



Targeted Medical Foods, LLC
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Pulmona

Medical Food メディカルフード

Pulmona is a Medical Food formulated to be used by physicians to aid their patients in promoting nitric oxide in the bronchi and the pulmonary arteries. Pulmona is designed to reduce pulmonary artery pressure in the presence of pulmonary hypertension and reduce bronchospasm in the presence of asthma. Under the regulations of the Food and Drug Administration, Medical Foods can only be used when a patient is under the ongoing care of a physician. Medical Foods are used for the treatment of disease states with known nutritional deficiencies. Medical Foods must contain ingredients from the human diet. Medical Foods cannot be sold directly to patients without physician supervision.

Pulmona は、患者の気管支と肺動脈における一酸化窒素の増加を促進させる場合に、医師によって処方されるようにフォーミュレートされたメディカルフードです。Pulmona は、肺高血圧症の血圧を下げ、ぜんそくの気管支痙攣を軽減するように設計されています。FDA の規定のもとでは、医師による治療が継続している場合にのみ服用が可能とされています。また、メディカルフードは医師および医療サービス機関によって、特定の栄養の欠乏による病気と診断された患者への治療目的で使用されます。メディカルフードには食品としての成分を含まなければなりません。また、医師の処方なしで直接患者に販売することはできません。

Indications for Use

1. Increased pulmonary artery pressure **肺の動脈圧が上がった場合**
2. Pulmonary hypertension **肺高血圧症**
3. Bronchospasm **気管支痙攣**
4. Asthma **喘息**

Neurotransmitter Production in the Human Body by Pulmona

1. Arginine produces nitric oxide **アルギニンは一酸化窒素を生産します**
2. Choline produces acetylcholine **コリンはアセチルコリンを生産します**
3. Glutamine produces glutamate **グルタミンはグルタミン酸を生産します**

Ingredients: Arginine, choline bitartrate, glutamine, Hawthorn Berry, caffeine, cinnamon, histadine, Ginkgo Biloba and cocoa.

Targeted Cellular Technology

TCT, or Targeted Cellular Technology, allows milligram quantities of neurotransmitter precursors to enter the cell to produce a specific neurotransmitter to achieve therapeutic effects. The TCT method includes a neurotransmitter precursor, an uptake stimulator, a neuron activator, an adenosine brake inhibitor, and attenuation releaser. Previous attempts to use neurotransmitter precursors have either required gram quantities to elicit therapeutic effects or the effects rapidly attenuated leading to tolerance.

TCT もしくはターゲットセルラーテクノロジーは、ミリグラム単位の微量の神経伝達物質の前駆物質を、特定の治療的効果をもたらす神経伝達物質を作り出す細胞に侵入させることを可能にしました。TCT という方法は、前駆物質・放出の刺激物質・ニューロン活性物質・耐性への抑制物質で構成されています。こうした神経伝達物質の微量の前駆物質を使用するよりも以前の試みとしては、治療効果を引き出す為に、何グラムもの前駆物質を使用したり、すぐに効果が薄れて耐性になってしまうようなものでした。



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Targeted Cellular Technology and Pulmona

Pulmona is designed to produce the neurotransmitters nitric oxide and acetylcholine. Nitric oxide is the neurotransmitter that initiates dilates pulmonary arteries in the presence of pulmonary hypertension and dilates bronchi in the presence of bronchoconstriction. Acetylcholine is the neurotransmitter that facilitates the action of nitric oxide on pulmonary arteries and bronchi. Pulmona is designed to provide the nitric oxide precursor arginine and the acetylcholine precursor choline to enhance the production of the nitric oxide and acetylcholine neurotransmitters in the lung.

Pulmona は、神経伝達物質の一酸化窒素とアセチルコリンを生産するように設計されています。一酸化窒素は、肺に高血圧症があると肺の動脈を広げ、気管支収縮があると気管支を広げる働きをする神経伝達物質です。アセチルコリンは肺動脈と気管支における一酸化窒素の活動を促進する神経伝達物質です。Pulmona は、肺の中で一酸化窒素とアセチルコリンの神経伝達物質を増産するために、一酸化窒素の前駆物質であるアルギニンとアセチルコリンの前駆物質であるコリンを供給するように設計されています。

Pulmona and Clinical Testing

Physiologic testing of nitric oxide function has been performed on individuals taking Pulmona. Patients with pulmonary hypertension have increased pulmonary artery pressures. Patients with asthma have decreased pulmonary flow rates as measured by FEV1. Pulmona reduces pulmonary artery pressure as measured by right heart catheterization in patients with pulmonary hypertension. Pulmona increases FEV1 as measured by spirometry in patients with asthma. Pulmona reduces the incidence of cough in patients with exercise induced asthma and patients with environmentally induced bronchospasm.

