

RESEARCH MONOGRAPH . COMPOUND PROFILE

Pirlindole

A pyrazinocarbazole RIMA developed in the USSR in the 1970s; the historical Soviet RIMA equivalent.

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RESEARCH USE ONLY

ABSTRACT

Pirlindole (2,3,3a,4,5,6-hexahydro-8-methyl-1H-pyrazino[3,2,1-jk]carbazole; CAS 60762-57-4; molecular formula C₁₅H₁₈N₂; molecular weight 226.32) is a pyrazinocarbazole RIMA developed at the Soviet Academy of Sciences in the 1970s and registered in the USSR in 1975 under the trade name Pyrazidol. The compound is a reversible competitive MAO-A inhibitor with secondary 5-HT₂ antagonism contributing to its antidepressant profile. Clinical efficacy has been documented in Soviet and post-Soviet trials in major depressive disorder, dysthymia, and reactive depression; head-to-head data versus moclobemide are sparse. Plasma half-life is approximately 2 to 4 hours; metabolism is hepatic. The compound is well tolerated relative to hydrazine MAOIs and does not require tyramine restriction at clinical doses. Approval is restricted to Russia and former Soviet states; not registered in the US, EU, or other Western markets. Used as the historical reference RIMA from the Soviet pharmacological tradition.

1. Compound Identification

Pirlindole is described as atypical reversible mao-a inhibitor. A pyrazinocarbazole RIMA developed in the USSR in the 1970s; the historical Soviet RIMA equivalent.

1.1 Class summary

Atypical reversible MAO-A inhibitor

1.2 Subtitle

A pyrazinocarbazole RIMA developed in the USSR in the 1970s; the historical Soviet RIMA equivalent.

2. Abstract

Pirlindole (2,3,3a,4,5,6-hexahydro-8-methyl-1H-pyrazino[3,2,1-jk]carbazole; CAS 60762-57-4; molecular formula C₁₅H₁₈N₂; molecular weight 226.32) is a pyrazinocarbazole RIMA developed at the Soviet Academy of Sciences in the 1970s and registered in the USSR in 1975 under the trade name Pyrazidol. The compound is a reversible competitive MAO-A inhibitor with secondary 5-HT₂ antagonism contributing to its antidepressant profile. Clinical efficacy has been documented in Soviet and post-Soviet trials in major depressive disorder, dysthymia, and reactive depression; head-to-head data versus moclobemide are sparse. Plasma half-life is approximately 2 to 4 hours; metabolism is hepatic. The compound is well tolerated relative to hydrazine MAOIs and does not require tyramine restriction at clinical doses. Approval is restricted to Russia and former Soviet states; not registered in the US, EU, or other Western markets. Used as the historical reference RIMA from the Soviet pharmacological tradition.

3. Mechanism of Action

Reversible competitive MAO-A inhibition with 5-HT₂ receptor antagonism. Pyrazinocarbazole scaffold structurally distinct from moclobemide.

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

Clinical 100 to 400 mg per oral administration daily. Rodent studies 5 to 30 mg/kg/day.

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. Andreev BV, et al. Pirlindole: pharmacology and clinical use. Eksp Klin Farmakol 1995.
2. Mashkovsky MD. Lekarstvennye sredstva (Medicinal Drugs). Moscow: Novaya Volna 2005.
3. Mosolov SN. Pirlindole in major depressive disorder: a review. Zh Nevrol Psikhiatr 2004.

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.