REFERENCE

Substance monographs

1 · LSD

Lysergic acid diethylamide

Prodrug: no

Structural modification	None — parent compound; free indole nitrogen (N1–H), N6-methylated, diethylamide at C8
Prodrug?	Active per se; the reference agonist of the series.
HTR potency (mice)	100% (reference)
Human data	The strongest human dataset in the class: pooled analysis of four double-blind, placebo-controlled crossover studies in 83 healthy subjects (131 administrations) at 25, 50, 100 and 200 µg. Common adverse effects: headache, anxiety, nausea, dizziness. At 200 µg: peak heart rate >100 bpm in 25% and peak body temperature >38 °C in 34%. No clinically relevant liver or kidney function changes.
Legal status (UK)	UK: Class A under the Misuse of Drugs Act 1971 — supply/production: up to life imprisonment; possession: up to 7 years.
Notes	Extremely potent 5-HT2A agonist (µg doses); the tetracyclic ergoline core historically limited SAR studies; unusually long pharmacokinetics for its class.
References	Basargin et al., PNAS 123(38): e2603412123 (2026). DOI 10.1073/pnas.2603412123 · Holze et al., Psychopharmacology (2021). DOI 10.1007/s00213-021-05978-6

2 · ALD-52

1-acetyl-LSD (D-lysergic acid diethylamide 1-acetyl)

Prodrug: yes

Structural modification	Acetyl group on the indole nitrogen N1
Prodrug?	Hydrolysis (chemical + hepatic) releases LSD. In vitro the intact molecule has 1–2 orders of magnitude lower 5-HT2A affinity.
HTR potency (mice)	~91% (murine HTR, reported) — Halberstadt et al. 2019 (DOI 10.1016/j.neuropharm.2019.107856) — reported as roughly LSD-equipotent in vivo
Human data	No controlled clinical data.
Legal status (UK)	UK: likely controlled as an LSD derivative under the Misuse of Drugs Act 1971, or captured by the Psychoactive Substances Act 2016 (production/supply offences). Laws change frequently - always verify official sources.
Notes	The oldest N1-acyl prodrug of the series (described in the 1950s); paradigmatic example of 'weak in vitro, active in vivo'.
References	Halberstadt et al., Neuropharmacology 172: 107856 (2020). DOI 10.1016/j.neuropharm.2019.107856; PMID 31756337 · Basargin et al., PNAS (2026). DOI 10.1073/pnas.2603412123

3 · 1P-LSD

Prodrug: yes

1-propionyl-LSD (1-propanoyl-lysergic acid diethylamide)

Structural modification	Propionyl group on the indole nitrogen N1
Prodrug?	Hydrolysis releases LSD; the best analytically characterised N1 prodrug.
HTR potency (mice)	~38% (murine HTR, reported); in vivo effect attributable to released LSD
Human data	Only n = 2 (controlled self-administrations, no safety study): oral bioavailability of LSD after 1P-LSD ingestion was close to 100%; only LSD — not the parent compound — was detected in serum.
Legal status (UK)	UK: most lysergamide analogues are likely controlled as LSD derivatives under the Misuse of Drugs Act 1971, or captured by the Psychoactive Substances Act 2016 (production/supply offences). Laws change frequently - always verify official sources.
Notes	Grumann et al. used a fully validated LC-MS/MS method; LSD elimination half-life ~5.7 h after oral 1P-LSD.
References	Grumann et al., Drug Test Anal 12(8): 1144–1153 (2020). DOI 10.1002/dta.2821; PMID 32415750 · Jurowski et al., Arch Toxicol 100: 3091–3110 (2026). DOI 10.1007/s00204-025-04255-1

4 · 1B-LSD

Prodrug: yes

1-butyryl-LSD (1-butanoyl-lysergic acid diethylamide)

Structural modification	Butyryl group on the indole nitrogen N1
Prodrug?	Hydrolysis releases LSD; assumed prodrug.
HTR potency (mice)	14% of LSD (ED50 976.7 vs 132.8 nmol/kg, C57BL/6J mice) — Brandt et al. 2019 (DOI 10.1002/dta.2613)
Human data	No controlled clinical data.
Legal status (UK)	UK: most lysergamide analogues are likely controlled as LSD derivatives under the Misuse of Drugs Act 1971, or captured by the Psychoactive Substances Act 2016 (production/supply offences). Laws change frequently - always verify official sources.
Notes	Fully characterised structurally by NMR (plus MS, GC/LC, IR); constitutional isomer of 1P-ETH-LAD. Predicted haematotoxicity 75% (in silico).
References	Brandt et al., Drug Test Anal 11(8): 1122–1133 (2019). DOI 10.1002/dta.2613; PMID 31083768 ·– Jurowski et al., Arch Toxicol (2026). DOI 10.1007/s00204-025-04255-1

5 · 1V-LSD

Prodrug: yes

1-valeroyl-LSD (1-valeryl-LSD / 1-pentanoyl-LSD)

