

RESEARCH MONOGRAPH . COMPOUND PROFILE

ACP-105

*A non-steroidal SARM developed by
Acadia Pharmaceuticals; investigated for
muscle wasting and as a potential cognitive
enhancer.*

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COMPOUND CLASS	Selective androgen receptor modulator

ABSTRACT

ACP-105 (CAS 899821-23-9; molecular formula C₁₆H₁₅ClN₂O₂; molecular weight 302.76) is a non-steroidal SARM developed by Acadia Pharmaceuticals. The compound is a tricyclic quinolinone with high-affinity AR binding and tissue-selective agonism similar to other SARMs. Preclinical studies demonstrated muscle and bone anabolic activity in castrated rat models. Acadia investigated potential cognitive applications based on AR distribution in the prefrontal cortex and hippocampus, but clinical development did not proceed beyond preclinical evaluation. Plasma half-life and human pharmacokinetic data are sparse. The compound is occasionally used recreationally and is banned by WADA in sport.

1. Compound Identification

ACP-105 is described as selective androgen receptor modulator. A non-steroidal SARM developed by Acadia Pharmaceuticals; investigated for muscle wasting and as a potential cognitive enhancer.

1.1 Class summary

Selective androgen receptor modulator

1.2 Subtitle

A non-steroidal SARM developed by Acadia Pharmaceuticals; investigated for muscle wasting and as a potential cognitive enhancer.

2. Abstract

ACP-105 (CAS 899821-23-9; molecular formula C₁₆H₁₅ClN₂O₂; molecular weight 302.76) is a non-steroidal SARM developed by Acadia Pharmaceuticals. The compound is a tricyclic quinolinone with high-affinity AR binding and tissue-selective agonism similar to other SARMs. Preclinical studies demonstrated muscle and bone anabolic activity in castrated rat models. Acadia investigated potential cognitive applications based on AR distribution in the prefrontal cortex and hippocampus, but clinical development did not proceed beyond preclinical evaluation. Plasma half-life and human pharmacokinetic data are sparse. The compound is occasionally used recreationally and is banned by WADA in sport.

3. Mechanism of Action

Non-steroidal SARM (tricyclic quinolinone scaffold); tissue-selective AR agonism. Preclinical investigation of CNS effects.

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. 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. Reported Research Dose Ranges

Recreational use commonly 5 to 15 mg per oral administration daily; no clinical trial data.

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. 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. 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. References

1. Schlienger N, et al. Synthesis, structure-activity relationships, and characterization of novel nonsteroidal and selective androgen receptor modulators. J Med Chem 2009.
2. Solomon ZJ, et al. Selective androgen receptor modulators: current knowledge and clinical applications. Sex Med Rev 2019.

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