

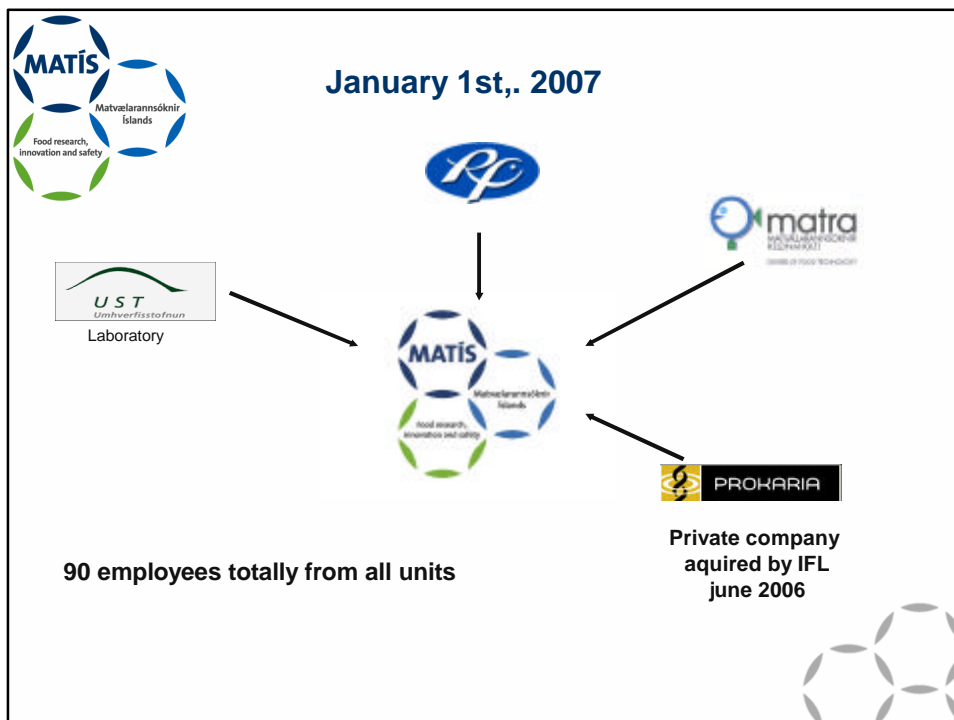


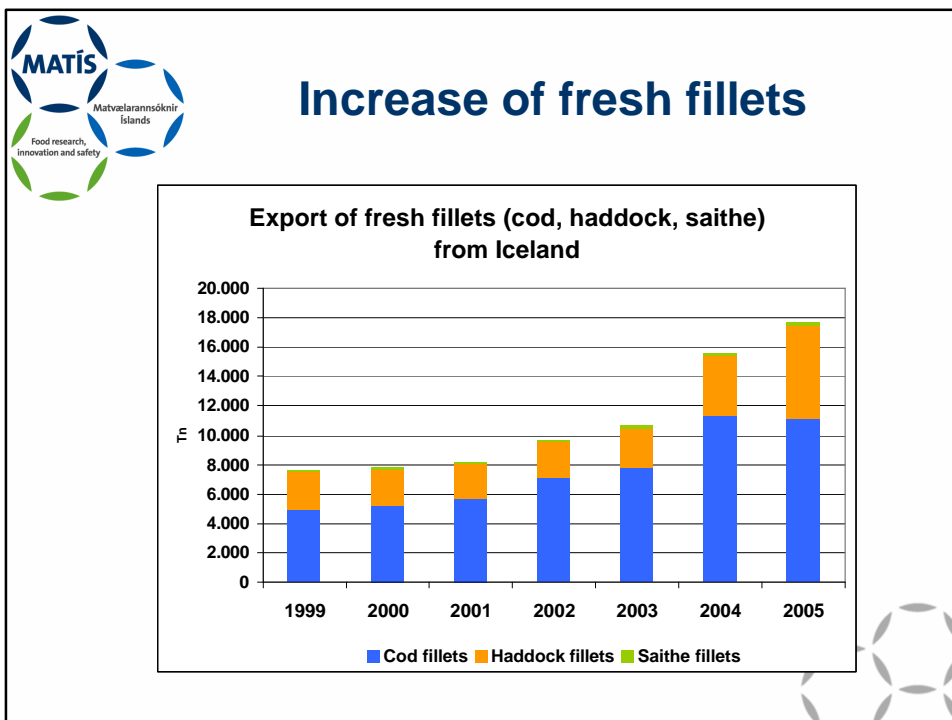
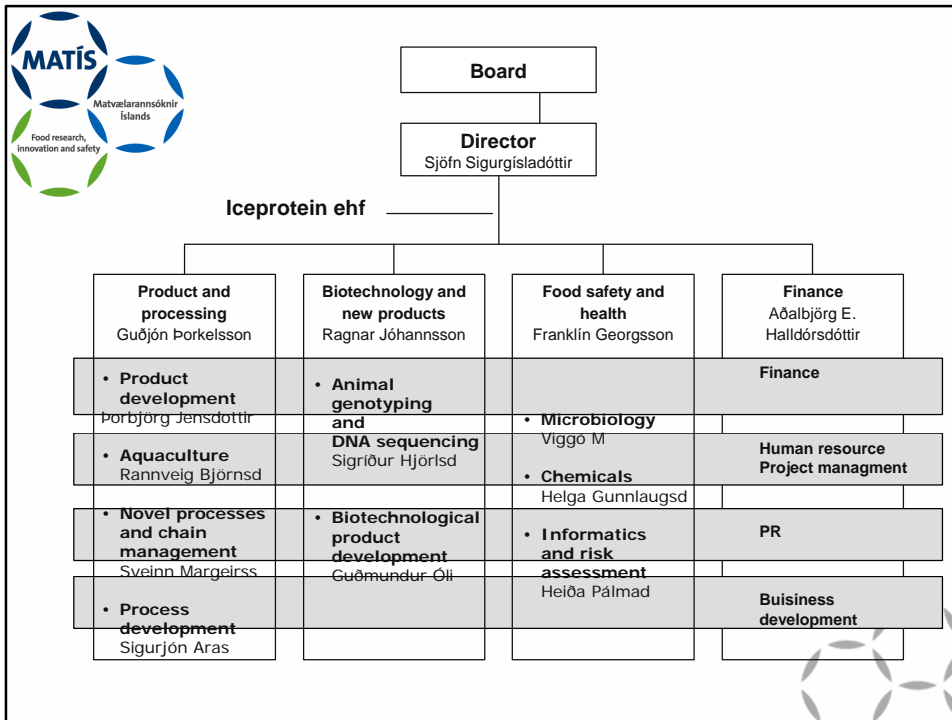
Hvordan går utviklingen på Island?

