



# *Unique Marine Multimineral Complex*

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*Andrew Brennan*  
Asia Manager  
Marigot Ltd



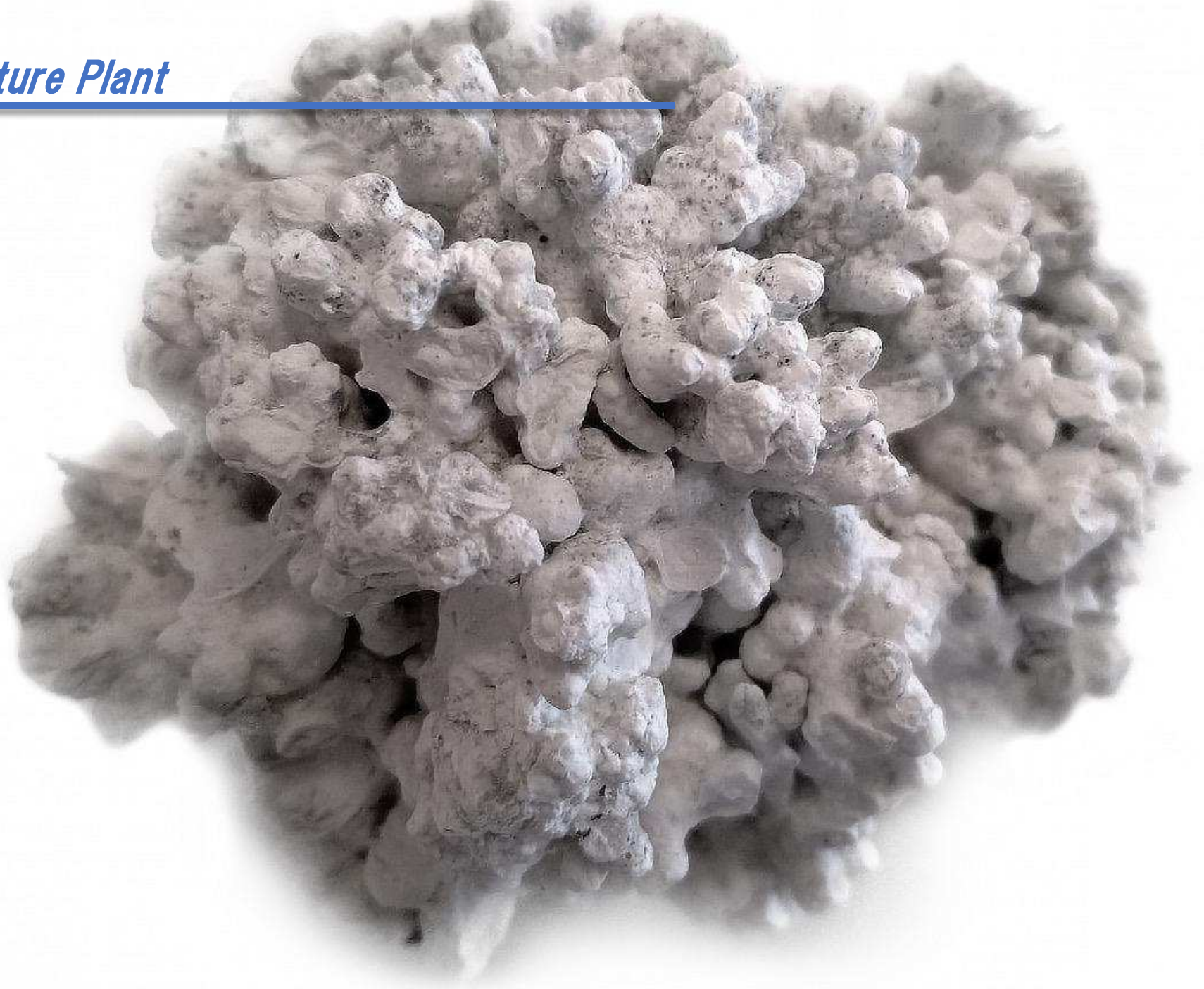
*Live Plant*

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***Mature Plant***

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## *Our Source / Bildudalar, Iceland*



## Geographic Suitability of Iceland

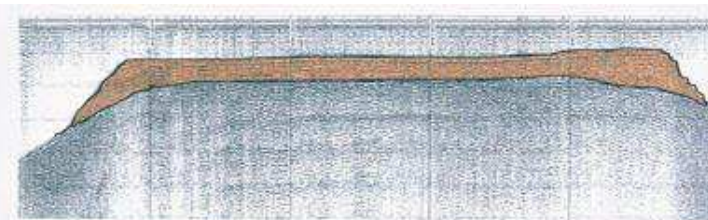
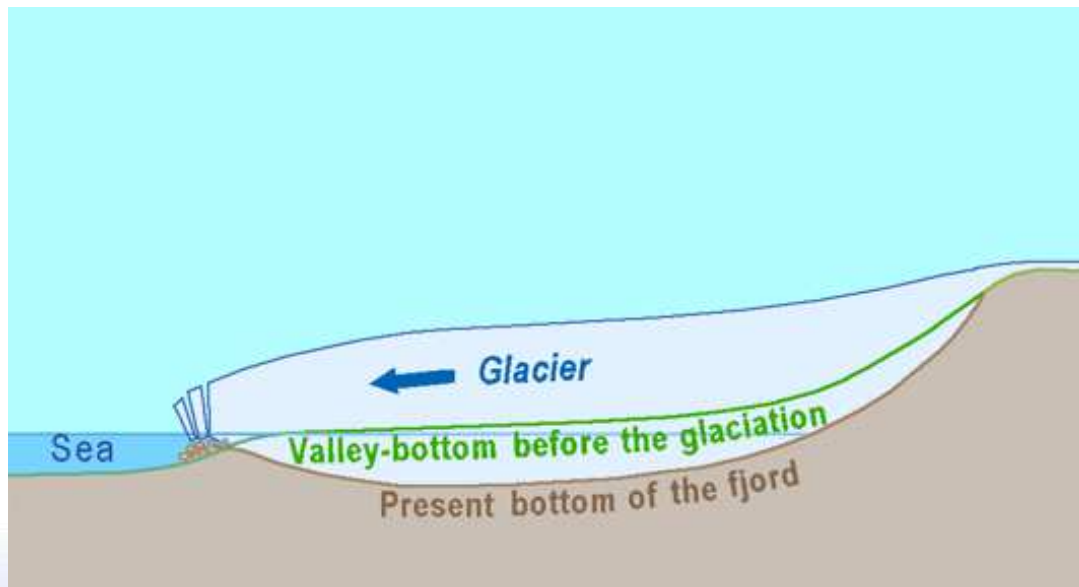


