# EFFECTS OF NDL-PCB AND TCDD ON INTESTINAL EPITHELIAL CELLS HOMEOSTASIS.

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## Introduction

Polychlorinated biphenyls (PCBs) and polychlorinated dibenzo-p-dioxins (PCDD) are persistent organic pollutants (POPs) recognized as causing adverse effects on humans, animals and environment (Marinkovic et al., 2010; White et al., 2009). Exposure occurs mainly through the consumption of contaminated food, in particular those of animal origin (EFSA, 2010). After the ingestion, the absorption of the food contaminants object of the current study is in the intestine (Cavret et al., 2005); then they rich target tissues and exert toxic effects. While several studies have been carried out to evaluate the toxic effects of these chemicals both in humans and animals, few studies have been performed about the effects on non tumorigenic cell line of intestinal origin. Therefore, the aim of the current study was to evaluate the effects of three ndl-PCB congeners, PCB 138, PCB 153 and PCB 180, and tetrachlorodibenzo-p-dioxins (TCDD), alone and differently combined, on non tumorigenic rat intestinal epithelial cell line (IEC-6).

## Methods

IEC-6 cells were culture in cultured using Dulbecco's modified Eagle's medium (4 g/L glucose) supplemented with 10% (v/v) heat-inactivated fetal bovine serum, 2 mm L-glutamine, 1.5g/L $NaHCO_3$, and 0.1 unit/ml bovine insulin. Cells were used at the $17^{th}$-$21^{st}$ passage. Cell viability was assessed through MTT assay (Mosmann, 1983). The effects on apoptosis induction and cell cycle progression were analyzed using PI staining by flow cytometry. Finally, the effects on wound healing were assessed by measuring the migration rate of individual cells by time laps microscopy.

## Results and Discussion

The results of the current study showed that ndl-PCBs and TCDD reduced significantly cell viability only at the highest concentrations (50-100 µM and 0.1-1 µM, respectively); such effect was not linked to apoptosis induction or cell cycle arrest. The contemporary presence of more than one contaminant (differently combined) did not induce any enhancement of effects on IEC-6 cell line.
Intestinal restitution was not affected by low non cytotoxic concentrations of ndl-PCBs and TCDD.
The results of the current study highlight the need to continue the evaluation of toxic properties of ndl-PCBs, which represent a less studied PBCs; such studies could provide useful information in particular in term of risk assessment.

### References

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