Effects of perinatal hypoxia on oxidative stress-related gene expression in the murine cerebellum.

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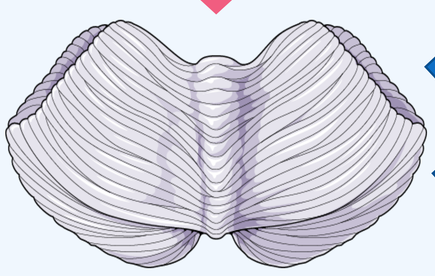
➢ Introduction: The functional importance of cerebellar hypoxic injury is underestimated

Background

Immaturity at birth



Motor Functions

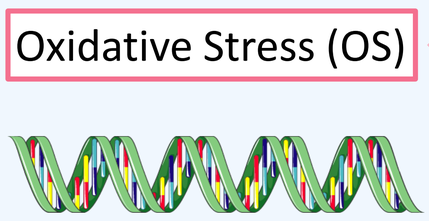
Cognition Behavior

Objectives

↓O_2

↑ROS

Oxidative Stress (OS)



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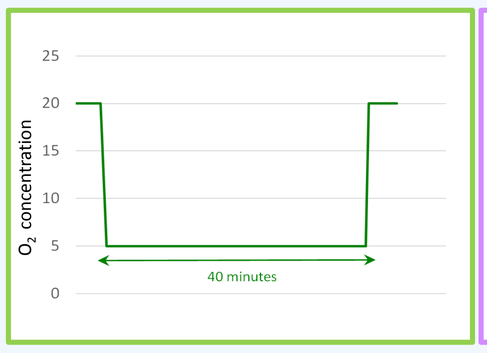
Methods

Continuous Hypoxia (CH)



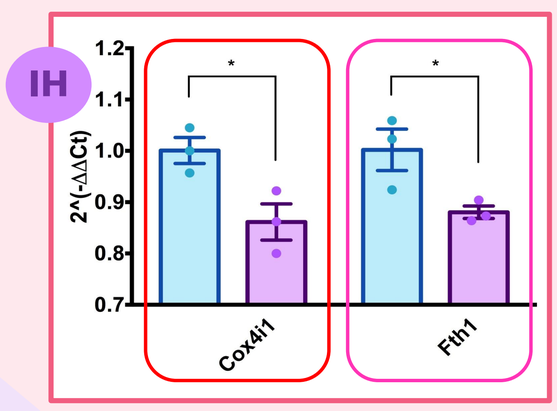
Respiratory delay

Intermittent Hypoxia (IH)

Apnea of Prematurity

➢ Results: Real Time PCR shows that IH induces greater changes in gene expression than CH

