**Early weaning alters proliferation dynamics in the gastric mucosa of rats.**

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**Introduction:** The gastric mucosa in the corpus area is constituted of tubular glands that open to the surface through pits, and in these glands three regions are identified: isthmus, neck and base Epithelial cells proliferate along the gastric gland during rat postnatal development, whereas after weaning, they are concentrated between the isthmus and neck of the gland. In adult animals, an additional niche is also found at gland base, but the characterization of markers for stem/progenitor cells is still under discussion and little is known about postnatal development. Breastfeeding period is critical for stomach maturation in terms of supply of nutrients and growth factors, so abrupt cessation of breastfeeding can be detrimental to organ development. Thus, considering the importance of the breastfeeding period, our hypothesis was that an abrupt change in diet with early weaning leads to disturbances in the proliferative niche that can extend into adulthood. Our aims were to evaluate the immediate and late effects of EW in cell proliferation distribution, at expression genes related to stem cell niche.

**Materials and method**: Wistar rats were submitted to EW (15d) and gastric samples were collected at 18d, 30d, 60d and 120d for RT-qPCR for gene expression analyzes, tissue and cell morphology for immunohistochemical labeling. Ethics Committee CEUA ICB USP 18/2015; 115/2017.

**Results:** The results indicated a distinct distribution of proliferative cells between the suckling (S) and EW group at 18 days. In 30-day-old rats, we observed that the S group had higher proliferation rates compared to the EW group in all regions of the gland. In addition, we showed that EW led to an increase in proliferation at the base of the gland in the 60-day animals. We observed that in the S group there is a proliferation and growth dynamics during the first month of life, but in the EW group it is observed a stabilization of proliferation to patterns similar to those seen in adult animals. We also indicate that growth dynamics of the gland varies with the advancing age of the EW rat. As for genes involved in stem cell niche EW induced differential effects on the genes in 18d and 60d, but no differences at 120d.

**Conclusion**: In summary, we observed that after EW the expression of genes involved in signalling and stem cell niche behaved differently over aging, and we can suggest that the first month of life of rats presents a different proliferation dynamic between the gland regions and early weaning affects these processes. So, the premature dietary change influenced the proliferative compartment. Grant FAPESP: #2018/05064-0, #2018/07782-8.