



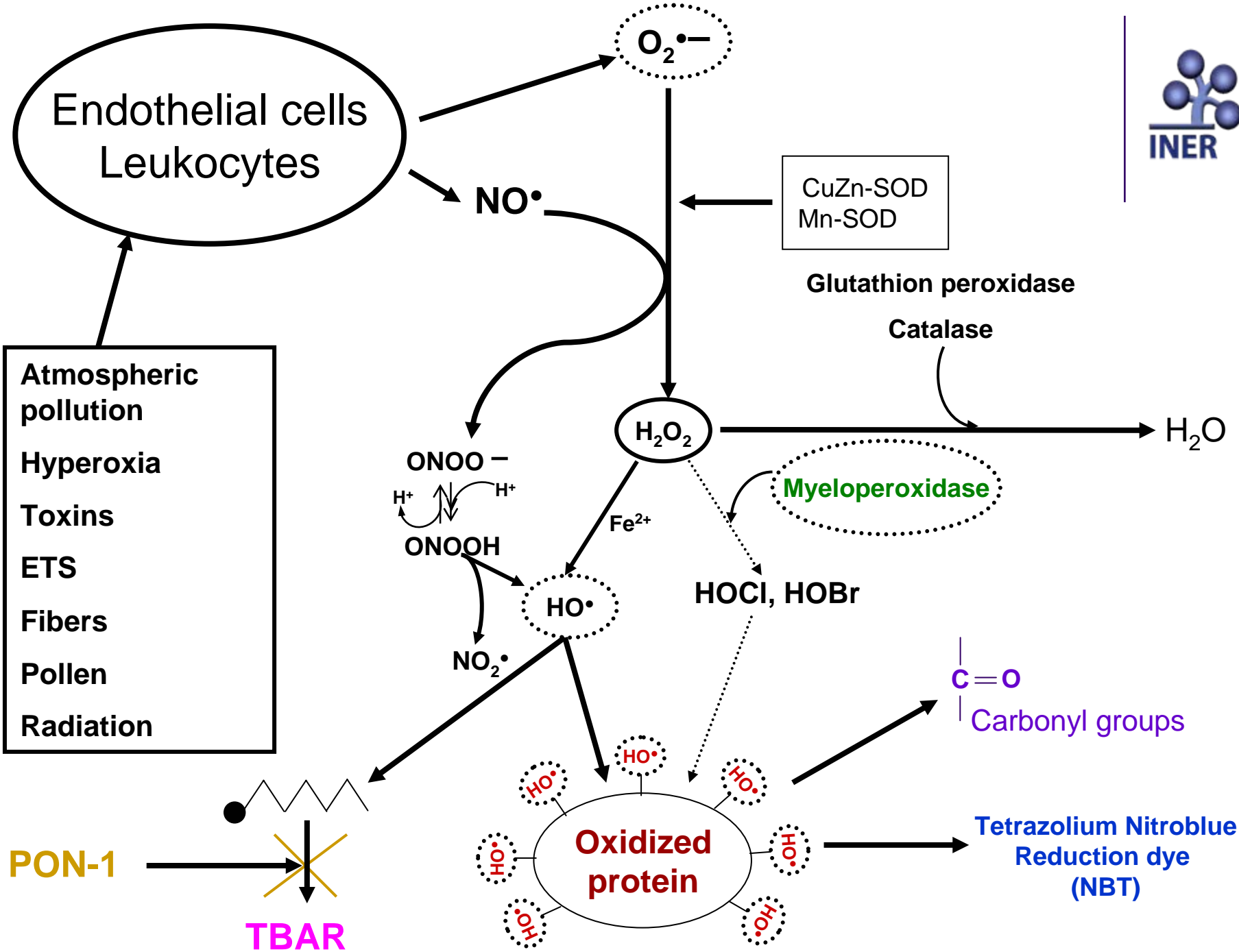
SERUM BIOMARKERS OF OXIDATIVE STRESS MEASURED DURING MCMA-2006 CAMPAIGN IN MEXICAN CHILDREN EXPOSED TO THE AIR POLLUTANTS PLUME FALL



Introduction



Mexico City is a big polluted area, and its geographic characteristics enhance the concentration of air criteria contaminants. During 2006 the MILAGRO-MCMA campaign was organized to evaluate the regional impacts of ambient air pollution.



