

help
pharmaceuticals

DIVIRNAM[®]

PROLONGED-RELEASE TABLETS

A new approach to immune system protection



A patent-pending food supplement that combines ammonium chloride and vitamin D₃ to boost the immune system

**Helps the body during the infection
and leads to faster improvement of symptoms**

Contains:

- **Ammonium chloride:** a known lysosomotropic agent, regulates pH in endosomes⁴ and an approved food ingredient in EU and USA^{1,7}.
- **Vitamin D₃:** contributes to the normal function of the immune system^{2,3}.

Mechanism of action

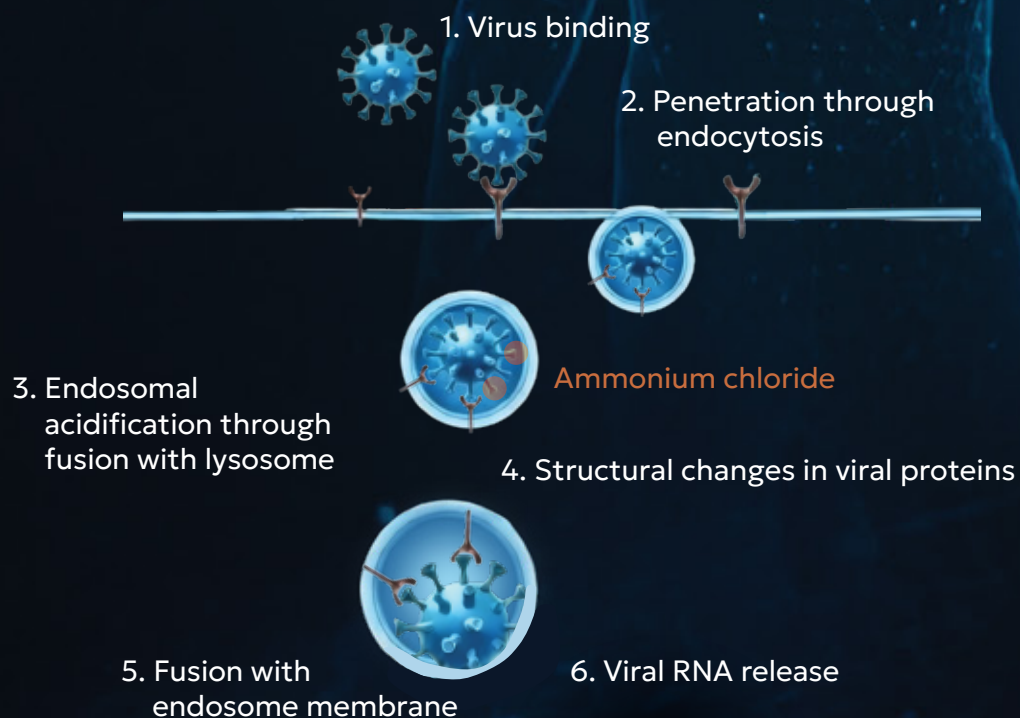
- After infection the RNA virus is multiplied very quickly, while the immune system produces antibodies more slowly.
- RNA viruses enter cells via endocytosis and require acidic lysosomal pH to release their RNA and continue their life cycle⁴.
- Ammonium chloride transiently increases the pH in lysosomes, inactivating lysosomal enzymes. With the increased pH, the virus cannot release its RNA → its intracellular replication is delayed^{4,5,9,10,11}.
- This delay gives the immune system time to develop an adequate antibody response.
- The result is a lower viral load in the early stages and a better overall response of the body.

DIVIRNAM[®]

PROLONGED-RELEASE TABLETS



Mechanism of entry of RNA virus and action of ammonium chloride



Increase of the pH in the lysosome by the action of ammonium chloride prevents or delays the virus release inside the cells, thus reducing the overall viral load⁴.



Benefits of DIVIRNAM[®]

Reduced Transmissibility

Contributes to the maintenance of a lower viral load during the first critical stages of infection, potentially reducing the risk of transmitting the virus to others^{5,6}.

Faster Body Response

It helps delay the multiplication of the virus, giving the body time to develop antibodies to fight the infection leading to faster response and improvement of symptoms^{4,5,6}.

Broad protection

Unlike vaccines and many antiviral drugs, DIVIRNAM[®] supports the body's defenses **regardless of the specific strain of RNA virus** (such as SARS-CoV-2 (COVID-19) and Influenza A or B (flu)^{5,6}. In this way, **DIVIRNAM[®] provides the body with an additional layer of defense, in addition to vaccines and antiviral drugs.**

Contains ingredients that have an established safety profile^{1,7,8}

- **ammonium chloride** is recognized as safe for use in food supplements by EFSA and FDA,
- the dose of **vitamin D₃** it contains is within safe limits.

Convenience of Use

Prolonged release ensures consistent 24-hour coverage with just 2 doses per day, 1 tablet every 12 hours, offering continuous immune support throughout the infection.

