

Elixir – Norway & Galaxy

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Data generation in Life Sciences



Cost per genome:

2003 US\$ 3,000,000,000

2013 US\$ 5000



Cost of Ferrari Spider

2003 : US\$ 398,000

2013 : US\$ 65 cents

Challenges in Life Sciences

- ◆ Manage the data deluge
- ◆ Data management and sharing
 - ◆ Molecular data generation is faster than developments in storage and processing
- ◆ Analysing the data
- ◆ Integrate the data to reduce fragmentation of efforts and research
- ◆ Exploit new types of data

Elixir Project

“Construct and operate sustainable infrastructure for life sciences”

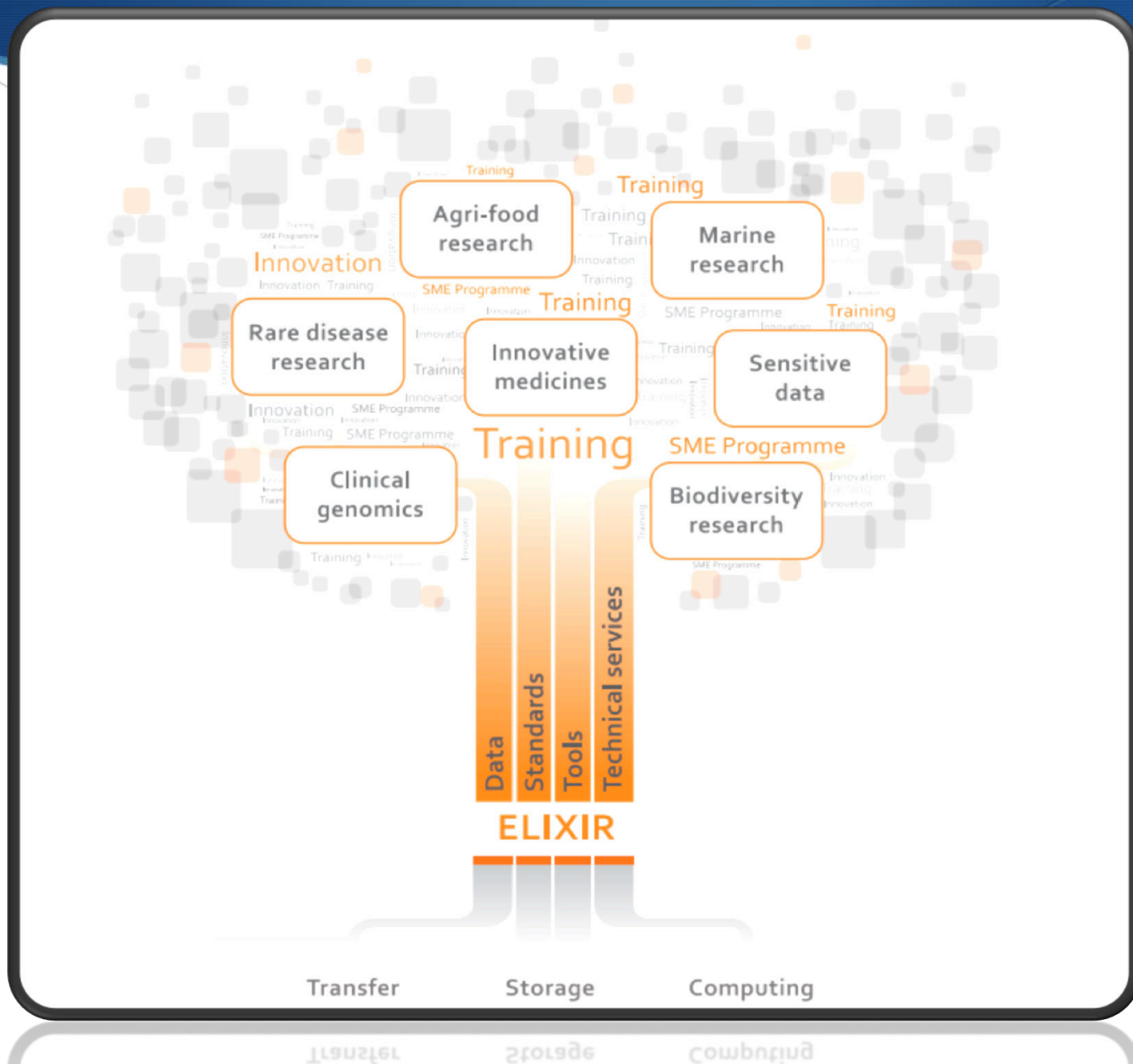


2007 – 2013 : Preparatory
phase

2013 : Permanent phase

Elixir Europe





Elixir Norway

- Funded by the Research Council of Norway for 2013-2015 (2017)
- Will offer a *state of the art* research based infrastructure and services to Norwegian users in academia, industry, and government
 - Build and offer an e-infrastructure for users within molecular life science
 - Provide *state of the art* bioinformatics support (helpdesk)
 - Ensure that Norwegian data are stored in standardized formats – supporting re-use of data
 - **Selected services will be offered to Europe**

