

# Carragelose eye drops for lubrication and beyond

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# Executive summary: Carragelose eye drops

Lubricant eye drops to treat DED with a potential in viral keratoconjunctivitis

## Business model

- Ophthalmic partner in classical license deal
  - Dry eye Disease
  - Adenoviral keratoconjunctivitis
  - Allergic conjunctivitis

## Market opportunity

- Tapping into fast growing multi-billion Euro market such as Dry eyes (\$6bn)<sup>1</sup> and viral eye infections

## Clinically proven

- Clinical studies with a total of more than 1,000 patients in the indications common cold and allergy

**Patent  
protected until 2036**

## Carragelose®

- Sulfated polymer
- High molecular weight
- Moisturizing and hydrating properties
- Broadly effective against viral infections

## Established finished product

- Preservative free formulation
- Aseptic process
- Multidose container

## Safety

- Excellent safety profile
- Proven ophthalmic tolerability



## Medical Device

- Class IIa (93/42/EEC)
- Transition to MDR on track (class IIb)
- Transition period until 2028





# Licensing opportunities – overview

2 product licenses available

## Description

## Claims

## Launch timelines

## License availability

### 1. Carragelose Dry Eye Relief

- Sterile, preservative free ophthalmic solution in a multi dose container
- Unique & patent protected
- Shelf life: 3 years
- Approved claims: Relief of irritated and dry eye
- Regulatory status: Medical Device Class IIa (IIb under MDR)
- First Launch in EU: Austria Q3/2024
- Possible first launch in other countries: Q1/2025
- License available: global and territorial
- Private label possible

### 2. Carragelose Antiviral Eye Drops

- Sterile, preservative free ophthalmic solution in a multi dose container
- Unique & patent protected
- Shelf life: 3 years
- Planned claims: Prophylaxis and Relief of irritations due to viral ophthalmic infection (keratoconjunctivitis, „pink eye disease“)
- Planned Regulatory status: Medical Device Class IIb under MDR
- Estimated first Launch in EU: 2026/2027
- Additional clinical study in planning
- License available: global, territorial
- Private label possible



# Marinomed at a glance

Publicly listed biopharmaceutical company located in the Vienna region

**2006**

Foundation

**2008**

Launch of Carragelose

**2016**

Invention of  
Marinosolv

**2019**

IPO and Marinosolv  
clinical validation

**2021**

Marinosolv deal and  
Solv4U launch

**2022**

Deal with  
Procter & Gamble



**Prime Market Segment of the Vienna Stock Exchange**

MARI:AV; ATMARINOMED6; MARI.VI

## Therapeutic areas

### VIROLOGY

Revenue-generating  
OTC portfolio

### IMMUNOLOGY

High-value  
products in late-  
stage development

**Solv4U**

Solubilization technology  
partnerships for customers



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# Pipeline

Including late-stage projects with low risk and high upside potential

## Pharmaceutical Products

Therapeutic area	Product Indication	Status	Pre-clinical	Phase I	Phase II	Phase III	Filing
IMMUNOLOGY	<b>MAM-1004-1/Budesolv</b> Treatment of severe allergic rhinitis	Filing in preparation	<div></div>	<div></div>	<div></div>	<div></div>	
	<b>MAM-1003-1/Tacrosolv</b> Severe inflammatory eye diseases	Phase II clinical study	<div></div>	<div></div>	<div></div>		
	<b>MAM-1004-2</b> Autoimmune gastritis	Pre-clinical	<div></div>				
VIROLOGY	<b>MAM-2001-1/Carravin</b> Nasal congestion	Filing in progress	<div></div>	<div></div>	<div></div>	<div></div>	

## OTC Medical Devices

Therapeutic area	Product Indication	Status	Pre-clinical	Clinical studies	Certification
IMMUNOLOGY	<b>MAM-1001-4 nasal spray</b> Prophylaxis of mild allergic rhinitis	Pre-launch	<div></div>	<div></div>	
	<b>MAM-1001-3 eye drops</b> Dry, irritated eyes	Pre-launch	<div></div>	<div></div>	
VIROLOGY	<b>MAM-1001-1/Inhaleen</b> Viral pneumonia	Clinical studies	<div></div>	<div></div>	



# Carragelose®

Protective layer against viruses and allergens – multi-use potential

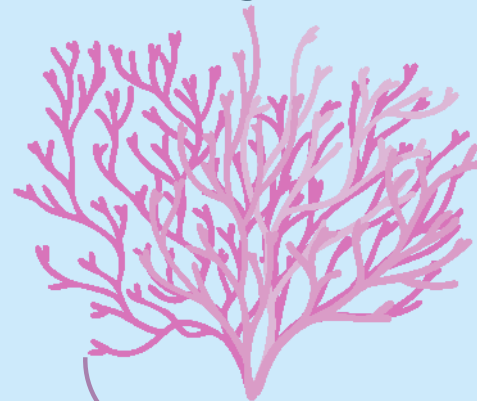
CCA<sup>2</sup> market  
volume:  
US\$ 36 bn<sup>3</sup>