Fig. 2A. Seismic reflection profile across the threshold in outer Reykjarfjörður. Modern (maerl) sediments shaded. Horizontal scale lines approx. 7.5 m apart. Length of profile ca 1200 metres.

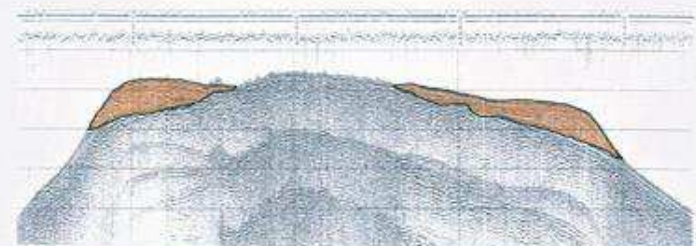


Fig. 2B. Profile across Langanessgrunn, showing sediments on both sides of a bedrock outcrop. Length of profile approximately 800 metres.

# *Marigot Facility*

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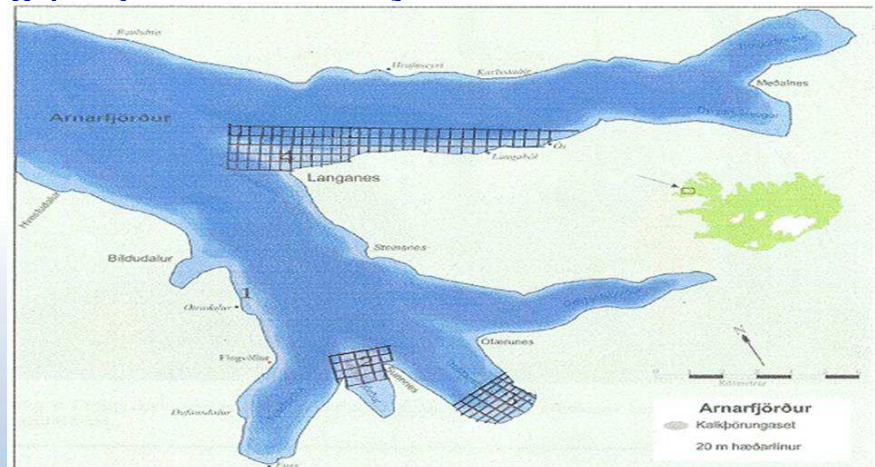




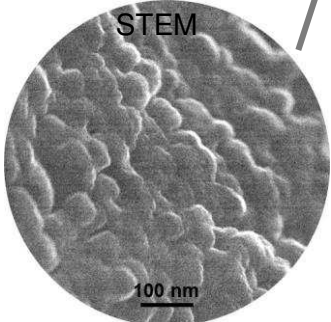
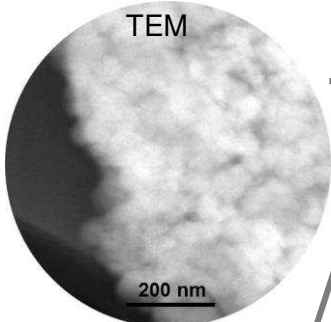
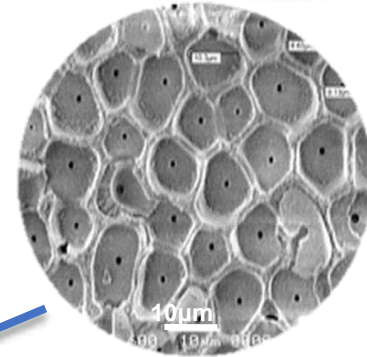
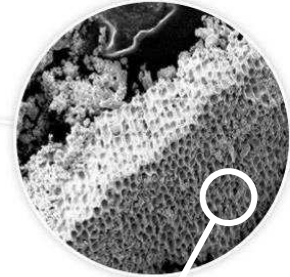
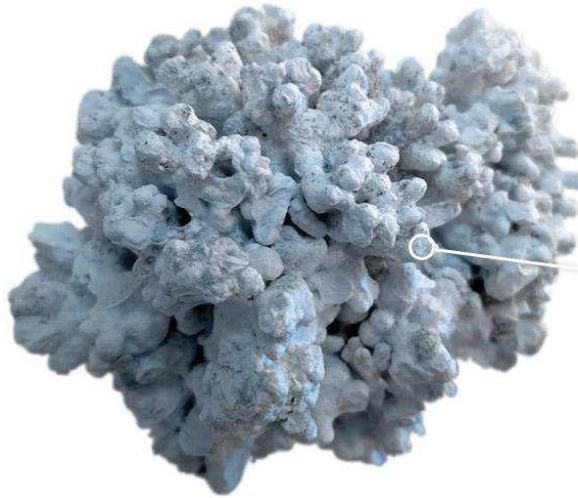
## Sustainability Program



