# Maternal-to-fetal allopurinol transfer and xanthine oxidase suppression in the late gestation pregnant rat

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 Fetal brain hypoxic injury remains a concern in high-risk delivery. There is significant clinical interest in agents that may diminish neuronal damage during birth asphyxia, such as in allopurinol, an inhibitor of the prooxidant enzyme xanthine oxidase. Here, we established in a rodent model the capacity of allopurinol to be taken up by the mother, cross the placenta, rise to therapeutic levels, and suppress xanthine oxidase activity in the fetus. On day 20 of pregnancy, Wistar dams were given 30 or 100 mg kg-1 allopurinol orally. Maternal and fetal plasma allopurinol and oxypurinol concentrations were measured, and xanthine oxidase activity in the placenta and maternal and fetal tissues determined. There were significant strong positive correlations between maternal and fetal plasma allopurinol ($r = 0.97$, $P < 0.05$) and oxypurinol ($r = 0.88$, $P < 0.05$) levels. Under baseline conditions, maternal heart (2.18 ± 0.62 mU mg-1), maternal liver (0.29 ± 0.08 mU mg-1), place