Department/division: Pediatrics

Email: nwijesooriya@mcvh-vcu.edu

Research description:

Interests include childhood obesity (part of the T.E.E.N.S. Program) and the CATCH grant, which looks at comparing “live” Spanish interpreters v. the use of the interpreter by phone.

Current research support: CATCH grant from AAP - Spanish speaking study

*** Mentored students or junior faculty in the past. * Mentors pediatric residents and fellows. * Explores collaborations with current or potential new faculty.**