

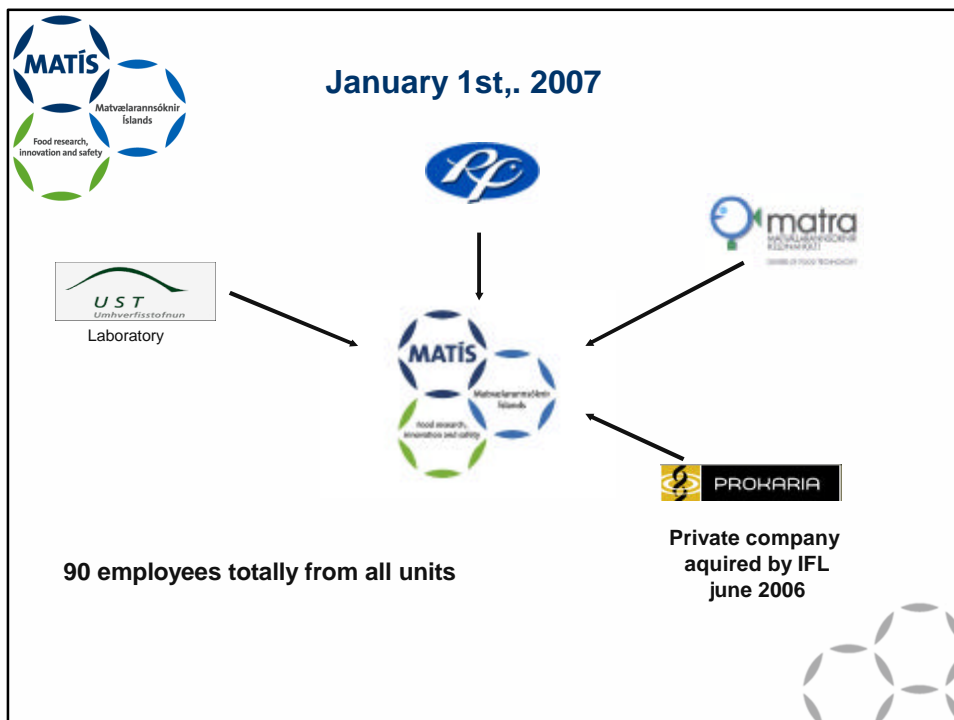


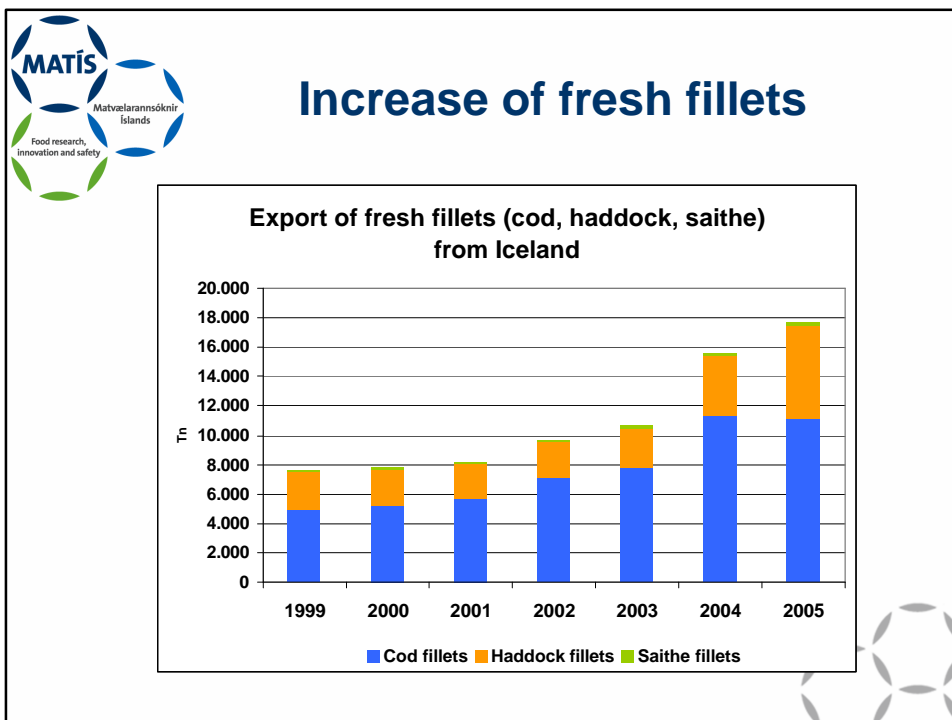
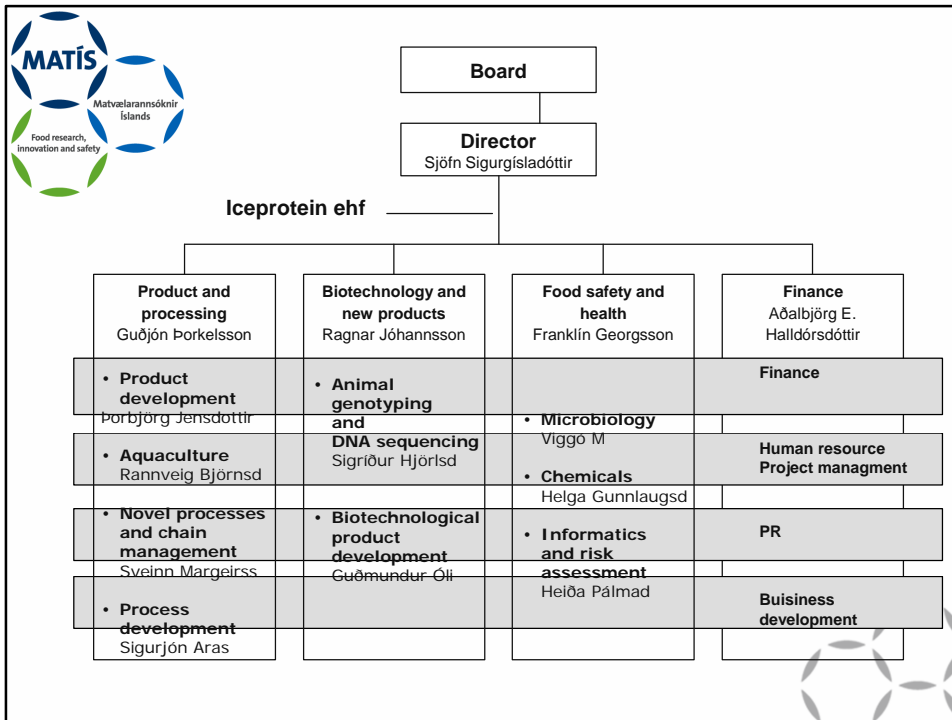
Hvordan går utviklingen på Island?

