

RESEARCH MONOGRAPH . COMPOUND PROFILE

ARA-290 (Cibinetide)

An 11-amino-acid fragment of erythropoietin's helix B with tissue-protective activity but without erythropoietic activity.

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RESEARCH USE ONLY

ABSTRACT

ARA-290 (Cibinetide; Gln-Glu-Gln-Leu-Glu-Arg-Ala-Leu-Asn-Ser-Ser; CAS 1208243-50-8) is an 11-residue peptide derived from the alpha-helix B region of erythropoietin (EPO). The peptide retains the tissue-protective and anti-inflammatory activity of EPO (mediated through the heteromeric EPO/CD131 innate repair receptor) without the erythropoietic activity (mediated through the EPO receptor homodimer). The compound was developed by Araim Pharmaceuticals for diabetic neuropathy, sarcoidosis-associated small fiber neuropathy, and other neuropathic pain indications. Phase 2 trials in sarcoidosis-associated SFN showed reductions in neuropathic pain and improvements in autonomic measures. Doses are 4 mg subcutaneously per day in clinical trials.

1. Compound Identification

ARA-290 (Cibinetide) is described as epo-derived helix b peptide. An 11-amino-acid fragment of erythropoietin's helix B with tissue-protective activity but without erythropoietic activity.

1.1 Class summary

EPO-derived helix B peptide

1.2 Subtitle

An 11-amino-acid fragment of erythropoietin's helix B with tissue-protective activity but without erythropoietic activity.

2. Abstract

ARA-290 (Cibinetide; Gln-Glu-Gln-Leu-Glu-Arg-Ala-Leu-Asn-Ser-Ser; CAS 1208243-50-8) is an 11-residue peptide derived from the alpha-helix B region of erythropoietin (EPO). The peptide retains the tissue-protective and anti-inflammatory activity of EPO (mediated through the heteromeric EPO/CD131 innate repair receptor) without the erythropoietic activity (mediated through the EPO receptor homodimer). The compound was developed by Araim Pharmaceuticals for diabetic neuropathy, sarcoidosis-associated small fiber neuropathy, and other neuropathic pain indications. Phase 2 trials in sarcoidosis-associated SFN showed reductions in neuropathic pain and improvements in autonomic measures. Doses are 4 mg subcutaneously per day in clinical trials.

3. Mechanism of Action

Tissue-protective EPO/CD131 innate repair receptor agonist without erythropoietic EPO receptor activation.

The mechanistic profile described above represents the consensus position from peer-reviewed literature where available; for compounds with sparse formal characterization, this section reflects vendor-grade reports and structurally-related class pharmacology and should be interpreted with appropriate caution.

4. Pharmacokinetics and Routes of Administration

Pharmacokinetic data are summarized within the abstract for compounds with formal Phase 1 records. Compounds without published human pharmacokinetic studies are noted as such; investigators should treat the absence of data as a research limitation.

5. Reported Research Dose Ranges

4 mg SC daily in clinical trials.

Doses are scaled from clinical use where the compound is approved as a medicine, from Phase 2/3 trials where development advanced, or from rodent dose-response data scaled by allometric assumptions where the compound has no human clinical record. Investigators should treat dose ranges from research-chemical-grade vendors as starting points for their own pharmacokinetic and tolerability characterization rather than validated dosing recommendations.

6. Sourcing and Quality Verification

Investigators should obtain analytical confirmation of identity (mass spectrometry; for peptides, additionally amino acid analysis or N-terminal sequencing) and purity (HPLC area-percent, ideally greater than 95 percent) on every lot. Vendor certificates of analysis vary in quality; third-party analytical confirmation through independent laboratories (e.g., Janoshik Analytical, Anabolic Lab) is the gold standard for research-grade peptides and small molecules.

For compounds with established pharmaceutical-grade marketing in any jurisdiction, sourcing from the marketed product (where legal and accessible) provides the highest quality assurance.

7. Reconstitution and Handling

Peptides should be reconstituted in bacteriostatic water or sterile water for injection in the volume appropriate to the desired concentration; lyophilized peptides should be allowed to come to room temperature before reconstitution to minimize precipitation. Reconstituted peptides should be stored refrigerated and used within the timeframe specified by the manufacturer (typically 14 to 30 days for bacteriostatic water reconstitutions, shorter for sterile water).

Small molecules: storage conditions vary by compound; consult the certificate of analysis for the specific product. Most are stable at room temperature in dry, dark conditions; oxidation-sensitive compounds (e.g., catecholamine precursors) require cool storage and protection from light.

8. Stack Interaction Considerations

Investigators combining this compound with other research substances should consider receptor-level interactions (additive effects at shared targets), enzyme-level interactions (CYP-mediated drug-drug interactions where applicable), and pharmacodynamic interactions (additive sedation, additive serotonergic activity, additive hemodynamic effects).

The stack interaction section in published monographs of well-characterized compounds is necessarily incomplete for any specific combination; investigators should treat novel combinations with elevated caution and titrate gradually.

9. References

1. Brines M, et al. ARA 290, a nonerythropoietic peptide engineered from erythropoietin, improves metabolic control and neuropathic symptoms in patients with type 2 diabetes. Mol Med 2015.

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