Objective



To determine the activity and concentration of : MPO, PON-1, TBARs, NBT reduction dye and carbonyl groups in children living in areas exposed to the MCMA air pollutants plume.

Materials and methods



Two sites were locations exposed to the megacity aerosol plume:

T1-Tecamamac, México

T2-San Pedro, Hidalgo

Materials and methods



One, a non aerosol plume site

T0-Iztapalapa, D.F.

A control site outside the MCMA,

TT-Santa Ana, Tlaxcala.

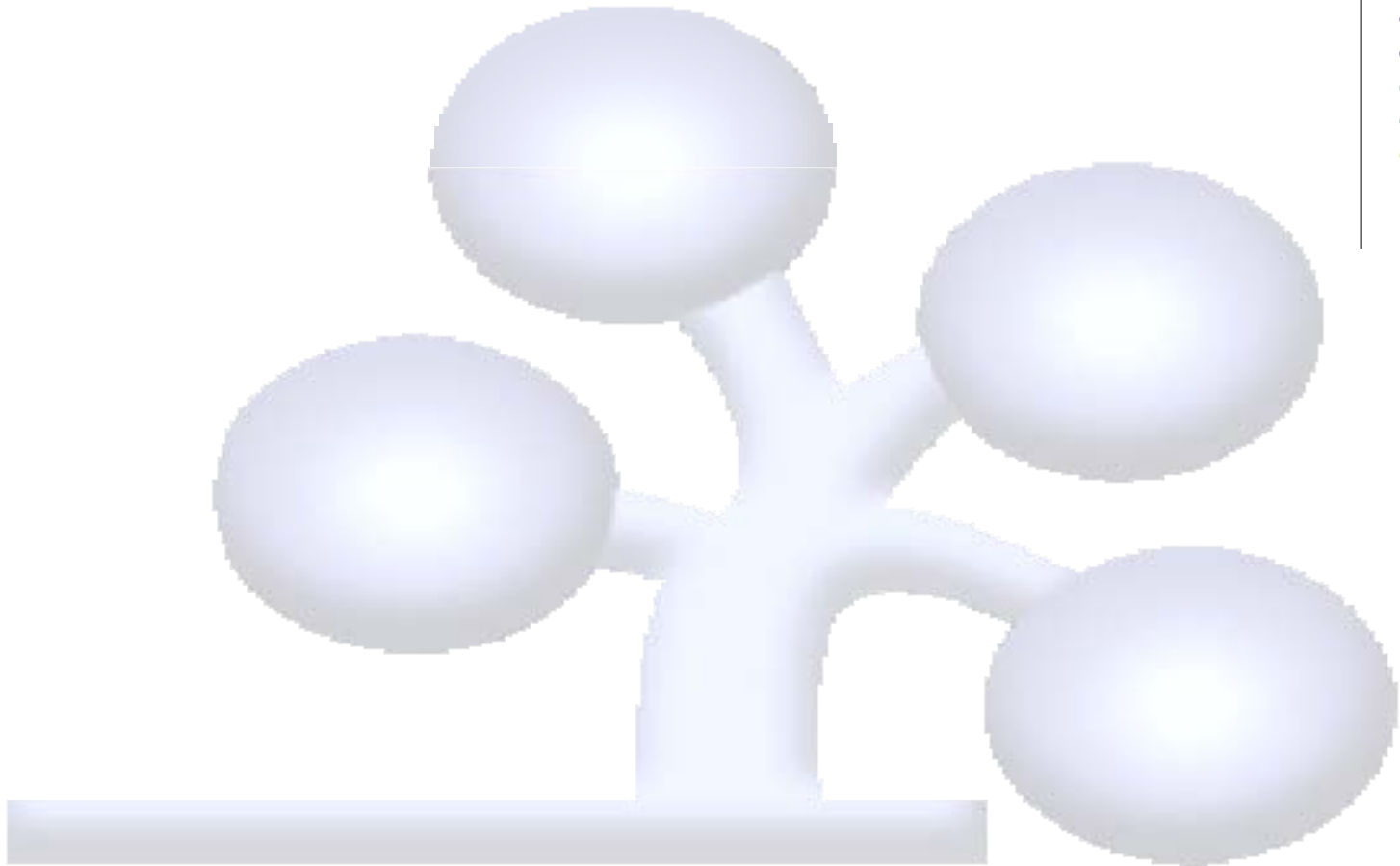
Materials and methods

A 6 ml of blood sample from children aged between 9-11 years old was collected.

The determination of the different biomarkers of oxidative stress was carried out by spectrophotometric techniques

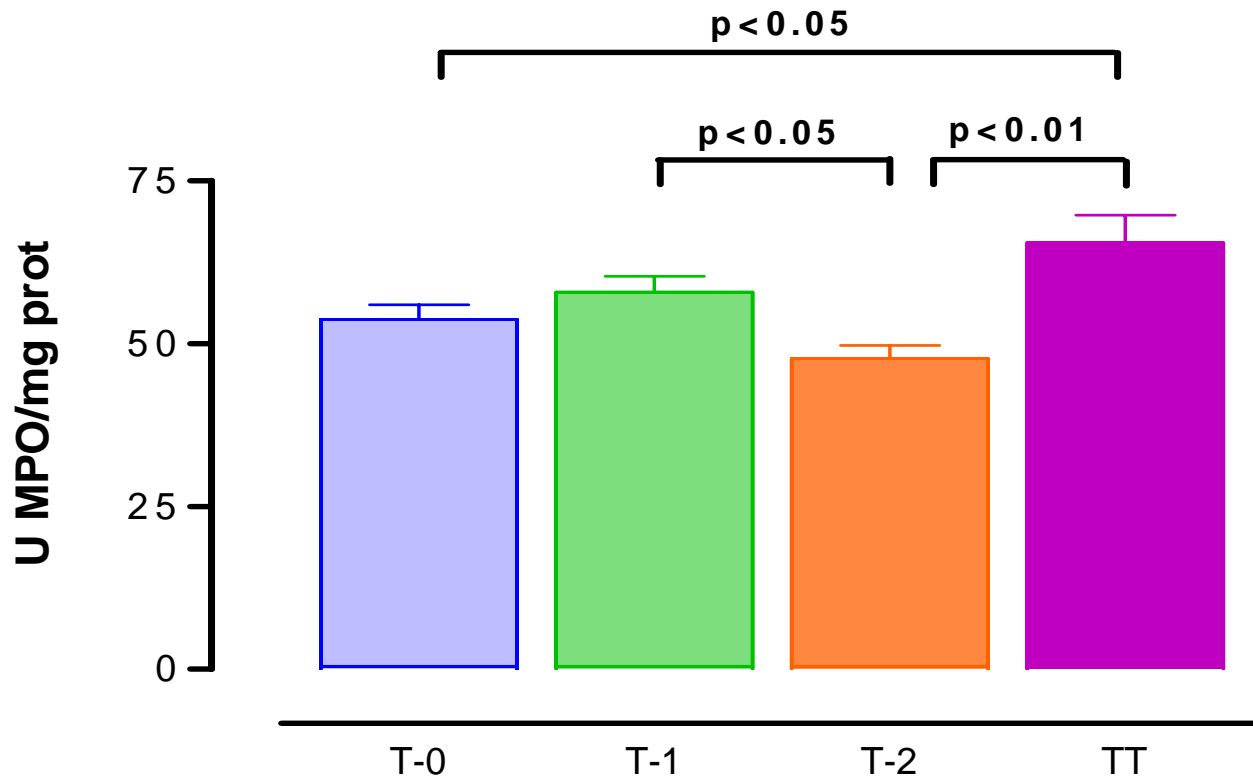
Materials and methods

Statistical analysis was done by the One Way ANOVA and the U Man-Whitney test to compare between the groups. The statistical significance level was set at $p < 0.05$.