## Viral respiratory diseases

- Broadly-active against numerous respiratory viruses
- Clinically validated<sup>1</sup>
- Marketed product portfolio in 40+ countries



## Carragelose



## Allergy

- Carragelose nasal spray clinically effective in reducing allergic symptoms in the nose<sup>1</sup>
- Carragelose/Sorbitol combi shows significant decongestant effect in clinical trial<sup>1</sup>

Cold  
market  
volume:  
US\$ 10bn<sup>5</sup>

## Eye care



- Carragelose has excellent moisturizing and mucoadhesive properties
- Eye drops: relief for dry eyes
- Active against several Adenoviruses<sup>4</sup>: prospective treatment for adenoviral keratoconjunctivitis

Allergy  
market  
volume:  
US\$ 5.7bn<sup>3</sup>

Eye care  
market  
volume:  
US\$ 6bn<sup>6</sup>



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<sup>1</sup> Publications available at: <https://www.marinomed.com/en/news/scientific-publications>

<sup>2</sup> CCA = Cough, cold & allergy

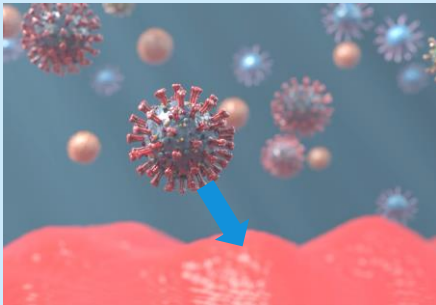
<sup>3</sup> CHC Yearbook 2023, Nicolas Hall

<sup>4</sup> Marinomed internal data

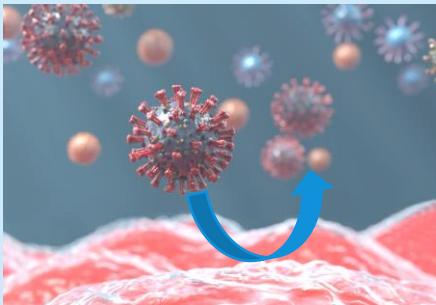
<sup>5</sup> Target market volume: 28% of total CCA market (topical decongestants, sore throat) as depicted in CHC Yearbook 2023, Nicolas Hall

<sup>6</sup> Target market volume: 19% of total CCA market (allergy) as depicted in CHC Yearbook 2023, Nicolas Hall

# Carragelose<sup>®</sup> mode of action and benefits



**Without iota- carrageenan:  
Virus / allergens interact  
with mucosal cell**



**With iota-carrageenan:  
Barrier prevents interactions  
of viruses and allergens**

## **Mode of action<sup>1</sup>**

- Carragelose non-specifically covers the mucosal surface and prevents binding of virus/allergen to the mucosa, thereby reducing the immune response without being pharmacologically active
- Carragelose is mucoadhesive and lubricating

## **Carragelose (iota-carrageenan): effective, safe & patent protected**

- Carragelose acts as active ingredient in Marinomed's Carragelose product line
- Favourable safety profile established in several clinical studies in >1000 participants and also proven in post market surveillance data (<1 adverse events/100.000 sold units)
- Global patent protection until 2036

**Broadly effective against viruses and allergens with a high safety profile**





# Carragelose® beyond Virus and Allergens

Excellent hydrating and mucoadhesive properties

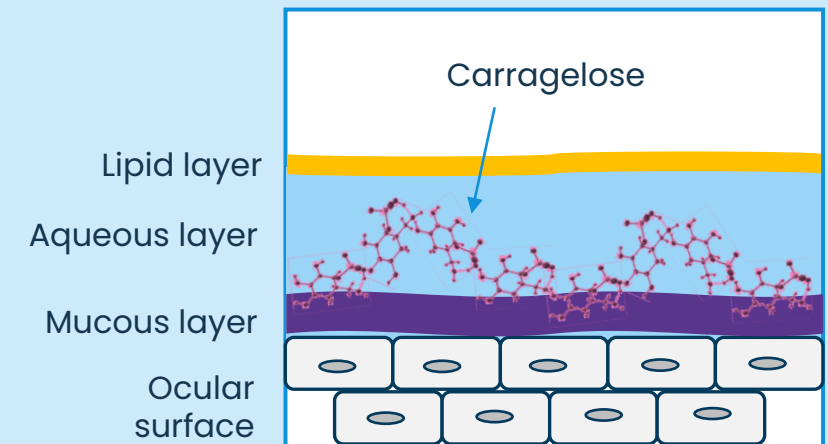
- Carragelose is iota-carrageenan derived from red seaweed in pharmaceutical quality
- Carragelose is a new opportunity to treat dry eye disease
- Carragelose has the potential to be the first product targeting adenoviral keratoconjunctivitis
- Carragelose is the active ingredient of multiple marketed products in the indication common cold
- The use of Carragelose is patent protected by several patent families
- Additional IP exists with respect to preclinical and clinical data, production know-how, stability data
- Favourable safety profile - may be used in children from six years up, and by pregnant and breastfeeding women (GRAS Status with the FDA)



