Malleable Nervous System Research Cluster

Lewis-Burke Associates LLC
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About Lewis-Burke

- Founded in 1992; located in Washington, DC
- In 2018, twenty-eight policy experts with range of expertise/backgrounds allow multi-layered issue teams with deep expertise in agencies and scientific/higher education areas
- Support federal relations activities to develop and implement federal strategies to pursue, shape, and create new sources of funding to increase and diversify research portfolio
- Able to engage on multiple levels:
  - Individual faculty (including early career faculty)
  - Teams of faculty
  - Associate Deans for Research
  - Deans and Center Directors
  - University leadership and campus-wide priorities/activities
National Institutes of Health (NIH)

• $3 billion increase in FY 2018, bringing the agency to $37.1 billion in total funding
  – Congress thoroughly rejected Administration’s attempts to cap F&A costs on NIH grants
• Current areas of trans-NIH emphasis:
  – Opioids, addiction, neurobiology of pain and pain management ($500 million in 2018)
  – Alzheimer’s Disease ($1.8 billion investment in FY 2018)
  – BRAIN Initiative ($400 million in FY 2018)
  – Precision Medicine—the All of Us Program ($290 million in FY 2018)
  – Cancer ($300 million in FY 2018)
  – Biomedical Data Science Strategic Plan
• Award trends—agency focused on “research productivity and efficiencies”
  – Pulling back on Program Project grants (P awards)
  – Collaborative funding mechanisms enhance program officers’ input on project (U awards)
  – Next Generation Researchers Initiative: enhanced support mechanisms for early and mid-career investigators
    • $100 million dedicated fund within OD proposed for FY 2019
  – Seeking to reduce PI salary support on grants
Neuroscience

BRAIN Initiative
- NIH: only agency actively continuing this Obama Administration Initiative towards 2025
  - $1.5 billion over 10 years (21st Century Cures)
  - FY 2018: $390 million, inclusive of Cures funding
- Approved concept clearances for FY 2018 include: Large-Scale Recording and Modulation in the Nervous System; Biology and Biophysics of Neural Stimulation; Theories, Models, and Methods for Analysis of Complex Brain Data; Tools to Identify and Target Non-Neuronal Cells in Brain
- Support for BRAIN proposals that target nociceptive and pain circuits
- NINDS/NIMH launching effort to assess BRAIN Initiative progress, a set of assessment questions and metrics being developed to assess BRAIN Initiative progress towards its stated goals.
- NSF: formal NSF plan for BRAIN ended in 2017; identified the human-technology frontier as one of “Ten Big Ideas” for priority investment in the future
- DOE: collaborations with NIH to leverage DOE high-performance computing, nano-fabrication, and modeling
- DARPA: Biological Technologies Office (BTO) continues to support through BAAs, but no new programs at this time

NSF
- Core program—Neural Systems
  - Developmental mechanisms, sensorimotor integration, structural and functional characterization of nervous system; neural plasticity, neuroendocrine and neuroimmune function, etc.
- Obama era Understanding the Brain initiative winding down; continue to pursue programmatic objectives in neuroscience

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Opioids and Pain

Congressional activities:
• FY 2018 Omnibus: ~$3 billion total in opioid response funding across HHS, DOJ, USDA
• Both House and Senate Prioritizing opioids and Considering new legislation:
  – Pending legislation could expand NIH authority to use “other transactional authority” for public health emergency research (not traditional peer review process)
  – Wants to move quickly on passage

NIH:
• $500 million split evenly for NIDA/NINDS in the FY 2018 omnibus
• HEAL Initiative: $1 billion trans-NIH focusing on preventing addiction, neurobiology of pain and pain management, and improving treatments for opioid use disorder
  – Understand the transition from acute to chronic pain (longitudinal studies)
  – Identify causes of opioid use disorder
  – Develop more medication-assisted treatments for opioid addiction and overdose reversal
  – Identify non-opioid treatments for pain
DOD Medical

- **DOD Health Research Priorities**: approximately $2 billion invested
  - **Hemorrhage** – blood products (storage, transportation, in theater transfusions); extend blood platelet shelf life; improved pre-hospital treatments for critical patients; alternatives to using anti-biotics for post wound care
  - **Traumatic Brain Injury (TBI)** – classification of TBIs that can inform future technology and treatment strategies; biomarkers to replace CAT scans (affordability); development of chronic traumatic encephalopathy (CTE)
  - **Mental Health** – PTSD, suicide prevention; substance abuse, rural healthcare/telemedicine
  - **Pain Management** – Burn care, opioid use
  - **Infectious Disease** – prevention, diagnostics, therapeutics; surveillance; warfighter v. civilian health
  - **Combat casualty care** – surgical systems and procedures, surgical en-route care, neurotrauma, minimizing blast-related injury
  - **Health IT** – electronic health records, mobile health technology, telemedicine (in theater and at home)
  - **Chemical, Biological, Radiological, and Nuclear (CBRN) Threats** – surveillance, prevention, detection, and treatment

