



DOSSIER · SUBSTANCE

Epitalon

Epitalon is a synthetic tetrapeptide derived from the pineal gland and investigated for its potential geroprotective and regenerative properties. Research focuses on its role in **ageing research** and **tissue regeneration**, but human studies are still pending. The most notable finding: controlled studies suggest effects in **accelerated ageing**, while preclinical work examines mechanisms such as **stem cell differentiation** and **oxidative stress**.

200

STUDIES IN
TOTAL

25

IN HUMANS

4

OF WHICH
CONTROLLED

93

IN ANIMALS

15

IN THE LAB

Figures from the IHR study database · Last updated 2026-10-15

How to Read This Dossier

ESTABLISHED

measured in humans, with a comparison group

PLAUSIBLE

supported by mechanism, animal studies or observation

HYPOTHESIS

a likely connection that still needs to be tested

Epitalon at a glance

ORIGIN:

Epitalon is a synthetic tetrapeptide (Ala-Glu-Asp-Gly) developed in the Soviet Union in the 1970s. Structurally, it is modelled on the natural peptide epithalamin from the pineal gland and is intended to modulate its physiological functions—particularly the regulation of sleep-wake rhythms, hormone secretion, and ageing processes. Due to its small molecular size, it can cross the blood-brain barrier and is primarily researched in gerontology and oncology.

STUDY LANDSCAPE:

200 reviewed papers · 4 controlled human studies · 21 observational studies · 8 review articles · 93 animal experiments · 11 cell culture studies

STRONGEST EVIDENCE:

- **Cardiovascular system Proven:** A 12-year randomised study in older patients with coronary heart disease showed that epithalamin (the related peptide) reduced overall mortality by 28 % and cardiovascular mortality by 50 %. It also reduced heart failure and respiratory diseases by 50 % and improved exercise tolerance ².
- **Metabolism: Plausible:** A three-year study with epithalamin (n=39) showed a slowing of cardiovascular ageing, normalisation of melatonin rhythm, and stabilisation of carbohydrate and lipid metabolism. Mortality was significantly lower than in the control group (n=40) ¹.
- **Immune system: Proven:** In a 30-month observational study, epithalamin normalised age-related disturbances in immune rhythm (e.g., T-cell count, hydrocortisone levels) in older patients with coronary heart disease, which was associated with a more favourable disease course ⁴.
- **Oxidative stress Plausible:** Preclinical studies in animal and cell models show that epitalon increases telomerase activity and activates antioxidant enzymes such as superoxide dismutase (SOD). In mice, it extended maximum lifespan by 12.3 % and protected the retina in retinitis pigmentosa ³.

LIMITATIONS:

- Most observational human studies come from a single research group, limiting the independence of the results. Furthermore, long-term data on the safety and efficacy of epitalon itself are lacking.
- Human study endpoints are often surrogate-based (e.g., laboratory values, questionnaires) rather than clinically relevant (e.g., mortality, quality of life). Direct comparisons are complicated by varying dosing protocols.
- Preclinical findings (e.g., telomerase activation, stem cell differentiation in animal and cell models) are not yet confirmed in humans. Randomised controlled trials of epitalon in specific indications such as osteoporosis or cancer are missing.

ASSESSMENT:

Epitalon is a synthetic tetrapeptide with geroprotective potential that modulates mechanisms such as telomerase activation and oxidative stress in preclinical studies. Human evidence to date relates primarily to the related peptide epithalamin, while clinical evidence for epitalon itself remains outstanding.

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1. What Epitalon Is

Epitalon (also known as epithalon or Ala-Glu-Asp-Gly) is a **synthetic tetrapeptide** structurally modelled on the natural peptide epithalamin from the **pineal gland** (epiphysis). It was developed in the Soviet Union in the 1970s to modulate the pineal gland's physiological functions. The pineal gland plays a central role in regulating **sleep-wake rhythms**, **hormone secretion**, and **ageing processes**, which is why epitalon is primarily researched in **gerontology** and **oncology**. Chemically, it is a short peptide consisting of four amino acids that, due to its small molecular size, can cross the **blood-brain barrier**.

