RonanRx
PERSONALIZED MEDICINE

CLINICAL MONOGRAPH · GROWTH-HORMONE AXIS (UNDER FDA REVIEW)

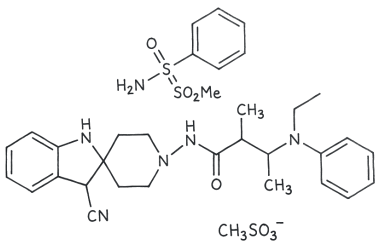
MK-677 / Ibutamoren

Ibutamoren research ingredient with physician-request review

MK-677, also called ibutamoren, is a small-molecule drug developed by Merck in the 1990s. Unlike most growth-hormone-related compounds, it is a tablet taken by mouth rather than an injection. It works by activating the same receptor in the pituitary gland that the appetite hormone ghrelin uses, prompting the pituitary to release growth hormone and, downstream, IGF-1 [patchett1995] [chapman1996; bach2004].

Merck took MK-677 through a substantial clinical program, short-term studies in healthy adults, a 2-year randomized controlled trial in healthy older adults, and two pivotal trials in patients recovering from hip fracture [nass2008; adunsky2011]. The short-term studies confirmed it raised GH and IGF-1 reliably when given orally. The pivotal trials, however, did not demonstrate the functional benefits Merck was looking for: the hip-fracture trials failed their primary endpoints, and the 2-year older-adult trial showed lean-mass gain without meaningful improvement in physical function. Merck discontinued development. MK-677 has never been approved by FDA for any use.

MK-677 has no FDA approval in the United States. This ingredient is part of an evolving FDA review process. Physicians may submit patient-specific prescription requests for pharmacy review. Availability is determined case by case, and availability may change after FDA review, PCAC discussion, final agency action, or state-board guidance.



EVIDENCE POSTURE EMERGING PRECLINICAL REVIEWED **2026-05-11**

State-licensed 503A	Pharmacist reviewed	Doctor led	Cold-chain ready	Patient choice preserved

Contents

Click any section to jump there. Page numbers update on render.

FOR CLINICIANS

Ibutamoren (MK-677, MK-0677, L-163,191) is an orally bioavailable non-peptide growth hormone secretagogue receptor type 1a (GHS-R1a) agonist designed at Merck and disclosed by Patchett et al. (Proc Natl Acad Sci USA, 1995) [patchett1995]. It is the orally active successor to the earlier benzolactam-class secretagogues described by Cheng, Smith, and colleagues at Merck [cheng1993]. The molecular target, GHS-R1a, was cloned by Howard et al. (Science, 1996) [howard1996] and further characterized by Pong et al. (Mol Endocrinol, 1996) [pong1996]; the endogenous ligand ghrelin was identified shortly afterward [bowers2012]. Chapman, Copinschi, and colleagues established the human PK/PD profile in healthy adults: once-daily oral MK-677 produced sustained elevation of pulsatile GH and IGF-1, with a plasma half-life of approximately 4-6 hours and accumulation to near-steady-state within a week [chapman1996, copinschi1996, copinschi1997].

Merck advanced ibutamoren into multiple phase 2 and phase 3 programs. Svensson et al. (1999) [svensson1999] reported short-term metabolic effects in obese subjects. Murphy et al. (2001) [murphy2001] randomized postmenopausal osteoporotic women to MK-677, alendronate, the combination, or placebo; MK-677 increased bone formation markers but did not produce a clinically meaningful BMD benefit beyond alendronate, and the trial did not support MK-677 as a stand-alone osteoporosis therapy. Bach et al. (2004) [bach2004] randomized 123 adults recovering from hip fracture to MK-677 or placebo; the primary functional endpoint was not met. Nass et al. (Annals of Internal Medicine, 2008) [nass2008], the largest published trial, randomized 65 healthy older adults to 25 mg MK-677 or placebo for 2 years; MK-677 increased GH, IGF-1, and lean body mass but did not improve strength or function, and was associated with increases in fasting glucose and insulin resistance. Adunsky et al. (2011) [adunsky2011] published the phase IIb multicenter trial in 539 hip-fracture patients, the largest pivotal trial in the program, which failed its primary functional endpoint. Merck discontinued the development program.

MK-677 has no FDA approval in the United States. This ingredient is part of an evolving FDA review process. Physicians may submit patient-specific prescription requests for pharmacy review. Availability is determined case by case, and availability may change after FDA review, PCAC discussion, final agency action, or state-board guidance.

Why Personalized MK-677 / Ibutamoren

The evidence base for MK-677 is stronger than many research peptides because human trials measured GH, IGF-1, body-composition, and metabolic endpoints. It still has no FDA-approved product, and the trial record includes metabolic and cardiovascular safety questions that need case-level review.

Physicians may submit patient-specific prescription requests for MK-677 for pharmacy review. Certain preparations may be available now when clinically appropriate, lawfully prescribed, supported by patient-specific documentation, and approved by the dispensing pharmacy. Availability is determined case by case. This is not a consumer access promise; it is a clinical, sourcing, formulation, and regulatory review process. This ingredient is part of an evolving FDA review process for bulk substances used in compounding.

The patient-specific route is not a consumer bodybuilding or longevity channel. A request for MK-677 must be clinician-directed and reviewed for the patient, the dose, the route, the safety record, and pharmacy feasibility.

Quick Facts About MK-677 / Ibutamoren

Category: Orally active non-peptide growth hormone secretagogue receptor type 1a (GHS-R1a) agonist, small-molecule ghrelin mimetic

Active ingredient: Ibutamoren (also called MK-677, MK-0677, L-163,191), an orally bioavailable non-peptide spiropiperidine designed at Merck as a successor to the benzolactam-class GH secretagogues

FDA-approved branded forms: None. Ibutamoren has never received FDA approval for any indication. Merck discontinued development after pivotal trials in older adults and hip fracture failed to demonstrate clinically meaningful functional benefit.

Route: Oral, once daily in published studies. No labeled route or product exists.

Evidence posture: Emerging and preclinical. Multiple phase 1/2 human studies (Chapman 1996 [chapman1996], Copinschi 1996/1997 [copinschi1996, copinschi1997], Svensson 1999 [svensson1999], Murphy 2001 [murphy2001]); two pivotal trials in catabolic/frail populations failed primary endpoints (Bach 2004 hip fracture [bach2004]; Adunsky 2011 phase IIb hip fracture [adunsky2011]); a 2-year randomized trial in healthy older adults (Nass 2008 [nass2008]) showed lean-mass increase without functional benefit. Merck discontinued the program.

FDA-approval status: Category 2, evolving FDA review process. Valid patient-specific prescription required; supporting clinical rationale may be requested.

Compounded under: Not currently compoundable under 503A. RonanRx does not dispense MK-677 / ibutamoren pending FDA reclassification to Category 1.

WADA status: Category 2, evolving FDA review process. Valid patient-specific prescription required; supporting clinical rationale may be requested.

SPECIALS: PATIENT-SPECIFIC PRESCRIPTION ONLY

Physicians may submit patient-specific prescription requests for MK-677 / Ibutamoren for pharmacy review. Certain preparations may be available now when clinically appropriate, lawfully prescribed, and approved by the dispensing pharmacy. Availability is determined case by case.

- **Made to order, not off a shelf.** No batch sits in a warehouse waiting for buyers. Your prescription triggers the prep.
- **Named-patient label.** The bottle carries one patient's name. The batch records carry one prescription.
- **Dose, strength, and route chosen for the patient.** A prescriber decides what gets compounded, not a manufacturer who set the strength for a trial population.
- **Licensed pharmacist on the hook.** A real person, with a license that can be pulled, signs off on every prep. State inspectors check the facility.
- **Compounded drugs are not FDA-approved.** They should not be evaluated using branded-drug trial data alone. Availability varies by state and prescribed medication.

How This Differs from a Research-Use-Only Website

A research-use-only website ships a vial from a warehouse. There is no prescription, no pharmacist, no facility inspection, and no way to recall the product if something is wrong with it. If the vial is mislabeled, contaminated, or under-potent, there is nobody whose license is at stake.