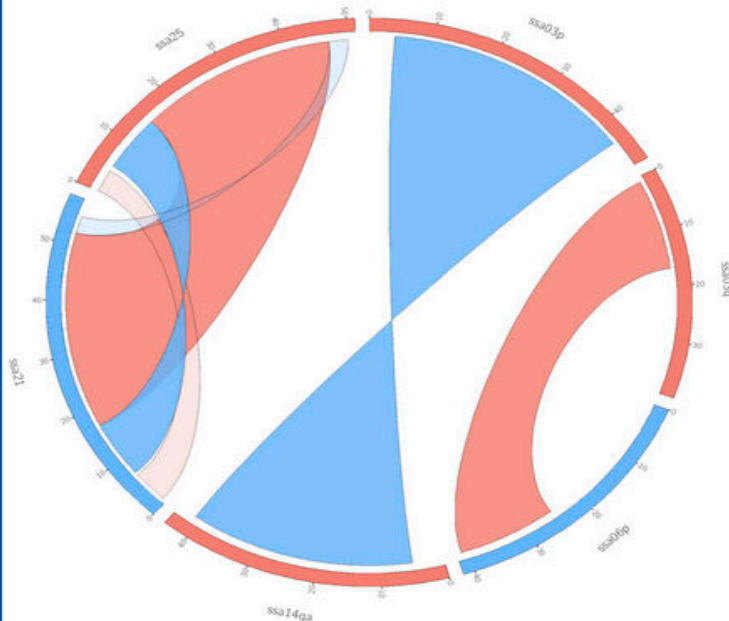
Elixir Norway Nodes



Work Packages



SalmoBase

[Home](#)[BLAST Search](#)[GBrowse](#)[Download](#)[Contact Us](#)

Conserved synteny blocks on ssa21 and ssa25, ssa03 and ssa06, ssa03 and ssa14 . Sequence scaffolds were ordered by linkage maps. Plot by

Quick gene search:

The Sequencing Project

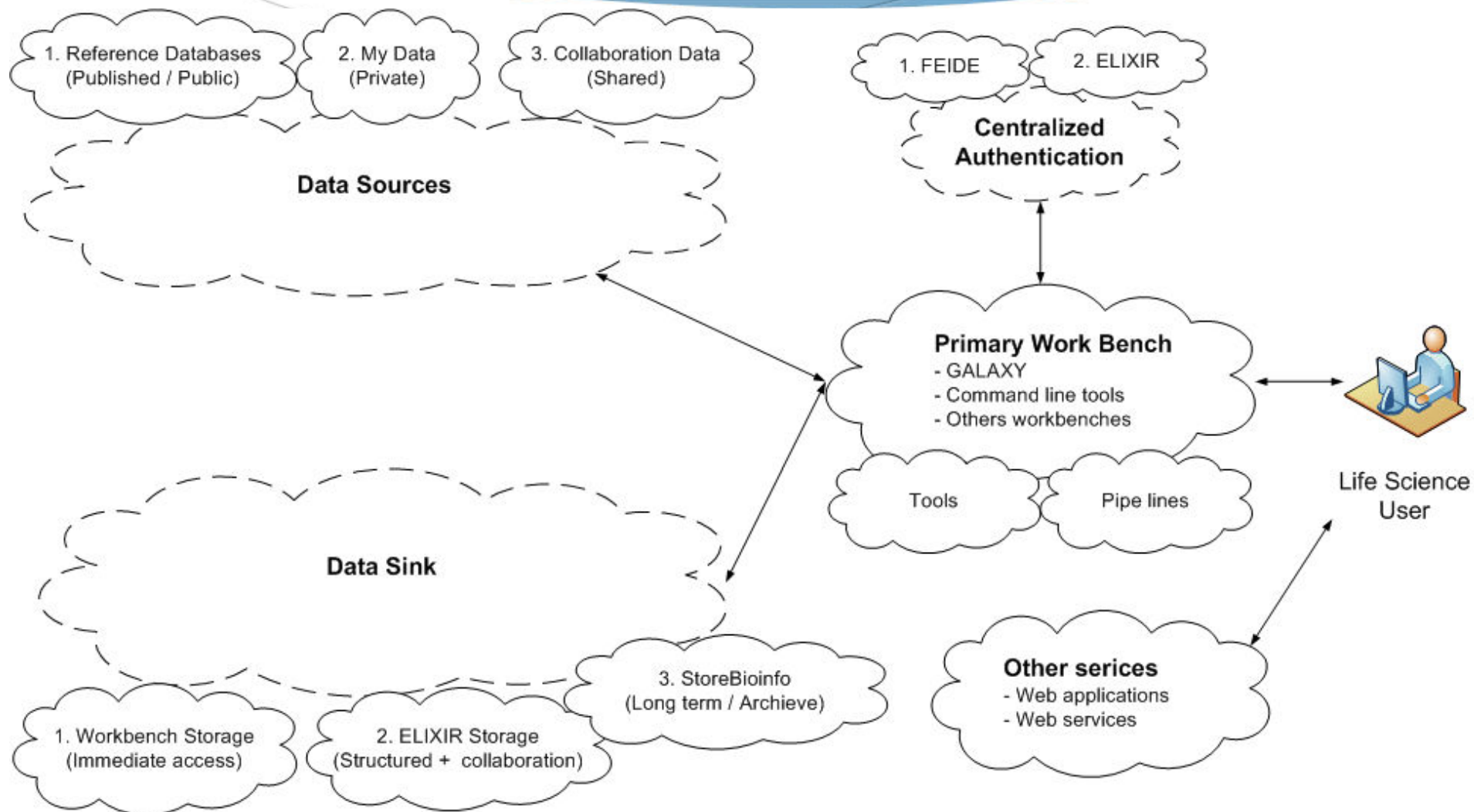
The International Cooperation to Sequence the Atlantic Salmon Genome (ICSASG) will produce a genome sequence that identifies and physically maps all genes in the Atlantic salmon genome and acts as a reference sequence for other Salmonids. The motivation for this is to better understand the biology of Salmonids as it relates to sustainable aquaculture, conservation of wild fish and aquatic health among other things. The White Paper describing the sequencing project can be found [here](#).