Pulmona を服用している人々に一酸化窒素の機能の生理学的テストが行われました。肺高血圧症の患者は、肺の動脈圧が高くなりました。ぜんそくの患者は、FEV1(一秒率)で測定した結果、肺の血流が減少しました。Pulmona は、肺高血圧症患者を右心カテーテル法によって測定した結果、肺の動脈圧を下げました。Pulmona は、ぜんそく患者のスパイロメトリーの結果、FEV1(一秒率)を増大させます。Pulmona は運動で誘発するぜんそく患者と、環境により気管支痙攣を起こす患者の咳の発生を減らします。

Sleep Disorders and Nutritional Deficiency

Pulmonary hypertension is associated with a deficiency of arginine and nitric oxide precursors.

Asthma is associated with inadequate nitric oxide production and a deficiency of arginine.

肺高血圧症はアルギニンと一酸化窒素の前駆物質の不足と関連しています。ぜんそくは一酸化窒素の生産量の不足とアルギニンの不足によって引き起こされます。

Pulmona Dosage

Pulmona is taken three times per day. An additional dose of Pulmona can be used if shortness of breath continues.

Pulmona は1日あたり3回服用します。

もし息切れが続く場合は、Pulmona をもう一度摂取しても構いません。



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Pulmona and Drugs

In patients taking pharmaceutical agents to treat pulmonary hypertension or asthma, it is suggested that the medication dosage should be maintained. Pulmona should be added and clinical state monitored. In patients with pulmonary hypertension shortness of breath should be monitored. In patients with asthma, both shortness of breath and FEV1 should be monitored. 肺高血圧症またはぜんそくの薬を服用している患者は、医薬品の摂取量を維持してください。その上に、Pulmona を併用され、モニターで医療的にチェックしてください。肺高血圧症の患者の息ぎれをモニターでチェックしてください。ぜんそく患者の息切れと FEV1 (一秒率) の両方をモニターでチェックしてください。

Side Effects

The side effect profile of Pulmona is comparable to the rate of food intolerance in the community. The ingredients of Pulmona are derived from plant-based compounds found in the normal food chain. Food intolerance is an adverse reaction to food that does not involve the body's immune system. These reactions are called "pharmacologic reactions" because the culprit substances behave like drugs, possibly acting on the nervous system. In adults, this reaction is far more common than true food allergy and is relatively rare in its rate of occurrence. Hypotension has not been associated with Pulmona.

Pulmona の副作用は食物アレルギーの発生率と同等です。Pulmona の成分は通常、食材として利用される植物を由来としています。食物アレルギーとは、身体の免疫システムとは関係しない食物に対する反作用です。これらの反応はまるで薬のように神経系に作用することから「薬理的反応」と呼ばれます。成人においてはこの反応は本物の食物アレルギーより極めて稀です。低血圧症は Pulmona と関連していません。



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Background:

Pulmona contains a formula blend of selected GRAS (generally regarded as safe) ingredients that come from the normal human food chain. The primary ingredients are key amino acids, the building blocks of proteins. The Pulmona formula is designed to increase the function of the neurotransmitters nitric oxide and acetylcholine. The Pulmona formula is based on a five-component patent pending process. The patent pending process provides for a five-component system to allow for the conversion of a precursor into a neurotransmitter. The five component system includes: (1) an amino acid precursor for each (2) stimulation of the uptake of the precursor to initiate the conversion into a neurotransmitter, (3) an adenosine antagonist such as cocoa powder is added to disinhibit the neuron, (4) stimulation of neurons to release a specific neurotransmitter, and (5) a system must be used to prevent attenuation of the response, to the precursor. Pulmona has been formulated with this five-component system. The Pulmona formula targets the neurotransmitters nitric oxide, and acetylcholine.

Pulmona は、通常食材として利用される厳選された GRAS(一般に、安全であるとみなされる)成分で作られています。主要成分はタンパク質の構成要素である重要なアミノ酸です。

Pulmona のフォーミュラは、神経伝達物質の一酸化窒素とアセチルコリンの機能を増加させるように設計されています。

Pulmona は特許申請中の“5-コンポーネント”プロセスに基づいています。この 5-コンポーネントとは、神経伝達物質への前駆物質の変換を可能にするシステムです。

5つの構成要素は下記の内容です。

1. **それぞれのアミノ酸前駆物質**
2. **神経伝達物質に変換させる前駆物質を吸収させる刺激剤**
3. **ココアのようなアデノシン拮抗剤は、ニューロンを抑制しないために加えられます。**
4. **特定の神経伝達物質を放出する為のニューロンへの刺激**
5. **システムは、前駆物質への反応が弱まるのを防ぐために使用されます。**

Pulmona は、この 5-コンポーネントシステムによって構成されます。

Pulmona は、神経伝達物質である一酸化窒素とアセチルコリンを生産します。

Pulmona is designed to produce two neurotransmitters including: nitric oxide and acetylcholine. These two neurotransmitters are involved in pulmonary hypertension(1-35) (36-63)and asthma(64-107). Normal pulmonary arteries do not significantly respond to nitric oxide while constricted pulmonary arteries in pulmonary hypertension dilate in response to nitric oxide. Nitric oxide production is increased by the inflammation associated with asthma. Importantly, however, certain sites of nitric oxide production are reduced in asthma inducing bronchoconstriction. Inhalation of nitric oxide or production of iNOS induced nitric oxide induces bronchodilation in diseased lungs. Acetylcholine potentiates the activity of nitric oxide in the lung(108-131).