A 503A compounding pharmacy is the other thing. The doctor writes the prescription. A licensed pharmacist, whose name is on the label, prepares the medicine in a facility the state inspects. If something goes wrong, there is a person and a license on the hook, and a documented chain of custody on every lot. That accountability is what makes it safe.

What is MK-677 / Ibutamoren?

MK-677, generic name ibutamoren, also designated MK-0677 and L-163,191, is an orally active non-peptide small molecule. It is a spiropiperidine derivative designed at Merck Research Laboratories to mimic the GH-releasing action of the earlier injectable peptide secretagogues (GHRP-6, hexarelin) while being orally bioavailable [patchett1995]. The discovery program built on Merck's earlier benzolactam-class compounds [cheng1993] and on the cloning of the GH secretagogue receptor by Howard, Pong, and colleagues [howard1996, pong1996].

Ibutamoren has never received marketing authorization from FDA, EMA, or any other major regulator for any indication. It is not available as a manufactured pharmaceutical product. In published clinical studies the route of administration was always oral, typically a single daily morning dose, and that is the route of administration in the unregulated supply chain as well.

How MK-677 / Ibutamoren Works

MK-677 is a non-peptide agonist at the growth hormone secretagogue receptor type 1a (GHS-R1a), the same G-protein-coupled receptor activated by endogenous ghrelin. GHS-R1a is expressed on somatotroph cells of the anterior pituitary, where its activation triggers calcium influx and inositol phosphate signaling that releases pre-formed growth hormone into the circulation. GHS-R1a is also expressed in the hypothalamic arcuate nucleus, where it modulates GHRH release, and in peripheral tissues including the gastrointestinal tract.

Unlike the peptide secretagogues (GHRP-6, GHRP-2, hexarelin, ipamorelin) which require injection, MK-677 was specifically designed for oral bioavailability and a pharmacokinetic profile that supports once-daily dosing [patchett1995]. In healthy adults, a single oral dose of MK-677 produces a dose-dependent rise in serum GH that mimics a physiological pulse, and chronic daily dosing sustains elevated 24-hour integrated GH and downstream IGF-1 [chapman1996, copinschi1996]. The molecule does not appear to be selective in the pituitary-axis sense that ipamorelin was designed for: Copinschi et al. (1996) [copinschi1996] documented small but measurable transient elevations in cortisol and prolactin at therapeutic doses in healthy young men, though these were modest relative to the GH response.

Biological Role of MK-677 / Ibutamoren

The growth hormone secretagogue receptor was cloned at Merck in 1996 as the orphan receptor activated by a class of synthetic GH-releasing peptides, including the Merck benzolactam and spiropiperidine series that culminated in MK-677 [howard1996, pong1996]. Its endogenous ligand, ghrelin, was identified shortly afterward as an acylated 28-amino-acid peptide from oxyntic cells of the stomach that signals nutrient state, drives appetite, and amplifies the pulsatile release of pituitary growth hormone [bowers2012]. The receptor is expressed in the anterior pituitary, hypothalamic arcuate nucleus, area postrema, vagal afferents, and enteric nervous system.

The therapeutic rationale for synthetic GHS-R1a agonists is to replicate or amplify ghrelin's downstream effects without administering the larger, less-stable native peptide. MK-677's central design feature is oral bioavailability, an advantage over the injectable peptide secretagogues (GHRP-6, hexarelin, ipamorelin) and over recombinant human GH itself, which requires daily subcutaneous injection. The contemporary FDA-approved orally bioavailable GHS-R1a agonist anamorelin is approved in Japan (Adlumiz) for cancer cachexia and shares the mechanism class; it has no FDA approval in the United States.

Detailed Mechanism of MK-677 / Ibutamoren

GHS-R1a is a class A G-protein-coupled receptor that couples primarily to Gαq/11. Agonist binding activates phospholipase C, generates inositol 1,4,5-trisphosphate and diacylglycerol, releases intracellular calcium, and triggers vesicular release of pre-formed growth hormone from anterior pituitary somatotrophs. The receptor was cloned in 1996 by Howard et al. at Merck (Science) [howard1996] working from the Merck secretagogue program, and its pharmacology and tissue distribution were characterized by Pong et al. (Molecular Endocrinology, 1996) [pong1996]. The endogenous ligand ghrelin was identified shortly afterward as an octanoylated 28-amino-acid peptide from oxyntic cells of the stomach [bowers2012].

Pharmacokinetics. The published human PK profile of oral MK-677 [chapman1996] is consistent with rapid oral absorption, a peak serum concentration approximately 1-2 hours after dosing, a plasma elimination half-life of approximately 4-6 hours, and accumulation to near-steady-state within 5-7 days of daily dosing [chapman1996, copinschi1996, copinschi1997]. The 24-hour GH pulse pattern is amplified rather than replaced: peak amplitudes increase and trough levels rise without abolishing physiological pulsatility, distinguishing the pharmacodynamic profile from continuous-infusion recombinant GH. Once-daily oral dosing (10-25 mg in most studies) was the standard regimen across the program.

Downstream GH/IGF-1 axis effects. Chronic daily dosing in healthy older adults produces sustained IGF-1 elevation into the young-adult reference range [nass2008]. Bone-formation markers (osteocalcin, P1NP) rise [murphy2001]. Body composition shifts toward lean mass with modest fat-mass reduction in 2-year dosing [nass2008]. Sleep architecture changes in the direction of slow-wave-sleep enhancement have been reported [copinschi1997]. Lipoprotein effects in obese subjects were heterogeneous [svensson1999]. None of these downstream signals translated to clinically meaningful functional improvement in the pivotal trials in frail or hip-fracture populations [bach2004, adunsky2011].

Off-target axis effects. MK-677 is not a selective somatotroph agonist in the ipamorelin sense. Therapeutic doses in healthy young men produced small transient elevations in cortisol and prolactin and a modest increase in 24-hour mean cortisol; ACTH responses were inconsistent [copinschi1996]. The clinical significance of these cross-axis effects at long-term dosing has not been established. Glucose and insulin: a consistent class effect of GHS-R1a agonism, and of GH/IGF-1 elevation generally, is reduction in insulin sensitivity. Nass 2008 documented dose-dependent increases in fasting glucose and HOMA-IR in healthy older adults at 25 mg daily over 2 years [nass2008]; this signal contributed to the FDA Category 2 designation [fda_503a_interim_policy].

MK-677 / Ibutamoren Research History

Merck Research Laboratories ran a multi-decade growth-hormone-secretagogue program built on the discovery by Cyril Bowers and Frank Momany that small peptides could release GH from the pituitary [bowers2012] [rahman2026]. The peptidic compounds (GHRP-6, GHRP-2, hexarelin) were proof of concept but required injection. Merck chemists screened for orally bioavailable non-peptide leads. The benzolactam class was the first nonpeptidyl secretagogue series [cheng1993]. Patchett et al. (Proc Natl Acad Sci USA, 1995) [patchett1995] disclosed L-163,191 / MK-0677, the spiropiperidine that became ibutamoren, as the orally active lead. Howard et al. (Science, 1996) [howard1996] then cloned the receptor at which the entire class acts, opening the door to receptor-level pharmacology.

Early human studies. Chapman et al. (JCEM, 1996) [chapman1996] reported the first daily oral dosing in healthy elderly adults: MK-677 raised 24-hour GH and IGF-1 to young-adult ranges. Copinschi et al. (JCEM, 1996; Neuroendocrinology, 1997) [copinschi1996, copinschi1997] characterized the 7-day metabolic and adrenocortical profile in healthy young men and the sleep-architecture effects of prolonged oral treatment. Svensson et al. (JCEM, 1999) [svensson1999] examined effects on lipoproteins in obese subjects. The compound was reliably orally active, well-tolerated short-term, and a credible candidate for chronic catabolic-state indications.

