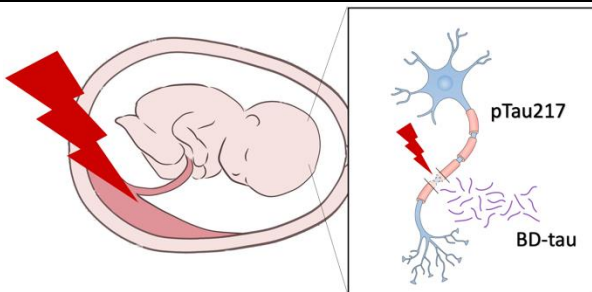


# Umbilical Cord Blood pTau217 and BD-tau are Associated with Markers of Neonatal Hypoxia

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## BACKGROUND

- Early detection of neonatal hypoxic–ischaemic encephalopathy (HIE) is critical
- Current diagnostic methods, such as Samat grading and neuroimaging, may miss mild or delayed presentations as they do not assess neuronal injury directly<sup>1</sup>
- Measurement of cord blood BD-tau and pTau217—specific neuronal injury biomarkers—may improve diagnosis and help to tailor therapeutic interventions.



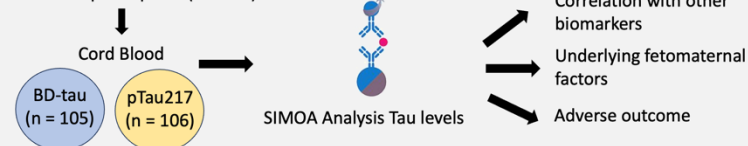
## AIMS & OBJECTIVES

1. Association of BD-tau with non-reassuring fetal status
2. Correlations between cord blood tau and other hypoxia biomarkers
3. Associations between tau levels and risk factors for fetomaternal morbidity
4. Associations between tau levels and short-term fetomaternal outcome.

## METHODS

Prospective cohort study at RPA—a large Australian tertiary referral centre.

Maternal participants (n = 107)

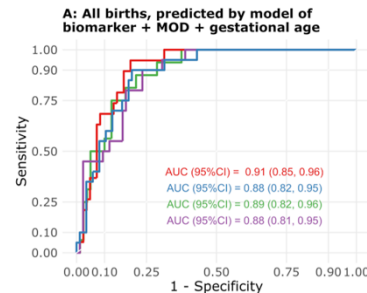


## RESULTS & DISCUSSION

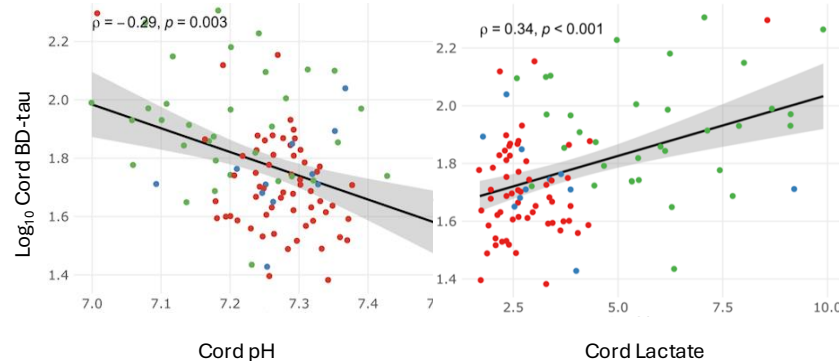
### BD-tau and non-reassuring fetal status

#### BD-tau correlates with non-reassuring fetal status

(OR=3.0;95%CI=1.6–5.7;p=0.001) \*not observed when adjusting for mode of delivery (MOD) and gestational age (GA)



### BD-tau correlation with other biomarkers



#### BD-tau: Positive association with

- pTau217 (Spearman's rho=0.66, p<0.001)
- NfL (Spearman's rho=0.58, p<0.001)
- lactate (Spearman's rho=0.34, p<0.001)

#### Negative association with

- cord pH (–0.29, p=0.003)
- base excess (0.35, p<0.001)

## REFERENCES

<sup>1</sup>Ferriero DM. Neonatal brain injury. *N Engl J Med* 2004; 351: 1985-95

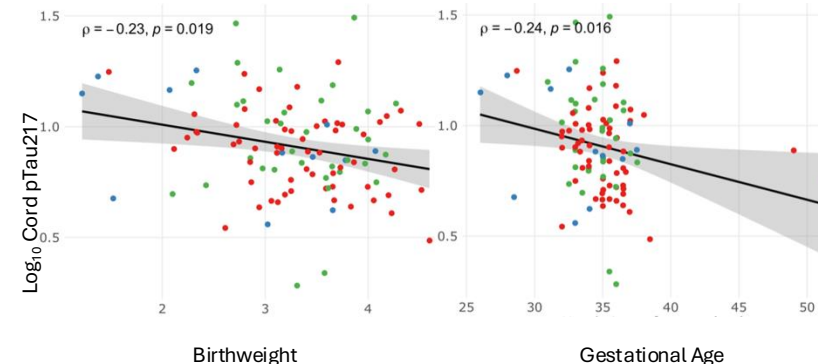
### Correlation with fetomaternal characteristics

Maternal hypertension = 8/107 participants

- ↑ BD-tau + pTau217 in maternal hypertension

Placental abnormalities = 11/107 participants. Placental abnormalities = ↑ tau

Characteristic	Log <sub>10</sub> BD-tau <sup>a</sup>			Log <sub>10</sub> pTau217 <sup>b</sup>		
	Beta	95% CI	P value	Beta	95% CI	P value
Unadjusted analysis						
Histopathological placental abnormalities						
Yes	0.18	0.01,0.45	0.033*	0.20	0.03,0.38	0.022*
Adjusted for low birth weight						
Histopathological placental abnormalities						
Yes	0.18	0.01,0.34	0.034*	0.20	0.03,0.38	0.024*



pTau217 = negatively associated with gestational age, birthweight, head circumference

Cord blood BD-tau correlates with surrogate markers of fetal hypoxia, whilst pTau217 may represent a marker of neurodevelopment

## ACKNOWLEDGEMENTS

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