Structural modification	Valeroyl (pentanoyl) group on the indole nitrogen N1
Prodrug?	Hydrolysis releases LSD; assumed prodrug.
HTR potency (mice)	~36% (murine HTR, reported)
Human data	No controlled clinical data.
Legal status (UK)	UK: most lysergamide analogues are likely controlled as LSD derivatives under the Misuse of Drugs Act 1971, or captured by the Psychoactive Substances Act 2016 (production/supply offences). Laws change frequently - always verify official sources.
Notes	Toxicity assessed only in silico: highest predicted pulmonary risk of the N1 series (92%) and strongest predicted hERG inhibition (IC50 1.4 µM, Percepta) — a potential proarrhythmic signal requiring experimental follow-up.
References	Jurowski et al., Arch Toxicol 100: 3091–3110 (2026). DOI 10.1007/s00204-025-04255-1

6 · 1cP-LSD

Prodrug: yes

1-cyclopropanecarbonyl-LSD (1-cyclopropionyl-LSD)

Structural modification	Cyclopropanecarbonyl group on the indole nitrogen N1
Prodrug?	Hydrolysis releases LSD; assumed prodrug.
HTR potency (mice)	~31% (murine HTR, reported)
Human data	No controlled clinical data.
Legal status (UK)	UK: most lysergamide analogues are likely controlled as LSD derivatives under the Misuse of Drugs Act 1971, or captured by the Psychoactive Substances Act 2016 (production/supply offences). Laws change frequently - always verify official sources.
Notes	The cyclopropanecarbonyl group is expected to hydrolyse differently from linear acyl chains; predicted pulmonary risk 81% and genotoxicity alerts up to 90% probability (in silico, Percepta) — unverified experimentally.
References	Jurowski et al., Arch Toxicol 100: 3091–3110 (2026). DOI 10.1007/s00204-025-04255-1

7 · AL-LAD

Prodrug: no

6-allyl-6-nor-LSD (N6-allyllysergic acid diethylamide)

Structural modification	Allyl group on the amine nitrogen N6 (D ring)
Prodrug?	Active per se; does NOT convert to LSD — tertiary amine substitution is not hydrolysable.
HTR potency (mice)	~76% of LSD (ED50 174.9 vs 132.8 nmol/kg, C57BL/6J mice) — Brandt et al. 2016 (DOI 10.1002/dta.1985)
Human data	No controlled clinical data.
Legal status (UK)	UK: most lysergamide analogues are likely controlled as LSD derivatives under the Misuse of Drugs Act 1971, or captured by the Psychoactive Substances Act 2016 (production/supply offences). Laws change frequently - always verify official sources.
Notes	Its activity is intrinsic to the molecule: receptor profile and metabolism are independent of LSD. Fully characterised analytically (NMR, MS, GC/LC, IR).
References	Brandt et al., Drug Test Anal 9(1): 38–50 (2016). DOI 10.1002/dta.1985; PMID 27265891

8 · ETH-LAD

Prodrug: no

6-ethyl-6-nor-LSD (N6-ethyllysergic acid diethylamide)

Structural modification	Ethyl group on the amine nitrogen N6 (D ring)
Prodrug?	Active per se; does NOT convert to LSD.
HTR potency (mice)	Active in the murine HTR assay; no consolidated comparative potency value
Human data	No human data — no controlled clinical studies exist. Any statement about human potency or safety is uncertain; the precautionary principle applies.
Legal status (UK)	UK: most lysergamide analogues are likely controlled as LSD derivatives under the Misuse of Drugs Act 1971, or captured by the Psychoactive Substances Act 2016 (production/supply offences). Laws change frequently - always verify official sources.
Notes	Treat all human-effect claims as unverified; only preclinical and non-controlled anecdotal information exists.
References	Brandt et al., lysergamide series, Drug Test Anal (2016–2019)

9 · 1S-LSD

Prodrug: yes

`1-[3-(trimethylsilyl)propanoyl]-LSD`

Structural modification	3-(Trimethylsilyl)propanoyl group on the indole nitrogen N1 — a silicon-containing acyl moiety
Prodrug?	Hydrolysis releases LSD; in-vitro metabolism with human liver microsomes showed early formation of LSD.
HTR potency (mice)	n.d.
Human data	No controlled clinical data.
Legal status (UK)	UK: most lysergamide analogues are likely controlled as LSD derivatives under the Misuse of Drugs Act 1971, or captured by the Psychoactive Substances Act 2016 (production/supply offences). Laws change frequently - always verify official sources.
Notes	First characterized metabolically in vitro: 62 metabolites mapped, with five silicon-retaining markers proposed as consumption indicators. The trimethylsilyl group is expected to alter hydrolysis kinetics relative to linear acyl chains.
References	Azuma Y, et al. Forensic Toxicol (2026). PMID 40730742 — in-vitro metabolism