Pivotal trials. Murphy et al. (JCEM, 2001) [murphy2001] randomized postmenopausal osteoporotic women to MK-677, alendronate, the combination, or placebo. MK-677 increased bone formation markers but did not produce a clinically meaningful BMD effect beyond alendronate, and was not pursued as a stand-alone osteoporosis therapy. Bach et al. (J Am Geriatr Soc, 2004) [bach2004] randomized 123 patients recovering from hip fracture to MK-677 or placebo; the primary functional endpoint was not met. Nass et al. (Annals of Internal Medicine, 2008) [nass2008], the centerpiece of the program, randomized 65 healthy older adults to 25 mg MK-677 daily or placebo for 2 years [mayfield2026; mavrych2026]. MK-677 produced sustained GH and IGF-1 elevation, increased lean body mass by approximately 1.1 kg vs placebo, and modestly decreased fat mass, but did not improve strength, physical function, or any patient-relevant clinical outcome, and was associated with dose-dependent increases in fasting glucose and HOMA-IR [sinha2020]. Adunsky et al. (Arch Gerontol Geriatr, 2011) [adunsky2011] published the largest pivotal trial in the program, a phase IIb multicenter randomized placebo-controlled trial of MK-0677 in 539 patients recovering from hip fracture. The primary functional endpoint was not met, and a numerical excess of congestive heart failure events in the active arm was reported. Merck discontinued the development program [sigalos2018; mendias2026].

Post-Merck era. MK-677 / ibutamoren did not re-enter regulated clinical development. Practitioner-facing reviews in the GH-secretagogue class catalog the widespread off-label and unregulated-channel use that emerged in the 2010s in the bodybuilding and anti-aging markets. Pharmacovigilance and analytical work on seized GH-secretagogue black-market products [krug2018, gajda2019] documents the identity, dose,

and purity risks specific to that supply chain. Ibutamoren is on the WADA Prohibited List at all times under section S2 [wada_prohibited_list_2025, coutinho2026].

MK-677 / Ibutamoren Timeline

1993 • Cheng, Smith, and colleagues (Merck) report a novel non-peptidyl GH secretagogue, the benzolactam-class lead that preceded MK-677 in the Merck program [cheng1993]

1995 • Patchett et al [patchett1995]. (Proc Natl Acad Sci USA) disclose L-163,191 / MK-0677, the spiropiperidine compound subsequently named ibutamoren, as a potent, orally active growth hormone secretagogue

1996 • Howard et al. (Science) clone the growth hormone secretagogue receptor (GHS-R1a), the target of MK-677 and the broader secretagogue class, and Pong et al [howard1996; pong1996]. (Mol Endocrinol) identify the corresponding G-protein-linked receptor

1996 • Chapman et al. (JCEM) publish the first daily oral MK-677 study in healthy elderly subjects, sustained elevation of 24-hour GH and IGF-1; Copinschi et al [chapman1996; copinschi1996]. (JCEM) report 7-day metabolic and adrenocortical effects in healthy young men

1997 • Copinschi et al [copinschi1997]. (Neuroendocrinology) report effects of prolonged oral MK-677 on sleep architecture, slow-wave-sleep enhancement in healthy adults

1999 • Svensson et al [svensson1999]. (JCEM) report effects of MK-677 on lipoproteins in obese subjects, heterogeneous lipid changes without lipoprotein(a) effect

2001 • Murphy et al [murphy2001]. (JCEM) randomize postmenopausal osteoporotic women to MK-677, alendronate, combination, or placebo, MK-677 increased bone formation markers but did not deliver a clinically meaningful BMD benefit beyond alendronate

2004 • Bach et al [bach2004]. (J Am Geriatr Soc) publish the first hip-fracture trial of MK-0677, randomized placebo-controlled study in 123 adults recovering from hip fracture; primary functional endpoint not met

2008 • Nass et al [nass2008]. (Annals of Internal Medicine) publish the 2-year randomized placebo-controlled trial of 25 mg daily MK-677 in 65 healthy older adults, sustained GH/IGF-1 elevation and ~1.1 kg lean-mass gain, no improvement in strength or function, dose-dependent rise in fasting glucose and HOMA-IR

2011 • Adunsky et al. (Arch Gerontol Geriatr) publish the phase IIb multicenter trial of MK-0677 in 539 hip-fracture patients, primary functional endpoint not met; congestive heart failure events numerically higher in the active arm [adunsky2011]. Merck discontinues the development program.

2012 • Bowers (Methods Enzymol) reviews the history leading to ghrelin discovery, placing the Merck secretagogue program (MK-677 included) in its scientific context [bowers2012]

2018 • Sigalos and Pastuszak (Sex Med Rev) review safety and efficacy of GH secretagogues, including MK-677, documenting the metabolic and fluid-retention safety signals that ended clinical development [sigalos2018]. Krug et al. (Growth Horm IGF Res) characterize black-market GH-secretagogue products including MK-677-labeled material, documenting identity, dose, and purity discrepancies in the unregulated supply chain [krug2018].

2019 • Gajda et al [gajda2019]. (Drug Testing and Analysis) report glycine-modified and adulterated GH secretagogues identified in seized doping material, extending the supply-chain risk profile for MK-677-class products

2020 • Sinha et al [sinha2020]. (Translational Andrology and Urology) review the role of GH secretagogues, including MK-677, in modern body-composition management in hypogonadal males, framing widespread off-label use

2025 • World Anti-Doping Agency Prohibited List confirms MK-677 / ibutamoren remains prohibited at all times under section S2 (peptide hormones, growth factors, related substances and mimetics, growth hormone secretagogues) [wada_prohibited_list_2025]

2026 • Practitioner-facing reviews on therapeutic peptides in orthopaedics, sports medicine, and gerontology and a critical review of peptide-and-peptide-analog doping [coutinho2026] consistently document MK-677's lack of FDA approval and its prominent use in unregulated bodybuilding and anti-aging markets [mendias2026; mayfield2026; rahman2026; mavrych2026]

Clinical Contexts for MK-677 / Ibutamoren

Functional decline / sarcopenia in healthy older adults EMERGING

Studied in a 2-year randomized placebo-controlled trial in healthy older adults; lean-mass increase observed without improvement in strength or function. Failed to establish a clinically meaningful benefit.

Nass et al. (2008) [nass2008] randomized 65 healthy older adults (men and women, ages 60-81) to 25 mg oral MK-677 daily or placebo for 2 years. MK-677 sustained GH and IGF-1 in the young-adult range, increased lean body mass by approximately 1.1 kg vs placebo, and modestly decreased fat mass. It did not improve strength, physical function, or any patient-relevant outcome. Fasting glucose and HOMA-IR rose in the active arm. The trial did not support MK-677 as a treatment for functional decline. No FDA approval followed; clinical development was discontinued.

Functional recovery after hip fracture EMERGING

Studied in two randomized placebo-controlled trials; both failed primary functional endpoints. A signal of excess congestive heart failure was reported in the larger trial.

Bach et al. (2004) [bach2004] randomized 123 adults recovering from hip fracture to MK-0677 or placebo; the primary functional endpoint was not met. Adunsky et al. (2011) [adunsky2011] published the phase IIb multicenter trial of MK-0677 in 539 hip-fracture patients, the largest pivotal trial in the program. The primary functional endpoint was not met; a numerical excess of congestive heart failure events was reported in the active arm. Merck discontinued the development program after this trial. MK-677 has no marketing authorization for any post-fracture indication.

Postmenopausal osteoporosis EMERGING

Studied in a randomized factorial trial vs alendronate. Bone-formation markers increased but no clinically meaningful BMD benefit beyond alendronate was demonstrated; not pursued as a stand-alone therapy.

Murphy et al. (2001) [murphy2001] randomized postmenopausal osteoporotic women to MK-677, alendronate, the combination, or placebo, with bone turnover markers and BMD as endpoints. MK-677 increased bone-formation markers (osteocalcin, P1NP) but did not produce a clinically meaningful BMD effect beyond alendronate alone, and was not pursued as a stand-alone osteoporosis therapy. The trial did not lead to an osteoporosis indication.

Pediatric growth hormone deficiency PRECLINICAL

Discussed as a class candidate in pediatric-endocrinology reviews; no successful FDA development program exists for MK-677 in pediatric GHD.

Evidence should be interpreted in context for MK-677. Any patient-specific request requires prescriber rationale and pharmacy review; availability is determined case by case.

Anti-aging / body composition / bodybuilding (unregulated) EMERGING

Widely promoted by anti-aging clinics, bodybuilding communities, and online research-chemical sellers outside the regulated 503A pathway. No FDA approval, failed pivotal trials in catabolic populations, FDA Category 2 status, and WADA prohibition at all times.