- Work executed through U.S. Army Medical Research and Materiel Command (MRMC) & Congressionally Directed Medical Research Programs (CDMRP), as well as DOD basic research offices with some medically-oriented programs

- Also involved with **multi-agency priorities**, including:
  - Global Health Security Agenda (biosurveillance, antimicrobial resistance, and Ebola/infectious disease research and response)
  - Precision Medicine
  - Big Data: data sharing standards, software tools, enhanced training, centers of excellence
  - BRAIN: targeted investment to accelerate development of neurotechnologies
  - Alzheimer’s and aging: new investments in research and care to address growing number of patients and increased costs

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CDMRP – FY 2018 Topics

Bolded items reflect increases in FY 2018

- Peer-Review Medical ($330 m)
- Breast Cancer ($130 m)
- Traumatic Brain Injury and Psychological health ($125 m)
- Prostate Cancer ($100 m)
- Peer-Review Cancer ($80 m)
- Joint Warfighter Medical ($50 m)
- Peer-Review Orthopedic ($30 m)
- Spinal Cord ($30 m)
- Gulf War Illness ($21 m)
- Ovarian Cancer ($20 m)
- Neurotoxin Exposure Treatment Parkinson’s ($16 m)
- Alzheimer’s Disease ($15 m)
- Kidney Cancer ($15 m)
- Neurofibromatosis Research ($15 m)
- Vision ($15 m)
- Lung Cancer Research ($14 m)
- HIV/AIDS program increase ($12.9 m)

- Reconstructive Transplant ($12 m)
- Trauma Clinical ($10 m)
- Amyotrophic Lateral Sclerosis ($10 m)
- Hearing Restoration ($10 m)
- Orthotics and Prosthetics ($10 m)
- Global HIV/AIDS prevention ($8 m)
- Military Burn ($8 m)
- Epilepsy ($7.5 m)
- Autism Research ($7.5 m)
- Tuberous Sclerosis ($6 m)
- Multiple Sclerosis ($6 m)
- Tick-Borne Disease Research ($5 m)
- Lupus ($5 m)
- Alcohol and Substance Abuse ($4 m)
- Duchenne Muscular Dystrophy ($3.2 m)
- Bone Marrow Failure ($3 m)
Peer Reviewed Medical Research Program (PRMRP): FY 2018 Topics

- Acute Lung Injury
- Antimicrobial Resistance
- Arthritis
- Burn Pit Exposure
- Cardiomyopathy*
- Cerebellar Ataxia*
- Chronic Migraine and Post-Traumatic Headaches
- Chronic Pain Management*
- Congenital Heart Disease
- Constrictive Bronchiolitis
- Diabetes
- Dystonia
- Eating Disorders
- Emerging Infectious Diseases
- Endometriosis*
- Epidermolysis Bullosa
- Focal Segmental Glomerulosclerosis
- Fragile X Syndrome
- Guillain-Barre Syndrome
- Hepatitis B and C
- Hereditary Angioedema
- Hydrocephalus
- Immunomonitoring of Intestinal Transplants
- Inflammatory Bowel Diseases
- Interstitial Cystitis
- Lung Injury*
- Malaria
- Metals Toxicology
- Mitochondrial Disease
- Musculoskeletal Disorders
- Myotonic Dystrophy
- Nonopioid Pain Management
- Nutrition Optimization*
- Pancreatitis
- Pathogen-Inactivated Blood Products
- Post-Traumatic Osteoarthritis
- Pressure Ulcers*
- Pulmonary Fibrosis
- Respiratory Health
- Rett Syndrome
- Rheumatoid Arthritis
- Scleroderma
- Sleep Disorders
- Spinal Muscular Atrophy
- Sustained-release Drug Delivery
- Tinnitus
- Tissue Regeneration
- Tuberculosis
- Vaccine Development for Infectious Diseases
- Vascular Malformations
- Women's Heart Disease

*Denotes new topic in FY 2018

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Engaging DOD for Health and Biomedical Research

- **CDMRP Feedback Submission:** CDMRP recently launched a new feedback submission feature to its website. Investigators can use the tool to submit an abstract for feedback or ask questions. Stakeholders now have the option to provide input on programs and process recommendations, as well as submit reviewer nominations and other feedback: [http://cdmrp.army.mil/contact](http://cdmrp.army.mil/contact)

- **Military Health System Research Symposium (MHSRS):** DOD hosts the annual MHSRS in August, in Orlando, Florida. MHSRS is the Department’s scientific meeting, focusing on military medicine and research: [https://mhsrs.amedd.army.mil/SitePages/Home.aspx](https://mhsrs.amedd.army.mil/SitePages/Home.aspx)

- **Chemical and Biological Defense Science and Technology Conference (CBD S&T):** The Defense Threat Reduction Agency (DTRA) hosts the CBD S&T annually. Through the Conference, DTRA seeks to review and project cutting-edge basic and applied research in chemical and biological defense: [https://www.cbdstconference.com/home2017/](https://www.cbdstconference.com/home2017/)
Questions?

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