

BPC-157

Body Protection Compound-157

Physician Reference | Compounded Peptide Therapy

Overview

BPC-157 is a 15-amino acid synthetic peptide derived from a naturally occurring sequence found in human gastric juice. First described in 1992 through research on the brain-gut axis, it has demonstrated broad cytoprotective activity across multiple organ systems in preclinical models, with particular interest in musculoskeletal repair, angiogenesis, and anti-inflammatory pathways.

It is administered through licensed compounding pharmacies under physician supervision, most commonly via subcutaneous injection or oral formulation depending on the target indication.

Classification	Synthetic pentadecapeptide (15 amino acids)
Natural origin	Partial sequence of human gastric juice protein BPC
Primary mechanism	VEGFR2 activation, angiogenesis, nitric oxide synthesis
Administration routes	Subcutaneous injection, intraarticular injection, oral
Stability	Highly resistant to enzymatic degradation in the GI tract
Compounding status	Available through licensed 503A compounding pharmacies under physician order

Mechanism of Action

BPC-157 exerts its effects through several interconnected molecular pathways:

- VEGFR2 activation** Promotes vascular endothelial growth factor signaling, driving angiogenesis and new blood vessel formation in injured tissue
- Nitric oxide synthesis** Upregulates NOS activity, supporting vasodilation, tissue perfusion, and cellular repair
- ERK1/2 and FAK signaling** Modulates cell migration and proliferation pathways critical for wound healing
- COX-2 and inflammatory mediators** Downregulates pro-inflammatory cytokines including IL-6 and TNF-alpha
- KRAS and AKT pathways** Cytoprotective signaling that supports cell survival under injury conditions

These pathways collectively produce the cytoprotective, angiogenic, and anti-inflammatory effects observed across organ systems in preclinical literature.

Clinical Applications and Preclinical Evidence

The following applications reflect outcomes observed in peer-reviewed preclinical studies and one published human pilot. Clinical utility should be evaluated on a patient-by-patient basis.

Preclinical Evidence Areas	Additional Areas of Investigation
Musculoskeletal repair	GI mucosal protection
Tendon and ligament healing	Liver and pancreatic support
Bone repair	Cardiovascular tissue repair
Nerve regeneration	Anti-inflammatory (systemic)
Muscle strain recovery	Orthopedic post-procedure recovery

Human pilot data: In one published study, 7 of 12 patients with chronic knee pain reported sustained relief for more than six months following a single intraarticular injection of BPC-157. No adverse events were reported in this cohort.

Safety and Tolerability

Preclinical safety data (animal models, in vitro) has been consistently favorable across a range of doses and administration routes:

- **No acute toxicity identified** Doses ranging from 6 mcg/kg to 20 mg/kg over 6 weeks; no lethal dose established
- **Organ safety** No adverse histopathologic changes in liver, spleen, lung, kidney, brain, thymus, prostate, or ovaries across rat and dog models
- **Local tolerance** Single injection into quadriceps of rabbits produced no local irritation, erythema, edema, or necrosis at 48 hours
- **Hepato/nephroprotective** Demonstrated protective effects in induced hepatic injury models; no evidence of hepatotoxicity or nephrotoxicity
- **Genotoxicity and mutagenicity** Negative Ames test, no chromosomal aberration, negative micronucleus assay in vitro
- **Teratogenicity** No adverse fetal outcomes in rat pregnancy studies at studied doses

Important: No controlled safety or efficacy data in humans beyond the pilot cited above. All preclinical findings should be interpreted accordingly. Long-term data beyond 6 weeks is not available in animal models.

Patient Candidate Profile

BPC-157 may be appropriate for physician consideration in the following patient profiles:

- Active adults and athletes recovering from tendon, ligament, or muscle injuries
- Patients in post-operative orthopedic recovery seeking adjunct regenerative support
- Individuals with chronic joint inflammation unresponsive to conventional management

- Patients with gastrointestinal inflammation affecting systemic recovery
- Candidates for regenerative medicine protocols where angiogenesis and tissue repair are primary goals

BPC-157 is not a replacement for surgery, physical therapy, or standard-of-care treatment. It should be considered as an adjunct within a structured, physician-supervised plan.

Regulatory Context

FDA status	Category 2 bulk drug substance (2023); not approved for any indication; cannot be commercially compounded
Compounding pathway	Available through 503A licensed compounding pharmacies under individual physician prescription
WADA status	Prohibited substance in competitive sport; not relevant to non-athlete clinical populations
Legal possession	Not a DEA scheduled substance; possession is not illegal
Sourcing guidance	Products marketed as dietary supplements or research chemicals are unregulated for quality and safety. Physician-ordered compounded formulations are the appropriate sourcing pathway.

For prescribing or physician partnership programs, contact the Giovane Medical clinical team.

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