Evidence should be interpreted in context for MK-677. Any patient-specific request requires prescriber rationale and pharmacy review; availability is determined case by case.

Compounded MK-677 / Ibutamoren (503A)

Physicians may submit patient-specific prescription requests for pharmacy review. For MK-677, certain preparations may be available now when clinically appropriate, lawfully prescribed, and approved by the

dispensing pharmacy. Availability is determined case by case and may depend on patient-specific documentation, ingredient status, source qualification, formulation feasibility, state requirements, and pharmacist judgment. The review starts with the evidence constraint: The evidence base for MK-677 is stronger than many research peptides because human trials measured GH, IGF-1, body-composition, and metabolic endpoints. It still has no FDA-approved product, and the trial record includes metabolic and cardiovascular safety questions that need case-level review.

This ingredient is part of an evolving FDA review process. RonanRx is monitoring FDA's PCAC process and any subsequent agency action. This ingredient is part of an evolving FDA review process for bulk substances used in compounding. Availability may change after FDA review, PCAC discussion, final agency action, or state-board guidance. For MK-677, RonanRx ties that monitoring to the evidence limits described above and to any patient-specific documentation submitted by the prescriber.

Valid patient-specific prescription required. Supporting clinical rationale may be requested. Compounded medications are not FDA-approved. No consumer self-ordering, no office stock, no bulk dispensing. Requests for MK-677 are reviewed before any preparation is made or released. The patient-specific route is not a consumer bodybuilding or longevity channel. A request for MK-677 must be clinician-directed and reviewed for the patient, the dose, the route, the safety record, and pharmacy feasibility.

MK-677 / Ibutamoren Formulations and Routes

Form	Concentration	Description
Investigational oral capsule (historical)	—	Used as oral capsules and tablets in the Merck clinical program (Chapman 1996, Copinschi 1996/1997, Nass 2008, Bach 2004, Adunsky 2011) [chapman1996, copinschi1996, copinschi1997, nass2008, bach2004, adunsky2011]. No commercial pharmaceutical formulation exists; clinical development was discontinued.
Unregulated capsule / oral solution / sublingual product (not from RonanRx)	—	Widely available from online research-chemical sellers, anti-aging clinics, and bodybuilding supplement channels outside the 503A regulated pathway. Analytical characterization of seized GH-secretagogue products documents identity, dose, and purity discrepancies [krug2018, gajda2019]. RonanRx does not source, dispense, or endorse these products.

Routes used in published literature: oral.

MK-677 / Ibutamoren Dosing

Route	Population	Range	Duration	Study type
Oral (research only)	Healthy young men (Copinschi 1996 phase 1 7-day study)	Daily oral MK-677 at doses spanning the GH-releasing range in the Copinschi 1996 protocol; sustained 24-hour GH/IGF-1 elevation with small transient cortisol and prolactin rises. No therapeutic dose has been approved.	7 days	Phase 1 PK/PD in healthy young men
Oral (research only)	Healthy elderly subjects (Chapman 1996)	Once-daily oral dosing in the Chapman 1996 protocol; sustained elevation of 24-hour GH and IGF-1 to young-adult ranges. No therapeutic dose has been approved.	Up to several weeks in early studies	Phase 1/2 in healthy elderly
Oral (research only)	Healthy older adults, 60-81 years (Nass 2008 2-year RCT)	25 mg orally once daily for 2 years vs placebo. Lean body mass increased by approximately 1.1 kg; strength and function did not improve; fasting glucose and HOMA-IR rose. No therapeutic dose has been approved.	2 years	Phase 2/3 randomized placebo-controlled trial
Oral (research only)	Adults recovering from hip fracture (Bach 2004; Adunsky 2011 phase IIb)	Oral MK-0677 dosed per the trial protocols (Bach n=123; Adunsky n=539). Primary functional endpoints not met in either trial. No therapeutic dose has been approved.	Up to 24 weeks in the Adunsky trial	Phase 2 / Phase IIb randomized placebo-controlled trials

No FDA-approved labeled dose exists for MK-677 / ibutamoren. The published Merck program established 10-25 mg orally once daily as the typical adult investigational range. The 2-year 25 mg/day dose in Nass 2008 produced sustained GH/IGF-1 elevation and lean-mass gain but failed to deliver a functional or patient-relevant clinical benefit and was associated with dose-dependent rises in fasting glucose and HOMA-IR [nass2008]. The phase IIb hip-fracture trial at the same dose range failed its primary endpoint and was associated with a numerical excess of congestive heart failure events [adunsky2011]. Merck discontinued development.

RonanRx does not publish a consumer dosing schedule for MK-677. Any request requires a valid patient-specific prescription, supporting clinical rationale, and pharmacist review. Route, strength, dosing interval, monitoring expectations, and dispensing quantity would be determined case by case from the prescriber's documentation and pharmacy feasibility review.

MK-677 / Ibutamoren Safety

The published safety record for MK-677 in humans is more extensive than for most growth-hormone-secretagogue compounds in the same class. Short-term (days to weeks) oral dosing in healthy young men and elderly adults was generally well tolerated, with the expected GH/IGF-1 pharmacology and small transient cortisol and prolactin elevations [6][7]. The longer-term and pivotal-trial safety signals are more informative, and are the basis for FDA's Category 2 designation [18].

Metabolic. Nass et al. (2008) [11] documented dose-dependent increases in fasting plasma glucose and HOMA-IR over 2 years of 25 mg daily oral MK-677 in healthy older adults. This is consistent with the well-established class effect of GH/IGF-1 elevation reducing insulin sensitivity, and it is one of the dominant safety considerations for chronic dosing. Svensson et al. (1999) [8] documented heterogeneous lipoprotein changes in obese subjects.

Fluid retention and cardiovascular. Edema and arthralgia consistent with GH-axis-mediated fluid retention were reported across the program. Adunsky et al. (2011) [12] reported a numerical excess of congestive heart failure events in the MK-0677 arm of the phase IIb hip-fracture trial, a frail older population particularly susceptible to fluid-retention-related decompensation. This signal contributed to Merck's decision to discontinue development and to FDA's Category 2 designation [2][3][14].

HPA axis and prolactin. Copinschi et al. (1996) [5] reported small but measurable transient elevations in cortisol and prolactin at therapeutic doses in healthy young men [20][22]. The clinical significance of these signals at long-term dosing has not been characterized, and MK-677 should not be regarded as a 'selective' GHS-R1a agonist in the ipamorelin sense.

Pediatric, pregnancy, lactation. No safety data in pregnancy, lactation, or pediatric use [18]. MK-677 should not be used in these populations.

Unregulated-supply-chain safety is a separate question. Analytical characterization of seized GH-secretagogue products [15][16] has documented identity, dose, and purity discrepancies including misidentified compounds, contamination with related secretagogues, and labels that do not match analytical content [17]. Practitioner-facing reviews catalog these supply-chain risks specifically for the unregulated peptide and oral-secretagogue market [19].

Anti-doping status. MK-677 is on the WADA Prohibited List at all times under section S2 [2][5][21]. Athletes subject to testing should not use MK-677 regardless of source.

Contraindications

Honest gap. No FDA-approved label exists for MK-677 / ibutamoren and no formal labeled contraindications have been established. Class-level cautions extrapolated from the published trial record and FDA's Category 2 designation, uncontrolled diabetes or significant insulin resistance, congestive heart

failure or significant cardiovascular fluid-retention risk (particularly in frail older adults), active malignancy, pregnancy and lactation, and pediatric use outside dedicated trials, are noted in safety_overview but are not labeled contraindications.

Searched: PubMed, FDA Drugs, DailyMed, WADA on 2026-05-11 · terms *MK-677 contraindications; ibutamoren contraindications; MK-0677 label*.

Drug interactions

Honest gap. No FDA-approved label and no formal drug-interaction studies of clinical scope have been published for MK-677. Theoretical interactions include additive insulin-sensitivity reduction with other GH-axis agents (recombinant GH, tesamorelin) and class-level fluid-retention effects with corticosteroids; clinically significant CYP-based DDIs have not been characterized in a controlled DDI program.

Searched: PubMed, FDA Drugs, DailyMed on 2026-05-11 · terms *MK-677 drug interactions; ibutamoren CYP; ibutamoren co-administration*.

