



**Nofima**



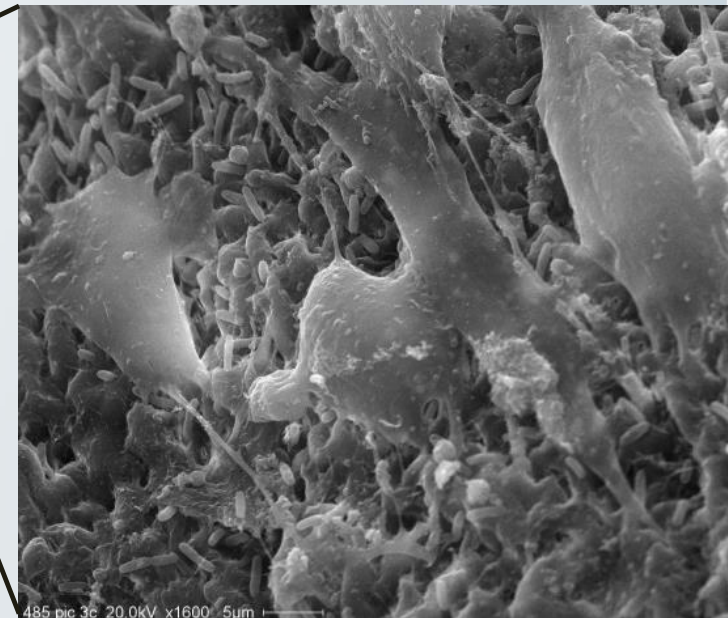
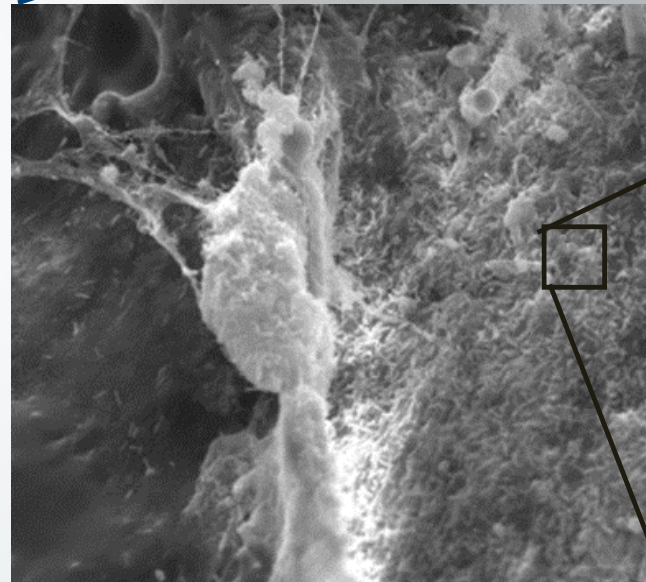
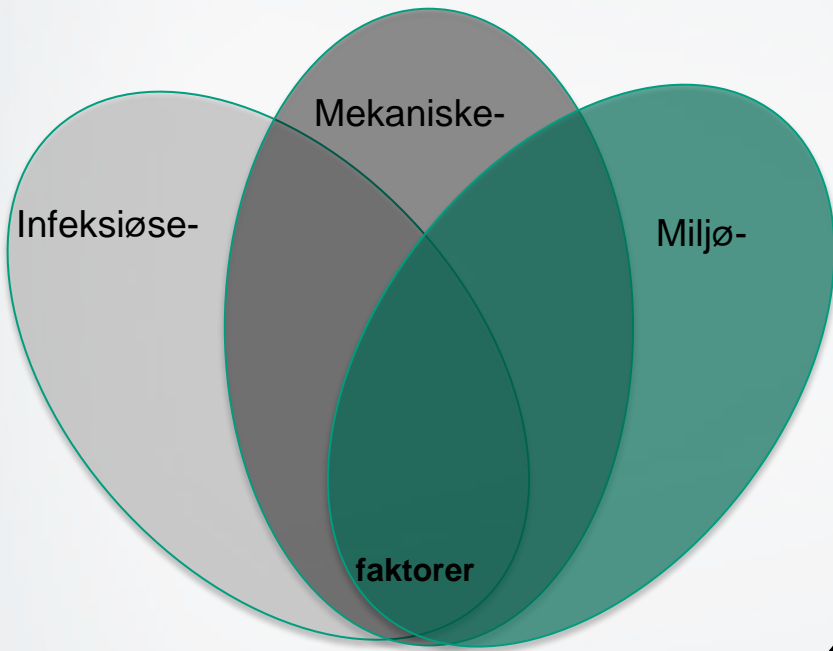
# Mikrobiota i sår - en genomisk innsikt i karakteriseringen av sårbakterier.