Hannes Hafsteinsson, Ph.D.
EU Business Developer

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Director

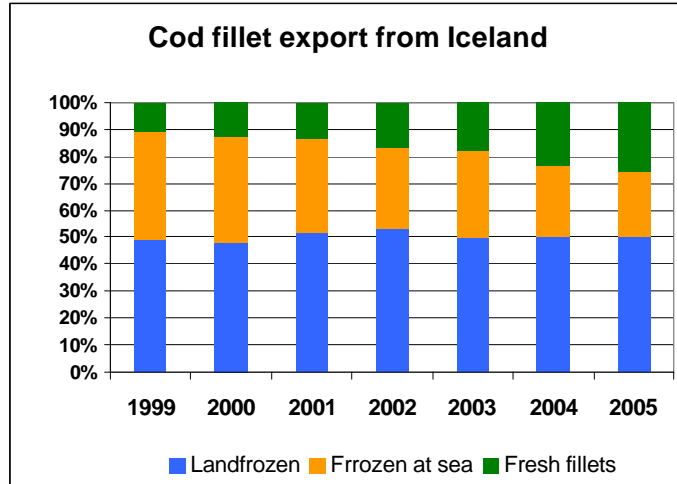
Matis ohf, Reykjavik, Iceland



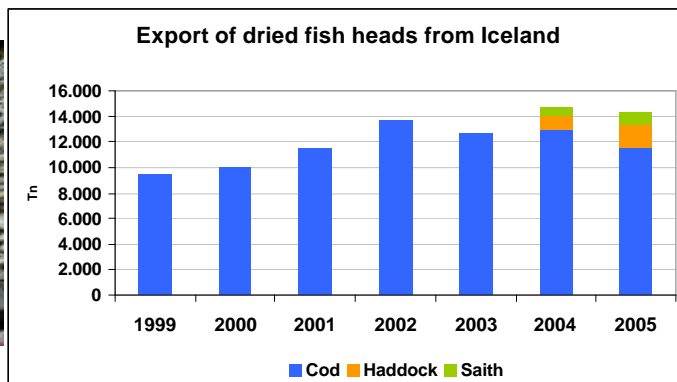




Production of cod fillets Increase of fresh, decrease of FAS



Dried fish heads



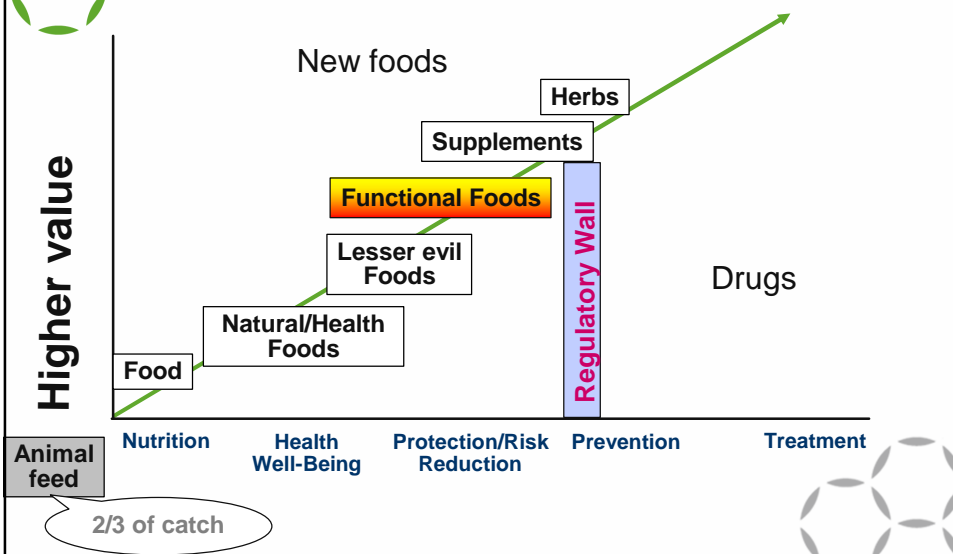


New opportunities - aquaculture