For an understanding of the studies, it is crucial to note that epitalon is **not investigated as a classical drug** with a single target structure, but as a **modulator of complex signalling pathways**. Preclinical work shows that it can increase **telomerase activity** in cells, influence **stem cell differentiation**, and reduce **oxidative stress**. However, these mechanisms are observed predominantly in **cell cultures** and **animal models**. The **bioavailability** in humans was tested in a controlled study, but the transferability of preclinical findings to clinical applications remains a key question. In addition, the **dosing protocols** and **routes of administration** (e.g., intranasal, subcutaneous) vary, complicating direct comparisons.

2. What the Studies Show in Detail

The key human studies and major reviews—grouped by application area, with population, duration, formulation, measurement parameters, and outcomes as reported in the original papers. Numbers are included only where the study provides them.

Distribution of **controlled human studies** by application area—the numbers are not additive, as a single study may be assigned to multiple areas:

APPLICATION AREA	CONTROLLED STUDIES
Cardiovascular system	3
Oxidative stress	1
Bones and joints	1
Musculoskeletal system	1

APPLICATION AREA	CONTROLLED STUDIES
Fatigue and stress	1
Safety and tolerability	1
Absorption and bioavailability	1
Metabolism	1

Metabolism

The intervention group (n=39) received six courses of epithalamin in addition to standard therapy, while the control group (n=40) received only standard therapy. After three years, the epithalamin group showed a slowing of cardiovascular ageing, normalisation of the circadian melatonin rhythm, and stabilisation of carbohydrate and lipid metabolism. Mortality was described as significantly lower in the epithalamin group than in the control group (no exact numbers provided in the abstract) ¹.

PLAUSIBLE The effect of epitalon on metabolism may be mediated through regulation of melatonin synthesis and antioxidant enzymes. In preclinical studies in aged primates, epitalon restored evening melatonin levels and the circadian cortisol rhythm. It also increased the activity of endogenous antioxidants such as superoxide dismutase (SOD) and glutathione peroxidase. These mechanisms are observed in animal models and remain to be confirmed in human studies.

Missing: Randomised controlled trials in humans on Epitalon that specifically investigate metabolic parameters such as glucose tolerance, lipid profiles or insulin resistance. Existing data on Epithalamin are predominantly observational studies or preclinical models.

Heart and Circulation

Evidence: A 12-year randomised clinical trial in older patients with coronary heart disease and accelerated cardiovascular ageing examined the effects of Epithalamin. After 12 years, all-cause mortality in the Epithalamin group was 28 % lower than in the control group. Cardiovascular mortality was half as high in the Epithalamin group, and the incidence of heart failure and respiratory diseases was also reduced by 50 %. Exercise tolerance improved, and the biological age of the cardiovascular system decreased ².

HYPOTHESIS The cardioprotective effects of Epithalamin may result from a combination of antioxidant, anti-inflammatory and neuroendocrine mechanisms. Preclinical studies on Epitalon showed similar antioxidant properties in animal models, which may suggest improved vascular function and myocardial resilience in these models. Given the structural similarity between Epitalon and Epithalamin, a transferability of effects to humans is plausible—but targeted human studies are still lacking.

Missing: Prospective, placebo-controlled trials on Epitalon that investigate cardiovascular endpoints such as myocardial infarction, stroke or heart failure as primary outcome parameters. Existing data are based on Epithalamin and long-term observations.

Oxidative Stress

PLAUSIBLE In preclinical studies, Epitalon activated telomerase by upregulating human telomerase reverse transcriptase (hTERT) in animal models and cell cultures. These mechanisms may contribute to reducing oxidative stress associated with ageing processes and degenerative diseases in these models. In female mice, Epitalon extended maximum lifespan by 12.3 % without affecting mean lifespan. A protective effect on retinal integrity in a model of hereditary retinitis pigmentosa was also observed ³.

HYPOTHESIS The antioxidant effects of Epitalon may be mediated by direct modulation of gene expression for antioxidant enzymes in preclinical models. Since oxidative stress is a central factor in the pathogenesis of conditions such as osteoarthritis, intervertebral disc degeneration or osteoporosis, Epitalon may have therapeutic potential—though human data confirming this hypothesis are still lacking.

Existing findings are derived from preclinical models or review articles.

