

RESEARCH MONOGRAPH . COMPOUND PROFILE

RU58841

A topical non-steroidal AR antagonist developed for androgenetic alopecia; never advanced to commercial development but widely used as a research compound.

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COMPOUND CLASS	Topical androgen receptor antagonist

ABSTRACT

RU58841 (PSK3841; CAS 154992-24-2; molecular formula $C_{17}H_{18}F_3N_3O_3$; molecular weight 369.34) is a non-steroidal androgen receptor antagonist developed at Roussel-Uclaf (now Sanofi) in the 1990s as a topical treatment for androgenetic alopecia. The compound is structurally a hydantoin and binds the AR with sufficient affinity to compete with DHT in scalp tissue. Topical application allows local AR antagonism in hair follicles with minimal systemic absorption, theoretically avoiding the sexual side effects of systemic 5AR inhibitors. Phase 1 and 2 trials demonstrated efficacy in slowing or reversing scalp hair loss. Development was discontinued at Roussel-Uclaf (subsequent corporate merger and prioritization). The compound entered the research-grade and DIY hair loss community via the published patents and has remained in informal use without regulatory approval. Used as a reference topical AR antagonist in dermatologic and androgen pharmacology research.

1. Compound Identification

RU58841 is described as topical androgen receptor antagonist. A topical non-steroidal AR antagonist developed for androgenetic alopecia; never advanced to commercial development but widely used as a research compound.

1.1 Class summary

Topical androgen receptor antagonist

1.2 Subtitle

A topical non-steroidal AR antagonist developed for androgenetic alopecia; never advanced to commercial development but widely used as a research compound.

2. Abstract

RU58841 (PSK3841; CAS 154992-24-2; molecular formula C₁₇H₁₈F₃N₃O₃; molecular weight 369.34) is a non-steroidal androgen receptor antagonist developed at Roussel-Uclaf (now Sanofi) in the 1990s as a topical treatment for androgenetic alopecia. The compound is structurally a hydantoin and binds the AR with sufficient affinity to compete with DHT in scalp tissue. Topical application allows local AR antagonism in hair follicles with minimal systemic absorption, theoretically avoiding the sexual side effects of systemic 5AR inhibitors. Phase 1 and 2 trials demonstrated efficacy in slowing or reversing scalp hair loss. Development was discontinued at Roussel-Uclaf (subsequent corporate merger and prioritization). The compound entered the research-grade and DIY hair loss community via the published patents and has remained in informal use without regulatory approval. Used as a reference topical AR antagonist in dermatologic and androgen pharmacology research.

3. Mechanism of Action

Topical non-steroidal AR antagonist; competitive blockade of AR in scalp tissue. Minimal systemic absorption with topical application.

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

DIY topical use commonly 5 percent solution, 1 mL applied to scalp daily. No clinical trials in current development.

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. Battmann T, et al. Pharmacological profile of RU58841, a novel non-steroidal antiandrogen. Eur J Pharmacol 1998.
2. Munster U, et al. RU58841-myristate: prodrug development for topical treatment of acne and androgenetic alopecia. Pharmazie 2005.
3. Sintov AC, et al. Topical antiandrogens: properties and use. Drugs 2001.

This monograph is provided for research use only. Not for medical, diagnostic, or therapeutic purposes. Not for human consumption. Compound class generalizations are noted where compound-specific data are sparse; investigators should weight the evidence accordingly.