

RESEARCH MONOGRAPH . COMPOUND PROFILE

5-MeO-DMT

A 5-methoxy-substituted tryptamine; a 5-HT1A-preferring psychedelic found in Bufo alvarius secretions and some plants.

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COMPOUND CLASS	Tryptamine / 5-HT1A-preferring psychedelic

ABSTRACT

5-MeO-DMT (5-methoxy-N,N-dimethyltryptamine; CAS 1019-45-0; molecular formula C₁₃H₁₈N₂O; molecular weight 218.30) is a tryptamine alkaloid found in the parotoid gland secretions of *Bufo alvarius* (Sonoran Desert toad) and in numerous plants (*Anadenanthera*, *Virola*, *Phalaris*). Distinct from N,N-DMT by 5-HT_{1A}-preferring activity (5-HT_{1A} Ki approximately 1 nM versus 5-HT_{2A} Ki approximately 100 nM, opposite of DMT's 5-HT_{2A} preference); the receptor profile produces qualitatively distinct subjective effects (less visual, more dissociative or unitary). Like DMT, oral activity requires MAO inhibition; smoked or vaporized forms are pharmacologically active without MAO inhibition. Phase 2 clinical trials in treatment-resistant depression are ongoing at GH Research and Beckley Psytech. Plasma half-life is approximately 12 to 19 minutes. Schedule I in the US. Used as a reference 5-HT_{1A}-preferring psychedelic in research.

1. Compound Identification

5-MeO-DMT is described as tryptamine / 5-HT_{1A}-preferring psychedelic. A 5-methoxy-substituted tryptamine; a 5-HT_{1A}-preferring psychedelic found in *Bufo alvarius* secretions and some plants.

1.1 Class summary

Tryptamine / 5-HT_{1A}-preferring psychedelic

1.2 Subtitle

A 5-methoxy-substituted tryptamine; a 5-HT_{1A}-preferring psychedelic found in *Bufo alvarius* secretions and some plants.

2. Abstract

5-MeO-DMT (5-methoxy-N,N-dimethyltryptamine; CAS 1019-45-0; molecular formula $C_{13}H_{18}N_2O$; molecular weight 218.30) is a tryptamine alkaloid found in the parotoid gland secretions of *Bufo alvarius* (Sonoran Desert toad) and in numerous plants (*Anadenanthera*, *Virola*, *Phalaris*). Distinct from N,N-DMT by 5-HT_{1A}-preferring activity (5-HT_{1A} Ki approximately 1 nM versus 5-HT_{2A} Ki approximately 100 nM, opposite of DMT's 5-HT_{2A} preference); the receptor profile produces qualitatively distinct subjective effects (less visual, more dissociative or unitary). Like DMT, oral activity requires MAO inhibition; smoked or vaporized forms are pharmacologically active without MAO inhibition. Phase 2 clinical trials in treatment-resistant depression are ongoing at GH Research and Beckley Psytech. Plasma half-life is approximately 12 to 19 minutes. Schedule I in the US. Used as a reference 5-HT_{1A}-preferring psychedelic in research.

3. Mechanism of Action

5-HT_{1A}-preferring tryptamine psychedelic; opposite receptor preference from N,N-DMT (which prefers 5-HT_{2A}). Produces qualitatively distinct subjective 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

Smoked/vaporized 5 to 20 mg; intravenous 1 to 18 mg in research.

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. Davis AK, et al. The epidemiology of 5-methoxy-N,N-dimethyltryptamine (5-MeO-DMT) use. Drug Sci Policy Law 2018.
2. Ermakova AO, et al. A narrative synthesis of research with 5-MeO-DMT. J Psychopharmacol 2022.
3. Reckweg J, et al. A phase 1, dose-ranging study to assess safety and psychoactive effects of a vaporized 5-methoxy-N,N-dimethyltryptamine. Front Pharmacol 2021.

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