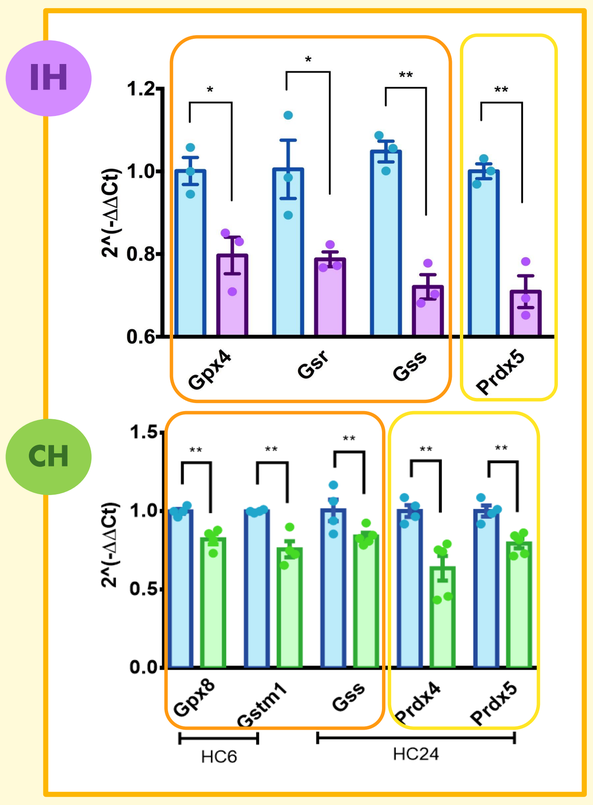
1 ROS accumulation : ↑ production



↓ Cytochrome c Oxydase

↓ Ferritin

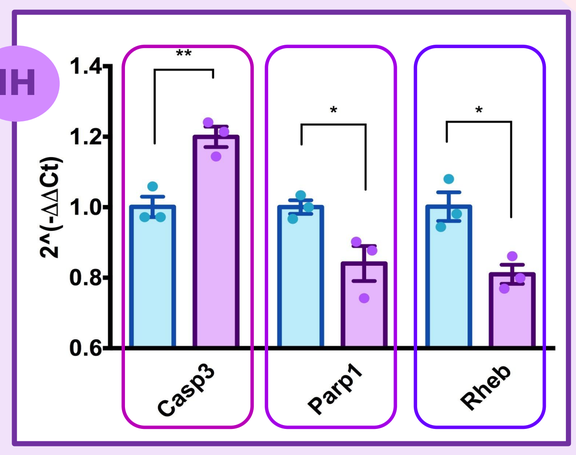
2 ROS accumulation : ↓ neutralization



↓ Glutathione Peroxydase (Gpx)
↓ Glutathione Reductase (Gsr)
↓ Glutathione Synthetase (Gss)
↓ Glutathione S-transferase (Gstm1)