Christian Karlsen

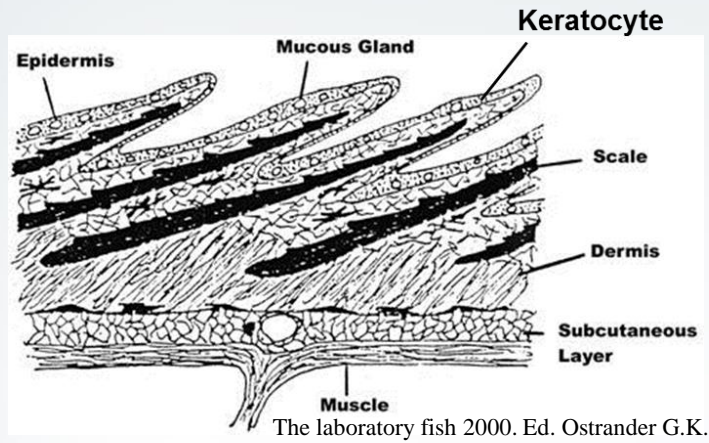


# Sår

Sammensatt

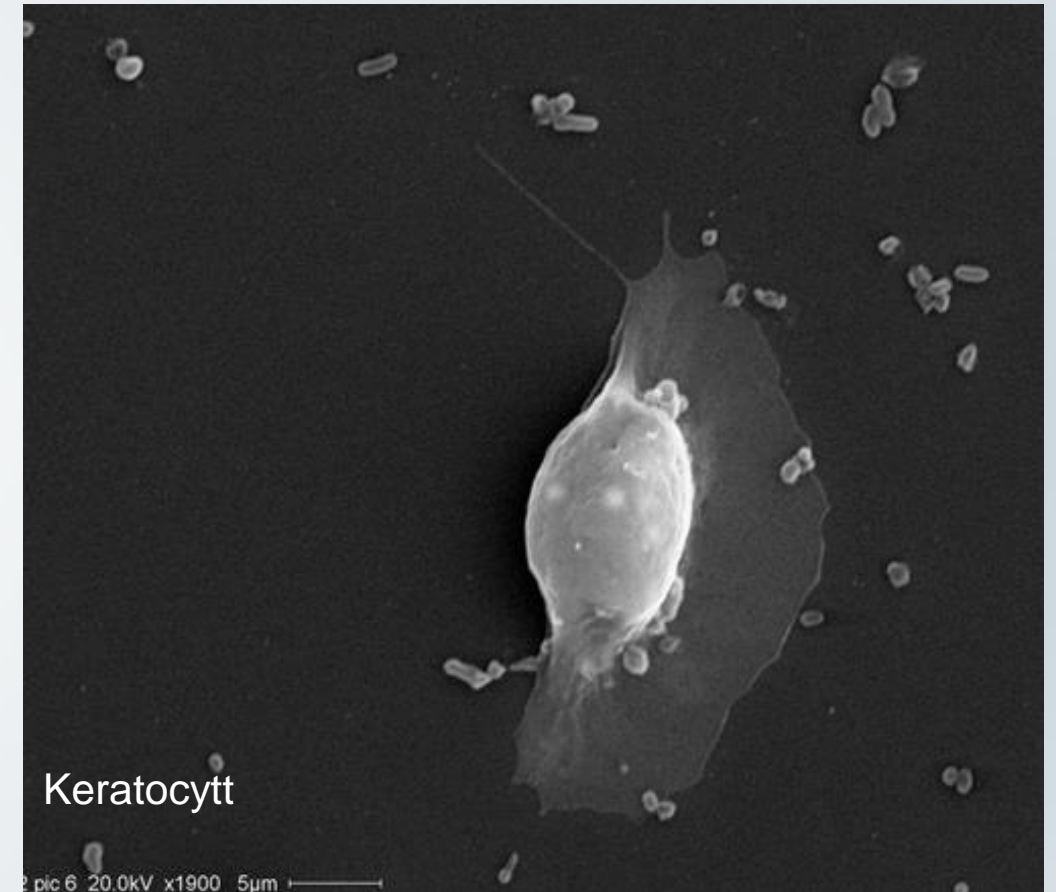
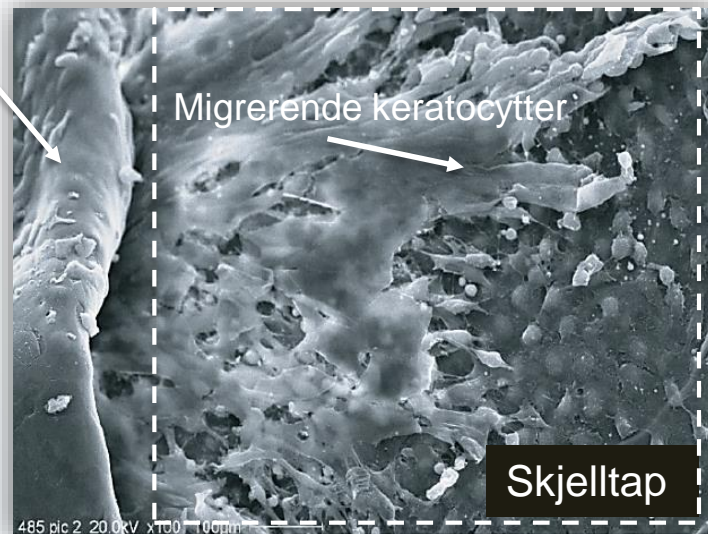


