

RESEARCH MONOGRAPH . COMPOUND PROFILE

Stenabolic (SR-9009)

A Rev-erb-alpha agonist developed for circadian and metabolic disorders; popularly grouped with SARMs but mechanistically distinct.

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ABSTRACT

Stenabolic (SR-9009; CAS 1379686-30-2; molecular formula $C_{20}H_{24}ClN_3O_4S$; molecular weight 437.94) is a synthetic Rev-erb- α agonist developed by Burris and colleagues at Scripps Research Institute. Rev-erb- α is a nuclear receptor with circadian regulation function; pharmacological agonism shifts metabolic gene expression toward fatty acid oxidation and reduces inflammatory gene transcription. Mouse studies demonstrated improved exercise capacity and body composition with intraperitoneal dosing, generating substantial popular interest. The compound has poor oral bioavailability (less than 5 percent in rodents), making the recreational oral use pattern pharmacologically inconsistent with the published in vivo data. SR-9009 is not approved by any regulatory authority and has no human clinical trial record. Plasma half-life is approximately 4 hours after IP dosing in rodents. Used as the canonical Rev-erb- α agonist in academic circadian and metabolic research.

1. Compound Identification

Stenabolic (SR-9009) is described as rev-erb-alpha agonist (not a sarm). A Rev-erb-alpha agonist developed for circadian and metabolic disorders; popularly grouped with SARMs but mechanistically distinct.

1.1 Class summary

Rev-erb-alpha agonist (not a SARM)

1.2 Subtitle

A Rev-erb-alpha agonist developed for circadian and metabolic disorders; popularly grouped with SARMs but mechanistically distinct.

2. Abstract

Stenabolic (SR-9009; CAS 1379686-30-2; molecular formula $C_{20}H_{24}ClN_3O_4S$; molecular weight 437.94) is a synthetic Rev-erb- α agonist developed by Burris and colleagues at Scripps Research Institute. Rev-erb- α is a nuclear receptor with circadian regulation function; pharmacological agonism shifts metabolic gene expression toward fatty acid oxidation and reduces inflammatory gene transcription. Mouse studies demonstrated improved exercise capacity and body composition with intraperitoneal dosing, generating substantial popular interest. The compound has poor oral bioavailability (less than 5 percent in rodents), making the recreational oral use pattern pharmacologically inconsistent with the published in vivo data. SR-9009 is not approved by any regulatory authority and has no human clinical trial record. Plasma half-life is approximately 4 hours after IP dosing in rodents. Used as the canonical Rev-erb- α agonist in academic circadian and metabolic research.

3. Mechanism of Action

Rev-erb- α agonist; circadian and metabolic effects on fatty acid oxidation. Poor oral bioavailability complicates oral use.

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

Rodent IP studies 100 mg/kg/day; oral recreational use commonly 10 to 30 mg/day with uncertain bioavailability.

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. Solt LA, et al. Regulation of circadian behaviour and metabolism by synthetic REV-ERB agonists. Nature 2012.
2. Burris TP, et al. Targeting the nuclear receptor Rev-erb-alpha for metabolic disease. Drug Discov Today 2013.
3. Geldof L, et al. Pharmacokinetic profile of SR9009 in rats. Drug Test Anal 2017.

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