Placenta 83 (2019) e1–e118

Contents lists available at ScienceDirect

Placenta

journal homepage: www.elsevier.com/locate/placenta


# Abstracts for the forthcoming International Federation of Placenta Associations Meeting, Buenos Aires, Argentina September 10 - 13, 2019

## Abstract Outline - IFPA 2019

| | |
|---|---|
| Clinical Symposia | CS1 – CS7 |
| Plenary Lectures | L1 – L4 |
| Hot Topic Lectures | HT1 – HT7 |
| SLIMP New Investigator Award Lecture | SLIMP |
| Elsevier Trophoblast Research New Investigator Award Lecture. | TB |
| NIH Award Lecture | NIH |
| Symposia | S1 – S11 |
| IFPA Award Lectures | IFPA 1 – IFPA 2 |
| Andre Gruslin Award Lecture | AG |
| | |
| Mid Career Session | MC.1 – MC.8 |
| New Investigator Session 1 | NI1. 1 – NI1.5 |
| New Investigator Session 2 | NI2.1 – NI2.5 |
| | |
| Poster session 1 | P1.1 – P1.155 |
| Poster session 2 | P2.1 – P2.161 |

**Conclusion:** Overall, our results demonstrate that probiotic LK-48 administration prevents LPS-induced PTB by reducing leucocytes influx into gestational tissues and promoting placental vascular homeostasis.

## P1.52.
## CROSSTALK BETWEEN ERα AND NFκB TRANSCRIPTION FACTORS ON $E_2$ INDUCED LEPTIN EXPRESSION IN PLACENTAL CELLS.

Malena Schanton [1], Maria Fernanda Camisay [1], Antonio Pérez-Pérez [2], Bernardo Maskin [3], Roberto Casale [3], Victor Sánchez Margalet [2], Alejandra Erlejman [1], Cecilia Varone [1]. [1] *Dpto. Química Biológica, FCEN, UBA, IQUIBICEN-CONICET, BUENOS AIRES, Argentina;* [2] *Dpto. de Bioquímica Médica y Biología Molecular, Universidad de Sevilla, Sevilla, Spain;* [3] *Hospital Alejandro Posadas, BUENOS AIRES, Argentina*

**Objectives:** Leptin is a key hormone in placental physiology. It regulates trophoblast proliferation, inhibits apoptosis, stimulates protein synthesis, and regulates fetal growth and development. It plays an important role in reproduction mainly because it has been suggested to have function in the placenta during the gestation, where leptin and leptin receptors expression were detected. Previous results from our lab demonstrated that estradiol ($E_2$) regulates leptin expression involving genomic and non-genomic effects. In the present work, we analysed the crosstalk between estrogen receptor alpha (ERα) and NFκB transcription factors on $E_2$ induced leptin expression in human trophoblast cells.
**Methods:** BeWo cells, cultured and human term placental explants were used. Western blot, immunocytochemistry, co-immunoprecipitation and transfection assays were carried out. Ethical review committee at the Alejandro Posadas National Hospital approved all procedures.
**Results:** We found that $E_2$ treatment significantly enhanced the NFκB member p65 expression both in BeWo cells and human term placental explants. Moreover $E_2$ increased IκBα phosphorylation and NFκB transcriptional activity determined by reporter analysis. We also evaluated the localization of ERα and p65 NFκB subunit in BeWo cells by immunofluorescence assay. We found that both proteins are located in the cytoplasm and migrate to the nucleus when they are overexpressed. Besides ERα and p65 form a complex determined by co-immunoprecipitation, as previously seen. These findings suggest that the transcription factor NFκB, might be affecting estradiol leptin induction. Finally through transient transfection analysis we observed that the overexpression of RelA (p65) and HEGO (ERα) increases basal transcriptional activity of leptin promoter.
**Conclusion:** These results suggest that leptin expression is tightly regulated and help to comprehend the mechanisms where $E_2$ regulated leptin expression possibly involving the cooperation between ERα and NFκB transcription factors.

## P1.53.
## ANGIOTENSIN II UPREGULATES PLACENTAL LEPTIN AND HAS A POTENTIAL INFLAMMATORY ROLE IN EARLY GESTATION PLACENTA

Olivia Nonn [1], Sabine Maninger [1], Amin El-Heliebi [1], Thomas Kroneis [1], Désirée Forstner [1], Jaqueline Guettler [1], Monika Siwetz [1], Florian Herse [2], Ursula Hiden [3], Denise Hoch [3], Gernot Desoye [3], Berthold Huppertz [1], Martin Gauster [1]. [1] *Division of Cell Biology, Histology and Embryology, Gottfried Schatz Research Centre, Medical University of Graz, Graz, Austria;* [2] *Max Delbrueck Centre for Molecular Medicine, Experimental Clinical Research Centre Campus Buch, Charité, Berlin, Germany;* [3] *Department of Obstetrics and Gynaecology, Medical University of Graz, Graz, Austria*