# Hud og barriererefunksjoner



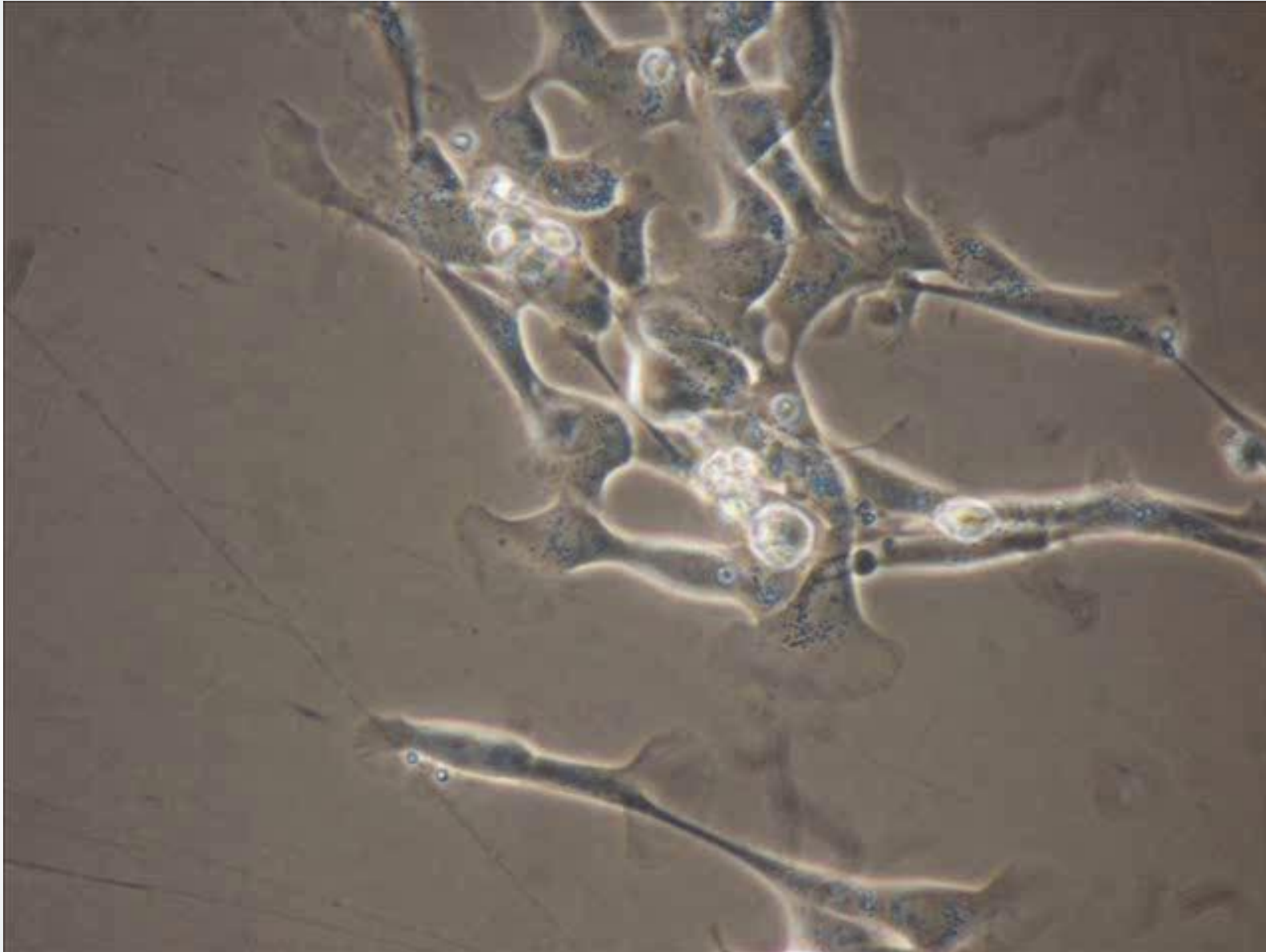
Keratocytter migrerer for å dekke såroverflater

Skjell



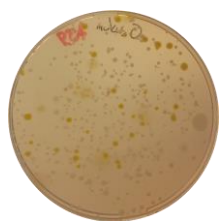