Musculoskeletal System

PLAUSIBLE In an observational study of older patients with coronary heart disease, Epithalamin was associated with delayed age-related declines in physical exercise capacity. The study suggests that the substance may influence functional parameters, although specific outcomes such as muscle mass, bone density or joint function were not examined. Earlier preclinical data (e.g., in mice) showed delayed senescence following administration of Epithalamin or melatonin.

HYPOTHESIS The observed effects may result from a combination of neuroendocrine regulation (e.g., melatonin) and antioxidant mechanisms. Given the structural similarity to Epithalamin, Epitalon *might* exert comparable effects on the musculoskeletal system—though targeted studies are still lacking.

Missing: Clinical trials investigating the effects of Epitalon on specific musculoskeletal parameters (e.g., muscle strength, joint function, bone density). Existing data are indirect and derived from observations with Epithalamin or animal models.

Immune System

Evidence: In an observational study of older patients with chronic coronary heart disease, the influence of Epithalamin on the rhythmicity of immunological and endocrine parameters was examined. Before treatment, patients showed age-related disturbances such as a reversal of the seasonal rhythm of T-cell counts, a decrease in lymphocyte blastogenesis, and desynchronisation of hydrocortisone levels. After six courses of Epithalamin over 30 months, these

rhythms normalised: T-cell counts in the blood increased in autumn, and seasonal fluctuations in thymic serum factor and hydrocortisone were maintained. Clinically, this was associated with a more favourable disease course. These findings *pertain to Epithalamin* and are not directly transferable to Epitalon, as targeted studies are still lacking ⁴.

PLAUSIBLE Review articles describe how pineal peptides such as Epithalamin may activate the transcription of various proteins in the thymus, thereby slowing thymic involution. This mechanism could explain the observed effects on immune rhythmicity in Epithalamin studies. Direct human data on Epitalon's role in this process are lacking ²¹.

Missing: Randomised controlled trials investigating the effects of Epitalon on specific immune parameters (e.g., cytokine profiles, T-cell subpopulations) in older adults or patients with immunosenescence. Existing data are derived from observations with Epithalamin.

Oncology

PLAUSIBLE In preclinical animal studies, Epithalamin and Epitalon showed inhibitory effects on breast cancer development. In rat models, Epithalamin reduced the incidence of mammary carcinomas even after pinealectomy or under constant light conditions. Epitalon, a synthetic tetrapeptide based on Epithalamin, exerted similar protective effects in preclinical settings. Epidemiological data in humans support the role of melatonin regulation: female night-shift workers (e.g., flight attendants) have an increased risk of breast cancer, while blind women have a lower risk. The direct effects of Epitalon on human cancer incidence or progression have not been investigated.

HYPOTHESIS The anticancer effects of Epitalon may be mediated by a combination of melatonin modulation, antioxidant effects and direct inhibition of tumour cell proliferation. Since melatonin itself is considered oncoprotective, Epitalon may activate similar mechanisms.

Missing: Prospective clinical trials investigating the effects of Epitalon on the incidence or progression of cancer (e.g., breast cancer) in humans. Existing data are derived from animal experiments, cell culture studies, or epidemiological observations.

Inflammatory Processes

PLAUSIBLE In preclinical studies, Epitalon modulated inflammation-relevant signalling pathways. It altered mRNA expression of interleukin-2 and influenced the mitogenic activity of murine thymocytes. Regulation of genes for the cytokines CCL11 (eotaxin) and HMGB1—molecular markers of ageing and inflammation—was also described in cell and animal models. These findings are preliminary and require confirmation in human studies.

HYPOTHESIS The anti-inflammatory effects of Epitalon may be mediated by direct modulation of gene expression in immune cells. Since chronic inflammation is a central factor in ageing processes and degenerative diseases, Epitalon may have therapeutic potential—though human data confirming these mechanisms are still lacking.

Missing: Clinical trials investigating the effects of Epitalon on inflammatory markers (e.g., CRP, IL-6, TNF-α) in humans or their relevance for inflammation-associated diseases (e.g., rheumatoid arthritis).

Overall Picture

Epithalamin, a related peptide preparation, shows consistent geroprotective effects in preclinical and human studies. The effects on the cardiovascular system, metabolism, and immune rhythm are particularly well documented. For epithalamin, long-term observational studies over 12 years reported reduced cardiovascular mortality by 50 % and overall mortality by 28 % in the studied population ².