**Objectives:** Placental Renin-Angiotensin-System (RAS) components were previously shown in early gestation placenta, such as Angiotensin II (AngII) receptor type 1 (AT1R/*AGTR1*) in the syncytiotrophoblast in contact with maternal blood. RAS with its main ligand AngII regulates pregnancy hormones as human placental lactogen (hPL) and oestradiol but also the release of proinflammatory cytokines. We investigated early placental RAS localisation, expression, and the influence of maternal and foetal factors, as well as effects of AngII on proinflammatory placental response and on leptin, a hormone involved in pregnancy sustenance.
**Methods:** Placental tissue was collected from early electively terminated gravidities of healthy, lean patients. RAS expression was determined via qPCR across gestation and compared to smokers (n=107). *AGTR1* mRNA was localised in early and term placentae via *in situ* hybridisation-based padlock-probe technology combined with CD34, CK7, and βHCG staining (n=10), leucyl and cystinyl aminopeptidase (*LNPEP*) was localised with immunofluorescence staining (n=3). Placental tissue (n=3) was treated with Ang II (0.1μM) for 6h for gene expression assays with inflammation related genes. Placental explants (n=12) were cultured with AngII (0.1 μM) and AT1R blocker Candesartan (0.1 μM; Cand) with 2.5% oxygen for 3h, 6h and 24h.
**Results:** Placental *AGTR1* and *LNPEP* revealed a differential expression between smokers and non-smokers. Padlock-probe technology showed *AGTR1* being predominantly located at placental endothelium, whereas villous trophoblasts showed *LNPEP* staining. Gene expression arrays showed regulation of inflammatory genes upon AngII treatment, with enriched immunological pathways. *In vitro* studies with explants showed that placental leptin expression was significantly upregulated by AngII, with an expression peak at 6h. Treatment with Cand alone and with AngII showed partial inhibition of leptin expression.
**Conclusion:** Contrary to previous findings placental *AGTR1* is located at the foetal endothelium in myofibroblast like cells. Hence, maternal AngII may primarily act on *LNPEP* and play a role in placental inflammation, possibly via Leptin. Smoking may contribute to a disturbed microenvironment in early gestation and to inflammation via deregulation of placental RAS.

## P1.54.
## LEPTIN PREVENTS CELLULAR STRESS UNDER HYPOXIC CONDITION IN TROPHOBLASTIC CELLS

Nataly de Dios [1,2], Paula Balestrini [3], Malena Schanton [1,2], Rodrigo Riedel [1,2], Mariana Jaime [4], Bernardo Maskin [4], Julieta Maymo [1,2], Cecilia Varone [1,2]. [1] *Instituto de Qca. Biológica-CONICET, Capital federal, Argentina;* [2] *Facultad de Ciencias Exactas- UBA, Capital Federal, Argentina;* [3] *Instituto de Biología y Medicina Experimental IByME, Capital federal, Argentina;* [4] *Hospital Nacional Profesor Alejandro Posadas, Capital federal, Argentina*

**Objectives:** Leptin is a pleiotropic hormone produced by the placenta where it plays important functions. We have previously demonstrated that leptin promotes proliferation and survival of trophoblastic cells. In this work we aimed to study the effect of leptin in placental cell stress induced by Cobalt Chloride ($CoCl_2$), a hypoxia mimicking agent that stabilizes HIF-1α transcription factor.
**Methods:** For this study we used Swan-71 cells, a first trimester trophoblastic human cell line, cultured under standard conditions, as well as human term placental explants. Swan-71 cells and placental explants were treated with $CoCl_2$ (50, 100 and 250 μM) with or without 100 ng/ml of recombinant leptin. The expression of HIF-1α, p53, Ki67 and cPARP was determined by Western blot or immunofluorescence (IF). Cell proliferation was analyzed by Ki67 expression and cell counting. DNA fragmentation by apoptosis was determined by the DNA ladder assay. All the procedures were approved by Ethical Review Committee at the Alejandro Posadas National Hospital.
**Results:** We observed that $CoCl_2$ treatment significantly increased HIF-1α expression in a time and dose dependent way ($p<0,05$) in Swan-71 cells. These results confirmed that $CoCl_2$ treatment mimics a hypoxic condition. Cell proliferation was diminished after $CoCl_2$ treatment, analyzed by the expression of Ki67 determined by IF and cell counting. The addition of leptin significantly reversed this effect. On the other hand the key regulator p53 level was not altered by $CoCl_2$ treatment, determined by Western blot. Preliminary results showed that cleaved PARP would be increased after $CoCl_2$ treatment. The role of leptin on apoptosis in cells treated with $CoCl_2$ was also determined. Treatment with $CoCl_2$ induced DNA fragmentation in placental explants and leptin diminished this effect.