## OMICS <u>Conference</u> on <u>Conference</u> on <u>Clinical Microbiology & Microbial Genomics</u>

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## In vivo biofilms of Borrelia burgdorferi - Morphologic and pathologic findings

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**B** iofilm communities formed by *Borrelia burgdorferi*, the etiologic agent of Lyme Borreliosis have recently been described with an in vitro model. Both attached biofilms associated with biotic and abiotic surfaces and free floating biofilm communities have been verified with light microscopy and with atomic force microscopy. Component specialization of the constituents of the matrix and microbial shape shifting from spiral (planktonic) to cystic, granular, bacilliform, and spheroplast species of Borrelia demonstrate microbial specialization within the *Borrelia biofilm* communities. Water channels, nanotubes, nanowires within the *Borrelia biofilm* units facilitate cell to cell communication and maintenance of the health and vitality of the communities of differentiated spirochetes. Liposomal derivatives from the outer surface membrane of planktonic and differentiated borrelia provide a vehicle for horizontal DNA transfer between members of the biofilm complex. The spectrum of diverse morphologies of *Borrelia biofilm* communities will be illustrated and correlations between biofilms of other microbial species and *Borrelia biofilm* swill be reviewed.

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