This is provisional English translation of an excerpt from the original full report.

Risk Assessment Report

Trenbolone Acetate

(Veterinary Medicinal Products)

Food Safety Commission of Japan (FSCJ)
August 2019

ABSTRACT

FSCJ conducted a risk assessment of trenbolone acetate (CAS No. 10161-34-9), a hormone, based on documents of JECFA (Joint FAO/WHO Expert Committee on Food Additives) and FDA (Food and Drug Administration), and others.

Results from a battery of genotoxicity studies indicated that trenbolone acetate (TBA) and its metabolites, 17α-hydroxytrenbolone (α-TBOH) and 17β-hydroxytrenbolone (β-TBOH), have no genotoxicity relevant to human health. Therefore, FSCJ considered that an ADI for TBA can be specified.

Major adverse effects of TBA commonly observed in various studies are findings suggesting hormonal effects such as functional and morphological change in genital organs. Teratogenicity was not observed.

In chronic toxicity and carcinogenicity studies, increased incidence of the liver tumors in male mice was observed in a 95 to 104-week chronic toxicity study. FSCJ attributed it to the effect of trenbolone (TBOH) through its hormonal action.

In one-generation reproductive-developmental toxicity studies in rats, no clear effects were observed at doses lower than 0.5 ppm (equivalent to 0.025 mg/kg bw/day) both in the parental animals and offspring. In a two-generation reproductive toxicity study in rats, despite no effects on reproductive activity after maturation at 0.5 ppm (equivalent to 0.025 mg/kg bw/day), low weight in genital organs was observed in post-weaning male (6 weeks old) of F1 and F2 generations, and slight delay in sexual maturation in females were observed. Compiling results in both studies, FSCJ considered it inappropriate to specify a NOAEL for productive toxicity in rats based on the results from one-generation study where the observation at weaning period was not performed. They judged a LOAEL for reproductive toxicity to be 0.025 mg/kg bw/day based on the results of a two-generation reproduction study.

In a 14-week feeding study in pigs to investigate effects of TBA on hormonal concentrations, treatment related changes were decrease in the blood concentration of testosterone and 17β-estradiol (E2), low weights in the testes in males, and low organ weight in uterus and histopathological findings in the ovary and uterus in females. Consequently, FSCJ specified the NOAEL in pigs existed between 2 and 3 μg/kg bw/day. These effects were those found at the lowest dose among all studies.

Hence, FSCJ concluded that it is appropriate to establish the ADI to be 0.02 μg/kg bw/day applying a safety factor of 100 based on the lowest NOAEL of 2 μg/kg bw/day in the 14-week feeding study in pigs.