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Establishing a Tissue and Bacterial Cell Culture Lab in Appalachia to Research Tick Borne Lyme Disease

Lucy Hritzo

Wheeling Jesuit University, Department of Biology, 316 Washington Ave, Wheeling WV 26003 USA
(lhritzo284@cardinal.wju.edu)

Lyme Disease(LD) is caused by the spirochete *Borrelia burgdorferi* (B.b.), transmitted by *Ixodes* species ticks and has become the most common vector-borne illness in the United States, Europe, and the Northern Hemisphere. Newly revised estimates from the Center for Disease Control(CDC) suggest that there are likely to be over 300,000 new cases per year in the United States, but the actual number is much higher with many cases underreported and undiagnosed. As LD is so prevalent, especially in Appalachia with few studying it, it is important to investigate Tick-Borne LD. To study LD at Wheeling Jesuit University (WJU), a small university in Appalachia, it is crucial to have the proper equipment and sterile space. To research LD, an updated, sterilized cell-culture environment was needed and there was no tissue/bacterial cell-culture lab up and running at WJU. I proposed to take a decommissioned space and assemble a sterile fully functioning bacterial cell lab, allowing for focusing on microbiological and bacterial studies. This project was multi-step: we acquired various approvals for a working area; secured, cleaned, and sterilized the space; and facilitated regulatory consensus with the university administration. We located the keystone of a bacterial cell-culture lab, by applying for various grants, as well as contacting other universities/businesses, finally procuring a Bio-Safety Level II, Bio-Safety Cabinet (BSLII BSC). This BSC is crucial to the success of a bacterial cell culture lab, as it protects the person using the hood, and also protects the pathogen and cells from contamination. Without a BSLII BSC, LD cannot be studied at WJU. We wrote and submitted various grants, as well as contacted other universities/businesses, and have procured a BSLII BSC. To study LD at WJU in Appalachia, it is critical to conclude and verify that B.b. can be grown successfully in this new sterile environment in the BSLII BSC and lab, conducive to culturing bacteria.

Mission, Review Process & Disclaimer

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