Dosage

**1 tablet twice a day (morning and evening)
to strengthen the immune system**

Tablet residue (shell) may appear in the stool, even after complete absorption of the nutrient.

Differentiation from Competitive Products

1. Unique Composition

It is the only patent-pending formulation that combines ammonium chloride and vitamin D₃ for immune support against RNA viral infections.

2. Offers Prolonged Release

Unlike common immune support supplements (e.g. simple vitamin tablets), DIVIRNAM[®] offers continuous support for 12 hours with each tablet. This also increases safety by preventing metabolic acidosis and electrolyte disturbances.

3. Proven Clinical Evidence

While many competing food supplements lack scientific evidence through clinical studies, DIVIRNAM[®] is supported by the excellent results of two clinical studies conducted at the University of Athens^{6,12,13}.

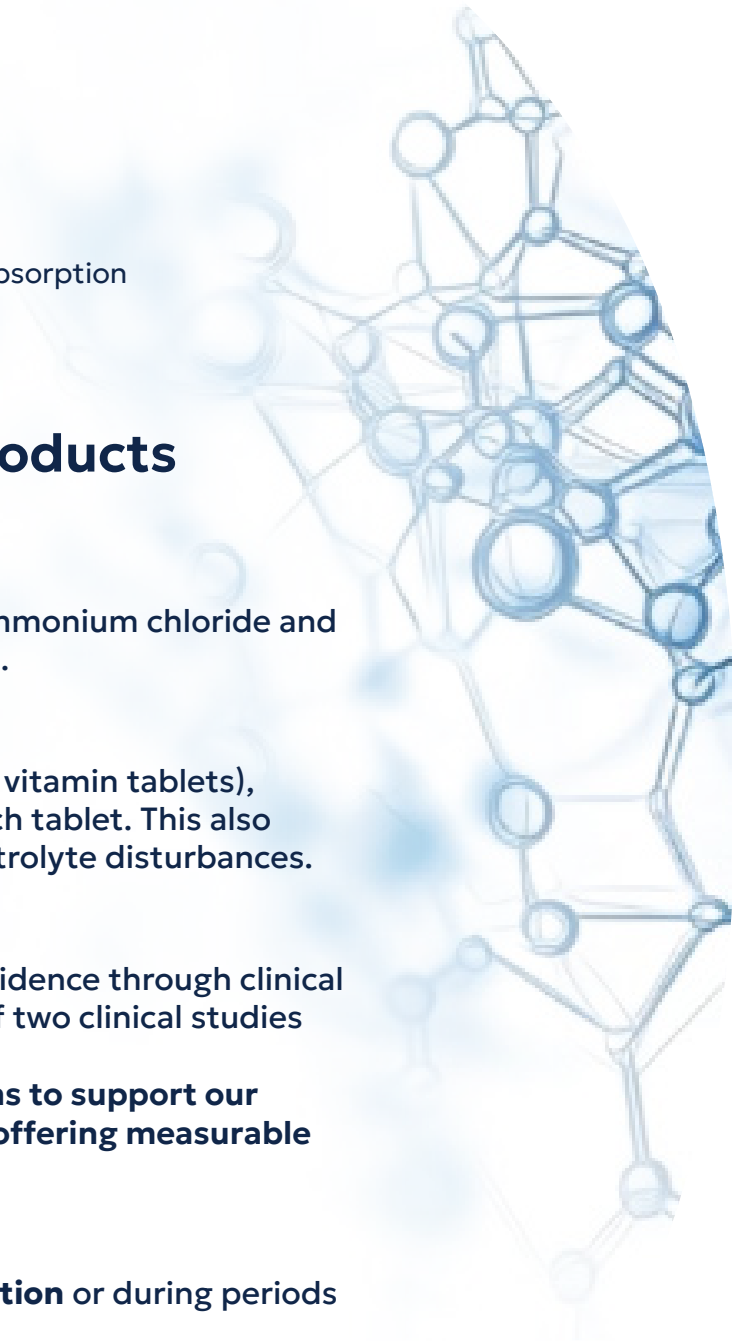
Unlike general immunostimulating drugs, DIVIRNAM[®] aims to support our immune system by delaying the replication of viral RNA, offering measurable results (reduction of viral RNA)^{6,12}.

4. Use

It can be used to support the immune system **during infection** or during periods of exacerbation of infections.

5. International Collaboration

Specifically developed in partnership with METRON Nutraceuticals (Cleveland, Ohio, USA), ensuring high quality and innovation.



Clinical studies^{6,13}

1st clinical study evaluated the Efficacy of the supplement DIVIRNAM® in individuals with a positive test for SARS-CoV-2 (COVID-19) or Influenza A or B (flu) and had the following characteristics:

- Prospective, Randomized, Multi-center, Double-Blind Study of DIVIRNAM®, controlled with a comparative food supplement containing only vitamin D₃.
- Positive rapid test for SARS-CoV-2 and/or for Influenza A or B immediately before the randomized start of taking DIVIRNAM® or comparative food supplement.
- Measurement of viral load immediately before the start of taking DIVIRNAM® or comparative food supplement, and repeat measurement on days 3-5 and 10-11 (by RT-PCR).