Hannes Hafsteinsson, Ph.D.
EU Business Developer

Sjöfn Sigurgísladóttir, Ph.D.
Director

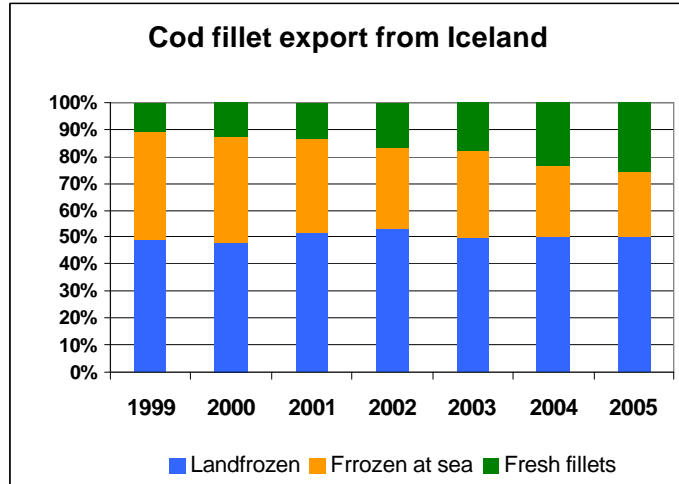
Matis ohf, Reykjavik, Iceland



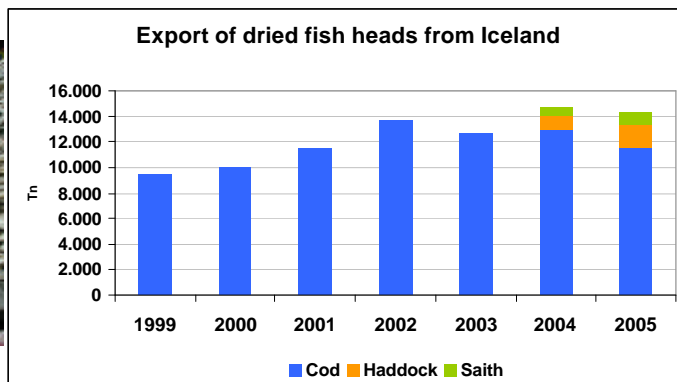




Production of cod fillets Increase of fresh, decrease of FAS