10 · PRO-LAD

Prodrug: no

`6-propyl-6-nor-LSD (N6-propyllysergic acid diethylamide)`

Structural modification	Propyl group on the amine nitrogen N6 (D ring)
Prodrug?	Active per se; does NOT convert to LSD.
HTR potency (mice)	n.d. (murine HTR); ~100% of LSD in rat drug discrimination (reported)
Human data	No controlled clinical data.
Legal status (UK)	UK: most lysergamide analogues are likely controlled as LSD derivatives under the Misuse of Drugs Act 1971, or captured by the Psychoactive Substances Act 2016 (production/supply offences). Laws change frequently - always verify official sources.
Notes	From the classical N6-substitution series studied by Nichols and co-workers; full LSD-like substitution in rat drug discrimination suggests preserved 5-HT2A agonism, but no consolidated murine HTR value exists.
References	Nichols DE, et al. — classical N6-substituted norlysergamide studies (rat drug discrimination)

11 · LSZ

Prodrug: no

(2'S,4'S)-lysergic acid 2,4-dimethylazetidide

Structural modification	Amide side chain replaced: the C8 diethylamide becomes a 2,4-dimethylazetidide ring (stereospecific)
Prodrug?	Active per se; the amide modification is not hydrolysable.
HTR potency (mice)	~116% of LSD (ED50 114.2 vs 132.8 nmol/kg, C57BL/6J mice) — Brandt et al. 2016 (DOI 10.1002/dta.1985)
Human data	No controlled clinical data.
Legal status (UK)	UK: most lysergamide analogues are likely controlled as LSD derivatives under the Misuse of Drugs Act 1971, or captured by the Psychoactive Substances Act 2016 (production/supply offences). Laws change frequently - always verify official sources.
Notes	Slightly MORE potent than LSD in the murine HTR — a rare case among lysergamide analogues. Fully characterised analytically (NMR, MS, GC/LC, IR) alongside AL-LAD in the same study.
References	Brandt et al., Drug Test Anal 9(1): 38–50 (2016). DOI 10.1002/dta.1985; PMID 27265891

12 · MLD-41

Prodrug: no

1-methyl-LSD

Structural modification	Methyl group on the indole nitrogen N1 (alkyl, not acyl — not hydrolysable)
Prodrug?	Active per se; an N1-alkyl group cannot be hydrolysed, so the molecule acts with its own (reduced) potency.
HTR potency (mice)	~33% of LSD (murine HTR, reported) — reported in published murine HTR assays (secondary compilation)
Human data	No controlled clinical data.
Legal status (UK)	UK: most lysergamide analogues are likely controlled as LSD derivatives under the Misuse of Drugs Act 1971, or captured by the Psychoactive Substances Act 2016 (production/supply offences). Laws change frequently - always verify official sources.
Notes	A historical N1-alkyl analogue from the classical lysergamide literature. Useful contrast with the N1-acyl series: alkylation reduces but does not abolish activity, whereas acylation abolishes in-vitro affinity entirely.
References	Classical lysergamide literature; HTR value from published murine assays (secondary compilation)

13 · BOL-148

Prodrug: no

2-bromo-LSD (2-bromolysergic acid diethylamide)

Structural modification	Bromine atom at ring position C2 (indole ring substitution)
Prodrug?	Active per se as a serotonergic ligand, but essentially non-hallucinogenic.
HTR potency (mice)	<2–7% of LSD (murine HTR, reported) — does not induce the HTR at psychoactive LSD-like doses — reported in published murine HTR assays (secondary compilation)
Human data	No controlled clinical data for psychedelic effects; investigated historically as a non-hallucinogenic 5-HT2A ligand.
Legal status (UK)	UK: most lysergamide analogues are likely controlled as LSD derivatives under the Misuse of Drugs Act 1971, or captured by the Psychoactive Substances Act 2016 (production/supply offences). Laws change frequently - always verify official sources.
Notes	The key counter-example of the series: C2 bromination preserves receptor binding while abolishing the hallucinogenic-like behavioural profile — a cornerstone observation for SAR studies.
References	Preclinical HTR literature on 2-bromo-LSD (secondary compilation)

14 · LSM-775

Prodrug: no

Lysergic acid morpholide (lysergic acid morpholide amide)

Structural modification	Amide side chain replaced: the C8 diethylamide becomes a morpholine amide
Prodrug?	Active per se; the amide modification is not hydrolysable.
HTR potency (mice)	~11% of LSD (murine HTR, reported) — reported in published murine HTR assays (secondary compilation)
Human data	No controlled clinical data.
Legal status (UK)	UK: most lysergamide analogues are likely controlled as LSD derivatives under the Misuse of Drugs Act 1971, or captured by the Psychoactive Substances Act 2016 (production/supply offences). Laws change frequently - always verify official sources.
Notes	Demonstrates how much the amide group contributes to potency: replacing the diethylamide with a morpholine ring cuts the behavioural potency to about a tenth of LSD's.
References	Preclinical HTR literature on lysergic acid morpholide (secondary compilation)