

Jonas Bernatchez
Salmon Epigenetics

NK Ubiquitous
Controls Adaptive Traits
Inheritance

Platt → OAK

Methylation

Skinner → Darwin Finch

→ GBB Neo lamarkian

Moran → Brown Trout

Diet.

Rainbow Trout
Resident Smolt

Venney - Inbreeding
affects DNA methylation
Candidate gene specific

- A ... D ... A

Two Ungary papers

Whitefish

Benthic Planktonic

Genes / proteins different

Nucleotide div 0.0003

90% SNPs non coding

postzygotic isolation

Hypothesis: transposable
instability

Overexpression
of TE in Melford
Hybrids

GDH: Methylome

RRBS

Methylation Different Forms

Loho

- short term

Effect of rearing

Single generation
Genetic Adaptation

↓
prints Blown

Methylation??
EPIC 4

Wild v. Hatchery

RRBS →

DNA → 20k Snps

Methylation Regions 1kb

Regions 3 CpG Avg Methylation

122 OMRS

4/2 → genes

within 5Kb

Functional Annotations

→ Immune
Response

Loi?

Most Different?

Random Forest
Most Important
markers

→
Average Differ
forms > 70%

394 RF Selected
Markers

Transgressive Pattern

Genetics?

Transposons?
ICI marker

DNM

Serotonin 5-HT-1C_{reap}
↑ more Methylation
hatching

GABA

Summary

1) Rapid env-induced
change

2) Adaptive difference

3) post zygotic
isolation

Pattern Hybrids
Unique