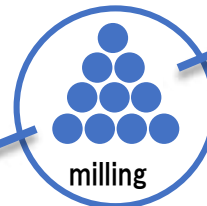
- Extensive geological surveys before harvesting
- Only mature material collected
- Strict Quota
- Max. 4 times a year, minimizing impact
- Re-seeding project underway



# *Microstructure of Aquamin*

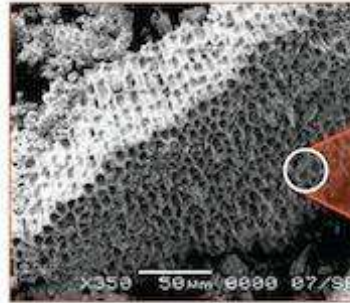
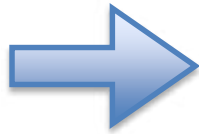


Nano(-surface) structure of Aquamin

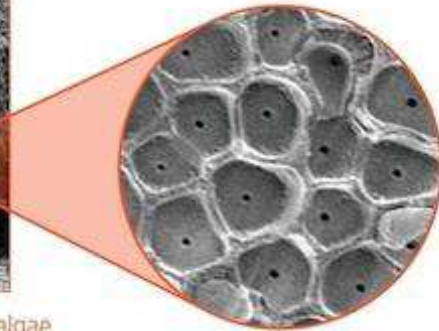


**The average particle size : 5  $\mu\text{m}$   
Specific surface area : 8.0527  $\text{m}^2/\text{g}$**

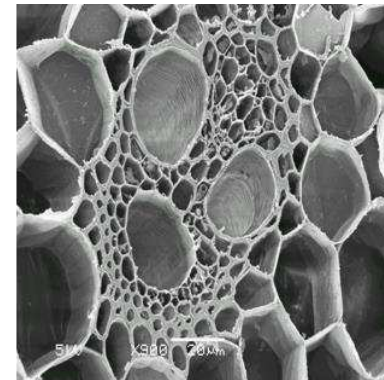
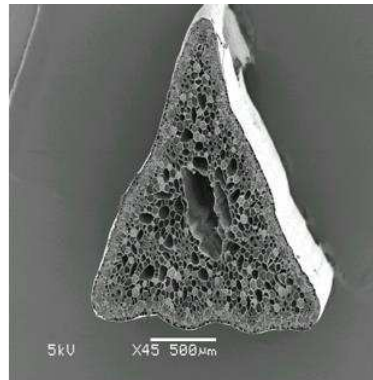
## *Superstructure derived from plant*



microscopic view of Lithothamnion algae



<http://had0.big.ous.ac.jp/plantsdic/angiospermae/monocotyledoneae/cyperaceae/kogomegayatsuri/kogomegayatsuri.htm>

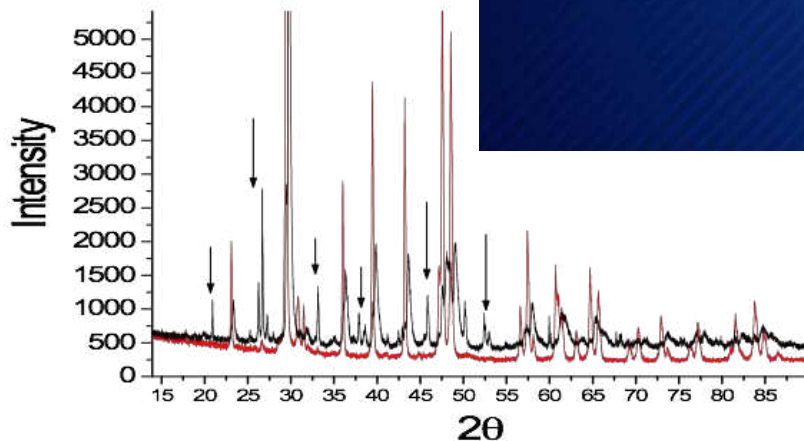
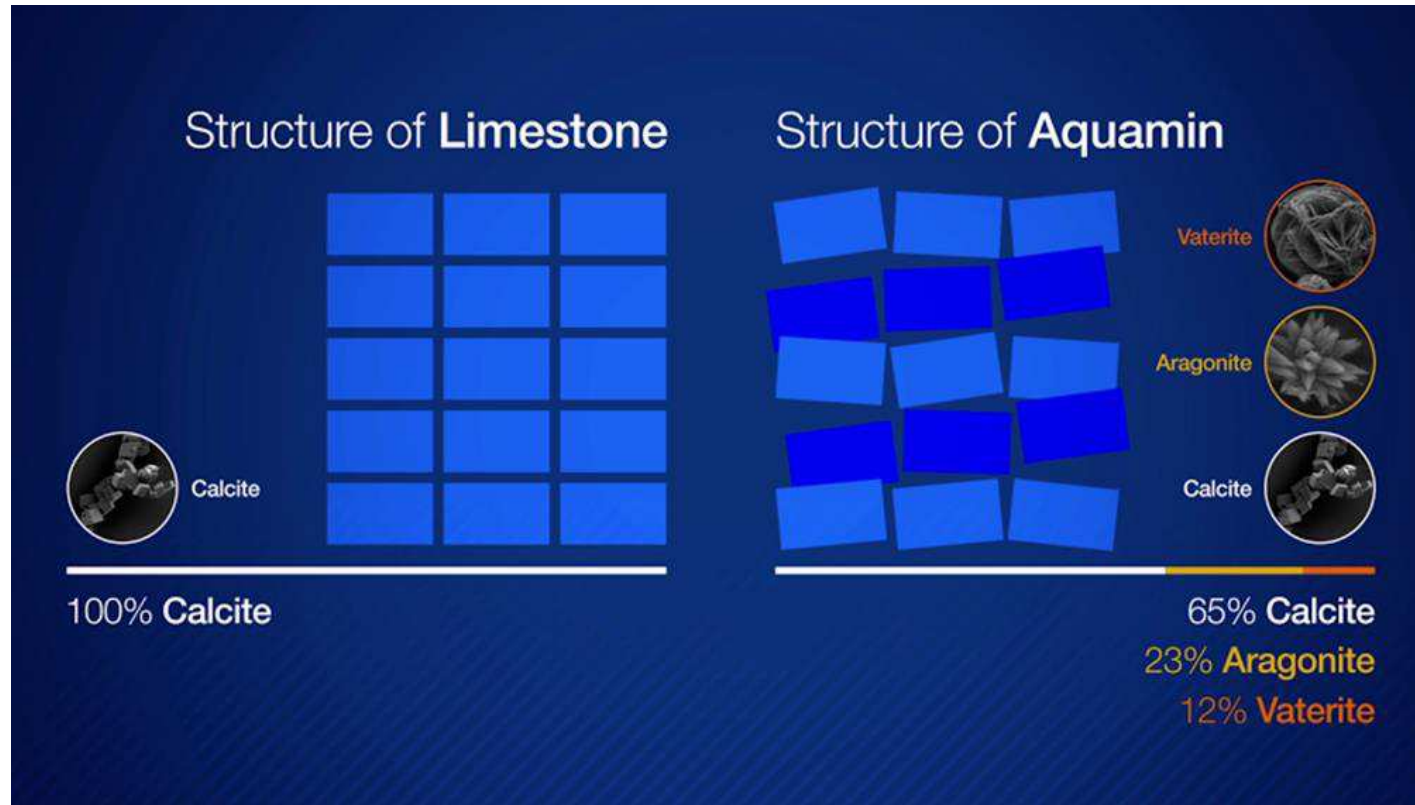