Dried fish heads



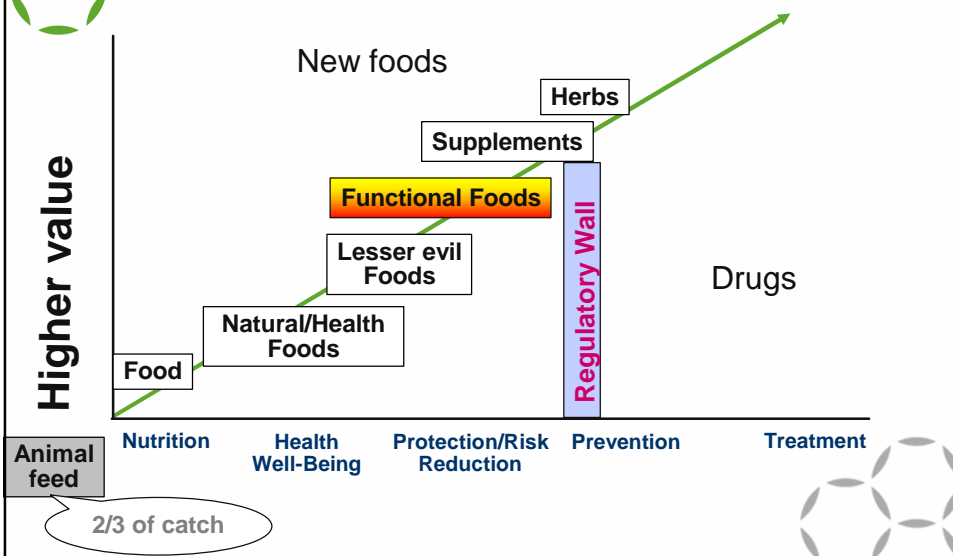


New opportunities - aquaculture

- 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....

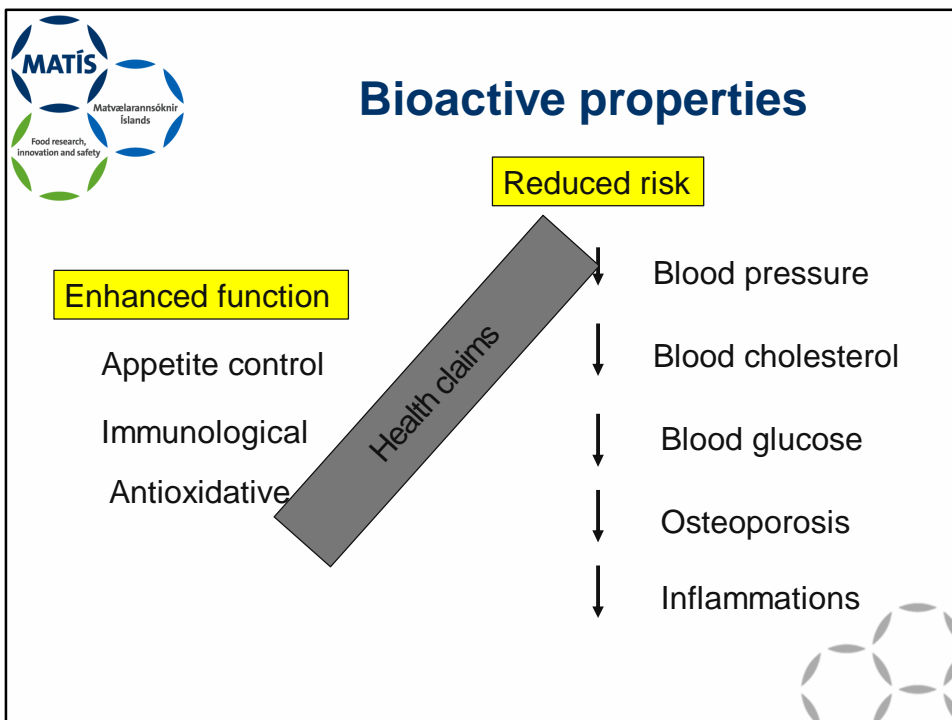
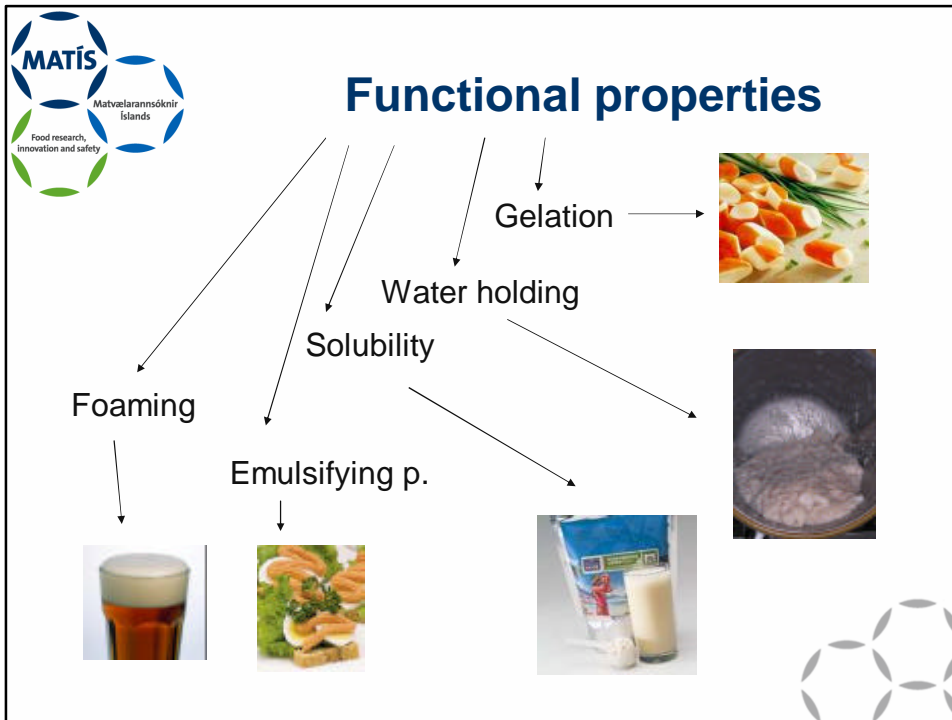
the medicine cabinet