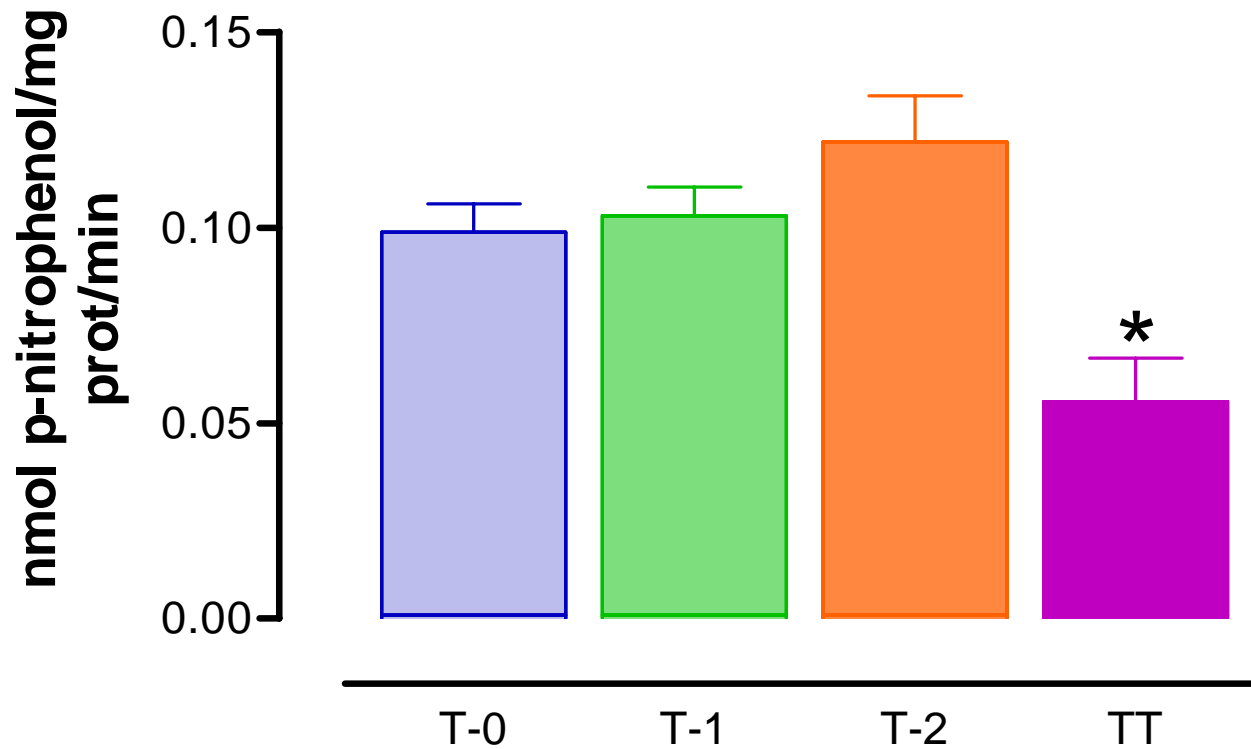


Results

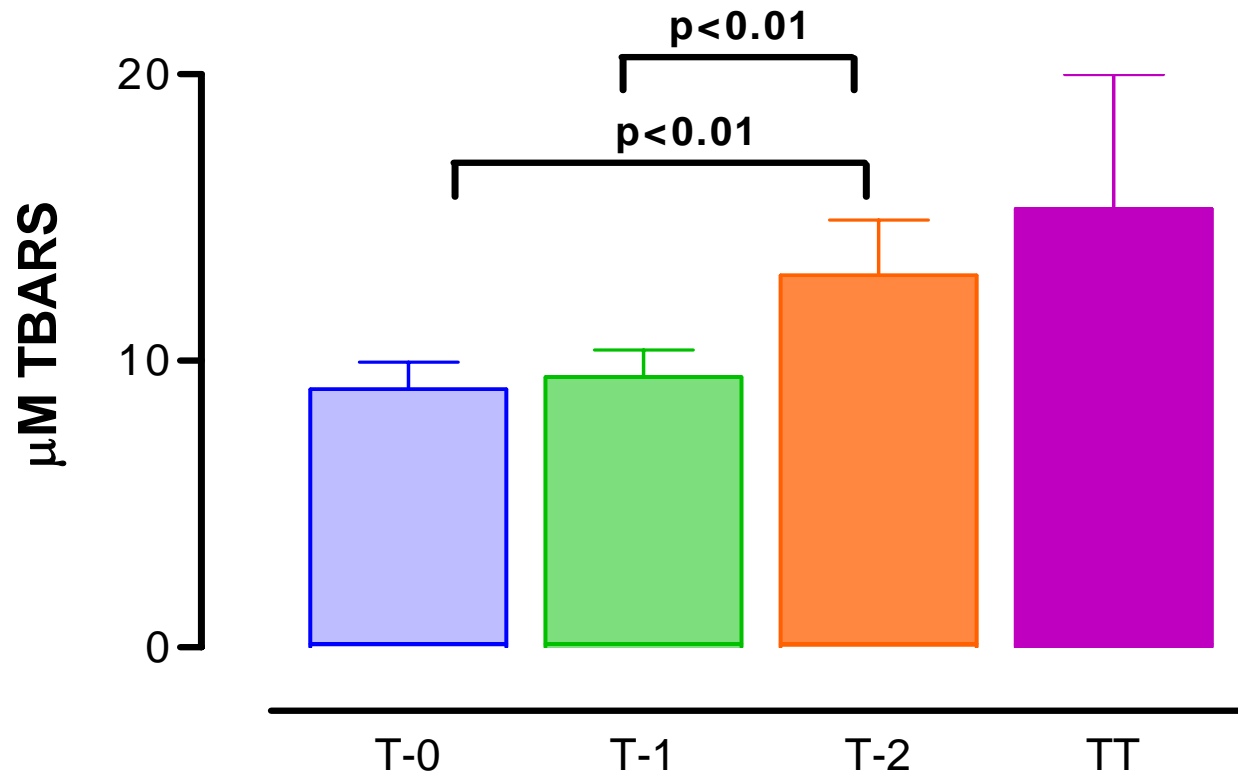