[http://www.juen.ac.jp/soogoo/seminar/iokawa/sem\\_web/CD01/SEM/sem06.html](http://www.juen.ac.jp/soogoo/seminar/iokawa/sem_web/CD01/SEM/sem06.html)  
上越教育大

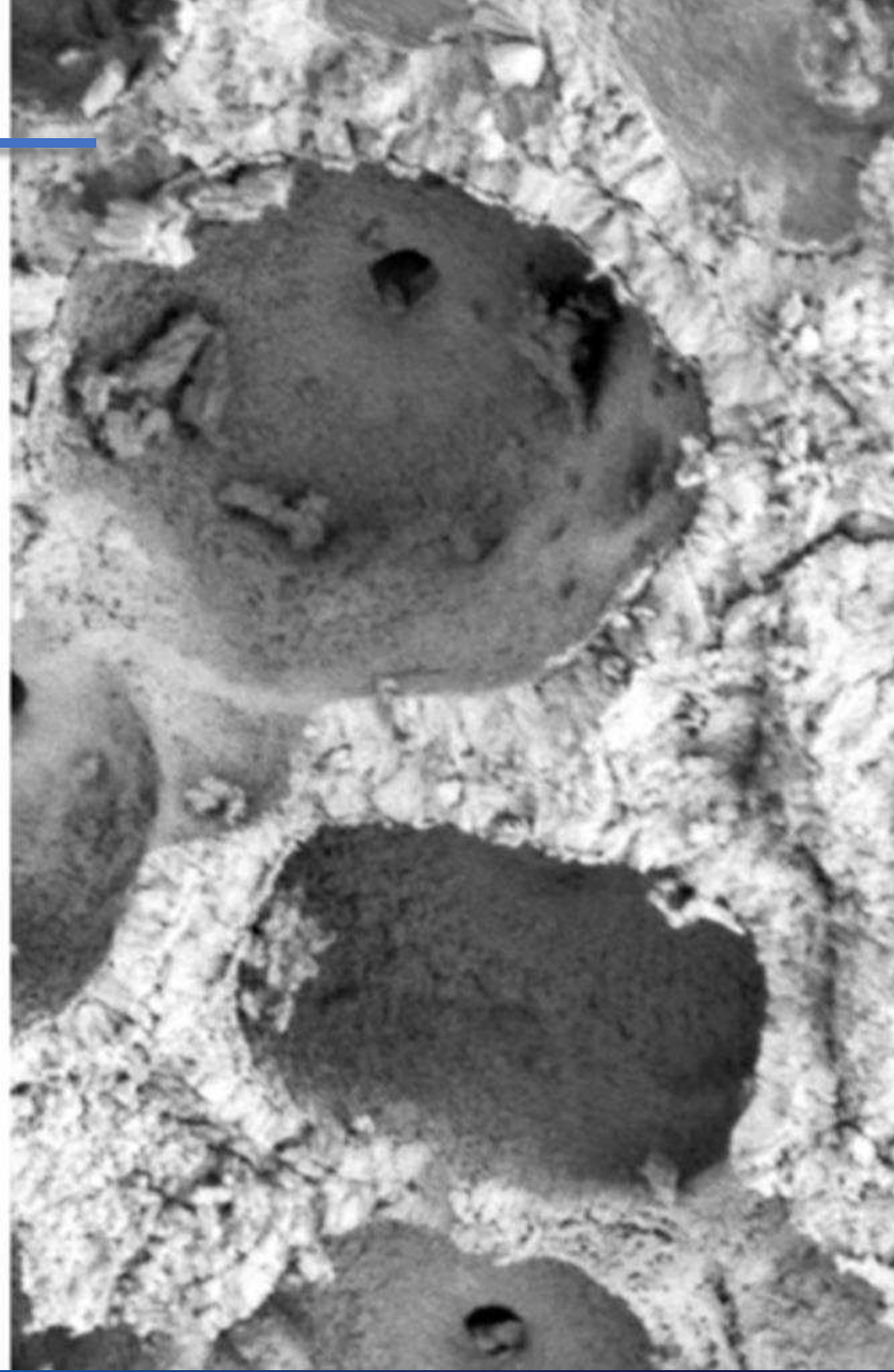
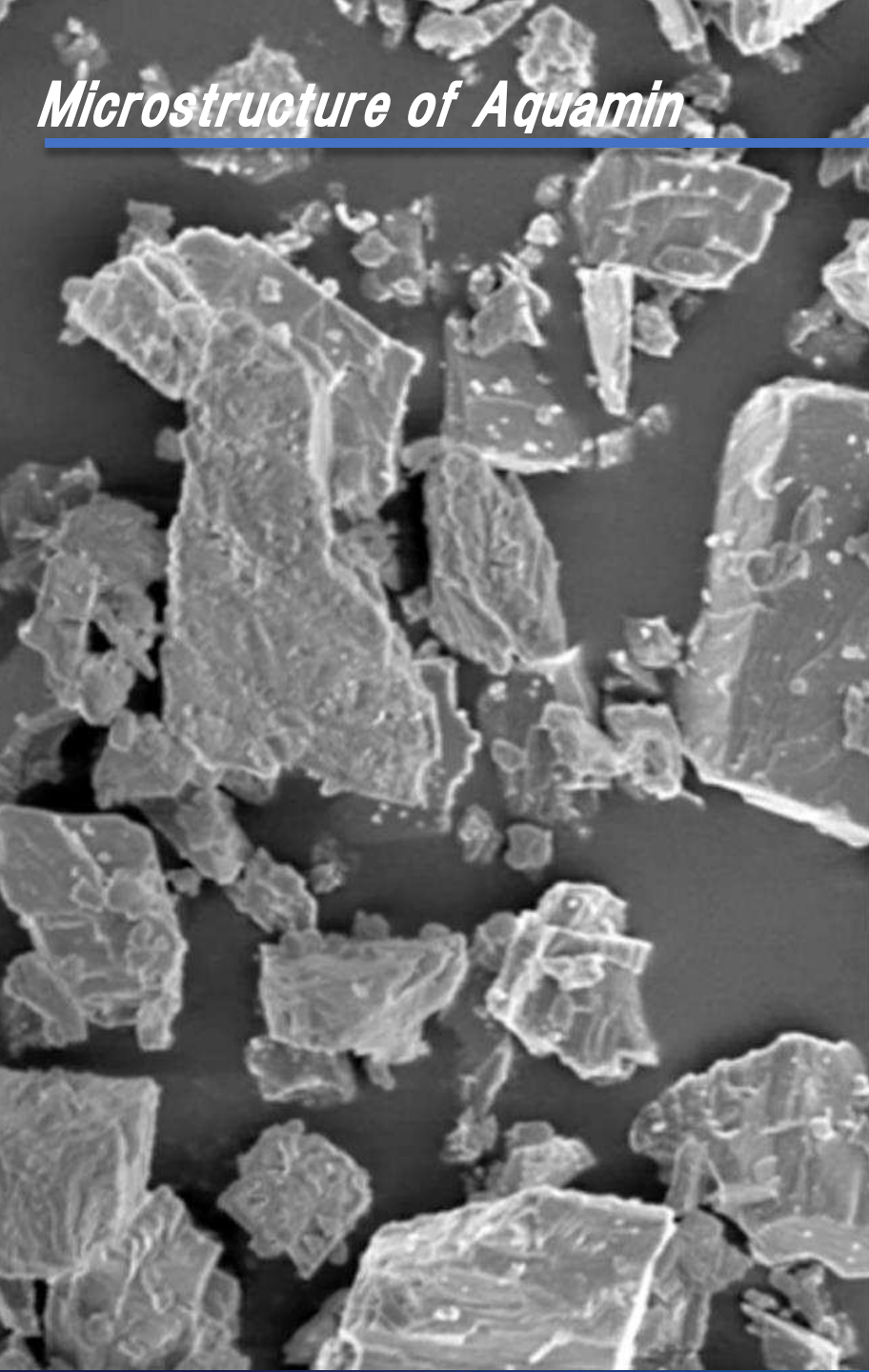


Cyperus iria, Rice paddy weed.

# Crystalline Composition



## *Microstructure of Aquamin*





## Trace Mineral Tail

Contains a trace mineral “Tail”

May play a role in anti-inflammatory capacity

“Given the maturity of the market, suppliers are now focusing on finding more bioavailable forms of natural calcium. ....

