Figure 1: Faculty Domains in the Developmental Neuroscience and Child Psychopathology Postdoctoral Training Program

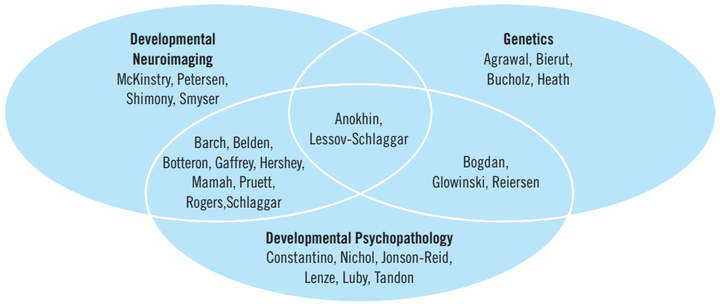

Figure 2: Administrative Structure of the Developmental Neuroscience and Child Psychopathology Postdoctoral Training Program

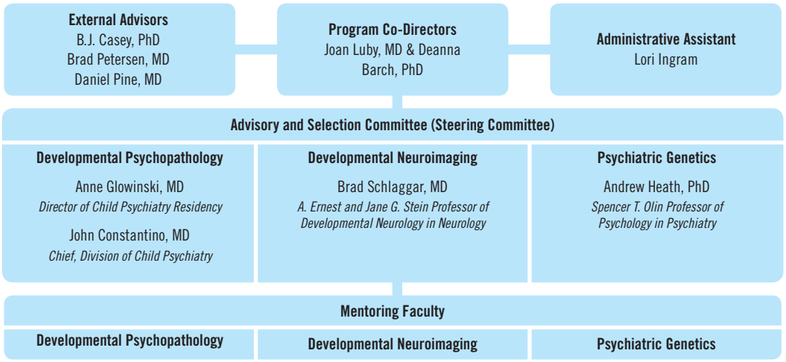

Figure 3: Developmental Neuroscience and Child Psychopathology Postdoctoral Training Program Core Components

Collaborative Mentoring	Three Translational Research Projects	Didactic Training in Core Substantive Areas	Training in Professional Development
1) Developmental Psychopathology + 2) Developmental Neuroimaging or Genetics (in some cases, both)	1) Analysis and Write Up of Existing Data 2) Involvement in Ongoing Data Collection 3) Development of New Integrative/ Translation Project (pilot data for Career Development Award)	1) Developmental Psychopathology 2) Neural Systems and Neural Bases of Disease 3) Developmental Neuroimaging and/or Genetics	1) Biostatistics 2) Research Design and Management 3) Ethical Conduct of Scientific Research 4) Scientific and Grant Writing 5) Oral Presentation Skills 6) K-Award and Other Grant Writing Skills

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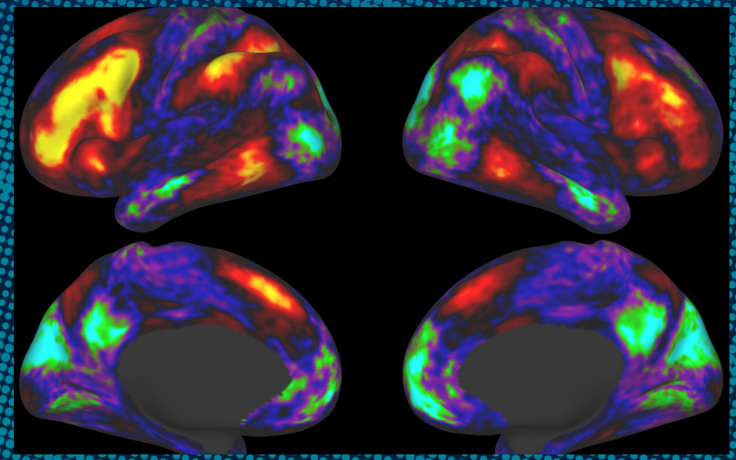
NIMH T32 Postdoctoral Fellowship in Developmental Neuroscience and Child Psychopathology



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The National Institute of Mental Health (NIMH)-funded T32 Postdoctoral Fellowship in Development Neuroscience and Child Psychopathology is available to psychologists, neuroscientists, and both child and adult psychiatrists who are interested in conducting translational research on developmental neuroscience and child psychopathology, with a particular emphasis on early childhood. The child psychopathology domains include, but are not limited to, mood disorders, anxiety disorders, pervasive developmental disorders, ADHD, addiction, and psychosis. The fellowship can admit up two new trainees each year.

The training model for this fellowship focuses on interdisciplinary training, with trainees gaining expertise in both basic and clinical domains, including developmental psychopathology, developmental affective and cognitive neuroscience, genetics and developmental neuroimaging. Fellows will be mentored by Washington University faculty with international reputations in developmental psychology, clinical neuroscience, functional neuroimaging, psychiatric genetics, and cognitive and affective neuroscience. Fellows will be involved in didactic training in core areas, professional development training, and most critically, both ongoing and newly developed translational research projects.

Washington University is an Affirmative Action Equal Opportunity Employer and encourages women, minorities, the economically disadvantaged, and persons with disabilities to apply. Applicants must have a PhD or an MD and must be citizens or permanent residents of the United States. Interested applicants should submit a CV, three references, and a description of research interests to either Deanna Barch, PhD, (dbarch@artsci.wustl.edu) or Joan Luby, MD (lubyj@psychiatry.wustl.edu). Applications by email are preferred, but paper applications can be submitted to: Dr. Deanna Barch, Child Psychopathology Postdoctoral Fellowship, Washington University, Campus Box 8134, 660 S. Euclid Ave., St. Louis, MO, 63110. Applications will be considered on a rolling basis for a start date after July 1, 2014.