Adverse events

Adverse-event data for MK-677 in humans span the Merck clinical program, Chapman 1996, Copinschi 1996/1997, Svensson 1999, Murphy 2001, Bach 2004, Nass 2008, and Adunsky 2011 [6][5][7]. The recurring AE signals across the program are: peripheral edema and arthralgia consistent with GH-axis fluid retention; fasting hyperglycemia and reduced insulin sensitivity (dose-dependent over 2-year dosing in Nass 2008); modest transient cortisol and prolactin elevations; and, in the largest pivotal trial in frail hip-fracture patients, a numerical excess of congestive heart failure events in the active arm [12][11].

There is no published large-population pharmacovigilance dataset for unregulated MK-677 use [9][10]. Adverse events reported by users of the unregulated supply chain do not enter formal pharmacovigilance systems for a non-approved product, and the analytical literature on seized GH-secretagogue products [15][16] documents identity and dose discrepancies that confound any attempt to attribute symptoms to a labeled dose of MK-677 [8]. Practitioner reviews [14][17] consistently flag the metabolic and fluid-retention signals as the primary chronic-dosing concerns.

Monitoring MK-677 / Ibutamoren Therapy

No RonanRx-specific monitoring protocol has been established for MK-677. If a patient-specific prescription is submitted, supporting clinical rationale may be requested, and monitoring expectations would be reviewed case by case against the published evidence, route, sterile or nonsterile status, concomitant therapies, and patient risk factors.

MK-677 / Ibutamoren in Special Populations

MK-677 / Ibutamoren Evidence Quality

The evidence base for MK-677 is moderate and stable, and uniformly negative for the indications Merck pursued. Receptor and PK pharmacology are well characterized [howard1996; pong1996; sinha2020]. Short-term human PD effects (GH/IGF-1 elevation, modest body-composition and sleep-architecture effects) are reproducible. The pivotal trials, Nass 2008 in healthy older adults [nass2008], Bach 2004 and Adunsky 2011 in hip-fracture patients [bach2004, adunsky2011], and Murphy 2001 in postmenopausal osteoporosis [murphy2001], failed to establish clinically meaningful benefit. The 2-year Nass trial documented dose-dependent metabolic harm (rising fasting glucose, HOMA-IR) without functional benefit; the phase IIb hip-fracture trial documented a numerical excess of congestive heart failure events without functional benefit [patchett1995; mayfield2026; mavrych2026].

Regulatory. MK-677 has never received FDA or EMA marketing authorization. FDA has placed ibutamoren on its Category 2 list of bulk drug substances nominated for 503A compounding, substances with significant safety concerns that remain under FDA's significant-safety-risk framework [fda_503a_interim_policy] [sigalos2018; mendias2026]. Physicians may submit patient-specific prescription requests for pharmacy review. Availability is determined case by case. MK-677 is on the WADA Prohibited List at all times [wada_prohibited_list_2025, coutinho2026].

Unregulated channels. The contemporary evidence base for the widespread bodybuilding and anti-aging use of MK-677 is essentially anecdotal: no controlled trials in healthy adults beyond the Nass 2008 lean-mass signal (which was not accompanied by functional benefit), and the supply chain itself is documented as carrying identity and purity risk [krug2018, gajda2019] [chapman1996]. Practitioner-facing reviews document this market honestly and consistently note the failed pivotal-trial history and the Category 2 status as the basis for not endorsing MK-677 outside of dedicated future clinical research [copinschi1996; copinschi1997; rahman2026].

Major MK-677 / Ibutamoren Clinical Studies

Study	Design	Participants	Duration	Finding
Patchett et al. (1995, Proc Natl Acad Sci USA), Discovery of L-163,191 / MK-0677	Medicinal chemistry / preclinical pharmacology: design and characterization of a potent, orally active	—	—	MK-0677 (subsequently named ibutamoren) is a potent orally bioavailable non-peptide GH secretagogue, the lead from

Study	Design	Participants	Duration	Finding
	non-peptide growth hormone secretagogue			the Merck spiropiperidine series that succeeded the earlier benzolactam-class compounds [patchett1995]
Howard et al. (1996, Science), Cloning of GHS-R	Molecular cloning and tissue-distribution characterization of the growth hormone secretagogue receptor	—	—	Identified the G-protein-coupled receptor in pituitary and hypothalamus that mediates the action of the Merck secretagogue series, the molecular target of MK-677 and the broader class [howard1996]
Chapman et al. (1996, J Clin Endocrinol Metab), First daily oral MK-677 in elderly subjects	Phase 1/2 daily oral MK-677 in healthy elderly subjects with PK/PD endpoints	—	—	Sustained elevation of 24-hour GH and IGF-1 to young-adult ranges with once-daily oral dosing, established MK-677 as a credible oral chronic-dose secretagogue [chapman1996]
Copinschi et al. (1996, J Clin Endocrinol Metab), 7-day metabolic and adrenocortical profile	7-day daily oral MK-677 in healthy young men; 24-hour GH, IGF-1, cortisol, prolactin endpoints	—	—	Sustained 24-hour GH/IGF-1 elevation; small transient elevations in cortisol and prolactin, established that MK-677 is not a pituitary-axis-selective secretagogue in the ipamorelin sense [copinschi1996]
Copinschi et al. (1997, Neuroendocrinology), Sleep quality on prolonged oral MK-677	Prolonged oral MK-677 in healthy adults with polysomnographic endpoints	—	—	Slow-wave-sleep enhancement on prolonged oral MK-677, the sleep-architecture signal that motivates much of the unregulated bodybuilding use [copinschi1997]
Svensson et al. (1999, J Clin Endocrinol Metab), Obese subjects, lipoproteins	Oral MK-677 in obese subjects; serum lipoprotein endpoints	—	—	Heterogeneous lipoprotein changes; no effect on lipoprotein(a) [svensson1999]. Lipid effects

Study	Design	Participants	Duration	Finding
				did not constitute a clinical rationale for further development in obesity.
Murphy et al. (2001, J Clin Endocrinol Metab), Postmenopausal osteoporosis factorial trial	Randomized factorial trial of MK-677, alendronate, the combination, or placebo in postmenopausal osteoporotic women with bone turnover and BMD endpoints	—	—	MK-677 increased bone-formation markers but did not produce a clinically meaningful BMD benefit beyond alendronate [murphy2001]. Not pursued as a stand-alone osteoporosis therapy.
Bach et al. (2004, J Am Geriatr Soc), First hip-fracture trial	Randomized placebo-controlled trial of MK-0677 in adults recovering from hip fracture; functional and gait endpoints	123	—	Primary functional endpoint not met. Preceded the larger Adunsky 2011 phase IIb trial [bach2004].
Nass et al. (2008, Annals of Internal Medicine), 2-year RCT in healthy older adults	Randomized double-blind placebo-controlled 2-year trial of 25 mg daily oral MK-677 vs placebo in healthy older adults aged 60-81	65	2 years	Sustained GH and IGF-1 elevation to young-adult ranges; lean body mass increased by approximately 1.1 kg vs placebo with modest fat-mass reduction; strength and physical function did not improve [nass2008]. Fasting plasma glucose and HOMA-IR rose in the active arm. The trial did not support MK-677 as a treatment for functional decline.
Adunsky et al. (2011, Arch Gerontol Geriatr), Phase IIb hip-fracture trial	Multicenter randomized double-blind placebo-controlled phase IIb trial of MK-0677 in adults recovering from hip fracture with functional recovery as the primary endpoint	539	Up to 24 weeks	Primary functional endpoint not met. A numerical excess of congestive heart failure events was reported in the MK-0677 arm [adunsky2011]. Merck discontinued the development program after this trial.

