

UNIVERSITI TEKNOLOGI MARA

**THE EFFECT OF LEPTIN ON
UTERO-PLACENTAL EXPRESSION
OF EPHB4, EPHRIN-B1, EPHRIN-B2
AND BLOOD PRESSURE IN
SPRAGUE DAWLEY RATS**

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MSc

July 2017

AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Background: Ephs and ephrins might play a role in the migration of cytotrophoblast during endometrial invasion. Objective: This study attempts to establish the pattern of expression of EPHB4, Ephrin-B1 and Ephrin-B2 in the utero-placental unit during pregnancy in control and leptin-treated rats. Method: Normotensive female Sprague-Dawley rats, aged 12 weeks in pro-estrous were individually housed overnight with a male. Upon confirmation of mating the rats were randomized into two groups; control group and leptin-treated group. These groups were further divided into 10 subgroups (n=6 per group). Rats in the leptin-treated groups were given daily 60 µg/kg BW/day of leptin subcutaneously from two weeks prior to mating and until the day they were euthanized. Rats were euthanized every 2 days from day 5 of pregnancy and the placentae were collected for RT-PCR and immunohistochemistry. Data were analyzed using two-way ANOVA and expressed as mean ± SEM. Result: Results showed that Ephrin-B1 and EPHB4 expressions in the placenta and uterus decreased significantly from early to mid-pregnancy and then increased towards the end of pregnancy in normal rats ($p < 0.001$). Ephrin-B2 expression decreased over the course of pregnancy in both the placenta and uterus ($p < 0.001$). Ephrin-B1 expression was significantly higher in the leptin-treated group at day 21 of pregnancy. It appears that Ephrins-B1, B2 and EPHB4 are expressed by both the placenta and the uterus of the rat and their expression varies along the course of pregnancy. Conclusion: In conclusion, although the expression of Ephrin-B1 is affected by leptin, it might not have a role in leptin-induced hypertension during pregnancy in the rats.

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