Companies and consumers are becoming aware that **isolated calcium is not the best option; multi-mineral whole food supplements** combined with other ingredients seem to be more in demand. “

Canedan Beverage Report 2014





## Marigot Ltd. are **PRO-PUBLICATION!**

– 27 Aquamin- specific publications

### **1. BONE HEALTH**

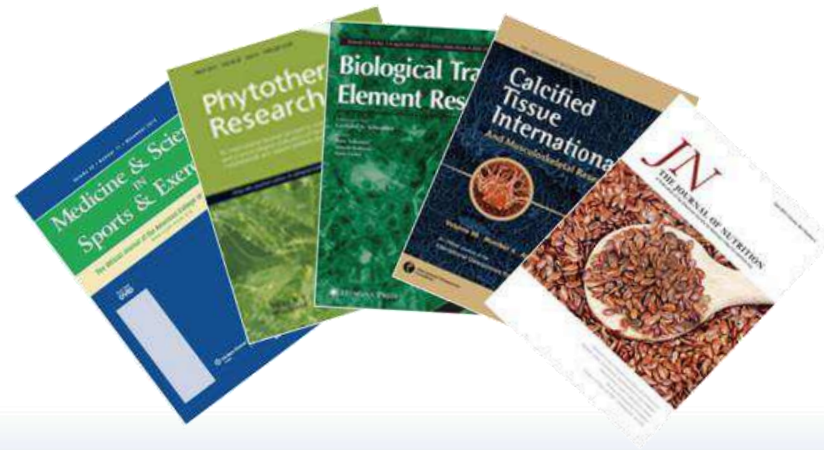
– 12 (3 human)

### **2. INFLAMMATION**

– 8 (4 human)

### **3. DIGESTIVE HEALTH**

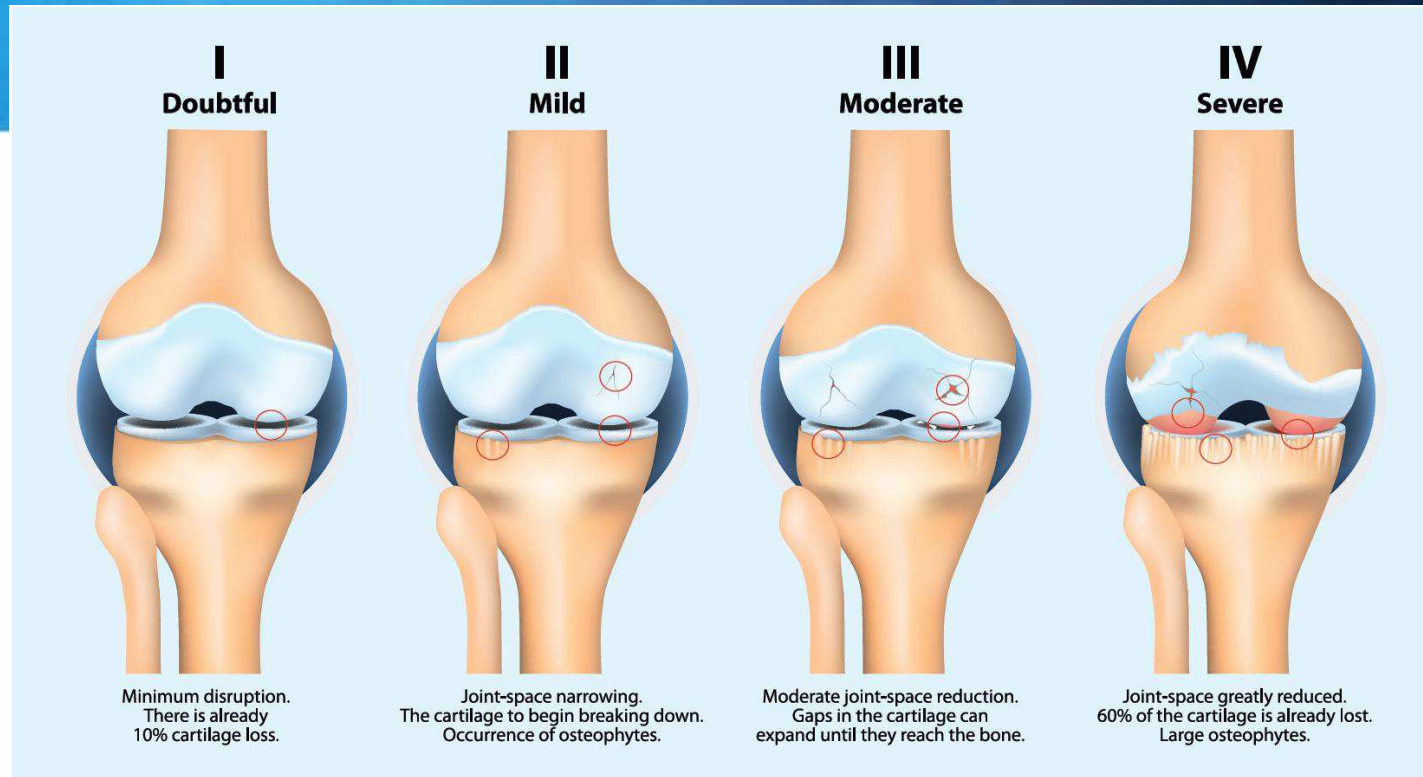
– 7 (1 human currently in process)





# Aquamin

& Osteoarthritis



- 1. Early Stage** - breakdown of cartilage, with associated pain a reduction in mobility and range of motion.
- 2. Developing** - a breakdown of bone material into splinters, known as spurs. Upregulation of inflammatory cytokines (proteins) and enzymes further degrade cartilage leading to more persistent symptoms.
- 3. Late Stage** - Cartilage deteriorates to the extent that there is bone to bone contact at the joints.