- Aquaculture – fresh, high quality byproducts
 - ✍ Export of fresh cod milt
 - ✍ Canning of cod liver
 - ✍ Freezing of cod stomach
 - ✍ Freezing of cod roes



Foods to Drugs.... From conventional to new products





People prefer to get their health from..

the kitchen cabinet

rather than....

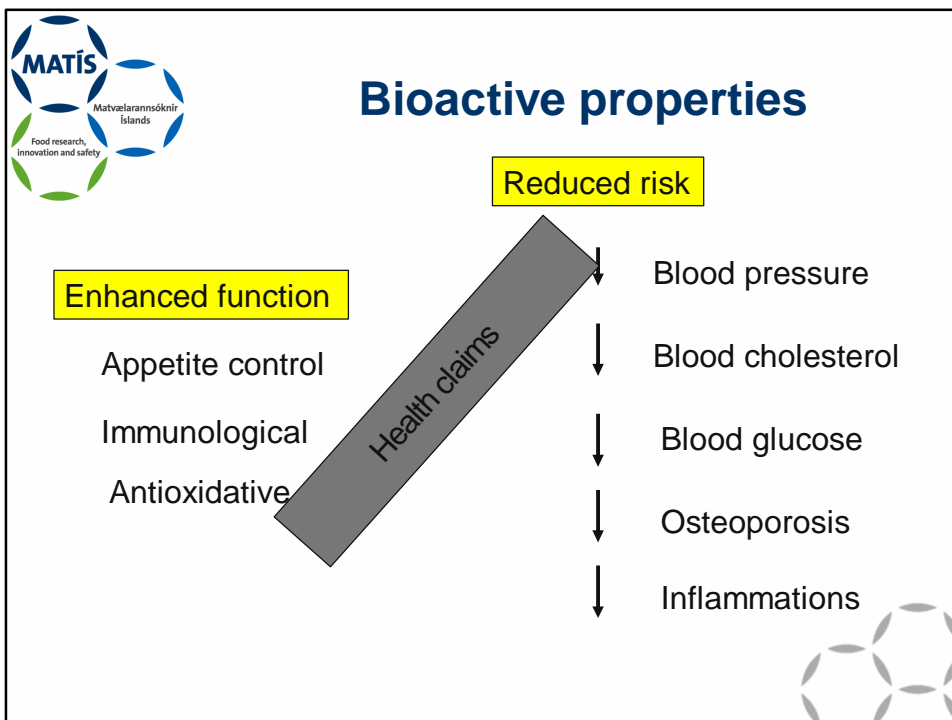
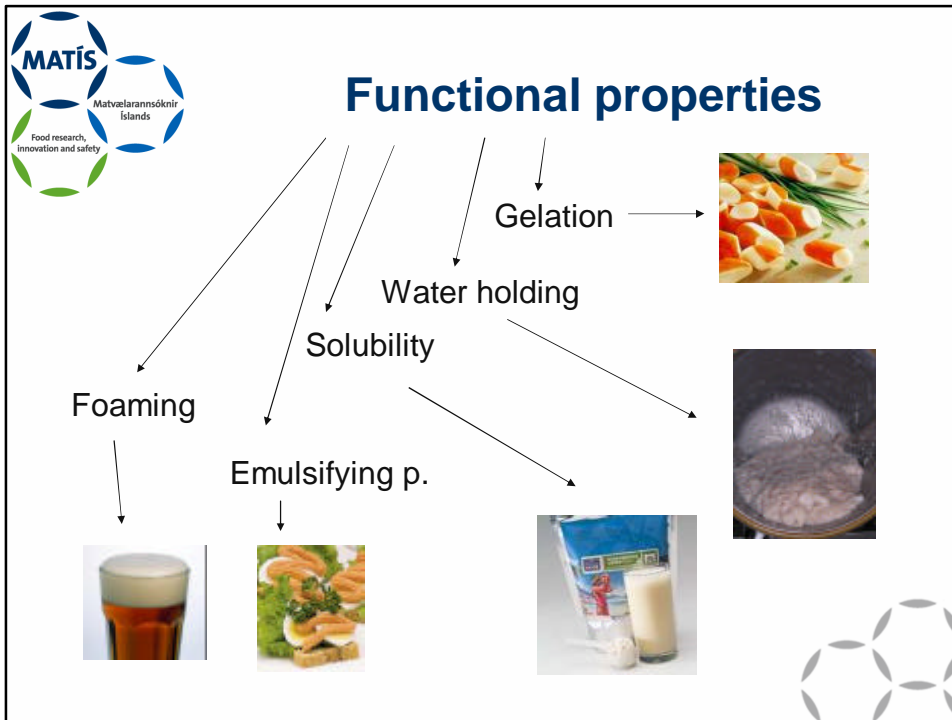
the medicine cabinet




