

# Day-night changes in c-fos expression in the fetal sheep suprachiasmatic nucleus at late gestation

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The suprachiasmatic nucleus (SCN) is a circadian oscillator in mammals and shows day-night changes in metabolic activity. To investigate whether the fetal sheep SCN behaves as a circadian oscillator, day-night changes in c-fos expression, a marker of neuronal activity, were measured. Eight fetal sheep were sacrificed at 135 days gestation—four at day-time (1200 hours) and four at night-time (2400 hours). Fetal brains were fixed, removed and cut in 40- $\mu$ m serial coronal sections. Alternate sections were incubated with anti-Fos antibody (1:500) and Fos expression was revealed with extra-avidin-peroxidase and 3, 3'-diaminobenzidine or stained with cresyl violet. The number of Fos-immunoreactive (Fos-ir) neurons per mm<sup>2</sup> in the rostral, intermediate and caudal regions of the fetal sheep SCN was counted. Fetuses sacrificed in the day-time showed a higher number of Fos-ir neurons per mm<sup>2</sup> (mean  $\pm$  s.e.; 516-7 $\pm$ 60-l) in the three regions of the SCN than fetuses sacrificed at night-time (140-5 $\pm$ 21-8)