Study	Design	Participants	Duration	Finding
Sigalos and Pastuszak (2018, Sex Med Rev), Safety and efficacy of GH secretagogues	Narrative clinical review of GH secretagogues including MK-677	—	—	Synthesized the metabolic (insulin sensitivity), fluid-retention, and cardiovascular safety signals that ended MK-677 development and continue to drive caution about chronic GHS-R1a agonism [sigalos2018]
Krug et al. (2018, Growth Horm IGF Res), Black-market product analysis	Analytical characterization of seized growth-hormone-secretagogue products from the unregulated supply chain	—	—	Documented identity, dose, and purity discrepancies in unregulated GH-secretagogue products including MK-677-labeled material [krug2018]

MK-677 / Ibutamoren Pharmacokinetics & Pharmacodynamics

Pharmacokinetics

MK-677 is orally bioavailable, its defining pharmacokinetic feature and the central design goal of the Merck program [patchett1995]. The published human PK profile [chapman1996] [chapman1996, copinschi1996, copinschi1997] supports rapid oral absorption with a peak serum concentration approximately 1-2 hours after dosing, a plasma elimination half-life of approximately 4-6 hours, and accumulation to near-steady-state within 5-7 days of daily dosing. The pharmacodynamic effect on 24-hour integrated GH and IGF-1 outlasts the parent-drug plasma exposure because the relevant downstream effects (IGF-1 induction, lean-mass accrual) integrate over days to weeks.

Once-daily oral dosing was the standard regimen across the Merck clinical program, 10 mg, 25 mg, and a few intermediate doses were the most commonly studied. The 25 mg dose used in Nass 2008 [nass2008] sustained GH and IGF-1 in the young-adult range over 2 years of daily dosing.

No formal renal-impairment, hepatic-impairment, or pediatric PK study has been published. Drug-interaction PK studies of clinical scope have not been published. The substance is a small molecule (not a peptide) and CYP-mediated metabolism is a plausible clearance pathway, but no controlled DDI program has been characterized.

Pharmacodynamics

Pharmacodynamic effects of MK-677 in published human studies are sustained elevation of pulsatile 24-hour GH and downstream IGF-1. Pulsatility is amplified rather than abolished, peaks rise and troughs rise,

but the physiological pulse pattern is preserved, distinguishing MK-677 from continuous-infusion recombinant GH [chapman1996]. IGF-1 is elevated into the young-adult reference range with chronic dosing. Bone-formation markers (osteocalcin, P1NP) rise [murphy2001]. Lean body mass increases modestly over chronic dosing (approximately 1.1 kg in the Nass 2008 2-year trial); fat mass decreases modestly; strength and physical function did not improve [nass2008].

Off-axis PD effects include small transient cortisol and prolactin elevations [copinschi1996], slow-wave-sleep enhancement on prolonged dosing [copinschi1997], dose-dependent reduction in insulin sensitivity (rising fasting glucose and HOMA-IR over 2-year dosing) [nass2008], and fluid retention with peripheral edema [adunsky2011]. None of these PD signals translated to clinically meaningful functional improvement in the pivotal trials [bach2004, adunsky2011, nass2008].

↓↑ Comparing MK-677 / Ibutamoren Formulations

There is no manufactured MK-677 product to compare against. Within the GHS-R1a agonist class, the orally bioavailable agonist anamorelin has been approved in Japan (Adlumiz, for cancer cachexia) and has a separate clinical evidence base that does not transfer to MK-677. The injectable peptide GHS-R1a agonists hexarelin, GHRP-6, GHRP-2, and ipamorelin share the class mechanism without oral bioavailability, and are similarly not FDA-approved.

Within the broader growth-hormone-axis landscape, recombinant human GH carries FDA marketing authorization for several specific indications (pediatric GH deficiency, adult GH deficiency, Turner syndrome, certain wasting conditions) and is the regulated, evidence-based product when GH-axis therapy is clinically warranted. The FDA-authorized GHRH analog tesamorelin (Egrifta) carries an FDA indication in HIV-associated lipodystrophy, a different mechanism and labeling, not interchangeable with MK-677. MK-677 occupies an unusual position: a thoroughly studied compound with a substantial clinical program that ended in discontinuation rather than approval, and that is nonetheless widely used in unregulated channels.

🌡 MK-677 / Ibutamoren Storage and Handling

If a MK-677 preparation is approved after pharmacy review, RonanRx applies source documentation, formulation records, lot traceability, release checks, and storage controls appropriate to the actual dosage form. Research-use vial storage practices do not substitute for pharmacy-assigned storage, beyond-use dating, sterility controls when applicable, or recallable batch records.

MK-677 / Ibutamoren Compounding & Operations

503A compounding

Physicians may submit patient-specific prescription requests for pharmacy review. For MK-677, certain preparations may be available now when clinically appropriate, lawfully prescribed, and approved by the dispensing pharmacy. Availability is determined case by case and may depend on patient-specific documentation, ingredient status, source qualification, formulation feasibility, state requirements, and pharmacist judgment. The review starts with the evidence constraint: The evidence base for MK-677 is stronger than many research peptides because human trials measured GH, IGF-1, body-composition, and metabolic endpoints. It still has no FDA-approved product, and the trial record includes metabolic and cardiovascular safety questions that need case-level review.

This ingredient is part of an evolving FDA review process. RonanRx is monitoring FDA's PCAC process and any subsequent agency action. This ingredient is part of an evolving FDA review process for bulk substances used in compounding. Availability may change after FDA review, PCAC discussion, final agency action, or state-board guidance. For MK-677, RonanRx ties that monitoring to the evidence limits described above and to any patient-specific documentation submitted by the prescriber.

Valid patient-specific prescription required. Supporting clinical rationale may be requested. Compounded medications are not FDA-approved. No consumer self-ordering, no office stock, no bulk dispensing. Requests for MK-677 are reviewed before any preparation is made or released. The patient-specific route is not a consumer bodybuilding or longevity channel. A request for MK-677 must be clinician-directed and reviewed for the patient, the dose, the route, the safety record, and pharmacy feasibility.

Pharmacist review

For MK-677, the pharmacist review starts before any preparation is made. Valid patient-specific prescription required. Supporting clinical rationale may be requested. The pharmacist reviews ingredient status, sourcing, formulation feasibility, state requirements, patient-specific documentation, and whether dispensing is appropriate case by case.

Quality and traceability

If a MK-677 preparation is approved after pharmacy review, RonanRx applies source documentation, formulation records, lot traceability, release checks, and storage controls appropriate to the actual dosage form. Research-use vial storage practices do not substitute for pharmacy-assigned storage, beyond-use dating, sterility controls when applicable, or recallable batch records. The patient-specific framework and quality controls are documented in the cited compounding references [fda503a; usp_795; usp_797].

Cold chain

If a MK-677 preparation is approved after pharmacy review, RonanRx applies source documentation, formulation records, lot traceability, release checks, and storage controls appropriate to the actual dosage form. Research-use vial storage practices do not substitute for pharmacy-assigned storage, beyond-use dating, sterility controls when applicable, or recallable batch records.

Frequently Asked Questions About MK-677 / Ibutamoren

Can physicians request MK-677 through RonanRx?

Physicians may submit patient-specific prescription requests for pharmacy review. Certain preparations may be available now when clinically appropriate, lawfully prescribed, and approved by the dispensing pharmacy. Availability is determined case by case. Compounded medications are not FDA-approved, and no consumer self-ordering, office stock, or bulk dispensing is offered.

Is MK-677 FDA-approved for any indication?

No. MK-677 has never received FDA approval for any indication. Merck took it through a substantial clinical program including a 2-year randomized trial in healthy older adults and two trials in patients recovering from hip fracture; the pivotal trials failed their primary endpoints and Merck discontinued development [nass2008; bach2004; adunsky2011].

Why is MK-677 sold so widely if it failed its pivotal trials and is not FDA-approved?

MK-677 is widely sold by online research-chemical sellers, anti-aging clinics, and bodybuilding supplement channels, all outside the regulated 503A pharmacy pathway and outside FDA oversight of finished pharmaceutical products. These channels rely on the short-term GH/IGF-1, sleep-architecture, and lean-mass signals from the Merck program (which were real) while not engaging with the failed functional endpoints and the metabolic and cardiovascular safety signals that ended development. Analytical characterization of seized GH-secretagogue products has documented identity, dose, and purity discrepancies [gajda2019] [fda_503a_interim_policy]. RonanRx flags this market honestly: the existence of an unregulated supply does not change the substance's FDA regulatory status, and the pharmacy does not participate in that supply chain [nass2008; adunsky2011; krug2018].

What does the Nass 2008 trial actually show?

