

Horn, Liz

Liz Horn, PhD, MBI

Poster Presentation

Biorepositories

Principal Investigator

Lyme Disease Biobank

Portland, OR

<https://lymebiobank.org/>



Liz has spent more than a decade building research initiatives and collaborations with non-profit organizations, with a focus on registries and biobanks. She has been working in Lyme disease since 2013 and was part of the team that launched the Lyme Disease Biobank. The Lyme Disease Biobank was created to provide much-needed samples to researchers studying Lyme disease and other tick-borne infections, and each participant's sample donation supports up to 50 different research projects. Liz earned her doctorate in molecular pharmacology and cancer therapeutics from SUNY at Buffalo, was a National Library of Medicine fellow in biomedical informatics, and received her M.B.I. from Oregon Health & Science University. She has mentored and trained >75 advocacy organizations in the translational research enterprise, and helped these groups initiate collaborations with academia, other non-profits, and industry. Her strong foundation in basic science, informatics, registry questionnaire design, governance, and biobank planning and operations makes her well positioned to serve as the Principal Investigator.

2017 Poster Presentation

Bay Area Lyme Foundation's Biorepository, The Lyme Disease Biobank – a Resource to Advance Our Understanding Of Lyme Disease and Other Tick-Borne Infections: Characterization of

Samples Collected from 2014-2016

Liz Horn, PhD, MBI¹; George Dempsey, MD²; Anna Schotthoefer, PhD³; U. Lena Prisco, PhD⁴; Caesar Djavaherian, MD, MS⁵; Stephanie Kumamoto⁵; Marc Golightly, PhD⁶; Cathy De Luca, BS⁶; Mel Evans, BS⁶; Bobbi Pritt, MD⁷; Elitza Theel, PhD⁷; Radha Iyer, PhD⁸; Dionysios Liveris, PhD⁸; Guiqing Wang, MD⁸; Ira Schwartz, PhD⁸.

¹Lyme Disease Biobank, Portland, OR; ²East Hampton Family Medicine, East Hampton, NY; ³Marshfield Clinic Research Institute, Marshfield, WI; ⁴Vineyard Center for Clinical Research, Martha's Vineyard, MA; ⁵Direct Urgent Care, Mountain View, CA; ⁶Stony Brook University, Stony Brook, NY; ⁷Mayo Clinic, Rochester, NY; ⁸New York Medical College, Valhalla, NY.

Introduction: Biorepositories are increasingly important resources for advancing scientific research and knowledge. The Lyme Disease Biobank is a collection of human biological samples to facilitate research in the field of Lyme disease (LD) and other tick-borne infections (TBI).

Materials and Methods: This multisite initiative, launched in 2014, collects whole blood, serum, and urine samples from individuals with suspected acute Lyme disease presenting with or without an erythema migrans (EM) or annular rash (cases) and unaffected individuals (endemic controls). Participants with suspected Lyme disease (all cases) are given an optional opportunity to provide a second sample 2-3 months after the first visit, and provide updated clinical information at 3, 6, and 12 months after enrollment. Briefly, after informed consent was obtained, samples (i.e., whole blood, serum and urine) were collected from participants according to IRB-approved protocols and shipped to a centralized biorepository

for processing and storage. Associated clinical information was also collected to better characterize the samples. Additional validation and testing was performed to confirm the presence of tick-borne pathogens (including *Borrelia burgdorferi*, *Anaplasma phagocytophilum*, *Babesia microti*, and *Borrelia miyamotoi*) in the samples. Samples from Wisconsin were also tested for strains specific to the Midwest, including *Borrelia mayonii* and *Ehrlichia muris euclairensis*. A subset of samples has been tested by culture followed by PCR for *Borrelia burgdorferi*. Serology using the two-tiered testing algorithm for Lyme disease (i.e., ELISA followed by IgM and IgG immunoblots) was performed on all samples.

Results and Discussion: 267 participants were enrolled from 2014-2016 from three sites: East Hampton, NY, Marshfield, WI, and Martha's Vineyard, MA. The biobank contains samples from participants with confirmed LD (41; [+] 2-tier serology OR [+] qPCR OR [+] culture), probable/ suspected LD (50; EM or annular rash; [-] 2-tier serology; [-] qPCR), symptomatic no rash (SNR; 50; symptomatic; [-] 2-tier serology; [-] qPCR), and endemic controls (97; [-] serology). 29 additional controls had at least one positive serology result. Samples from convalescent draws from 62 cases are also available.

Samples are available to qualified investigators through an application process that includes a rigorous peer-review. If approved, the biobank will provide blinded, de-identified samples to the investigator followed by associated clinical information. Samples collected in 2017, from East Hampton, Marshfield, and from the Bay Area, California, will be available in Spring 2018 once all testing is completed.

Conclusion: Each participant's donation provides samples for ~50 research projects, with aliquots of whole blood (1 and 2 ml), serum (250 µl), and urine (1 ml). Through the availability of samples with well-annotated clinical information, investigators will have additional tools available to advance the study of LD and other TBI.

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