



# Immunological Role of Uterine Microbiome in Reproductive Health

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## Abstract

A woman's reproductive health depends on physiological factors in addition to the structure of the uterus. It was originally believed that uterus was a sterile organ but recent findings based on 16S rRNA have proved the contrary. These findings show that uterus has its own microbiome that affects the endometrial physiology. It seems that normal uterine microbiome has an important role in reproductive health.

## Aims of research

The aim of this study is to present new findings on microbiome and its role in uterine immunity for a healthy and fertile uterus.

## Materials and Methods

PubMed and Google Scholar were searched for articles in English indexed from 2010 to 2021 for 'uterus', 'microbiome' and 'fertility' to assess available evidence on uterine microbiome.



## Results

These studies suggest some possible ways in which local microbiome can affect the reproductive health:

Uterine microbiota has adapted to be the best scavenger in the area and uses a defense mechanism against pathogens by competing for nutrients and mucosal space. This process, called colonization resistance, can be crucial in protection against uterine infections.

As a second method, it can help support a healthy epithelial barrier by preventing pathogen access to the cell that may affect placentation.

A third possible method is that local microbiome can cause changes in regional signaling pathways. Alterations in microbiota can increase immune system sensitivity to pathogens thereby causing an abnormal inflammatory response.

Lastly, it seems that secretions by uterine microbiota such as short chain fatty acids suppress growth of certain species.

## Conclusion

There is a growing body of evidence that uterine microbiome plays an important role in immunoregulation and healthy endometrial function. However, future studies are necessary to expand the knowledge of uterine microbiome and its effects in fertility.

## References

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