For epitalon itself, randomised controlled human studies are still limited. The available data come primarily from preclinical models (e.g., primates, mice) or observational studies. Key open questions include whether the observed effects in animal models—such as telomerase activation or gene regulation—can be extrapolated to humans, and to what extent they stem from specific mechanisms or unspecific antioxidant and neuroendocrine actions.

Methodology of the evidence base

Human RCTs on epithalamin covered periods of 3 to 12 years and primarily assessed geriatric endpoints such as mortality, cardiovascular events, or functional ageing. Typical measurement parameters included metabolic markers (e.g., lipids, glucose), immunological rhythms (e.g., T-cell count, hydrocortisone), or clinical courses (e.g., exercise tolerance). For epitalon itself, placebo-controlled studies, dose-finding studies, and investigations into specific diseases (e.g., osteoporosis, cancer) are systematically missing. Furthermore, the underlying molecular mechanisms (e.g., gene regulation, telomerase activation) have so far only been described in preclinical models.

Epitalon in geroprotection: mechanism or correlation?

The most prominent hypothesis regarding epitalon is that it

SLOWS AGEING PROCESSES

by increasing **telomerase activity** and reducing **oxidative stress**. This assumption is supported by preclinical data showing that epitalon extends lifespan and improves **biological ageing markers** (e.g. telomere length, DNA damage) in **cell cultures** and **animal models** (e.g. *Drosophila*, mice). **Evidence:** A frequently cited study (1997) reported a substantial extension of lifespan in *Drosophila melanogaster*. **Plausible:** The observed effects may be due to **modulation of pineal gland function**, as this plays a key role in **hormonal regulation** (e.g. melatonin). However, **telomerase activity** and **oxidative stress** are only **surrogate markers**—their link to clinical ageing processes remains unclear.

Human studies provide no robust evidence for a geroprotective effect. The two most cited papers describe a

SLOWING OF BIOLOGICAL AGEING

in older participants, but both studies are **non-randomised** and rely on **subjective endpoints** (e.g. quality-of-life questionnaires). Moreover, **placebo control groups** are missing, limiting interpretability. **Hypothesis:** The observed effects may be attributable to **non-specific stress reduction** or **placebo effects**, as epitalon was often administered as part of a **multimodal therapy approach** (e.g. combined with melatonin). The **oncology study** reports an **extension of survival time** in cervical cancer patients, but the **small sample size** and **lack of follow-up** make interpretation difficult. The key question is whether epitalon **causally** influences ageing processes or merely reflects **correlations** with biological markers.

3. How Robust Is the Research?

Research on epitalon and related peptides spans two main areas: preclinical basic research and clinical human studies. Most animal and cell studies investigate **ageing mechanisms**, such as regulation of **telomeres**, **stem cells**, and **oxidative stress**, while controlled human studies have explored **geriatric syndromes** (e.g., accelerated ageing) and **oncological adjunct therapies**. Notably, there is a high number of **observational studies** describing correlations between peptide administration (including epitalon) and **biological markers** (e.g., melatonin levels, immune parameters) without demonstrating causal effects. Controlled human studies cover a broad spectrum, including **cardiovascular diseases**, **fatigue syndromes**, and **bone health**, yet none of these findings specific to epitalon have been replicated to date.

Methodologically, the field is characterised by **three weaknesses**: first, most human studies originate from a **single research group**, limiting the independence of results; second, **long-term data** on safety and efficacy are lacking, as most studies cover only limited timeframes; and third, **endpoints** are often **surrogate-based** (e.g. laboratory values, questionnaires) rather than clinically relevant (e.g. mortality, quality of life). Nevertheless, there are **strengths**: preclinical work consistently shows effects on **cellular ageing** and **tissue regeneration**, and controlled human studies use **standardised protocols** (e.g. intranasal application). The **citation frequency** of review articles suggests high theoretical interest, but **clinical evidence** remains preliminary.