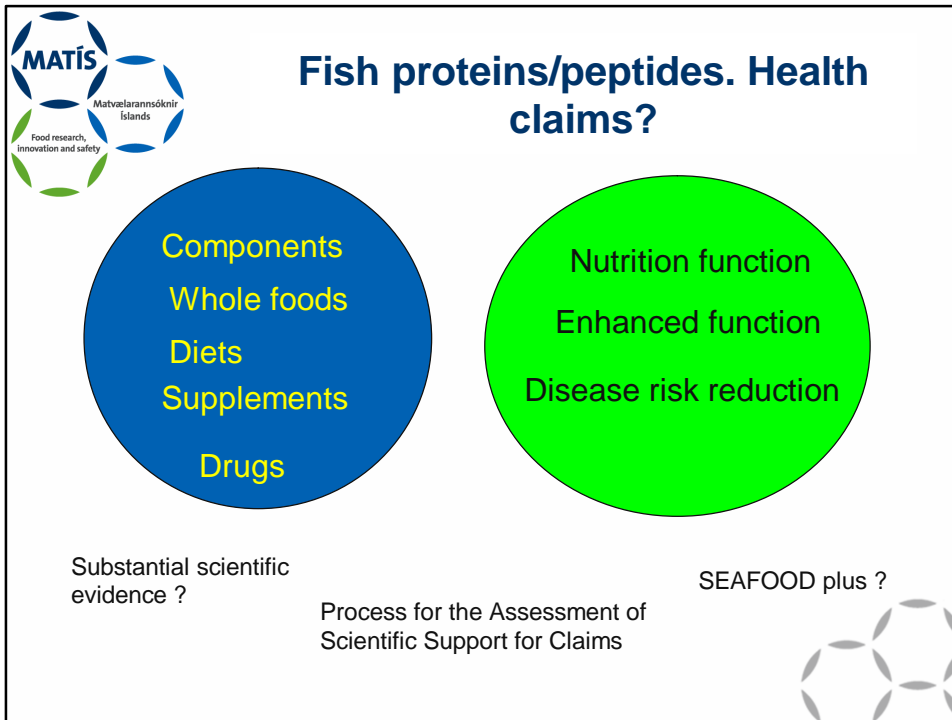


Dairy – Seafood

- 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 ?)







