

# Syphilis pathogen from the petri dish

*Leibniz Institute DSMZ provides bacterium from laboratory animal-free cultivation*

BRAUNSCHWEIG, GERMANY, February 13, 2025 /EINPresswire.com/ -- The Leibniz Institute DSMZ-German Collection of Microorganisms and Cell Cultures has added the syphilis pathogen to its collection and makes it available to researchers around the world for scientific studies. Until now, the bacterium *Treponema pallidum* subsp. *pallidum* could only be propagated in laboratory animals, especially rabbits. Researchers from the United States have developed a method that enables the cultivation of the pathogen in cell culture. The DSMZ is one of two bioresource collections worldwide where the bacteria produced in this way are deposited.



Electron micrograph of *Treponema pallidum*; source: CDC/Dr. David Cox ([https://commons.wikimedia.org/wiki/File:Treponema Pallidum.jpg](https://commons.wikimedia.org/wiki/File:Treponema_Pallidum.jpg))

## Incubator cultivation

Since its isolation in 1912, the syphilis pathogen has only been multiplied in laboratory animals.



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*Sabine Gronow*

An in vitro method for cultivating the bacteria was published by the team surrounding Prof. Dr. Steven J. Norris at the University of Texas in 2021. "The bacteria are grown on cottontail rabbit skin cells. This approach avoids the use of laboratory animals", explains microbiologist Dr. Sabine Gronow, head of the Pathogenic Bacteria working group at the Leibniz Institute DSMZ. "However, cultivating *Treponema pallidum* (DSM 117211) in a petri dish is extremely complicated. We are currently establishing the

protocol developed by Professor Norris' group at the DSMZ." Until the DSMZ can propagate the bacterium itself, Prof. Norris' research group is making the bioresource available to the DSMZ for

transfer to researchers. Sabine Gronow and her team are also supplying isolated DNA from the bacterium to researchers. This facilitates its use in diagnostics and research without the need for establishing complex cultivation methods.

### The syphilis pathogen

The spiral-shaped bacterium *T. pallidum* subsp. *pallidum* has been identified as the pathogen causing the sexually transmitted disease syphilis for over 100 years. The World Health Organization estimates that around eight million people were infected with the pathogen in 2022. Syphilis is

transmitted almost exclusively through sexual contact, where the bacterium usually exploits small injuries in the natural protective barriers of the skin and mucous membranes. The disease can be treated with antibiotics. "The possibility of cultivating this bacterium without the use of laboratory animals brings many advantages for science," adds Sabine Gronow. "The use of laboratory animals and the associated expense and suffering is eliminated. When cultivated in a petri dish, the bacterium is easier to access and therefore much easier to study. This enables researchers to investigate the infection behaviour of *T. pallidum* and also the development of new therapeutic approaches." To date, no so-called type strain of *T. pallidum* subsp. *pallidum* has been described; ideally, strain DSM 117211 will be used as such reference for researchers in the future.

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### About the Leibniz Institute DSMZ

The Leibniz Institute DSMZ-German Collection of Microorganisms and Cell Cultures is the world's most diverse collection of biological resources (bacteria, archaea, protists, yeasts, fungi, bacteriophages, plant viruses, genomic bacterial DNA as well as human and animal cell lines). Microorganisms and cell cultures are collected, investigated and archived at the DSMZ. As an institution of the Leibniz Association, the DSMZ with its extensive scientific services and biological resources has been a global partner for research, science and industry since 1969. The DSMZ was the first registered collection in Europe (Regulation (EU) No. 511/2014) and is certified according to the quality standard ISO 9001:2015. As a patent depository, it offers the only



PD Dr. Sabine Gronow, head of the working group Pathogenic Bacteria at the Leibniz Institute DSMZ; source: DSMZ

possibility in Germany to deposit biological material in accordance with the requirements of the Budapest Treaty. In addition to scientific services, research is the second pillar of the DSMZ. The institute, located on the Science Campus Braunschweig-Süd, accommodates more than 90,000 bioresources and has almost 230 employees. [www.dsmz.de](http://www.dsmz.de)

#### The Leibniz Association

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