## *Osteoarthritis - OA - Global Problem*



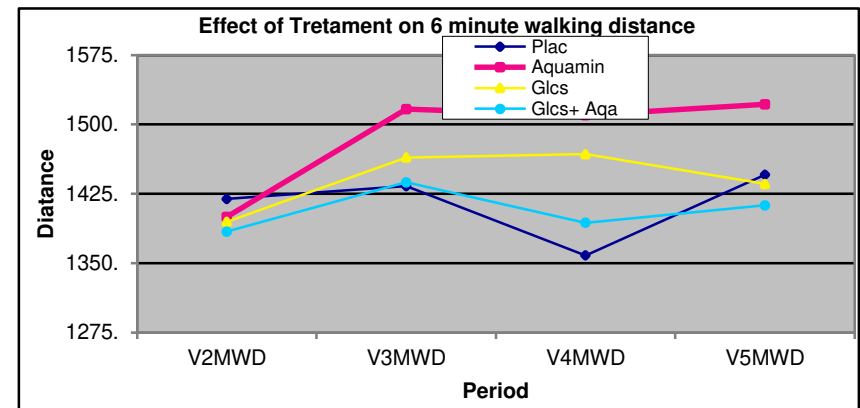
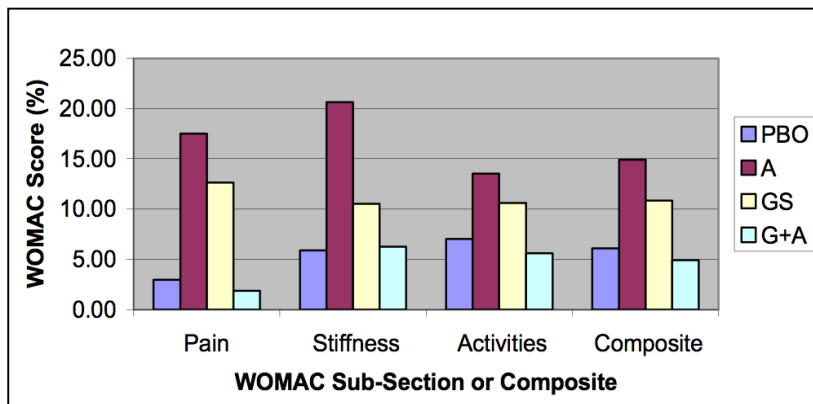
- 5th highest cause of years lost to disability in high-income, and 9th in low- and middle-income countries.
- Global estimates of 9.6% of men and 18.0% of women aged over 60 years have symptomatic OA.
- Accounts for **50% of the entire musculoskeletal disease burden**, and thus is considered the **highest-burden condition within the musculoskeletal group of diseases**, which also includes rheumatoid arthritis and osteoporosis
- Current methods of clinical diagnosis and X-rays are not precise enough to effectively measure status and progression of the condition, which presents serious difficulties in evaluating both the impact of risk factors and the effectiveness of potential therapies.
- Lack of valid biomarkers limits pharmaceutical development and clinical monitoring.





# Aquamin reduces symptoms of osteoarthritis

Frestedt *et al*, 2008

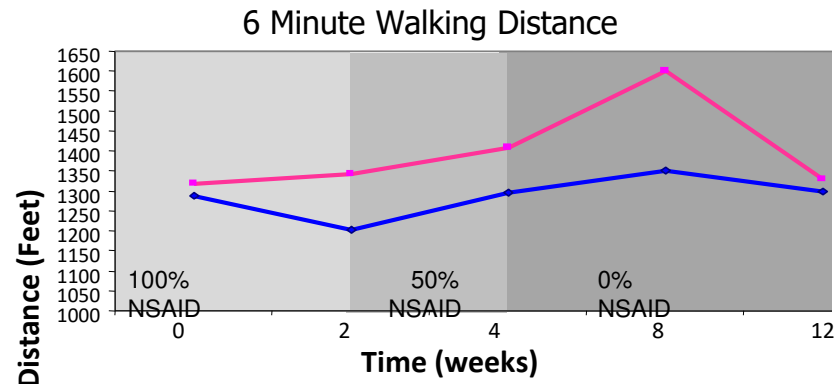


- 70 patients, 4 treatments (Placebo, Aquamin, Glucosamine, Glucosamine + Aquamin)
- WOMAC and 6 minute walk test



### Aquamin reduces dependency on NSAIDs

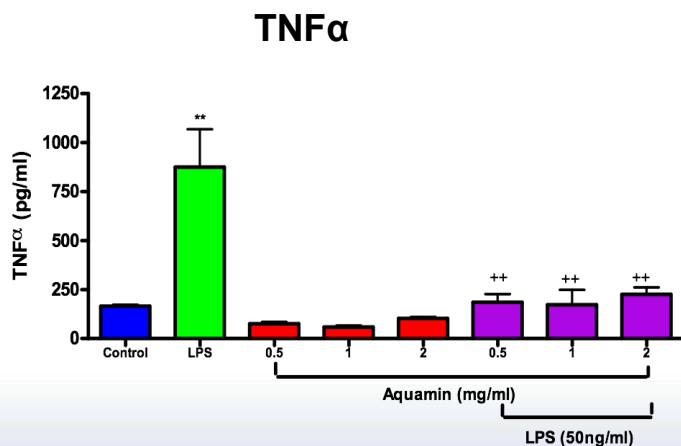
Frestedt *et al*, 2009



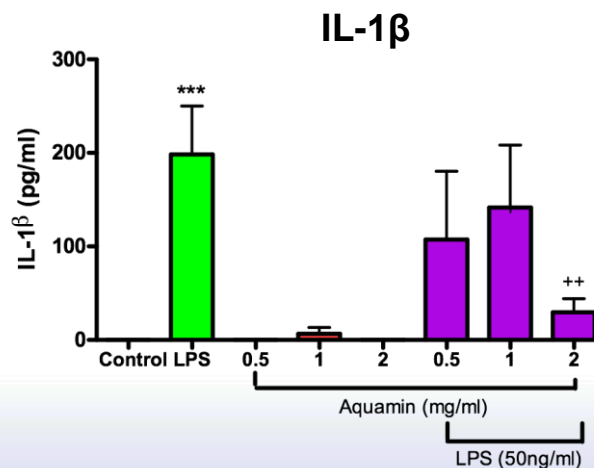
- 29 patients, 2 treatments (Placebo, Aquamin F), 12 wks
- Passive and active ROM, 6 minute walk test @ 50% reduction of NSAID use