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

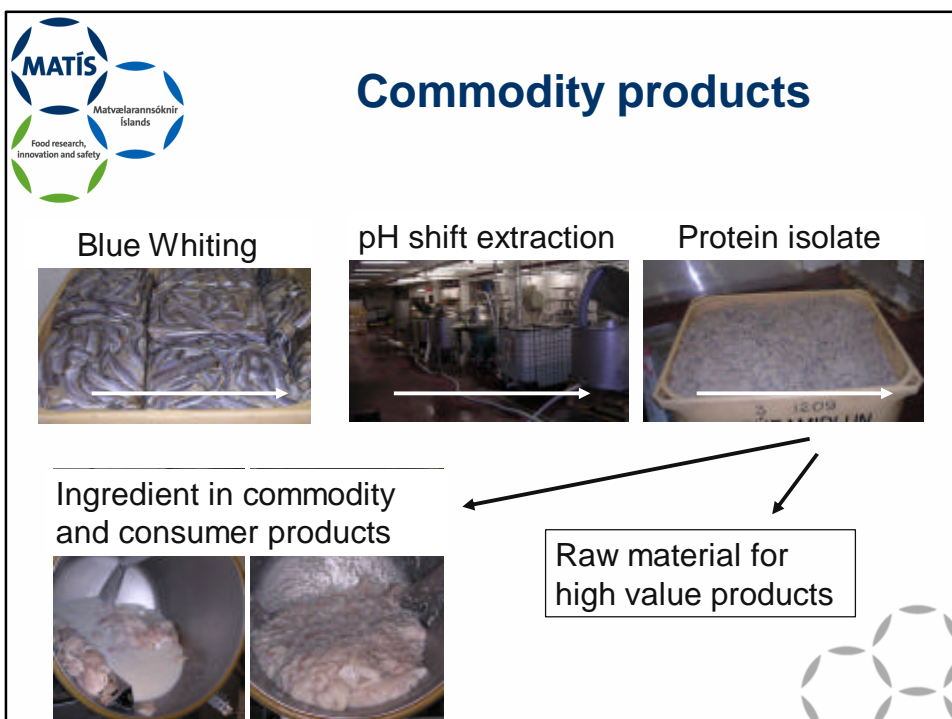
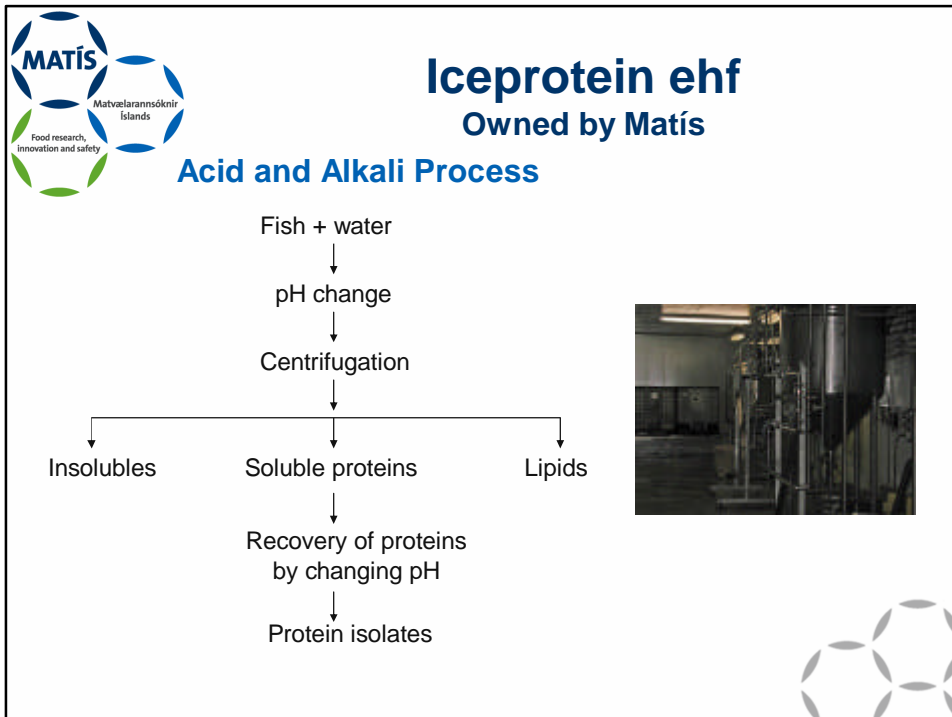
Kohama Y, Matsumoto S, Oka H, Teramoto T, Okabe M, Mimura T.
Isolation of angiotensin I converting enzyme inhibitor from **tuna** muscle. Biochem biophys rescommun. **1988**;155:332-337.

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. Biryo eiyouso kenkyu. **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**

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.

