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### Composition of plant-derived compounds as an alternative approach for lyme patients - A lesson from the pre-clinical study

Lyme disease is a multi-systemic bacterial infection transmitted by ticks that has emerged as the most common vector-borne disease in the USA and Europe. Current antibiotic therapies are associated with the well-known side effects and are not fully effective, especially against its persistent form, which calls for the development of new treatments. Naturally derived substances that are safe and if properly combined, could have enhanced efficacy through their synergistic or additive interactions, may serve as an alternative way for infected patients. Over 50 non-synthetic plant-derived compounds and extracts were tested *in vitro* individually and in combinations against active and persistent forms of *B. burgdorferi* (prevalent in US) and *B. garrini* (prevalent in Europe). Several of these compounds individually and in combinations showed high efficacy in eliminating all pleomorphic forms of studied *Borrelia spp.* *In vivo* results revealed that this defined combination of the most active compounds is effective in ~80% of clearing infection, while pre-clinical human study confirmed that this defined composition may play an important role in combating *Borrelia spp.* and serves as an adjunct or alternative treatment. The study reported here is a part of an ongoing pre-clinical development plan that could form the basis for clinical trials.

#### Biography

Anna Goc obtained her MS and PhD from the Jagiellonian University, Cracow, Poland. She has carried out her Postdoctoral training at Case Western Reserve University, Cleveland, OH, and the University of Georgia, Athens, GA. She also worked as a Research Biologist at the VA Medical Center, Augusta, GA. Currently she is working as a Head of Infectious Diseases Division at Dr. Rath Research Institute, Santa Clara, CA and she leads a lyme disease project. She has published over 30 peer-reviewed publications, two book chapters, and has presented her research at numerous national and international scientific meetings. She is also an active member on one Editorial Board and the recipient of several national and international awards.

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