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The reproductive toxicity of Zishen Yutai pill in rats: Perinatal and postnatal development study

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Objectives: ZishenYutai Pill (ZYP) is one of the most commonly used Chinese medicines in prevention of early pregnancy loss due to threatened and recurrent miscarriage. Although it is widely used, its toxicity during perinatal period has not been well understood. Its main components include Radix Codonopsis, Radix Dipsaci, Polygoni Multiflori, Atractylodes macrocephala, Morinda officinalis, Eucommia Ulmoides, Semen Cuscutae and Radix Rehmanniae Praeparata. In recent years, the research on ZYP has been increased year by year. Previous studies have shown that ZYP combined with phloroglucinol is significantly effective in the treatment of threatened abortion.

Methodology: Pregnant rats (F0) were exposed to 6 g/kg, 12 g/kg and 24 g/kg body weight/d of ZYP by intragastric administration from gestation day 15 (GD15) to through parturition and lactation up to weaning, i.e. post-natal day 21 (PND21). Water and propylthiouracil (PTU, 15 mg/kg) were used as the negative control and positive control, respectively. The mating was done between the treatment (ZYP or PTU) group and negative control group when the F1 pups were born 63 days.

Results: The reproductive capacity of F0 and F1 generation decreased significantly after PTU exposure ($P<0.05$); however, the body weight and reproductive ability of F0, the physical development and feed consumption of F1 as well as the reproductive ability and survival rate of F2 rats were not significantly changed in the ZYP group compared with the negative control group ($P>0.05$).

Conclusions: There was no statistically significant evidence of perinatal toxicity under ZYP exposure.

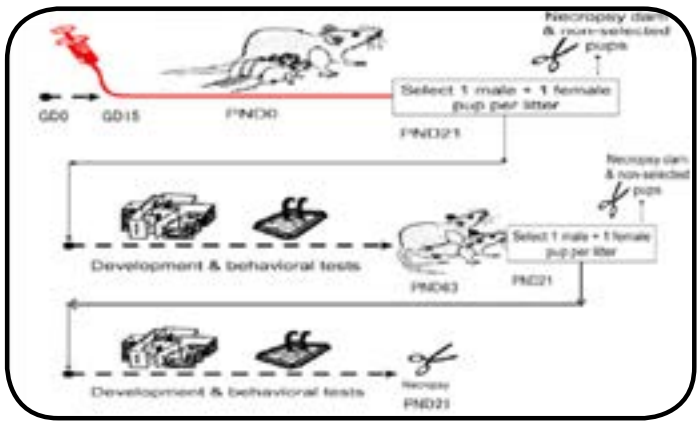

Figure 1: Technical route

Recent Publications:

1. Li Zhou et al. Reproductive toxicity of Zishen Yutai pill in rats: the fertility and early embryonic development study (Segment I). Evidence-Based Complementary and Alternative Medicine. 2016:1-10.
2. Wu Jian Hui et al. (2017) Effect of mono-2-ethyhexyl phthalate on DNA methylation in human prostate cancer LNCaP cells. Biomed Environ Sci. 30(9):641-648.
3. Shengsheng Zhu et al. (2016) A conjugate of methotrexate and an analog of luteinizing hormone releasing hormone shows increased efficacy against prostate cancer. Scientific Reports. 6:33894.

4. Wang Yong et al. (2016) Mono-2-ethyhexyl phthalate advancing the progression of prostate cancer through activating the hedgehog pathway in LNCaP cells. Toxicology in Vitro. 32:86-91.
5. Ting Zhang et al. (2017) The potentiality of two-dimensional preantral follicle culture as an in vitro model in predicting premature ovarian failure. Experimental and Toxicologic Pathology. 69(7):477-484.

Biography

Zuyue Sun is the Research Director of National Evaluation Centre for the Toxicology of Fertility Regulating Drug; a laboratory that has acquired the GLP certificate of CFDA (China Food And Drug Administration). He has 258 study projects being carried out in his laboratory and has published more than 312 theses in China and abroad in reputed journals. His research interest include: non-clinical evaluations on safety of drugs.

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