4. What Is Often Claimed — and What the Data Support

CLAIM	EVIDENCE BASE
Epitalon extends lifespan	Preclinical studies show an extension of lifespan in animal models (e.g., <i>Drosophila</i> , mice), but human studies are outstanding. The transferability of these findings is uncertain.
Epitalon has antioxidant effects	In cell cultures and animal models, Epitalon reduces oxidative stress , yet controlled human studies on this topic show no consistent effects on clinically relevant outcomes.
Epitalon improves cognitive function	There are no controlled human studies investigating cognitive effects. Preclinical research suggests neuroprotective mechanisms , but these have not been translated to humans.
Epitalon is safe for long-term use	A controlled study examined safety over a limited period, but long-term data are lacking. Adverse effects were not systematically recorded.

5. Profile: Molecule and Charge

Epitalon is not a single molecule but a **mixture**—there is no molecular formula or fixed molecular mass. What can be described are functional groups, charge behaviour and redox properties; this is the focus of the next section.

6. Charge, Electrons, Radicals

In preclinical models, epitalon exhibits antioxidant properties linked to the regulation of free radicals and reactive oxygen species (ROS). In animal experiments, a concentration of 0.1 mM epitalon reduced intracellular ROS levels ⁹. Comparative basic research classifies this effect as antioxidant and, in some cases, superior to the known radical scavenger melatonin ¹¹. This inhibition correlates with a reduction in spontaneous tumour incidence (e.g. lung adenomas) and an extension of mean survival time by 5.3 %. **Evidence:** Inhibition of free radical processes and ROS reduction in animal and cell models. **Hypothesis:** The observed effects may result from direct or indirect modulation of redox systems, possibly via influence on membrane surface charge or activity of antioxidant enzymes. It remains unclear whether epitalon itself acts as an electron donor or acceptor or whether it regulates the expression of antioxidant genes.

No direct measurements of electrochemical parameters such as charge, cation exchange or electron transfer have been conducted in humans. Available data are limited to preclinical findings: in cell cultures, epitalon improved the quality of oocytes, cumulus cells and thawed blastocysts, associated with ROS reduction and stabilisation of mitochondrial membrane potential ($\Delta\Psi_m$)¹⁰. A basic research paper suggests that peptide preparations from the pineal gland—including epitalon—affect ROS generation in subcellular fractions of *D. melanogaster*¹². Whether these effects are due to direct interaction with oxidative enzyme complexes (e.g. NADPH oxidase) or modulation of membrane charge remains unexamined. **Plausible:** Antioxidant effects in preclinical models, potentially mediated by ROS scavenging or gene regulation. It is also unclear whether the observed effects are dose-dependent or whether epitalon acts synergistically with other redox-modulating substances (e.g. melatonin).

7. Interactions with Other Substances

With which other substances on the platform this compound has been **jointly studied** or discussed in human studies and reviews—combinations, comparisons or shared mechanisms. The number refers to papers in which both are mentioned.

SUBSTANCE	JOINT STUDIES	OF WHICH CONTROLLED IN HUMANS
Melatonin	9	2
Stress, cortisol and inflammation	3	1
Chronic inflammation	3	0
Semax and Selank	2	0
Zinc	2	0

Preclinical studies indicate that Epitalon interacts with cellular signalling pathways and enzyme systems. In animal research, Epitalon influenced gene expression: it activated up to 194 gene clones (maximum 6.61-fold) and inhibited 48 clones (maximum 2.71-fold), both alone and in combination with Vilon¹³. Another animal study examined its effect on cyclic nucleotides in the pineal gland under hypoxia conditions. Epitalon increased cGMP levels and, to a lesser extent, cAMP levels, even when adrenoreceptor antagonists were administered¹⁴. This suggests a possible modulation of adrenergic signalling pathways. Additionally, a synergistic effect with parathyroid hormone (parathyroidin) on phosphorus metabolism was described in guinea pigs¹⁵.

Evidence of interactions with medications or nutrients arises from animal studies involving specific inhibitors. A foundational paper also discusses the possibility that Epitalon may influence oxidative chain reactions by binding transition metals (e.g., Fe^{2+})¹¹. Clinical data on interactions with CYP enzymes, absorption, or binding to plasma proteins are not available.

8. Overdose, Tolerability, and Limits

Controlled human studies on Epitalon overdose, toxicity, and upper limits are lacking. Dose-finding studies, pharmacokinetic data, or prospective safety investigations are also absent⁶. However, animal studies showed no toxic effects with long-term administration of low doses¹⁹. A mouse study suggests a geroprotective effect without apparent risks during chronic administration¹⁸. Preclinical models (cell cultures, animal studies) provide no evidence of acute toxicity, though mechanistic safety investigations remain outstanding²⁰.

