MK-677
Research Applications

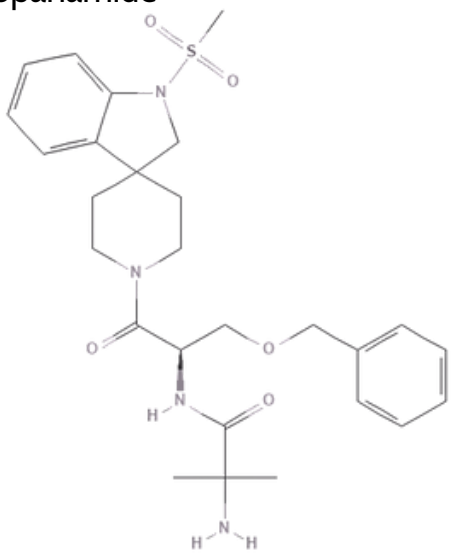
US Peptide Co

Mechanism of Action

MK-677 (Ibutamoren) is a potent, orally active growth hormone secretagogue that mimics the action of ghrelin. In research models, it binds to and activates the growth hormone secretagogue receptor (GHS-R1a), stimulating the release of growth hormone and IGF-1 through multiple signaling pathways. Unlike peptide-based secretagogues, MK-677's non-peptide structure provides enhanced oral bioavailability and extended duration of action, making it valuable for studying sustained growth hormone signaling effects.

Molecular Profile

- Chemical Formula: $C_{27}H_{36}N_4O_5S$
- Molecular Weight: 528.67 Da
- IUPAC Name: 2-amino-N-[(1R)-2-[1,2-dihydro-1-(methylsulfonyl)spiro[3H-indole-3,4'-piperidin]-1'-yl]-2-oxo-1-(phenylmethyl)ethyl]-2-methylpropanamide



Laboratory Considerations

- Store powder at room temperature in a dry environment
- For extended stability, store at -20°C
- Protect from light during storage and experimentation

Research Applications

- Growth hormone secretagogue research
- Investigation of ghrelin receptor signaling mechanisms
- Models examining IGF-1 pathway activation
- Research on sleep regulation and circadian rhythm modulation

References

1. Patchett AA, et al. Design and biological activities of L-163,191 (MK-0677): a potent, orally active growth hormone secretagogue. Proc Natl Acad Sci USA. 1995;92(15):7001-7005.
2. Chapman IM, et al. Enhancement of pulsatile growth hormone secretion by continuous infusion of a growth hormone-releasing peptide mimetic, L-692,429, in older adults. J Clin Endocrinol Metab. 1996;81(8):2874-2880.
3. Svensson J, et al. Two-month treatment of obese subjects with the oral growth hormone (GH) secretagogue MK-677 increases GH secretion, fat-free mass, and energy expenditure. J Clin Endocrinol Metab. 1998;83(2):362-369.
4. Copinschi G, et al. Effects of bedtime administration of MK-677, a growth hormone secretagogue, on sleep quality in young and older subjects. Horm Res. 1997;48(4):153-158