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5th European Nutrition and Dietetics Conference

June 16-18, 2016 Rome, Italy

## Leucine rich diet changed the placental activity in pregnant tumor bearing rats

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The placenta is the fundamental structure that maintains fetal development and is deeply harmed during cancer. Previous studies have shown that leucine supplementation can preserve placental proteins as well as total DNA. Pregnant Wistar rats were distributed into 6 groups: Control (C), Walker tumor bearing (W), pair-fed (pC), Leucine-rich diet (L), tumor-bearing and leucine diet (WL) and pair-fed with leucine diet (pL). After 20 days, placental weight and gluthatione-S-transpherase (GST) and alkaline phosphatase (AP) activities and malonaldehyde (MDA) content were measured. The fetal/placental weight ratio was lower in W than WL group. The placenta GST activity was increased in L groups (L=29.8±3.4 and LW=21.1±1.2 nmol.min-1.mg protein-1) compared to other groups (C=14.9±1.9; W=10.9±1.2 nmol.min-1.mg protein-1) showing statistical enhancement in LW that was 1.9-fold higher then verified in the W group. The AP activity was lower in the W, in contrast to the statistical increase in the pC group. Although there was no difference among the leucine rich diet groups, the L group showed a reduction only in the AP activity versus the C group. In contrast to all the benefits produced by leucine, the association with tumor growth induced higher MDA content in the LW group (0.78±0.11 nM.µg protein-1) versus the efficient reduction in the L group (0.29±0.05 nM.µg protein-1). Despite the reduced fetal and placental weights in the WL group, placental protein, DNA and total cell number were preserved. The anti-oxidative enzymes minimized the oxidative stress suggesting that leucine, acting as a cell signaling factor could improve fetal development..

### Biography

Maria Cristina Cintra Gomes-Marcondes is currently working at UNICAMP –University of Campinas, Dept. of Structural and Functional Biology, Campinas, Sao Paulo, Brazil where she directs researches on Nutrition and Cancer. Her main scientific interests lie in the investigation of the biochemical, molecular and metabolic effects of cachexia under nutritional supplementation aspects, minimizing the lean body mass waste in cancer and improving the host survival and quality of life. The findings in this area produced knowledge on leucine supplementation and muscle mass and carcass preservation, and leucine modulatory effect on ubiquitin-proteasome pathway. She has published studies on the molecular mechanism of proteolysis-inducing factor and on the association with leucine-rich supplementation on proteolysis turnover.

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