Activity of Myeloperoxidase (MPO)



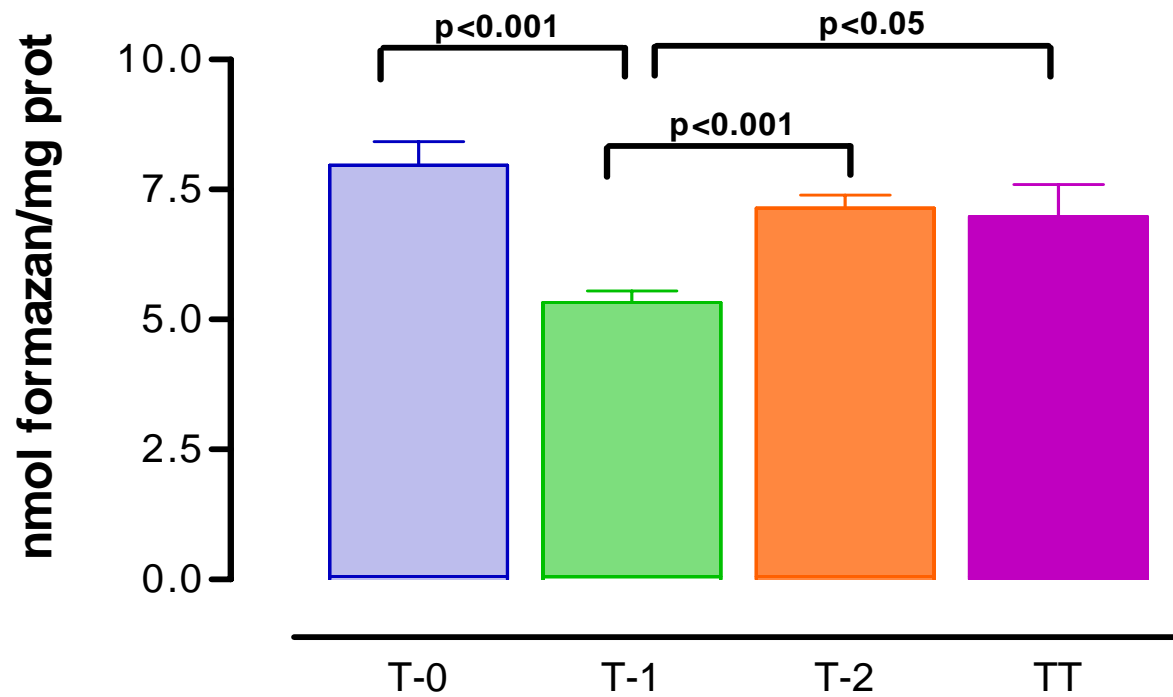
Activity of Paraoxonase (PON-1)