# Hud og barrierefunksjoner



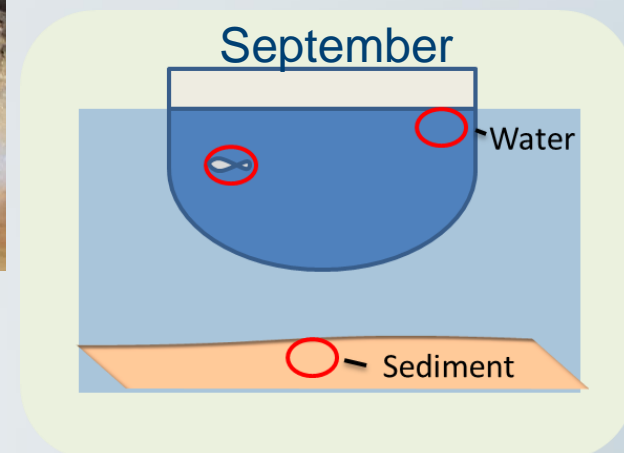
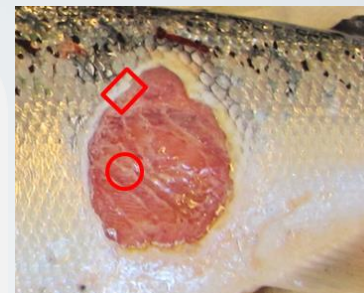
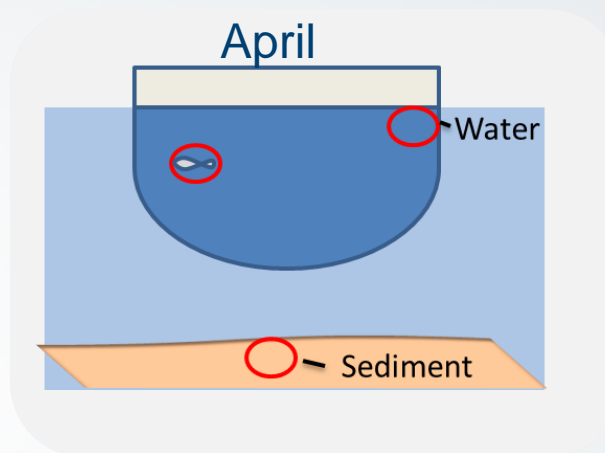
# Sår i felt

