

RESEARCH MONOGRAPH . COMPOUND PROFILE

Atomoxetine

A selective NRI FDA-approved as Strattera for ADHD, the first non-stimulant FDA-approved for the indication.

DOCUMENT	KDC-MN-142
ISSUED	2026-05-09
REVISION	1.0
AUTHOR	Kodiac bioLabs Research
COMPOUND CLASS	Selective norepinephrine reuptake inhibitor

RESEARCH USE ONLY

ABSTRACT

Atomoxetine (Strattera; CAS 83015-26-3; molecular formula $C_{17}H_{21}NO$; molecular weight 255.36) is a selective norepinephrine reuptake inhibitor (NRI) developed by Eli Lilly and approved by the FDA in 2002 for ADHD in children, adolescents, and adults. The compound is the first non-stimulant FDA-approved for ADHD. Mechanism is NET inhibition; the compound is essentially inactive at DAT and SERT. Pharmacokinetics: plasma half-life 5.2 hours in extensive metabolizers via CYP2D6, 21.6 hours in poor metabolizers; doses are titrated based on response and tolerability. Approved doses are 40 to 100 mg per day. Schedule status: not scheduled (distinguishing it from amphetamine and methylphenidate ADHD therapies).

1. Compound Identification

Atomoxetine is described as selective norepinephrine reuptake inhibitor. A selective NRI FDA-approved as Strattera for ADHD, the first non-stimulant FDA-approved for the indication.

1.1 Class summary

Selective norepinephrine reuptake inhibitor

1.2 Subtitle

A selective NRI FDA-approved as Strattera for ADHD, the first non-stimulant FDA-approved for the indication.

2. Abstract

Atomoxetine (Strattera; CAS 83015-26-3; molecular formula C₁₇H₂₁NO; molecular weight 255.36) is a selective norepinephrine reuptake inhibitor (NRI) developed by Eli Lilly and approved by the FDA in 2002 for ADHD in children, adolescents, and adults. The compound is the first non-stimulant FDA-approved for ADHD. Mechanism is NET inhibition; the compound is essentially inactive at DAT and SERT. Pharmacokinetics: plasma half-life 5.2 hours in extensive metabolizers via CYP2D6, 21.6 hours in poor metabolizers; doses are titrated based on response and tolerability. Approved doses are 40 to 100 mg per day. Schedule status: not scheduled (distinguishing it from amphetamine and methylphenidate ADHD therapies).

3. Mechanism of Action

Selective norepinephrine reuptake inhibitor; minimal DAT/SERT activity.

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

40 to 100 mg per 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. Michelson D, et al. Atomoxetine in the treatment of children and adolescents with ADHD. Pediatrics 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.