Pulmona は、2つの神経伝達物質を生み出すようにデザインされています。それらは一酸化窒素とアセチルコリンです。この2つの神経伝達物質は肺高血圧症と喘息に関連しています。肺高血圧症により圧縮された肺動脈は、一酸化窒素に反応して膨張しますが、正常な肺動脈は殆ど一酸化窒素に反応しません。一酸化窒素の生産はぜんそくに関連した炎症によって増加します。しかし、気管支収縮(狭窄)に誘発された喘息の場合、ある箇所においては逆に一酸化窒素の生産が減少します。病気の肺において一酸化窒素による iNOS の生産、または一酸化窒素の吸入は気管支の拡張をします。アセチルコリンは肺の中の一酸化窒素を活性化します。

Pulmona is designed to produce neurotransmitters that initiate vasodilation in pulmonary hypertension and bronchodilation in asthma. In the Pulmona formulation, arginine is used as the precursor to nitric oxide and choline is used as a precursor to acetylcholine.

Pulmona は、肺高血圧症とぜんそくの気管支拡張における血管の拡張を促す神経伝達物質を生産するように設計されています。Pulmona のフォーミュラにおいて、アルギニンは一酸化窒素の前駆物質として使われ、コリンはアセチルコリンの前駆物質として使われています。



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In the Pulmona formula, ginkgo biloba is used as an uptake stimulator(132-137). In addition, cinnamon is used as an uptake stimulator. Glutamine is used to produce glutamate, to stimulate neurotransmitter release (138-169). Cocoa and caffeine are used to disinhibit the adenosine break(170-180) (181-184). Hawthorn Berry, containing polyphenols(185-188), is used to prevent the attenuation usually associated with neurotransmitter precursor administration.

- ギンコ葉は前駆物質の神経細胞への吸収を高める刺激物質として使われます。
- シナモンも前駆物質の神経細胞への吸収を高める刺激物質として使われます。
- グルタミンは、神経伝達物質を放出する為のグルタミン酸を生産するために使われます。
- ココアとカフェインは、神経細胞を活性化する物質として使われます。
- ポリフェノールを含むホーソーンベリーは、神経伝達物質の前駆物質への反応が弱まるのを防ぐ物質として使われます。

Nitric oxide has little effect on pulmonary arteries when pulmonary artery pressure is in the normal range. In the presence of increased pulmonary artery pressure, nitric oxide serves to provide pulmonary artery vasodilation. Nitric oxide is a selective pulmonary artery dilator in the presence of pulmonary hypertension.

肺動脈血圧が正常な場合、一酸化窒素はほとんど肺の動脈に影響を及ぼしません。肺動脈が高血圧になると、一酸化窒素は肺の動脈血管を拡張させます。肺高血圧症の場合、一酸化窒素は肺の動脈を拡張させるものとして重要です。

Nitric oxide in exhaled air (eNO) is elevated in allergic asthma compared with healthy subjects and has been proposed as a marker of bronchial inflammation. Nitric oxide is endogenously released in the airways after synthesis from arginine induced by the enzyme nitric oxide synthase (NOS). Functionally, three isoforms of this enzyme exist: neuronal, constitutive and inducible. The nitric oxide produced from neuronal and constitutive NOS seems to protect airways from excessive bronchoconstriction while the inducible form of NOS has a modulatory role in inflammatory disorders of the airways such as asthma and is a marker for the inflammation process. Thus, the role of lung produced nitric oxide is complex and reflects both the bronchodilation of constricted bronchi and the role of nitric oxide as a marker of inflammation.

Nitric oxide has little role in modulating basal airway tone in either normal subjects or patients with asthma.

健康な人と比較した場合、アレルギー性ぜんそくの人が吐き出す一酸化窒素は濃度が高く、気管支炎と判断されます。一酸化窒素は、一酸化窒素合成酵素(NOS)により誘発されたアルギニンから合成された後、気道に放出されます。機能的に言って、3つの酵素のアイソフォームが存在する。神経型、常に構成的に発現するもの、誘導因子によって発現するもの。

誘導性のNOSは、ぜんそくといった気道の炎症障害への調整機能であったり炎症のプロセスのマーカーになる一方で、神経型および構成的なNOSによって生産された一酸化窒素は、過度な気管支収縮から気道を保護するようです。このように、肺の生産した一酸化窒素の役割は複雑であり、収縮した気管支の拡張機能と炎症のマーカーとしての役割と両方を反映しています。一酸化窒素は、ぜんそく患者や普通の人にとって、根本的な気管調節をする大きな働きはありません。



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