Dairy – Seafood

- Milk proteins marketing concepts:
 - ✍ Weight management solution
 - ✍ Improves bone health
 - ✍ Helps stimulate immune system
 - ✍ Improves intestinal cell growth
 - ✍ Improves health and well-being
 - ✍ Effect on blood pressure
- Fish proteins
 - ✍ Weight ?
 - ✍ Improves?
 - ✍ Helps?
 - ✍ Protects?
 - ✍ Effect on?
 - ✍ New opportunities (FP7 ?)







Fish proteins/peptides. Health claims?

Components

Whole foods

Diets

Supplements

Drugs



Nutrition function

Enhanced function

Disease risk reduction

Substantial scientific evidence ? SEAFOOD plus ?

Process for the Assessment of Scientific Support for Claims

ACE inhibitors (lower blood pressure)

Suetsuna K, Osajima K.
The inhibitory activities against angiotensin I converting enzyme of basic peptides originating from **sardine** and hair tail meat. Nippon suisangakkaishi. **1986**;52:1981-1984


Kohama Y, Matsumoto S, Oka H, Teramoto T, Okabe M, Mimura T.
Isolation of angiotensin I converting enzyme inhibitor from **tuna** muscle. Biochem biophys rescommun. **1988**;155:332-337.

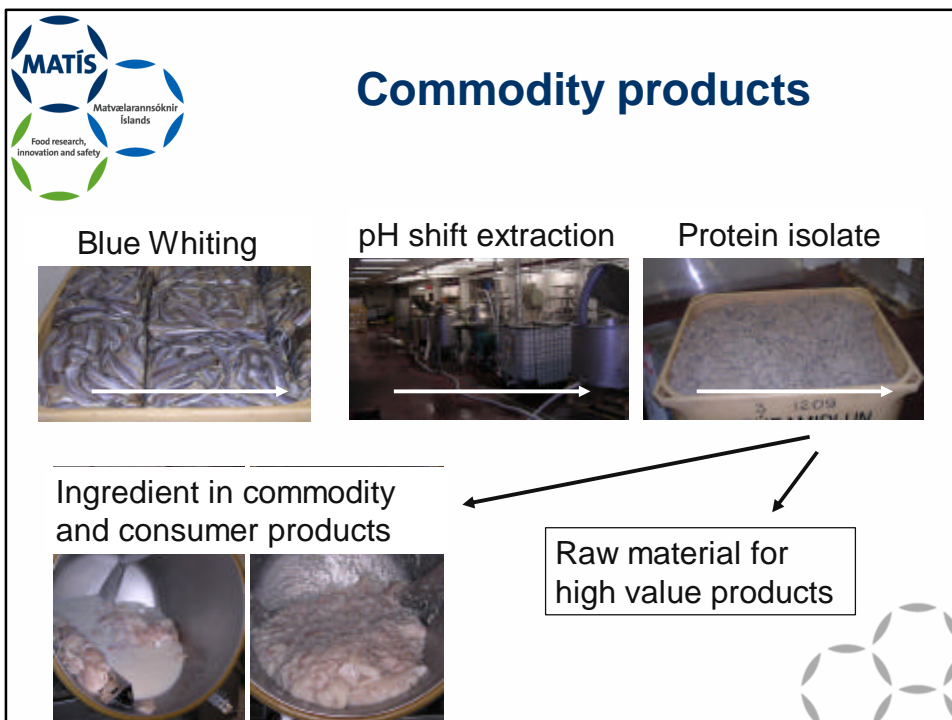
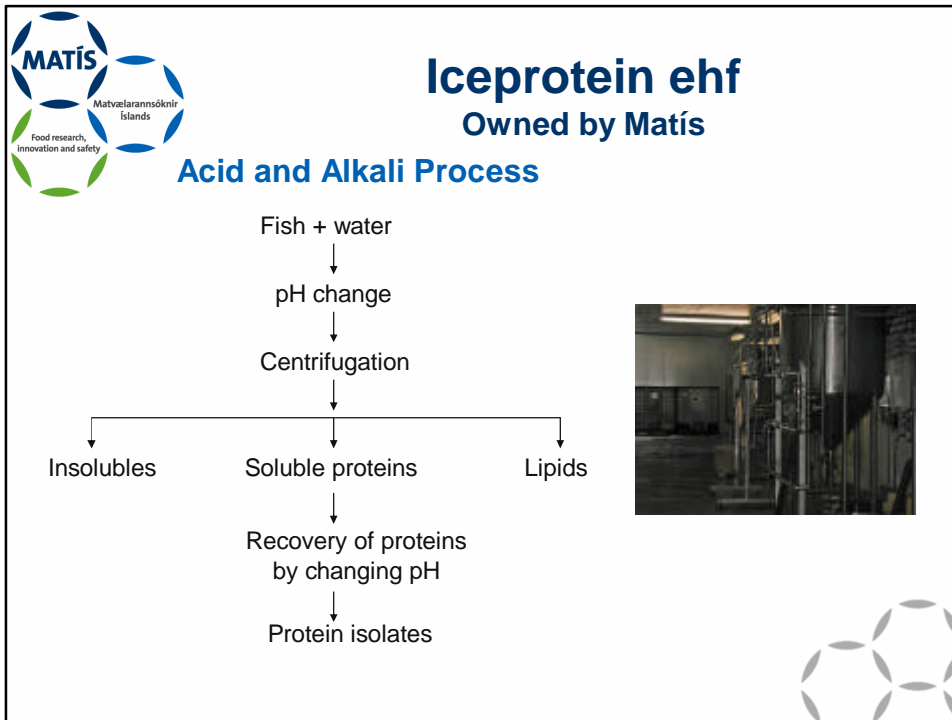
Kawamura Y, Sugimoto T, Takane T, Satake M.
Biologically active peptide from foodproteins (I) Angiotensin I-converting enzyme inhibiting peptides from water solublenprotein of **sardine** muscle. Biryō eiyōso kenkyū. **1989**;6:117-121.

