Amphetamine derivatives as monoamine oxidase inhibitors

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Amphetamine and its derivatives exhibit a wide range of pharmacological activities, including psychostimulant, hallucinogenic, entactogenic, anorectic, or antidepressant effects. The mechanisms of action underlying these effects are usually related to the ability of the different amphetamines to interact with diverse monoamine transporters or receptors. Moreover, many of these compounds are also potent and selective monoamine oxidase inhibitors. In the present work, we review how structural modifications on the aromatic ring, the amino group and/or the aliphatic side chain of the parent scaffold, modulate the enzyme inhibitory properties of hundreds of amphetamine derivatives. Furthermore, we discuss how monoamine oxidase inhibition might influence the pharmacology of these compounds. © 2020 Royal Society of Chemistry. All rights reserved.

Amphetamine derivatives

Dopamine transporter

Monoamine oxidase

Monoamine oxidase-A

Norepinephrine transporter

Serotonin syndrome

Serotonin transporter

2,6 dichloro 4 dimethylaminoamphetamine

4 iodo 2,5 dimethoxyamphetamine

aliphatic compound

amiflamine

amine oxidase (flavin containing)
amino acid derivative
amphetamine derivative
aromatic compound
cathinone
fenfluramine
fla 289
fla 314
fla 384
fla 405
fla 450
fla 463
fla 558
fla 717
fla 727
fla 788
methamphetamine
monoamine oxidase A inhibitor
monoamine oxidase B inhibitor
monoamine oxidase inhibitor
phenethylamine
phentermine
serotonin receptor
unclassified drug
antidepressant activity
Article
binding affinity
chemical modification

drug binding site

drug identification

drug potency

drug receptor binding

drug targeting

enantioselectivity

enzyme inhibition

human

molecular docking

nonhuman

structure activity relation

structure analysis

tranquilizing activity