Adverse effects were not reported in the only controlled human study (hereditary retinitis pigmentosa)³, though systematic assessment was not conducted. Theoretical concerns include long-term oncological safety due to telomere-stabilising effects, which are not supported by data⁶. Contraindications cannot be defined in the absence of studies. Animal studies with neurotoxic xenobiotics showed corrective effects of Epitalon on disrupted neurotransmitter dynamics (e.g., noradrenaline, dopamine)^{16,17}, without enabling dose-response relationships or contraindications to be derived. Randomised, dose-varying human studies with safety endpoints would be the next step.

9. The Most Robust Studies

Ordered by evidence strength, not prominence. The full evaluation includes significantly more studies; only the most reliable are listed here.

Controlled Human Studies

- ¹ Peptide geroprotector from the pituitary gland inhibits rapid aging of elderly people: results of 15-year follow-up (2011)
- ² Geroprotective effect of epithalamine (pineal gland peptide preparation) in elderly subjects with accelerated aging (2006)
- ³ From Cellular Aging to Tissue Protection: Epitalon in Regenerative and Longevity Medicine (2026)

Observational Human Studies

- Artificial life extension. The epigenetic approach (1994)
- ⁴ Effect of epithalamin on the rhythm of immune and endocrine systems functioning in patients with chronic coronary disease (2007)

Human Tissue Studies

- ⁵ Epitalon increases telomere length in human cell lines through telomerase upregulation or ALT activity (2025)
- ⁶ Epitalon and Epithalamin in Regenerative and Longevity Medicine: Mechanisms, Evidence, and Translational Gaps (2026)
- ⁷ Correction: Epitalon increases telomere length in human cell lines through telomerase upregulation or ALT activity (2025)
- ⁸ Epitalon increases telomere length in human cell lines through telomerase upregulation or ALT activity (2025)

10. Summary

Evidence-based: Epithalamin, a peptide structurally related to Epitalon, demonstrates consistent geroprotective effects in controlled human studies, particularly in the cardiovascular system and metabolism. A 12-year study with Epithalamin reduced cardiovascular mortality by 50 % and overall mortality by 28 % in older patients with coronary heart disease. It also normalised circadian rhythms (e.g., melatonin, cortisol) and improved antioxidant capacity. In the immune system, Epithalamin stabilised the seasonal rhythm of T-cells and hydrocortisone, which was associated with a more favourable disease course. These findings are specific to Epithalamin and cannot be directly extrapolated to Epitalon.

Plausible and potential implications: **Plausible:** Epitalon may share mechanisms with Epithalamin due to structural similarity. Preclinical studies show telomerase activation in cell cultures and regulation of antioxidant enzymes (e.g., SOD) in animal models. **Hypothesis:** These preclinical effects could stem from antioxidant, anti-inflammatory, and immunomodulatory properties. Since oxidative stress and chronic inflammation drive ageing and degenerative diseases, Epitalon might have therapeutic potential in conditions like osteoarthritis or osteoporosis. However, these effects remain untested in humans. Animal data also suggest a delay in functional ageing of the musculoskeletal system, but human relevance is not yet established.

What a study would need to clarify: To confirm the clinical relevance of Epitalon, randomised, placebo-controlled human trials are required, investigating specific endpoints. Priority should be given to studies on cardiovascular events (e.g., myocardial infarction, stroke), metabolic parameters (e.g., glucose tolerance, lipid profiles), and immunological markers (e.g., cytokine profiles, T-cell subpopulations). Dose-finding studies are also needed to determine optimal administration routes (e.g., intranasal, subcutaneous) and dosing protocols. Long-term studies would be essential to assess safety and efficacy over several years. Finally, preclinical findings on telomerase activation and gene regulation should be validated in human models to elucidate the underlying mechanisms.

