

TITLE

THE IMPORTANCE OF THE HUMAN PLACENTA EX VIVO PERFUSION MODEL IN THE DRUG DEVELOPMENT FOR HUMAN PREGNANCY

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During pregnancy women are continuously exposed to a wide variety of substances either produced in response to pregnancy or following exposure to foreign substances such as maternal medications, those of life style factors like smoking, drug abuse, alcohol consumption or those of occupational and environmental sources.

The human placenta as the link between mother and fetus connects and separates two genetically different individuals providing a unique protection of pregnancy. In addition, the placenta acts as a barrier regulating transport of nutrients and oxygen from the mother to the fetus. Placental responses to maternal medications, foreign substances or toxic conditions such as hypoxia, ischemia, and infection could substantially influence the placental function.

Investigating the effect of maternal medications and other foreign substances on placental function is considered an important step towards understanding and predicting essential aspects of drug action on the development of pregnancy.

In this study an ex vivo perfusion model with human placental tissues was used to investigate the transfer of pregnancy medications (IVIG and Methadone) and abuse drugs (cocaine and heroin) in the maternal to fetal direction and their effect on placental tissue functions.