Results

The administration of DIVIRNAM® led to a statistically significant reduction in viral load compared to the comparative food supplement ($p = 0.036$ for the change from day 1 to day 10-11 – ANCOVA Analysis).

No serious adverse events were observed in the study.

2nd clinical study evaluated the safety of prolonged use and high dose of DIVIRNAM® supplement in healthy volunteers with a negative test for SARS-CoV-2 (COVID-19) or Influenza A or B (flu) and had the following characteristics:

- Prospective single-arm, open-label safety and tolerability study in healthy adult volunteers.
- Prolonged administration of DIVIRNAM® for 30 consecutive days, i.e. 300% of the indicated administration time of 10 days. Increased dose: 3 tablets daily, one every 8 hours, i.e. 150% of the indicated dose of 2 tablets daily.
- Measurement of hematological, metabolic, hepatic and renal indices, electrolytes, venous acid-base balance and vitamin D levels immediately before the start of DIVIRNAM® and repeated measurements on day 31.

Results

No serious adverse effects were observed.

Prolonged administration of DIVIRNAM® even at an increased dosage of three tablets per day, for 30 consecutive days **was safe and well tolerated in healthy adults, without serious adverse effects** and without harmful changes in laboratory indices.



References

1. Regulation (EC) No 1334/2008 of the European Parliament and of the Council of 16 December 2008 on flavourings and certain food ingredients with flavouring properties for use in and on foods.
2. Commission Regulation (EU) No 432/2012 of 16 May 2012 establishing a list of permitted health claims made on foods, other than those referring to the reduction of disease risk and to children's development and health, OJ L 136, 25.5.2012, p. 1–40.
3. Aranow C. Vitamin D and the immune system. J Investig Med. 2011 Aug;59(6):881-6. doi: 10.2310/JIM.0b013e31821b8755. PMID: 21527855; PMCID: PMC3166406.
4. Lan Y, et al 2022. Potential Antiviral Strategy Exploiting Dependence of SARS-CoV-2 Replication on Lysosome-Based Pathway. Int J Mol Sci. 2022 May 31;23(11):6188. doi: 10.3390/ijms23116188. PMID: 35682877; PMCID: PMC9181800.
5. Siami, Z. et al. 2021. Effect of Ammonium Chloride in addition to standard of care in outpatients and hospitalized COVID-19 patients: A randomized clinical trial. International Journal of Infectious Diseases:108, 306 – 308.
6. Maltezou, H. et al. 2026. Effectiveness of a sustained-release ammonium chloride formulation in reducing the viral load of patients with COVID-19 or influenza. [Manuscript submitted for publication; under peer review].
7. FDA Code of Federal Regulations, Title 21 Food and Drugs, Chapter I, Subchapter B Food for Human Consumption, Part 184 Subpart B Listing of Specific Substances Affirmed as GRAS, § 184.1138 Ammonium chloride.
8. ΦΕΚ Β 2649/29-5-2025. Εναρμόνιση της Εθνικής Νομοθεσίας προς την αντίστοιχη Κοινοτική ΟΔ/2002/46ΕΚ “για την προσέγγιση των νομοθεσιών των κρατών μελών περί των συμπληρωμάτων διατροφής” Επικαιροποιημένα Παραρτήματα της ΟΔ/2002/46/ΕΚ, όπως ισχύουν».
9. Farias G, et al. 1988. Effect of ammonium chloride on the multiplication of infectious pancreatic necrosis virus. Arch Virol. 1988;98(3-4):155-62. doi: 10.1007/BF01322165. PMID: 3348747.
10. Canning WM, et al 1983. Ammonium chloride prevents lytic growth of reovirus and helps to establish persistent infection in mouse L cells. Science. 1983 Feb 25;219(4587):987-8. doi: 10.1126/science.6297010. PMID: 6297010.
11. Di Trani L, et al 2007. Different pH requirements are associated with divergent inhibitory effects of chloroquine on human and avian influenza A viruses. Virol J. 2007 May 3;4:39. doi: 10.1186/1743-422X-4-39. PMID: 17477867; PMCID: PMC1878474.
12. In vitro data. Pasteur Institute.
13. Maltezou, H. et al 2026. Safety and Tolerability of Prolonged High-Dose Sustained-Release Ammonium Chloride Formulation Administration in Healthy Adults [Manuscript submitted for publication].

Responsible for Marketing: HELP S.A.

- Food supplements should not be used as a substitute for a balanced diet.
- The product should be stored out of sight and reach of children.
- The product is not intended for the prevention, treatment or cure of human disease.
- Distribution of food supplements to the public is only permitted by pharmacies.



help
pharmaceuticals

HELP SA
10 Valaoritou str., 144 52 Metamorfosi, Greece
T: +30 210 281 5353
www.divirnam.gr