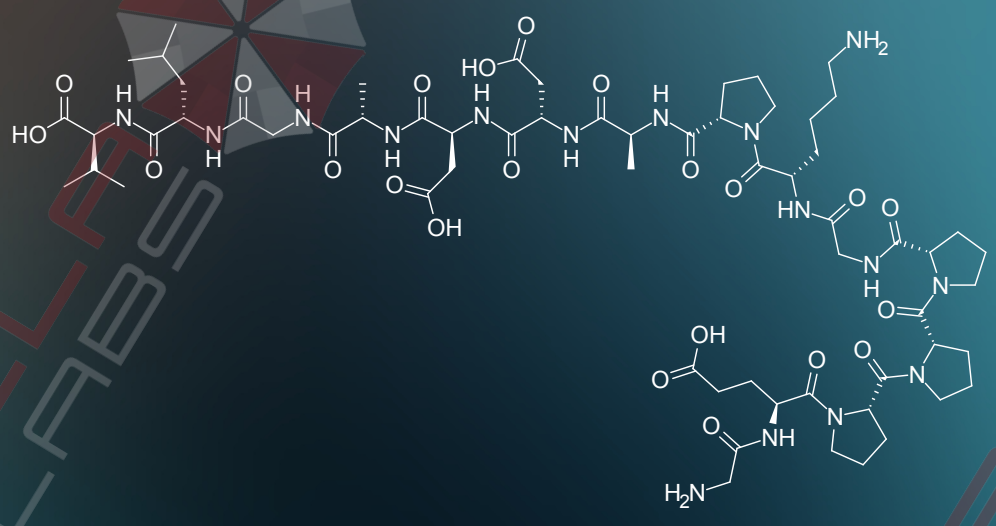


BPC-157 Arginate: Questioning Claims of Enhanced Stability and Therapeutic Benefit

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History

Gastric Pentadecapeptide 157 (BPC-157) was first described in the early 1990s.[1] It was isolated from human gastric juice and was subsequently found to protect against stomach ulcers and aid in organ protection and wound healing. This document does not review all sources on BPC-157 but explores whether BPC-157 arginate salt has enhanced properties compared to non-arginate BPC-157. BPC-157 is naturally negatively charged at a neutral pH (-2 charges), the amino acid arginine has a positive charge under the same conditions. Hence, BCP-157 arginate should contain the peptide chain and 2 units of arginine.

There are no scientific studies that use BPC-157 arginate as a singular compound to study its effects. However, there are a few studies that explore the combination of BCP-157 with arginine, which should physiologically be very similar to the direct use of BCP-157 arginate, under the condition that BPC-157 and arginine are supplied in the correct relative amount.

Preclinical Trials

A first trial in 1997 that combined BPC-157 and L-arginine studied the combination in the healing of gastric lesions. Arginine and BPC-157 both were able to reduce the area of ulcers induced by ethanol in rats. However, their combination did not lead to a greater combined effect, indicating that both substances use a similar pathway. In the same study, it was found that BPC-157 did prevent a blood pressure drop that is usually observed when arginine is administered-although it is unlikely this has any benefit in humans.[2] A study which concentrated only on blood pressure did also report a similar finding. [3]

Similarly, in a different study on lesions in the esophagus, it was again found that BPC-157 (10 µg) had the best wound healing effect and arginine (100 mg) had a similar, but less pronounced healing ability. However, the combination of BPC-157 with arginine did only show a minor improvement over BCP-157 alone.[4] Another study found no clear effect in rats with bowel surgery wounds.[5]

In a trial with rats that focused on healing properties of the intestines, it was found that the addition of arginine was actually somewhat harmful to the healing process and that BCP-157 alone achieved the best results.[6] The

reason for the bad results with arginine in the intestinal tract was an increase in the occurrence of adhesions (connections between wounded areas) that are especially dangerous in the intestinal tract, but less problematic in other areas.

Another study found that BPC-157 was alone able to counteract the effects of the sodium channel blocker lidocaine when injected into the leg of a rat. Arginine alone was able to produce a similar effect under certain conditions, when given together, arginine did not increase the effects of BPC-157, nor weaken it.[7]

One patent (US9850282B2) from the year 2013 claims the invention of several salts of BCP-157 as alternatives to “regular” BPC-157. These salts include the arginate salt, but also lysine and ornithine (two similar amino acids to arginine). This rationale is different from other studies, since in the other studies, arginine is added to supply a addition effect, while in this patent, the authors claim the formulation as BPC-157 salts of arginine, ornithine and lysine are more stable in gastric juice under physiological conditions and hence should have a higher oral bioavailability. However, the patent also claimed that a regular sodium salt has almost the same stability in gastric juice as BPC-157 arginate. On the other side, the acetate salt seems to be considerably less stable, but there are only very few examples in total. In general, it is questionable whether the counter ion of BPC-157 would have a major influence on its stability in gastric juice, as solubility is expected to be high in all cases and the molecule is very unlikely to be protected from enzymatic degradation by remote counter ions.

Conclusion

In most animal studies, the combination of BPC-157 with arginine did show either no or only a small benefit on wound healing compared to only BPC-157 alone. One study did even show problematic wound healing if both are combined. Hence, there is no clear benefit to use this combination. In addition, in the study that showed a benefit, L-arginine was supplied in much higher quantities compared to BPC-157, making the use of a BPC-157 arginine salt, in which arginine has a lower weight % compared to BPC-157, highly questionable. On the other hand, it is also unlikely that BPC-157 arginate is less effective than other forms of BPC-157.

There are no human trials that combine BPC-157 with arginine.

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