

RESEARCH MONOGRAPH . COMPOUND PROFILE

Trenbolone

A 19-nortestosterone-derived 11-dehydro AAS; one of the most potent AAS used in cattle (Finaplix) and diverted to non-medical use.

DOCUMENT	KDC-MN-392
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COMPOUND CLASS	19-nor 11-dehydro AAS (high-potency)

RESEARCH USE ONLY

ABSTRACT

Trenbolone (17-beta-hydroxyestra-4,9,11-trien-3-one; CAS 10161-33-8; molecular formula C₁₈H₂₂O₂; molecular weight 270.37) is a 19-nortestosterone-derived 11-dehydro AAS approved for veterinary use as growth-promoting cattle implant (Finaplix). The compound is among the highest-potency AAS at the androgen receptor (K_i approximately 0.5 nM, comparable to testosterone with greater intrinsic activity); the 19-nor structure prevents aromatization to estrogen, and the 11-dehydro double bond prevents 5-alpha-reduction to a more potent metabolite (the AR-active form is trenbolone itself). The AR potency combined with progesterone receptor activity produces pronounced anabolic effects with significant adverse profile: gynecomastia (paradoxical, via progestogenic activity), dramatic sweating, sleep disturbance, anxiety, and putative kidney stress. Plasma half-life of native trenbolone is short (hours); the acetate, enanthate, and hexahydrobenzylcarbonate ester forms used non-medically range from days to weeks. Schedule III in the US. Used as a high-potency reference AAS in research.

1. 1. Compound Identification

Trenbolone is described as 19-nor 11-dehydro aas (high-potency). A 19-nortestosterone-derived 11-dehydro AAS; one of the most potent AAS used in cattle (Finaplix) and diverted to non-medical use.

1.1. 1.1 Class summary

19-nor 11-dehydro AAS (high-potency)

1.2. 1.2 Subtitle

A 19-nortestosterone-derived 11-dehydro AAS; one of the most potent AAS used in cattle (Finaplix) and diverted to non-medical use.

2. 2. Abstract

Trenbolone (17-beta-hydroxyestra-4,9,11-trien-3-one; CAS 10161-33-8; molecular formula C₁₈H₂₂O₂; molecular weight 270.37) is a 19-nortestosterone-derived 11-dehydro AAS approved for veterinary use as growth-promoting cattle implant (Finaplix). The compound is among the highest-potency AAS at the androgen receptor (K_i approximately 0.5 nM, comparable to testosterone with greater intrinsic activity); the 19-nor structure prevents aromatization to estrogen, and the 11-dehydro double bond prevents 5-alpha-reduction to a more potent metabolite (the AR-active form is trenbolone itself). The AR potency combined with progesterone receptor activity produces pronounced anabolic effects with significant adverse profile: gynecomastia (paradoxical, via progestogenic activity), dramatic sweating, sleep disturbance, anxiety, and putative kidney stress. Plasma half-life of native trenbolone is short (hours); the acetate, enanthate, and hexahydrobenzylcarbonate ester forms used non-medically range from days to weeks. Schedule III in the US. Used as a high-potency reference AAS in research.

3. Mechanism of Action

19-nortestosterone 11-dehydro AAS; high-potency AR agonist with PR activity. No aromatization; no 5-alpha-reduction.

The mechanistic profile described above represents the consensus position from peer-reviewed literature where available; for compounds with sparse formal characterization, this section reflects vendor-grade reports and structurally-related class pharmacology and should be interpreted with appropriate caution.

4. 4. Pharmacokinetics and Routes of Administration

Pharmacokinetic data are summarized within the abstract for compounds with formal Phase 1 records. Compounds without published human pharmacokinetic studies are noted as such; investigators should treat the absence of data as a research limitation.

5. 5. Reported Research Dose Ranges

Veterinary 200 mg implant (Finaplix); non-medical AAS use is supratherapeutic.

Doses are scaled from clinical use where the compound is approved as a medicine, from Phase 2/3 trials where development advanced, or from rodent dose-response data scaled by allometric assumptions where the compound has no human clinical record. Investigators should treat dose ranges from research-chemical-grade vendors as starting points for their own pharmacokinetic and tolerability characterization rather than validated dosing recommendations.

6. Sourcing and Quality Verification

Investigators should obtain analytical confirmation of identity (mass spectrometry; for peptides, additionally amino acid analysis or N-terminal sequencing) and purity (HPLC area-percent, ideally greater than 95 percent) on every lot. Vendor certificates of analysis vary in quality; third-party analytical confirmation through independent laboratories (e.g., Janoshik Analytical, Anabolic Lab) is the gold standard for research-grade peptides and small molecules.

For compounds with established pharmaceutical-grade marketing in any jurisdiction, sourcing from the marketed product (where legal and accessible) provides the highest quality assurance.

7. 7. Reconstitution and Handling

Peptides should be reconstituted in bacteriostatic water or sterile water for injection in the volume appropriate to the desired concentration; lyophilized peptides should be allowed to come to room temperature before reconstitution to minimize precipitation. Reconstituted peptides should be stored refrigerated and used within the timeframe specified by the manufacturer (typically 14 to 30 days for bacteriostatic water reconstitutions, shorter for sterile water).

Small molecules: storage conditions vary by compound; consult the certificate of analysis for the specific product. Most are stable at room temperature in dry, dark conditions; oxidation-sensitive compounds (e.g., catecholamine precursors) require cool storage and protection from light.

8. 8. Stack Interaction Considerations

Investigators combining this compound with other research substances should consider receptor-level interactions (additive effects at shared targets), enzyme-level interactions (CYP-mediated drug-drug interactions where applicable), and pharmacodynamic interactions (additive sedation, additive serotonergic activity, additive hemodynamic effects).

The stack interaction section in published monographs of well-characterized compounds is necessarily incomplete for any specific combination; investigators should treat novel combinations with elevated caution and titrate gradually.

9. 9. References

1. Yarrow JF, et al. Trenbolone enanthate effects on body composition and muscle protein synthesis. J Steroid Biochem Mol Biol 2010.
2. Kicman AT. Pharmacology of anabolic steroids. Br J Pharmacol 2008.
3. Llewellyn W. Anabolics. Body of Science 2011.

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