↓ Peroxyredoxin

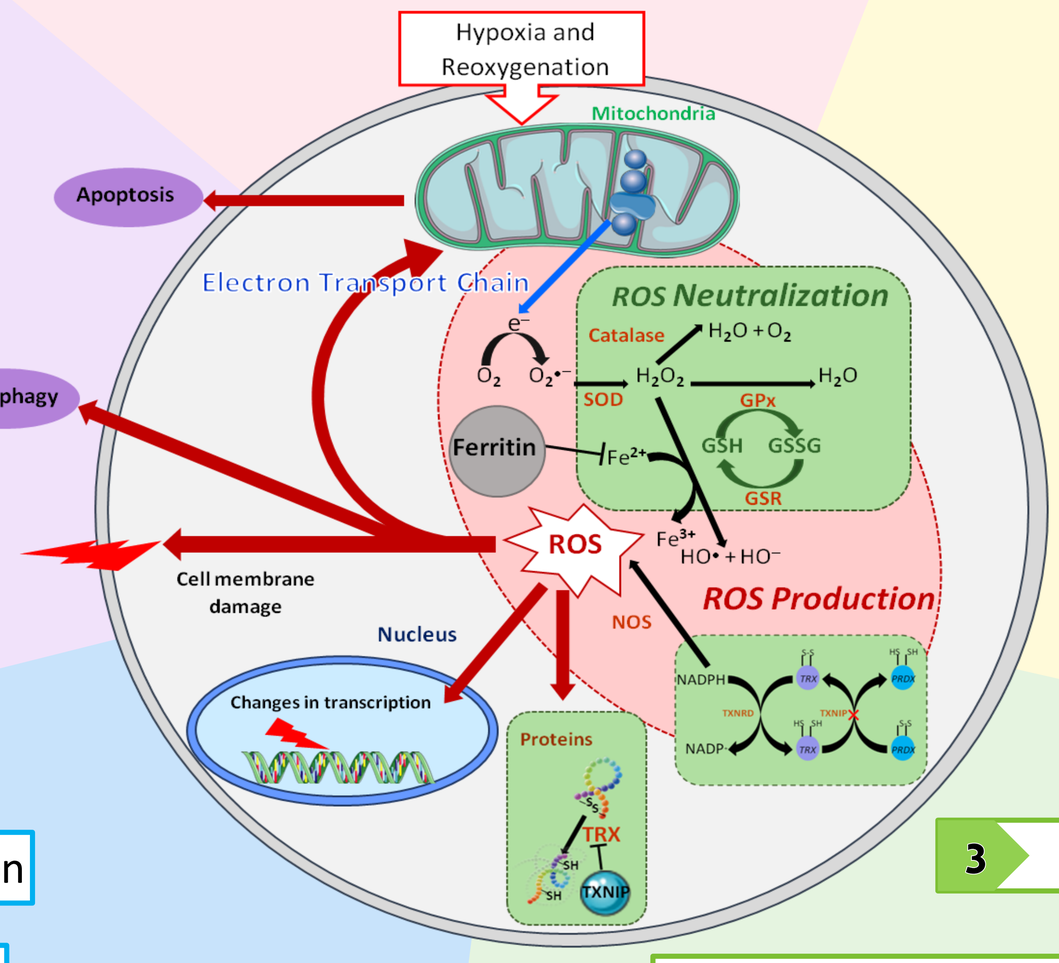
5 Cell death



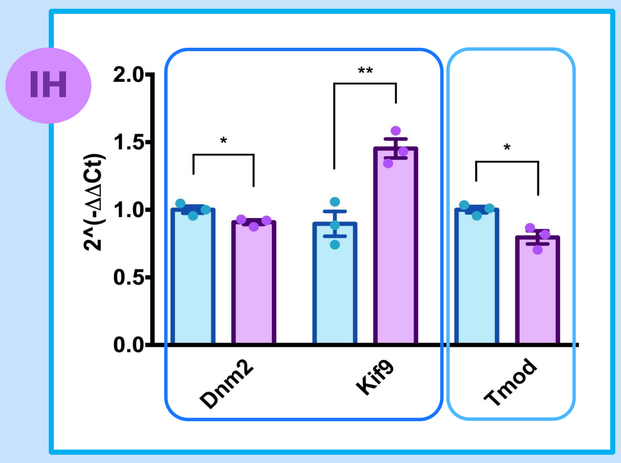
↑ Caspase 3

↓ Poly ADP-Ribose Polymerase

↓ Ras Homolog Enriched in Brain



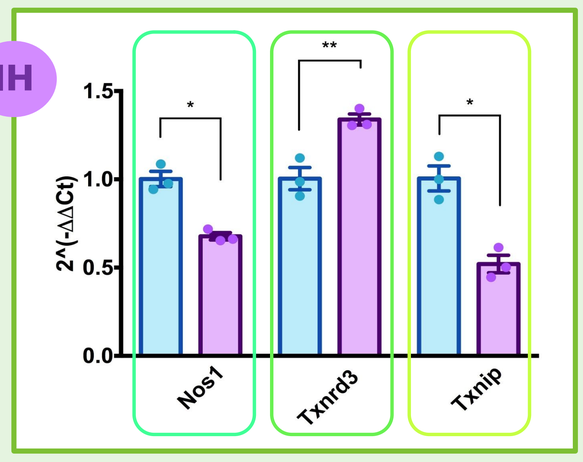
4 Effects on the cytoskeleton



↓ Dynamin
↑ Kinesin

↓ Tropomodulin

3 Response : ↑ Defense system

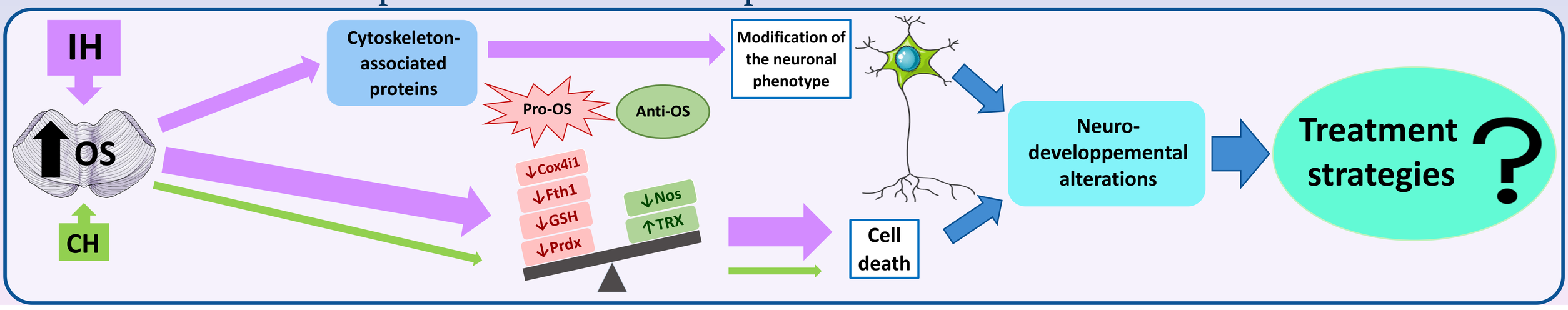


↓ Nitric Oxide Synthase

↑ Thioredoxine Reductase

↓ Thioredoxin Interacting Protein

➢ Conclusions and Perspectives: Clinical standpoint



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