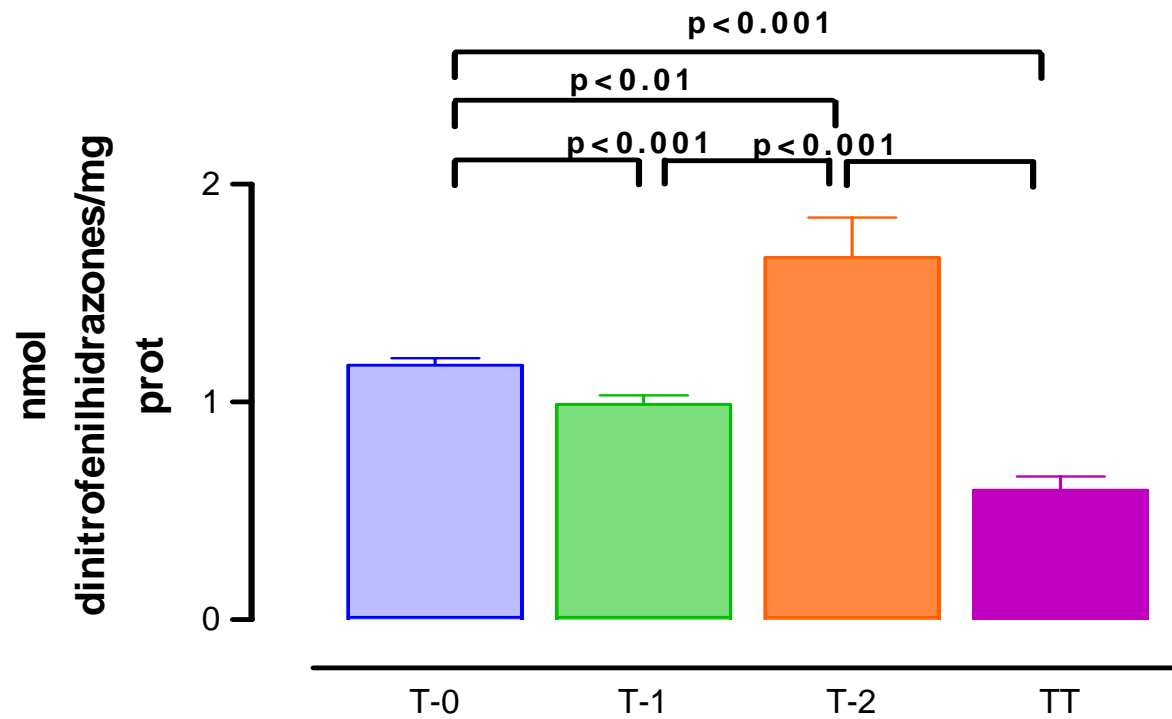
Thiobarbituric Acid Reactives



Reduction of Nitro Blue Tetrazolium



Determination of Carbonyl groups



Conclusion



This work demonstrates that:

