

## Accepted Manuscript

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PII: S0890-6238(18)30065-0  
DOI: <https://doi.org/10.1016/j.reprotox.2018.07.082>  
Reference: RTX 7710

To appear in: *Reproductive Toxicology*

Received date: 19-2-2018  
Revised date: 12-7-2018  
Accepted date: 17-7-2018

Please cite this article as: Csányi A, Hajagos-Tóth J, Kothencz A, Gaspar R, Ducza E, Effects of different antibiotics on the uterine contraction and the expression of aquaporin 5 in term pregnant rat, *Reproductive Toxicology* (2018), <https://doi.org/10.1016/j.reprotox.2018.07.082>

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**Title Page**

Effects of different antibiotics on the uterine contraction and the expression of  
aquaporin 5 in term pregnant rat

**Short title:** Effects of antibiotics on AQP5 in uterus

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**Highlights**

- The pre-treatment with amoxicillin or fosfomycin decreased the AQP5 protein level and enhanced the oxytocin-induced contractions in the last day of pregnancy in rat.
- Amoxicillin and fosfomycin may sensitize the uterus to oxytocin via the reduction of AQP5 expression. This synergetic effect must be considered in pharmacotherapy during pregnancy.

**Abstract**

Aquaporin (AQP) water channels are small hydrophobic integral membrane proteins. AQP5 expression, which is regulated by oxytocin, showed a dramatic down-regulation at the term and preterm uterus. Since antibiotics are among the drugs to treat intrauterine infections, our aim was to study the effects of antibiotics on AQP5 and uterine contractility on 22-day pregnant rats.

The change in uterine AQP5 expression was investigated by PCR and Western blot techniques. Uterine contractility was tested in an organ bath system.

7 days of pre-treatment with amoxicillin or single dose of fosfomycin decreased the AQP5 protein level, while 7 days of treatment with doxycycline had no effect. Fosfomycin or amoxicillin pre-treatments enhanced, while doxycycline pre-treatment did not alter the oxytocin-induced contractions.

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