

PROSTAGLANDIN D₂ SYNTHASE IN AMNIOTIC FLUID AND
MATERNAL SERUM: POSSIBLE ASSOCIATION WITH FETAL
ABNORMALITIES

Eleftherios P. Diamandis, Mount Sinai Hospital, Toronto,
Canada

Prostaglandin D₂ synthase (PGD₂ synthase) is an enzyme responsible for PGD₂ production in the brain. Western blot analysis of human amniotic fluid and probing with a polyclonal antibody against prostate specific antigen (PSA) revealed a strong immunoreactive band with a molecular mass of 25KDa. The immunoreactive species, which does not react with monoclonal anti-PSA antibodies, was purified to homogeneity from 1 litre of amniotic fluid using successive cycles of gel filtration and ion-exchange chromatography. Aminoacid sequence analysis (15 cycles) revealed that the protein was highly homologous or identical to prostaglandin D₂ synthase. On semiquantitative analysis, PGD₂ synthase concentration appears to increase dramatically during gestational weeks 12-25 and then declines slowly until term. PGD₂ synthase concentration in amniotic fluid was found to be altered in a number of abnormal pregnancies. The most notable alteration was PGD₂ synthase concentration decrease in trisomic fetuses and fetuses with renal abnormalities. The role of PGD₂ synthase in fetal growth and development requires further experimentation.