Our Training Mission

The mission of our training program is to train the next generation of scientists with PhDs or MDs to have the intellectual and research skills necessary to lead investigations of the developmental origins of the neurobiological basis of psychopathology. Such a focus is critical to our efforts to target early prevention and intervention of psychiatric disorders that often become lifelong and chronic illnesses. More specifically, our goal is to train individuals who can understand and identify neurobiological and psychological abnormalities in core components of human behavior and affective functioning that contribute to dimensions of psychopathology. Such a perspective aims to address core processes at multiple levels of analysis that cut across traditional diagnostic boundaries.

There are three underlying principles to our training mission. The first is a focus on ensuring that trainees understand the normative mechanisms of brain development and brain-behavior relationships. This knowledge of basic development is deemed critical to understand how and why impairments in such mechanisms may lead to the development of psychopathology. The second is a focus on ensuring that trainees recognize that the risk, onset and course of psychiatric disorders arises through a complex interplay of brain developmental processes influenced by psychosocial, genetic and biological factors that interact beginning in utero and continuing into early childhood and throughout later development. The third is a focus on helping trainees learn to examine the ways in which such developmental mechanisms may contribute to psychopathology risk across diagnostic boundaries (i.e., developmental abnormalities in emotion regulation can contribute to multiple forms of psychopathology).

Our training mission is highly consistent with the NIMH's Research Domain Criteria Initiative, which seeks to "define basic dimensions of functioning (such as fear circuitry or positive and negative affect systems) to be studied across multiple units of analysis, from genes to neural circuits to behaviors, cutting across disorders as traditionally defined." Our training mission will capitalize on two major strengths of Washington University: our internationally-recognized areas of expertise in psychiatric and molecular genetics and in developmental neuroimaging (from infancy to adolescence). Incorporating these methods into the study of the developmental origins of psychopathology will provide trainees with appropriate and non-invasive tools by which to examine neurobiological mechanisms of psychopathology in young children.

Research Training Activities

Our training model focuses on integrative training in both basic and applied components of developmental psychopathology, genetics and developmental neuroimaging for MD and PhD research scholars. As such, we have faculty members from multiple departments who provide expertise and mentorship in each of these core areas (see Figures 1 and 2 on reverse). Figure 1 illustrates three major faculty domains of expertise, although these categories are clearly not mutually exclusive as evidenced by overlapping circles. Several faculty bring multiple areas of expertise to this training program and this graphical heuristic illustrates both the breadth and depth of training opportunities that will be available to trainees.

Domain 1: Developmental Psychopathology

Training and research in developmental psychopathology have become unique strengths of the Division of Child Psychiatry at Washington University over the last 20 years (see Figure 2 on reverse). Specifically, several active research programs have focused on early childhood mental health with studies of nosology, genetics, and early intervention in the areas of mood disorders, anxiety disorders, autism spectrum disorder, and risk for psychopathology more broadly. Studies of middle childhood and adolescence are also available in the areas of autistic spectrum disorders and ADHD, risk for externalizing disorders including conduct disorder and substance use, and risk for mood disorders.

In addition, active structural neuroimaging studies during the infancy period pertinent to risk for later childhood psychopathology are also ongoing in at least two independent programs. Thus, the division of Child Psychiatry provides a wealth of research opportunities for trainees interested in developmental psychopathology, with unique strength in novel studies in very early childhood.

Domain 2: Developmental Neuroimaging

Washington University has become one of the world leaders in developmental neuroimaging, with expertise in the use of both structural and functional neuroimaging methods in both healthy children and children at risk for psychopathology. This expertise includes projects using high-resolution structural and diffusion imaging to study normative development and risk for psychopathology in premature children and infants at risk for autism.

In addition, Washington University has been at the forefront of pioneering methods to use functional neuroimaging to study cognitive and affective processes and functional brain connectivity across the course of development. This includes the successful use of such methods in children as young as age four. This research has been extended to study the developmental course of psychopathology during early childhood in the domain of mood and anxiety disorders and into school age and adolescent populations.

Domain 3: Behavioral, Psychiatric and Molecular Genetics

Washington University is also one of the world leaders in psychiatric genetics, including epidemiology, behavioral genetics and now molecular genetics. These methods have been harnessed to study the development and risk factors for a variety of forms of psychopathology, including externalizing disorders, substance use, autistic spectrum disorders, and mood disorders. Importantly, there are also investigators integrating all three domains of genetics (both behavioral and molecular), imaging and developmental psychopathology, with additional projects in development.

One unique resource available at Washington University is several longitudinal studies of families and MZ and DZ twins that have been used to study the behavioral genetics of externalizing disorders, and more recently mood pathology, as well as to study gene-environment interactions. Importantly, the age of the participants in some of these studies is now such that we can begin to study their offspring, using well-characterized risk factors available from the longitudinal study of their parents.

Core Components of the Training Experience and Curriculum

Our goal is to train the next generation of scientists to have the intellectual and research skills necessary to identify the developmental origins of the neurobiological mechanisms that contribute to psychopathology. To accomplish this goal, we believe that our trainees need to have substantive training in developmental psychopathology and either genetics or neuroimaging (or both), excellent mentoring that focuses on knowledge and skill building, as well as development of an independent research program and hands-on development of research.

As such, we have four core components to our training program, as outlined in Figure 3. The co-directors and the mentor will work with the trainee to develop a training program that meets these four training components, but that is tailored to the individual needs of the trainee.