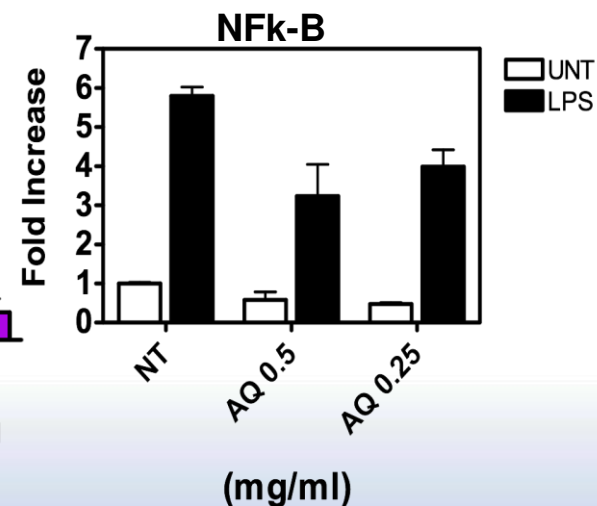
**Aquamin** reduces key inflammatory mediators  
(cellular messengers)  
- *in vitro* work



\*\* p<0.01 vs Control; ++ p<0.01 vs LPS;  
ANOVA, n=8



\*\*\* p<0.001 vs Control; ++ p<0.01 vs LPS; ANOVA; n=5-7



Ryan *et al*, 2011

O'Gorman *et al*, 2012



## *Aquamin Grades*



Food Application



TGA Compliant



Granular Grade -  
New TGA Compliant available



Water Soluble - Opaque



Water Soluble - Clear



## Product Example / Joint Health



6/11/15

**Suggested Usage:** Take 1 capsule daily at bedtime on an empty stomach.

Cartilage is one of the primary connective tissues of the body, providing flexibility and support to joints. Undenatured Type II Collagen is the principal structural protein in cartilage that is responsible for its tensile strength and toughness.\* Derived from chicken sternum cartilage, UC-II® is a patented form of Undenatured (native) Type II Collagen that works with the immune system to support healthy joints.\* Human clinical studies have found that just one 40 mg capsule of UC-II® per day can help to promote joint comfort, as well as healthy joint function and flexibility.\*

\*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

Caution: For adults only. Consult physician if pregnant/nursing, taking medication, or have a medical condition. Keep out of reach of children.

Do Not Eat Freshness Packet. Keep in Bottle.

Natural color variation may occur in this product.

Aquamin® is a registered trademark of Marigot Limited.

Please Recycle.

CAPSULE SIZE

CODE 3136 V1



7 33739 03136 5



# UC-II®

Joint Health\*

- With Undenatured Type II Collagen
- Promotes Healthy Joint Comfort and Function\*



**120 Veg Capsules**  
A Dietary Supplement



General Health

Family owned since 1968.

### Supplement Facts

Serving Size 1 Veg Capsule

	Amount Per Serving	% Daily Value
Calcium (from Aquamin® TG)	80 mg	8%
UC-II® Standardized Chicken Cartilage† (Providing 10 mg Total Collagen, including Undenatured Type II Collagen)	40 mg	†
Aquamin® TG (Seaweed Derived Minerals) ( <i>Lithothamnium spp.</i> ) (Whole Plant)	250 mg	†

† Daily Value not established.

Other ingredients: Cellulose (capsule), Cellulose Powder, Stearic Acid (vegetable source), Silica and Potassium Chloride (stabilizer).

NOW FOODS, 395 S. Glen Ellyn Rd.

Bloomington, IL 60108, USA nowfoods.com

Not manufactured with yeast, wheat, gluten, soy, milk, egg, fish, shellfish or tree nut ingredients. Produced in a GMP facility that processes other ingredients containing these allergens.

†UC-II® brand collagen with undenatured type II collagen (U.S. Patents 7,846,487, 7,083,820 and EPO Patent EP1435906B1; Canadian patent CA 2459981C; and Japanese Patent JP 4800574B2). UC-II® is a registered trademark of InterHealth N.I.



Label Size T  
(2 1/2 x 6 1/8)



## *Product Example / Joint Health*

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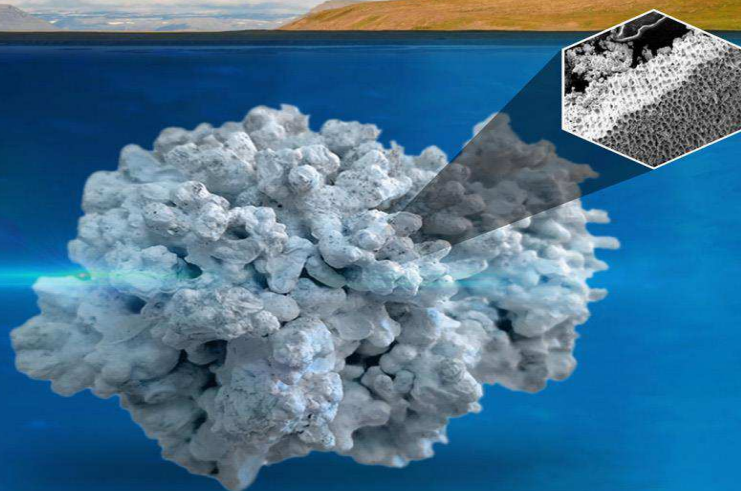




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HEALTHY AGEING INGREDIENT  
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