# Carragelose<sup>®</sup> as eye lubricant

A high molecular weight polymer with moisturizing and mucoadhesive properties

- High molecular weight polymers, such as Carragelose, do not penetrate mucosa or skin
- Carragelose is known for an exceptionally high water uptake<sup>1</sup> and excellent water retention properties<sup>2</sup>. Carragelose has all properties to ensure a pronounced aqueous layer.
- Carragelose forms soft gels in contact with water and can support the natural gel-forming oligosaccharide of the secreted mucins to build a stable mucous layer
- Stabilizes tear film



**Alternative to hyaluronic acid with additional virus- and allergen-blocking properties**



# Carragelose eye drops

Eyeleen



## Product characteristics:

- Regulatory status: medical device class IIa (EU, MDD), application for MDR (IIb) by end of 2023; valid CE mark under transition period until 2028 (MDD)
- Legal manufacturer: Hälsa Pharma GmbH, Lübeck (MDR certified)
- Notified body: Medcert Lübeck, Germany
- **3.2 mg/ml Carragelose®**
- Volume: 10 ml
- **Prophylaxis and Therapy:** 3 x daily
- for adults and children 6y+

Preservative-free, multi-dose container

Target market volume: US\$ 6 bn<sup>1</sup>

## Claims in EU and product characteristics:

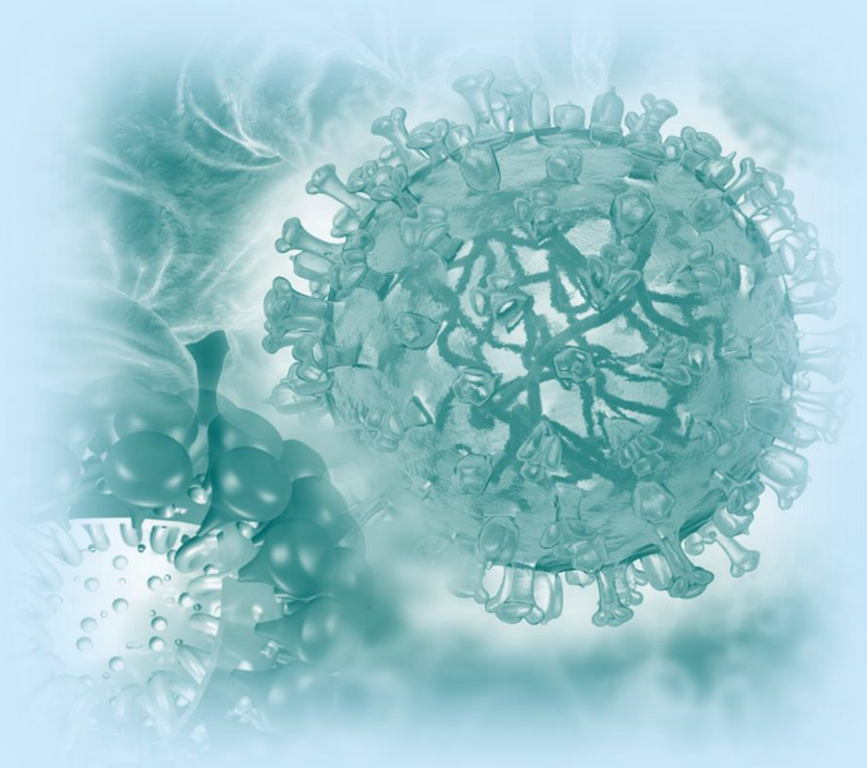
- Eyeleen is used for the relief of symptoms due to dryness of the eye
- Eyeleen is an ophthalmic solution, which forms a protective barrier on the ocular surface, this moisture film supports the body's natural defense mechanisms
- Eyeleen can be used as lubricant to prevent further irritation or to relieve dryness of the eye
- Eyeleen protects against excessive tear evaporation
- Eyeleen can be used during the day as it does not cause blurred vision
- Eyeleen can be used from age 6 years onwards



# Carragelose® – Broadly active virus blocker

These viruses infect the respiratory tract or the eye and may worsen diseases such as COPD or keratoconjunctivitis

Virus type	In-vitro data	In-vivo data	Clinical data
Corona virus (OC43, 229E)	✓		✓
SARS-CoV-2	✓		✓
Rhinovirus A and B	✓		✓
Influenza A virus: human pathogenic	✓	✓	✓
Influenza A virus: bird flu	✓	✓	
Influenza B virus	✓		✓*
Respiratory syncytial virus	✓	✓	✓*
Parainfluenza virus	✓		✓*
Metapneumovirus			✓*
Adenovirus 2, 8, 19, 32, 37, 50	✓		
Coxsackievirus A10	✓		





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