

## Původní práce

### Placentárně specifické microRNA v mateřské cirkulaci a jejich potenciál v diagnostice patologií souvisejících s placentární insuficiencí

### Placental specific microRNAs in maternal circulation and their diagnostical potential for placental insufficiency related complications

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**Objectives:** Quantification of placental specific microRNAs in maternal circulation during the course of gestation in a cohort of normal pregnancies. Differentiation between placental insufficiency related complications and normally progressing pregnancies. Differentiation between placental insufficiency and normal pregnancies during early stages of gestation.

**Study design:** Absolute and relative quantification of placental specific microRNAs (miR-516-5p, miR-517\*, miR-518b, miR-520a\*, miR-520h, miR-525 and miR-526a) were determined in 50 normal pregnancies, 32 complicated pregnancies (21 preeclampsia with or without intrauterine growth retardation and 11 IUGR) and 7 pregnancies at various gestational stages which later developed preeclampsia and/or IUGR using real-time PCR and a comparative Ct method relative to normalization factor (geometric mean of ubiquitous miR-16 and let-7d).

**Results:** Both quantification approaches revealed significant increases in extracellular placental specific microRNAs levels over time in normally progressing pregnancies, however, they were not able to differentiate between normal and complicated pregnancies at the time of preeclampsia and/or IUGR onset. Nevertheless, significant elevation of extracellular microRNAs was observed during early gestation (within 12<sup>th</sup> to 16<sup>th</sup> weeks) in pregnancies with later onset of preeclampsia and/or IUGR.

**Conclusions:** Early gestation extracellular microRNAs screening can differentiate between normal pregnancies and those that may later develop placental insufficiency related complications.

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