Fujii M, Matsumura N, Mito, K, Shimizu T, Kuwahara M, Sugano S, Karaki H.
Antihypertensive peptides in autolysate of **bonito bowels** on spontaneously hypertensive rats. Biosci. Biotechnol Biochem. 1993;57(12):2186-2188.

HSIS symposium 6th. October 2005

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Iceprotein ehf Owned by Matis ohf

- Surimi like products
- Dried proteins
- Protein isolates



Cod Surimi
Fresh Fish Cake



Icelandic Biotech Companies

- Sero
 - ✍ Producers of flavour enhancers
- Northice
 - ✍ Producers of flavour enhancers
- Genis
 - ✍ Kitosan and oligosaccharides
- Prokaria
 - ✍ Genetic research and enzymatic development
- Zymetech
 - ✍ Age Management Formulation





Dr. Bragi

Dr Bragi Age Management Formulation

DrBRAGI

From the clear and pure waters off Iceland

- Marine Enzymes
- Penzyme: Trypsin and Chymotrypsin
- SOD for oxidation protection
- Simple Formulations
- Non-Allergic



Conclusions

- Risk/benefit analysis recommends more fish consumption
- Focus on your fish
- Focus on freshness
- Focus on the “function of your products”
- Collaborate with others in “health claims verification”

The fish should be from a sustainable source and free of contaminants. The supply should be steady and in amounts justifying the great and expensive effort needed to develop and market proteins and peptides.