Neurosciences Biorepository – Future University Biorepository

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A Brief History

- Biorepository protocol established in mid-2009 by Dr. Benjamin Greenberg, Neurologist and Neuroimmunology Specialist
- Initially focused on neurologic disorders, specifically MS and rare demyelinating diseases
- The protocol was formally expanded in late-2013 to encompass “various autoimmune, infectious, metabolic, and genetic disorders”
- We are currently working with Dr. Toto and the CTM to expand the resources of the Biorepository to be a core service to PIs across UTSW
- We are also a member of the newly established Texas Biobanking Initiative in collaboration with UT Systems and 4 other UT institutions
Current Inventory

- Approximately 2400 individual sample collections from 1360 patients
- Substantial Collections (>20 samples):
  - Multiple Sclerosis (MS, all subtypes): ~940
  - Neuromyelitis Optica Spectrum Disorder (NMOSD): ~400
  - Transverse Myelitis (TM): ~110
  - Parkinson's Disease/Movement Disorders: ~100
  - Acute Disseminated Encephalomyelitis (ADEM): ~50
  - Optic Neuritis (ON): ~50
  - Rheumatoid Arthritis/Rheum Disorders: ~45
  - Headache/Migraine: ~40
  - Limbic Encephalitis: ~30
  - Healthy Controls: ~30
  - Alzheimer's Disease/Other Dementias: ~25
  - Myasthenia Gravis (MG): ~25
Current Inventory, cont.

- Broad range of specimen types, including:
  - Serum: ~1600
  - Plasma: ~1150
  - PAXgene RNA: ~970
  - Whole blood EDTA for DNA extraction: ~890
  - Plasma from PLEX procedure: ~860
  - CSF: ~630
  - PBMC: ~340
Past and Current Collaborations

- Long-time collaboration with Dr. Nancy Monson:
  - Has patented a novel diagnostic test for MS currently in validation studies
  - Recently published novel data on immunophenotype switch in MS patients using glatiramer acetate therapy

- Recent collaboration with Dr. Ricardo Paniagua:
  - Shared treatment naïve MS CSF samples as a disease control for studies of serum autoantibodies in morphea

- Current collaboration with Dr. Chandra Mohan (now at UTHSC-Houston):
  - Shared healthy and neurological disease CSF as controls for CNS-SLE proteomics study

- Current collaboration with Dr. Sally Ward (now at TAMU-HSC)
  - Shared CSF and serum from MS patients and healthy controls to characterize antibody repertoire of MS patients, specifically looking at those who are responsive to PLEX
Past and Current Collaborations, cont.

- We also collaborate with outside academic and industry partners:
  - Collaborative TM studies with Johns Hopkins
  - Ongoing MOG-Ab study collaboration with Oxford, UK
  - Shared PAXgene RNA of MS on dimethyl fumarate therapy with the University of Erlangen in Germany investigating therapy biomarkers
  - Shared NMO plasma and serum samples for UCSF cytotoxicity study
  - Collaborating with researchers at Biogen for whole genome sequencing of NMO patient samples
  - Executed licensing agreements with two biotechnology companies sharing NMO, MS, and RA samples for pre-clinical testing of novel therapies
How to Access Samples

- **Are you a UTSW investigator?**
  
  - Simply provide a copy of the IRB letter of exemption and we may provide de-identified samples and data

- **Are you collaborating with an outside institution?**
  
  - We may execute a material transfer agreement (MTA) with collaborative institutions, ~1-2 month process

- **How much does it cost?**
  
  - For internal investigators, cost is negotiable depending on the investigator’s grant funding and extent of services provided
  
  - We have a commercial fee structure for licensing agreements with industry
Potential for Future Collaborations

- Our Biorepository Protocol is IRB approved for the collection and processing of research blood, CSF, urine, saliva, tears, and leukapheresis samples from a broad range of diagnoses, including healthy controls.

- We may collect any specimen if acquired as part of clinical care, including tissue samples from biopsy.

- Three main areas of service: Acquisition, Processing, Storage.

- Taken together, the Biorepository has the potential for immediate collaboration with most PIs on campus, from the lab to the clinic.

- The only hindrances at this time are limited Biorepository resources (i.e., staff and equipment), which limits the number of active projects.
Proposed Core Biorepository

- Any UTSW Investigator could approach the BR for services (sample acquisition, processing, and/or storage)

- Any cost associated with the service would be strictly to cover the individual project (i.e., supplies, tech time, maintenance)

- All subjects would be consented under the single BR consent form, and the BR would be custodians of all samples acquired

- The BR would collect specimens beyond what is requested (e.g., if only serum is requested for a project, we would also collect plasma, PBMC, DNA/RNA to hold for future collaborations)

- The project’s PI would be informed if other investigators approach the BR about samples collected within the initial collaboration, thus giving the PI “first dibs” and possibly facilitating collaboration between PIs studying similar disease processes
Pertinent Contact Info

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