- 1) Children from the locations exposed to megacity aerosol plume, showed an induction of PON-1 activity and higher concentration of carbonyl groups

Conclusion



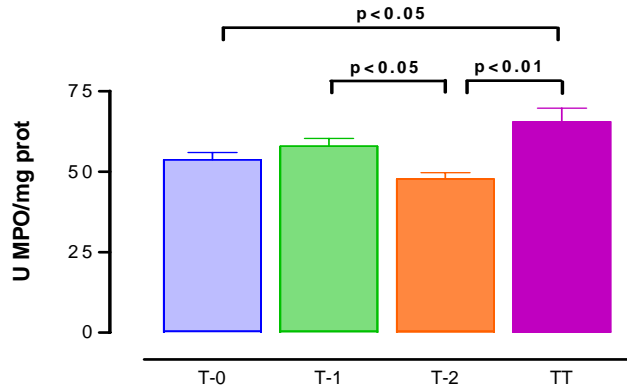
- 2) Children from TT showed an increased MPO activity, and lipoperoxidation products (TBARS), but lesser PON-1 activity and carbonyl groups.

Conclusion

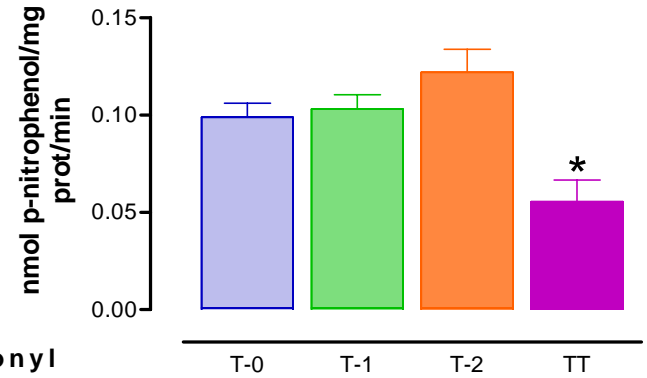


- 3) Further statistical analysis are in course to confirm if these findings are related to air pollutant exposure.

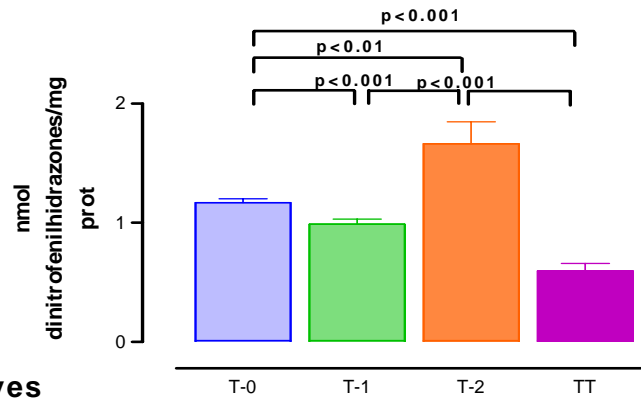
Activity of Myeloperoxidase (MPO)



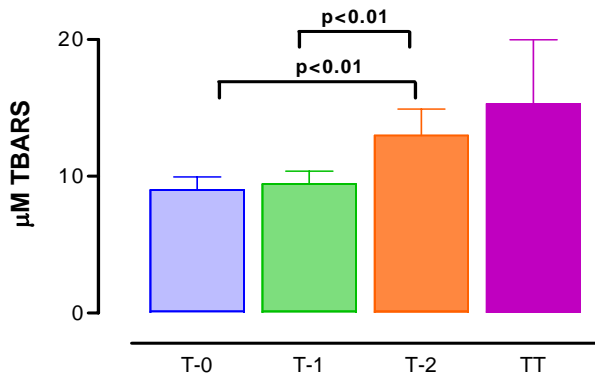
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