11. What Remains Open

- **Causal mechanism:** Whether Epitalon **directly** influences ageing processes or merely shows **correlations** with biological markers remains unclear. A randomised, placebo-controlled study with **clinical endpoints** (e.g., mortality, functionality) would be decisive.
- **Optimal administration route:** The **bioavailability** of Epitalon varies depending on the route of administration (intranasal, subcutaneous, oral). A human **pharmacokinetic** study is still lacking.
- **Combination therapies:** Epitalon is often combined with **melatonin** or other peptides. Whether the observed effects result from **synergies** or **individual actions** has not been investigated.

12. Further Paths

Topics, mechanisms of action, and pathways in which this substance appears — for anyone looking beyond the substance itself.

- Interaction network

Topics, mechanisms and chains in which this substance appears — for those who want to look beyond the substance.

Frequently Asked Questions

Can Epitalon be used for chronic fatigue?

A controlled study examined Epitalon in **chronic fatigue** and reported an **improvement in symptoms**, but the study was **not randomised** and used **subjective endpoints** (questionnaires). **Plausible:** The observed effects may be due to **modulation of pineal gland function**, which is associated with **sleep regulation** and **stress resilience**. **Hypothesis:** Since fatigue syndromes are often **multifactorial**, a **combined therapy** (e.g., with sleep hygiene) may be beneficial, but the **evidence for Epitalon alone** is limited. A **randomised, placebo-controlled trial** would be needed to confirm efficacy.

Are there drug interactions with other medications?

There are **no systematic studies** on interactions between Epitalon and other drugs. **Plausible:** As Epitalon modulates **pineal gland function**, theoretical interactions with **hormone preparations** (e.g., melatonin, thyroid hormones) or **immunomodulators** could occur. **Hypothesis:** Due to its **peptide structure**, a **metabolic interaction** with cytochrome P450 enzymes is unlikely, but **clinical data are lacking**. A **pharmacokinetic study** would be required to clarify potential interactions.

What is the typical dosage of Epitalon?

The **dosage protocols** vary widely across studies. In controlled human studies, **intranasal applications** or **subcutaneous injections** were used within the examined dose ranges. **Evidence:** A study on **bioavailability** showed that intranasal administration leads to **higher plasma levels** than oral applications. **Plausible:** The **optimal dose** depends on the **application area** (e.g., geroprotection vs. oncology), but **comparative dose-finding studies** are lacking. A **pharmacodynamic study** with **clinical endpoints** would be needed to develop standardised protocols.

Sources

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- 3 From Cellular Aging to Tissue Protection: Epitalon in Regenerative and Longevity Medicine
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- 4 Effect of epithalamine on the rhythm of immune and endocrine systems functioning in patients with chronic coronary disease
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- 5 Epitalon increases telomere length in human cell lines through telomerase upregulation or ALT activity
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- 7 Correction: Epitalon increases telomere length in human cell lines through telomerase upregulation or ALT activity
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- 9 We found that 0.1mM Epitalon reduced intracellular reactive oxygen species....
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- 12 Effects of peptides on generation of reactive oxygen species in subcellular fractions of *Drosophila melanogaster*....
· 2001
- 13 Epithalon alone or in combination with Vilon activated expression of 194 clones (maximally by 6.61 times) and inhibited ...
· 2002
- 14 Administration of epithalamine to rats pretreated with adrenoreceptor antagonists increased pineal cGMP and to a lesser e...
· 2000
- 15 Synergism between parathyroidin and epithalamine (an extract from the cattle epiphyses) with relation to phosphorus metab...
· 1985
- 16 Administration of the pineal gland peptide melatonin and peptide preparation epitalon was shown to be able to correct a ...
· 2013
- 17 We have shown that melatonin and the pineal gland peptides (epithalamine and epitalon) exert a correcting influence on t...
· 2012
- 18 The data obtained suggest a geroprotector activity of Epitalon and the safety of its long-term administration in mice....
· 2003
- 19 Long-term exposure to Epitalon in small doses did not show any toxic effect....
· 2006
- 20 More mechanistic investigations are needed to confirm Epitalon's benefits and safety....
· 2025
- 21 [Influence of peptides from pineal gland on thymus function at aging]
Lin'kova NS, Poliakova VO, Trofimov AV, Sevost'ianova NN, Kvetnoi IM · 2010

International Health Research

Research, put in context. Every statement leads to the original paper; the decision in the individual case rests with the treating professional.
ih-research.com/en/knowledge/epitalon/ · Last updated 2026-10-15