



# Chronic infections of oral treponema pallidum and their pathogenesis

M Sitina\*

International Clinical Research Center, St. Anne's University Hospital Brno, Brno, Czech Republic

\*Corresponding author. Email: [sitina.mr@muni.cz](mailto:sitina.mr@muni.cz)

**Received:** 05-July-2022, Manuscript no: GJV-22-71969, **Editorial assigned:** 08-July-2022, Pre QC no: GJV-22-71969 (PQ), **Reviewed:** 29-July-2022, QC no GJV-22-71969, **Revised:** 05-Aug-2022, Manuscript no: GJV-22-71969 (R), **Published:** 12-Aug-2022, DOI: 10.35841/GJV.22.10.021.

## DESCRIPTION

The genus *Treponema* comprises of human pathogens which causes a chronic infection that includes several species of oral treponemes. When compared to treponemes it is isolated from the mouth (subgingival plaque), not a single strain of *T.pallidum* has been propagated under *invitro* conditions (Hook, 2017). It is one of the smallest genomes of any bacterium with an extracellular life-style.

The demonstration of *T.pallidum* interactions with platelets correlates with the degree of platelet activation (Benzaken, et al. 2017). The treponeme-platelet interactions during stationary adhesion shows phenotypic change during the platelet interactions. Another member of the genus *Treponema Pallidum* is the causative agent of sexually transmitted diseases which is a chronic, multi-stage, human infection characterized by variable clinical symptoms.

As syphilis is not a life-threatening disease but severely hampered because it cannot be cultured continuously *in vitro* and not susceptible for genetic manipulation. The potential interactions of *T.pallidum* with human platelets are modified by darkfield video microscopy with high resolution datasets of live treponemes with the dependence of this interaction upon treponeme viability.

The platelet-tethered treponemes exhibit reduced to displacement under the force by moving plasma and that of treponemes are able to induce platelet activation. The study may reveal a role for treponeme-platelet interactions in the *T.pallidum* pathogenesis. It is only remotely related to other bacteria but still shares a significant fraction of conserved genes with other species. The Syphilis disease of *T.pallidum* is severely hampered because it cannot be cultured continuously *in vitro* and is not susceptible to genetic manipulation (Kumar, et al. 2107).

However, the functional genomic studies demonstrated the function of individual proteins and bacterium is not approachable by direct experiments. The pathogenic uncultivable treponemes were originally considered as separate species based upon their disease symptomatology and epidemiology and provides treatment histories.

The recent data from the *T.paraluiscuniculi* genome analysis revealed this strain and was less than 2% and which represents a *T.pallidum* subspecies, rather than a new species. This further fact supports the genetic compactness of uncultivable treponemal pathogens and indicates that the small genetic changes (Belisle, et al. 1994). Therefore, every nucleotide should be considered to have the potential for changing bacterial virulence and can result in profound changes in pathogenesis and host range.

The darkfield and electron microscopy studies have previously demonstrated that 90% of *T. pallidum* cells can adhere to cultured rabbit epithelial by one or both tips, with over a third of treponemes using both tips. By initial darkfield observations it revealed a complexity to treponeme-platelet interactions beyond the simple adhesion (Andrea, et al. 2003).

With increasing in the implementation of *Treponema*-specific assays screening tests is the first-line syphilis. Over the course of co-incubations with 11 independent the extractions of treponeme were assembled in a collection of live and high resolution images.

## CONCLUSION

The well-recognized capacity of the syphilis spirochete for early dissemination and immune evasion has earned designation of "stealth pathogen". This discordance in test results is commonly observed in our laboratory. The study of syphilis pathogenesis is mostly inability to culture and genetically manipulate *T.pallidum*, in recent years,

and considerable progress has been made structural, physiological, and regulatory facets for pathogenicity.

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