9 - Molecular Cell Biology

PO-102 - (23925) - PRENATAL VITAMIN A ENHANCES ANTIOXIDANT ENZYME EXPRESSION IN DEVELOPING MOUSE LUNGS

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Retinol has proven to be an essential molecule in lungs' fetal development, but its antioxidant role is complex and context dependent. Our previous studies showed that maternal administration of vitamin A, once the period of retinoid-induced teratogenesis is over, results in an enhancement of lung fetal organogenesis. At birth there is a major increase of ROS (Reactive Oxygen System) due to the exposure to oxygen, particularly relevant in premature neonates. To investigate if retinol has a positive influence on the lungs antioxidante enzymes pregnant mice were subjected to subcutaneous administration of vitamin A on the 12th gestational day.
The lungs from control and exposed animals were collected daily from the 15th gestational day till the 3th day of life. Catalase was measured by the polarographic method and glutathione peroxidase and superoxide dismutase by spectrometry.
Our results revealed that catalase and glutathione peroxidase are more abundant in the developing lungs, whereas superoxide dismutase is unnoticeable in all the days under study. There is a positive effect of vitamin A administration on both catalase and glutathione peroxidase. A statistical significance between control and vitamin A exposed animals was observed at16th gestational day for catalase and at the15th and 16th gestational day for glutathione peroxidase.

Maternal vitamin A administration during late gestation enhances antioxidant enzyme activity (specifically catalase and glutathione peroxidase) in neonatal mouse lungs, with statistically significant effects observed at critical developmental timepoints (15th–16th gestational days), suggesting a targeted role in mitigating oxidative stress during the transition to postnatal oxygen exposure.

Palavras-chave : Lung development, vitamin A, antioxidant enzymes, ROS, Lung development, vitamin A