Nass et al. (2008) randomized 65 healthy older adults to 25 mg daily oral MK-677 or placebo for 2 years [nass2008]. MK-677 sustained GH and IGF-1 elevation to young-adult ranges and increased lean body mass by approximately 1.1 kg vs placebo. It did not improve strength, physical function, or any patient-relevant outcome. Fasting plasma glucose and HOMA-IR rose in the active arm. The body-composition

signal that motivates much of the unregulated use is real; the lack of functional benefit and the metabolic harm are the reasons FDA approval did not follow.

Why was development discontinued after the hip-fracture trials?

Bach et al. (2004) and Adunsky et al. (2011) randomized hip-fracture patients to MK-0677 or placebo with functional recovery as the primary endpoint [bach2004]. Neither trial met its primary endpoint. The larger Adunsky phase IIb trial in 539 patients also reported a numerical excess of congestive heart failure events in the active arm, a serious safety signal in this frail older population [adunsky2011]. Merck discontinued the development program after this trial.

What is the half-life of MK-677?

Approximately 4-6 hours plasma elimination half-life with once-daily oral dosing and accumulation to near-steady-state within 5-7 days [chapman1996]. The pharmacodynamic effect on 24-hour integrated GH and IGF-1 outlasts the parent-drug plasma exposure [copinschi1996].

Is MK-677 allowed in sport?

No. MK-677 / ibutamoren is on the World Anti-Doping Agency Prohibited List at all times under section S2 (peptide hormones, growth factors, related substances and mimetics, growth hormone secretagogues) [wada_prohibited_list_2025; coutinho2026]. Athletes subject to anti-doping testing should not use MK-677 regardless of source.

Can physicians request MK-677 through RonanRx?

Physicians may submit patient-specific prescription requests for pharmacy review. Certain preparations may be available now when clinically appropriate, lawfully prescribed, and approved by the dispensing pharmacy. Availability is determined case by case. Compounded medications are not FDA-approved, and no consumer self-ordering, office stock, or bulk dispensing is offered.

References

1. *[cheng1993]* Cheng K, Chan WW, Butler B, Wei L, Smith RG. *A novel non-peptidyl growth hormone secretagogue.*. Hormone Research. 1993. PMID 7905455. (accessed 2026-05-11)
2. *[patchett1995]* Patchett AA, Nargund RP, Tata JR, Chen MH, Barakat KJ, Johnston DB, Cheng K, Chan WW, Butler B, Hickey G, Jacks T, Schleim K, Pong SS, Chaung LY, Chen HY, Frazier E, Leung KH, Chiu SH, Smith RG. *Design and biological activities of L-163,191 (MK-0677): a potent, orally active growth hormone secretagogue.*. Proceedings of the National Academy of Sciences USA. 1995. PMID 7624358. (accessed 2026-05-11)

3. *[howard1996]* Howard AD, Feighner SD, Cully DF, Arena JP, Liberator PA, Rosenblum CI, Hamelin M, Hreniuk DL, Palyha OC, Anderson J, Paress PS, Diaz C, Chou M, Liu KK, McKee KK, Pong SS, Chaung LY, Elbrecht A, Dashkevicz M, Heavens R, Rigby M, Sirinathsinghji DJ, Dean DC, Melillo DG, Patchett AA, Nargund R, Griffin PR, DeMartino JA, Gupta SK, Schaeffer JM, Smith RG, Van der Ploeg LH. *A receptor in pituitary and hypothalamus that functions in growth hormone release.*. Science. 1996. PMID 8688086. (accessed 2026-05-11)
4. *[pong1996]* Pong SS, Chaung LY, Dean DC, Nargund RP, Patchett AA, Smith RG. *Identification of a new G-protein-linked receptor for growth hormone secretagogues.*. Molecular Endocrinology. 1996. PMID 8838145. (accessed 2026-05-11)
5. *[copinschi1996]* Copinschi G, Van Onderbergen A, L'Hermite-Balériaux M, Mendel CM, Caufriez A, Leproult R, Bolognese JA, De Smet M, Thorner MO, Van Cauter E. *Effects of a 7-day treatment with a novel, orally active, growth hormone (GH) secretagogue, MK-677, on 24-hour GH profiles, insulin-like growth factor I, and adrenocortical function in normal young men.*. Journal of Clinical Endocrinology and Metabolism. 1996. PMID 8768828. (accessed 2026-05-11)
6. *[chapman1996]* Chapman IM, Bach MA, Van Cauter E, Farmer M, Krupa D, Taylor AM, Schilling LM, Cole KY, Skiles EH, Pezzoli SS, Hartman ML, Veldhuis JD, Gormley GJ, Thorner MO. *Stimulation of the growth hormone (GH)-insulin-like growth factor I axis by daily oral administration of a GH secretogogue (MK-677) in healthy elderly subjects.*. Journal of Clinical Endocrinology and Metabolism. 1996. PMID 8954023. (accessed 2026-05-11)
7. *[copinschi1997]* Copinschi G, Leproult R, Van Onderbergen A, Caufriez A, Cole KY, Schilling LM, Mendel CM, De Lepeleire I, Bolognese JA, Van Cauter E. *Prolonged oral treatment with MK-677, a novel growth hormone secretagogue, improves sleep quality in man.*. Neuroendocrinology. 1997. PMID 9349662. (accessed 2026-05-11)
8. *[svensson1999]* Svensson J, Jansson JO, Ottosson M, Johannsson G, Taskinen MR, Ohlsson C, Bengtsson BA. *Treatment of obese subjects with the oral growth hormone secretagogue MK-677 affects serum concentrations of several lipoproteins, but not lipoprotein(a).*. Journal of Clinical Endocrinology and Metabolism. 1999. PMID 10372705. (accessed 2026-05-11)
9. *[murphy2001]* Murphy MG, Weiss S, McClung M, Schnitzer T, Cerchio K, Connor J, Krupa D, Gertz BJ. *Effect of alendronate and MK-677 (a growth hormone secretagogue), individually and in combination, on markers of bone turnover and bone mineral density in postmenopausal osteoporotic women.*. Journal of Clinical Endocrinology and Metabolism. 2001. PMID 11238495. (accessed 2026-05-11)
10. *[bach2004]* Bach MA, Rockwood K, Zetterberg C, Thamsborg G, Hébert R, Devogelaer JP, Christiansen JS, Rizzoli R, Ochsner JL, Beary J, Fellowes V, Adamski R, Smith S, Saunders S, Thorne S; MK-677 Hip Fracture Study Group. *The effects of MK-0677, an oral growth hormone secretagogue, in patients with hip fracture.*. Journal of the American Geriatrics Society. 2004. PMID 15066065. (accessed 2026-05-11)
11. *[nass2008]* Nass R, Pezzoli SS, Oliveri MC, Patrie JT, Harrell FE Jr, Clasey JL, Heymsfield SB, Bach MA, Vance ML, Thorner MO. *Effects of an oral ghrelin mimetic on body composition and clinical outcomes in healthy older adults: a randomized trial.*. Annals of Internal Medicine. 2008. PMID 18981485. (accessed 2026-05-11)
12. *[adunsky2011]* Adunsky A, Chandler J, Heyden N, Lutkiewicz J, Scott BB, Berd Y, Liu N, Papanicolaou DA. *MK-0677 (ibutamoren mesylate) for the treatment of patients recovering from hip fracture: a multicenter, randomized, placebo-controlled phase IIb study.*. Archives of Gerontology and Geriatrics. 2011. PMID 21067829. (accessed 2026-05-11)
13. *[bowers2012]* Bowers CY. *History to the discovery of ghrelin.*. Methods in Enzymology. 2012. PMID 22975043. (accessed 2026-05-11)
14. *[sigalos2018]* Sigalos JT, Pastuszak AW. *The Safety and Efficacy of Growth Hormone Secretagogues.*. Sexual Medicine Reviews. 2018. PMID 28400207. (accessed 2026-05-11)
15. *[krug2018]* Krug O, Thomas A, Malerød-Fjeld H, Dehnes Y, Laussmann T, Feldmann I, Sickmann A, Thevis M. *Analysis of new growth promoting black market products.*. Growth Hormone & IGF Research. 2018. PMID 29864719. (accessed 2026-05-11)