GBrowse has been established by researchers at [CIGENE/IHA](#), Norwegian University of Life Sciences, in association with the [ELIXIR.NO](#). It presents both the latest [S. salar assembly](#) and includes various metadata such as gene content.

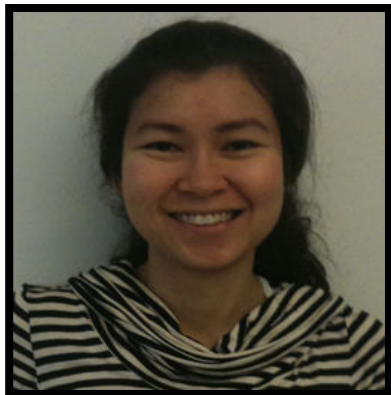
The International Cooperation to Sequence the Atlantic Salmon Genome (ICSASG) is supported by the following organizations:

1. [Research Council of Norway \(RCN\)](#)
2. [Norwegian Seafood Research Fund-FHF](#)
3. [Genome BC](#)
4. [The Chilean Economic Development Agency – CORFO and InnovaChile Committee](#)
5. Marine Harvest, AquaGen, Cermaq and Salmobreed provide support through the FHF

NeLS – Norwegian e-Infrastructure for Life Science



The NeLS system from a Life Science user's perspective



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Galaxy in Marine Genomics

Davidson et al. *Genome Biology* 2010, 11:403
<http://genomebiology.com/2010/11/9/403>



OPEN LETTER

Sequencing the genome of the Atlantic salmon (*Salmo salar*)

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Abstract

The International Collaboration to Sequence the Atlantic Salmon Genome (ICSASG) will produce a genome sequence that identifies and physically maps all genes in the Atlantic salmon genome and acts as a reference sequence for other salmonids.

Economic, societal and scientific importance of salmonids

The family Salmonidae comprises 11 genera and includes salmon, trout, char, freshwater whitefishes, ciscos and graylings [1]. Many salmonid species are of considerable economic, social and environmental importance. Salmonids

play pivotal roles in generating gene diversity and the functional specialization found in modern vertebrates [3]. How a genome reorganizes itself to cope with duplicated chromosomes and the importance of gene duplications for evolution and adaptation are long-standing issues in biology that remain unresolved [3,4].

As illustrated in Table S1 in Additional file 1, no other group of fish species receives such comprehensive combined commercial and scientific attention as the salmonids [5], but as yet there is no genome sequence available for any salmonid. The genome of the Atlantic salmon (*Salmo salar*) was selected to be the reference sequence for all salmonids on the basis of its importance for the aquaculture industry and because so much



Thank You