

RESEARCH MONOGRAPH . COMPOUND PROFILE

Vasoactive Intestinal Peptide (VIP)

A 28-amino-acid peptide of the secretin/glucagon family with broad anti-inflammatory and bronchodilator activity, used in CIRS and chronic biotoxin protocols and studied for pulmonary arterial hypertension.

DOCUMENT	KDC-MN-1337
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AUTHOR	Kodiac bioLabs Research
COMPOUND CLASS	28-residue secretin-family neuropeptide and immunomodulator

RESEARCH USE ONLY

ABSTRACT

Vasoactive Intestinal Peptide (VIP; His-Ser-Asp-Ala-Val-Phe-Thr-Asp-Asn-Tyr-Thr-Arg-Leu-Arg-Lys-Gln-Met-Ala-Val-Lys-Lys-Tyr-Leu-Asn-Ser-Ile-Leu-Asn-NH₂; CAS 40077-57-4; molecular formula C₁₄₇H₂₃₇N₄₃O₄₃S; molecular weight 3326.81) is a 28-residue C-terminally amidated peptide originally isolated from porcine duodenum by Sami Said and Viktor Mutt in 1970 as a vasodilator and bronchodilator activity. VIP belongs to the secretin/glucagon/PACAP peptide family and signals through the VPAC1 and VPAC2 G-protein-coupled receptors expressed widely on epithelial, endothelial, smooth muscle, and immune cells. The pharmacological signature is broad: vasodilation and bronchodilation through cAMP elevation in vascular and bronchial smooth muscle, anti-inflammatory effects through suppression of pro-inflammatory cytokine production (TNF, IL-6, IL-12) and induction of regulatory T cell phenotypes, and neuroprotective and anti-apoptotic effects in central nervous system tissue. VIP has been extensively studied as a research tool for VPAC receptor pharmacology and explored clinically for indications including pulmonary arterial hypertension (Aviptadil, Phase 3, mixed results; emergency use authorization for COVID-19 ARDS in some jurisdictions), sarcoidosis, asthma, and Sjogren's syndrome. In integrative medicine and chronic inflammatory response syndrome (CIRS) protocols, VIP is administered as an intranasal spray after Marcons (multiple antibiotic resistant coagulase negative staphylococci) eradication; the protocol was developed by Ritchie Shoemaker and is supported by case-series evidence rather than randomized trials. The compound is not FDA-approved for any chronic indication; intranasal VIP for CIRS

is compounded by specialty pharmacies. Plasma half-life is short (less than 2 minutes); the intranasal route provides direct nasal mucosal exposure with limited systemic absorption.

1. 1. Compound Identification

Vasoactive Intestinal Peptide (VIP) is described as 28-residue secretin-family neuropeptide and immunomodulator. A 28-amino-acid peptide of the secretin/glucagon family with broad anti-inflammatory and bronchodilator activity, used in CIRS and chronic biotoxin protocols and studied for pulmonary arterial hypertension.

1.1. 1.1 Class summary

28-residue secretin-family neuropeptide and immunomodulator

1.2. 1.2 Subtitle

A 28-amino-acid peptide of the secretin/glucagon family with broad anti-inflammatory and bronchodilator activity, used in CIRS and chronic biotoxin protocols and studied for pulmonary arterial hypertension.

2. Abstract

Vasoactive Intestinal Peptide (VIP; His-Ser-Asp-Ala-Val-Phe-Thr-Asp-Asn-Tyr-Thr-Arg-Leu-Arg-Lys-Gln-Met-Ala-Val-Lys-Lys-Tyr-Leu-Asn-Ser-Ile-Leu-Asn-NH₂; CAS 40077-57-4; molecular formula C₁₄₇H₂₃₇N₄₃O₄₃S; molecular weight 3326.81) is a 28-residue C-terminally amidated peptide originally isolated from porcine duodenum by Sami Said and Viktor Mutt in 1970 as a vasodilator and bronchodilator activity. VIP belongs to the secretin/glucagon/PACAP peptide family and signals through the VPAC1 and VPAC2 G-protein-coupled receptors expressed widely on epithelial, endothelial, smooth muscle, and immune cells. The pharmacological signature is broad: vasodilation and bronchodilation through cAMP elevation in vascular and bronchial smooth muscle, anti-inflammatory effects through suppression of pro-inflammatory cytokine production (TNF, IL-6, IL-12) and induction of regulatory T cell phenotypes, and neuroprotective and anti-apoptotic effects in central nervous system tissue. VIP has been extensively studied as a research tool for VPAC receptor pharmacology and explored clinically for indications including pulmonary arterial hypertension (Aviptadil, Phase 3, mixed results; emergency use authorization for COVID-19 ARDS in some jurisdictions), sarcoidosis, asthma, and Sjogren's syndrome. In integrative medicine and chronic inflammatory response syndrome (CIRS) protocols, VIP is administered as an intranasal spray after Marcons (multiple antibiotic resistant coagulase negative staphylococci) eradication; the protocol was developed by Ritchie Shoemaker and is supported by case-series evidence rather than randomized trials. The compound is not FDA-approved for any chronic indication; intranasal VIP for CIRS is compounded by specialty pharmacies. Plasma half-life is short (less than 2 minutes); the intranasal route provides direct nasal mucosal exposure with limited systemic absorption.

3. Mechanism of Action

VPAC1 and VPAC2 receptor agonism. cAMP elevation in vascular and bronchial smooth muscle drives vasodilation and bronchodilation. Anti-inflammatory through suppression of pro-inflammatory cytokine production and Treg induction.

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. 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. 5. Reported Research Dose Ranges

Intranasal CIRS protocol 50 mcg per nostril four times daily. Phase 3 PAH dosing inhaled 100 mcg four times daily.

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. 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. 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. 9. References

1. Said SI, Mutt V. Polypeptide with broad biological activity: isolation from small intestine. Science 1970.
2. Delgado M, Ganea D. Vasoactive intestinal peptide: a neuropeptide with pleiotropic immune functions. Amino Acids 2013.
3. Petkov V, et al. Vasoactive intestinal peptide as a new drug for pulmonary hypertension. J Clin Invest 2003.
4. Shoemaker RC, et al. VIP nasal spray therapy for chronic inflammatory response syndrome. Surviving Mold 2017.

This monograph is provided for research use only. Not for medical, diagnostic, or therapeutic purposes. Not for human consumption. Compound class generalizations are noted where compound-specific data are sparse; investigators should weight the evidence accordingly.