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# **THE ROLE OF HUMAN UREAPLASMAS IN SPONTANEOUS PRETERM BIRTH**

by

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ACADEMIC DISSERTATION

To be presented, with the assent of the Medical Faculty of the University of Turku,  
for public examination in the lecture hall of the Department of Obstetrics and  
Gynecology on December 5<sup>th</sup> 2006, at 12 o'clock noon.

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# Abstract

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## THE ROLE OF HUMAN UREAPLASMAS IN SPONTANEOUS PRETERM BIRTH

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Preterm birth still remains a significant cause of neonatal mortality and morbidity. It is accepted that most of the spontaneous preterm births are due to ascending intrauterine infection. The most common microbial finding in amniotic fluid is ureaplasma.

This study was designed to improve the diagnostics of ureaplasma and to better understand its role in preterm birth. A specific PCR assay to detect ureaplasma was developed. Lower genital tract colonization with ureaplasma was found common, but it did not represent a risk factor for preterm birth, although women with preterm delivery were more often colonized than those delivering at term. In choriodecidua, there seems to be a certain tolerance to bacteria. A large amount of ureaplasma in choriodecidua is, however, able to initiate an inflammatory response likely to induce preterm delivery. Intra-amniotic inflammation is known to correlate with preterm delivery. The amount of ureaplasma DNA in the amniotic fluid varied greatly but was found not to correlate with onset of labor. *In vitro* perfusions showed that placenta does not permeate pro-inflammatory cytokines, hence the inflammatory response observed in the amniotic fluid represents fetal inflammatory reaction (FIRS). FIRS is a risk factor for neonatal and long-time morbidity. The role of ureaplasma in neonatal disease seems to be consequential, since it is the species of bacteria most often found *in utero*.

Ureaplasmas are common inhabitants of the lower genital tract. Their importance lies in their ability to ascend into uterine cavity during pregnancy and induce an inflammatory reaction in mother and fetus leading to preterm birth and its consequences in the newborn.

**Key words:** preterm birth, ureaplasma, intrauterine infection, choriodecidual inflammation, PCR, placental perfusion, bronchopulmonary dysplasia