16. *[gajda2019]* Gajda PM, Holm NB, Hoej LJ, Rasmussen BS, Dalsgaard PW, Reitzel LA, Linnet K. *Glycine-modified growth hormone secretagogues identified in seized doping material.*. Drug Testing and Analysis. 2019. PMID 30136411. (accessed 2026-05-11)
17. *[sinha2020]* Sinha DK, Balasubramanian A, Tatem AJ, Rivera-Mirabal J, Yu J, Kovac J, Pastuszak AW, Lipshultz LI. *Beyond the androgen receptor: the role of growth hormone secretagogues in the modern management of body composition in hypogonadal males.*. Translational Andrology and Urology. 2020. PMID 32257855. (accessed 2026-05-11)
18. *[mendias2026]* Mendias CL, Awan TM. *Safety and Efficacy of Approved and Unapproved Peptide Therapies for Musculoskeletal Injuries and Athletic Performance.*. Sports Medicine. 2026. PMID 41966639. (accessed 2026-05-11)
19. *[mayfield2026]* Mayfield CK, Bolia IK, Feingold CL, Lin EH, Liu JN. *Injectable Peptide Therapy: A Primer for Orthopaedic and Sports Medicine Physicians.*. American Journal of Sports Medicine. 2026. PMID 41476424. (accessed 2026-05-11)
20. *[rahman2026]* Rahman OF, Lee SJ, Seeds WA. *Therapeutic Peptides in Orthopaedics: Applications, Challenges, and Future Directions.*. Journal of the American Academy of Orthopaedic Surgeons. Global Research & Reviews. 2026. PMID 41490200. (accessed 2026-05-11)
21. *[coutinho2026]* Coutinho LFD, DE Oliveira Neves LF, Camilo RP. *A new era of doping? Use of peptide and peptide-analog drugs in recreational and professional sport and bodybuilding: a critical review.*. Journal of Sports Medicine and Physical Fitness. 2026. PMID 41880199. (accessed 2026-05-11)
22. *[mavrych2026]* Mavrych V, Shypilova I, Bolgova O. *Therapeutic peptides in gerontology: mechanisms and applications for healthy aging.*. Frontiers in Aging. 2026. PMID 42021992. (accessed 2026-05-11)
23. *[fda_503a_interim_policy]* U.S. Food and Drug Administration. *Interim Policy on Compounding Using Bulk Drug Substances Under Section 503A of the Federal Food, Drug, and Cosmetic Act — Guidance for Industry*. FDA Guidance for Industry. 2017. https://www.fda.gov/regulatory-information/search-fda-guidance-documents/interim-policy-compounding-using-bulk-drug-substances-under-section-503a-federal-food-drug-and (accessed 2026-05-11)
24. *[fda503a]* U.S. Food and Drug Administration. *Compounding Laws and Policies — Section 503A of the Federal Food, Drug, and Cosmetic Act*. FDA Drug Compounding. 2024. https://www.fda.gov/drugs/human-drug-compounding/compounding-laws-and-policies (accessed 2026-05-11)
25. *[wada_prohibited_list_2025]* World Anti-Doping Agency. *World Anti-Doping Code International Standard — Prohibited List*. WADA International Standard. 2025. https://www.wada-ama.org/en/prohibited-list (accessed 2026-05-11)
26. *[usp_797]* United States Pharmacopeia. *USP General Chapter <797> Pharmaceutical Compounding — Sterile Preparations*. USP Compounding Compendium. 2023. https://www.usp.org/compounding/general-chapter-797 (accessed 2026-05-11)
27. *[usp_795]* United States Pharmacopeia. *USP General Chapter <795> Pharmaceutical Compounding — Nonsterile Preparations*. USP Compounding Compendium. 2023. https://www.usp.org/compounding/general-chapter-795 (accessed 2026-05-11)

How to Access MK-677 / Ibutamoren

Compounded MK-677 / Ibutamoren is dispensed under 503A on a patient-specific prescription. Depending on your role, the next step looks different.

FOR PRESCRIBING CLINICIANS

Offer this medication

A pharmacist will follow up within two business days. We'll cover state availability, supported formulations, and what integration looks like for your clinic.

ronanrx.com/request-partnership-call

PATIENT WITH A DOCTOR

Receive your prescription

If your doctor has prescribed MK-677 / Ibutamoren, sign up so we can prepare and ship your medication. The signup wizard collects intake and connects you to the prescribing workflow.

ronanrx.com/patients

PATIENT WITHOUT A DOCTOR

Find a partner clinic

RonanRx prescribes through partner clinics — we don't initiate prescriptions on this site. Read how the referral process works and how to find a partner clinic in your state.

ronanrx.com/find-clinic

Other compounds RonanRx makes

This monograph is one of many in the RonanRx formulary. Every compound below is prepared under 503A on a patient-specific prescription. Browse the full catalog at ronanrx.com/medications and ronanrx.com/peptides, or scan the codes at right for each index.

Medications

Peptides

MEDICATIONS (40)

Alpha-Lipoic Acid (ALA) — Antioxidant & mitochondrial
Coenzyme Q10 (CoQ10) — Antioxidant & mitochondrial
Glutathione — Antioxidant & mitochondrial
NAD+ / NMN — Antioxidant & mitochondrial
Compounded Topical Anesthetics (BLT, LET) — Dermatology
Topical Minoxidil — Dermatology
Topical Tretinoin — Dermatology
Compounded Magnesium — Energy & nutritional
Cyanocobalamin — Energy & nutritional
High-Dose Vitamin D — Energy & nutritional
Hydroxocobalamin — Energy & nutritional
Iron (Compounded) — Energy & nutritional
L-Carnitine — Energy & nutritional
Methylcobalamin (B12) — Energy & nutritional
Methylfolate — Energy & nutritional
Anastrozole — Hormone optimization
Clomiphene & Enclomiphene — Hormone optimization
DHEA — Hormone optimization
Estradiol — Hormone optimization
Estriol — Hormone optimization
Human Chorionic Gonadotropin (HCG) — Hormone optimization
Pregnenolone — Hormone optimization
Progesterone — Hormone optimization
Testosterone — Hormone optimization
Compounded Metformin — Metabolic & weight
Compounded Semaglutide — Metabolic & weight
Compounded Tirzepatide — Metabolic & weight
Lipotropic Injection (MIC, MICC) — Metabolic & weight
Low-Dose Naltrexone (LDN) — Metabolic & weight
Naltrexone-Bupropion Combination — Metabolic & weight
Topiramate — Metabolic & weight
Bremelanotide / PT-141 — Sexual health
Compounded Sildenafil — Sexual health
Compounded Tadalafil — Sexual health
Trimix Injection — Sexual health
Compounded Gabapentin — Sleep & recovery
Compounded Melatonin — Sleep & recovery
Compounded T3 (Liothyronine) — Thyroid
Compounded T3/T4 Combinations — Thyroid
Compounded T4 (Levothyroxine) — Thyroid

PEPTIDES (21)

Sermorelin — Available now

Tesamorelin — Available now

AOD-9604 — Growth-hormone axis (under FDA review)

CJC-1295 — Growth-hormone axis (under FDA review)

GHRP-2 / GHRP-6 — Growth-hormone axis (under FDA review)

Hexarelin — Growth-hormone axis (under FDA review)

Ipamorelin — Growth-hormone axis (under FDA review)

MK-677 / Ibutamoren — Growth-hormone axis (under FDA review)

5-Amino 1MQ — Metabolic & longevity (under FDA review)

Epitalon / Epithalon — Metabolic & longevity (under FDA review)

MOTS-C — Metabolic & longevity (under FDA review)

Thymosin Alpha-1 / Thymalin — Metabolic & longevity (under FDA review)

DSIP, Delta Sleep-Inducing Peptide — Neuro & cognitive (under FDA review)

Selank — Neuro & cognitive (under FDA review)

Semax — Neuro & cognitive (under FDA review)

Vasoactive Intestinal Peptide (VIP) — Neuro & cognitive (under FDA review)

BPC-157 — Tissue repair (under FDA review)

KPV — Tissue repair (under FDA review)

LL-37 — Tissue repair (under FDA review)

Pentadeca Arginate (PDA) — Tissue repair (under FDA review)

TB-500 / Thymosin Beta-4 — Tissue repair (under FDA review)