flere bakterier isoleres



*Tenacibaculum*  
*Moritella viscosa*  
*Aliivibrio wodanis*

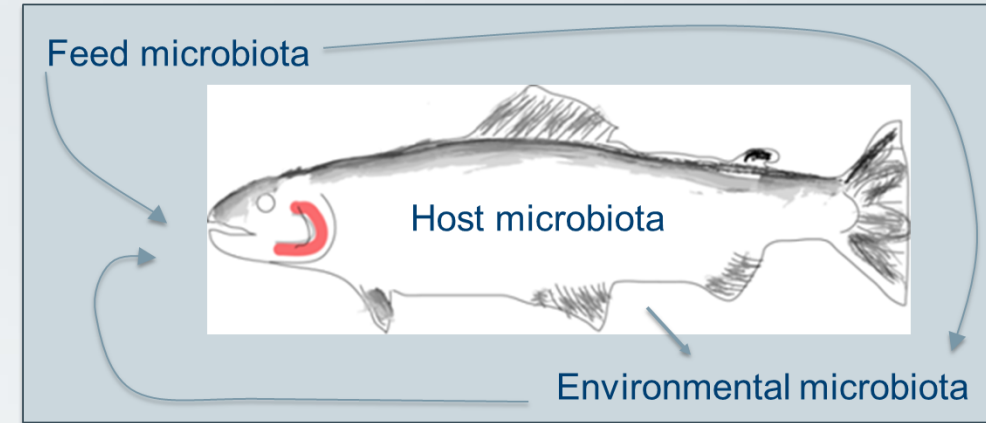
## Hva observeres med molekylære metoder



# Mikrobiota

Mikrober og fisk deler det samme miljøet

Utnytte funksjonaliteten i disse samfunnene



THE NATIONAL

# MICROBIOME

INITIATIVE

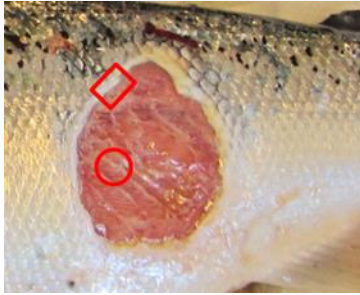
\$500 million

- What's a healthy one?
- What's normal?
- What is the functionality?
- How do we change them?



[www.theatlantic.com/science/archive/](http://www.theatlantic.com/science/archive/)

# Klassiske vintersår – *Moritella viscosa*



## Bakterielle interaksjoner

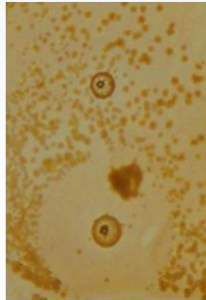
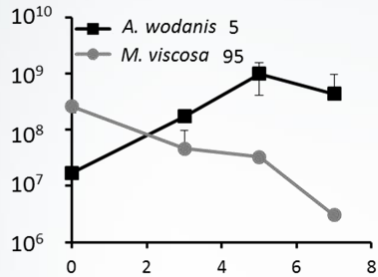
Når forskjellige bakterietyper interagerer – hva vil skje?

- Uaffisert
- Samarbeid
- Konkurrerende

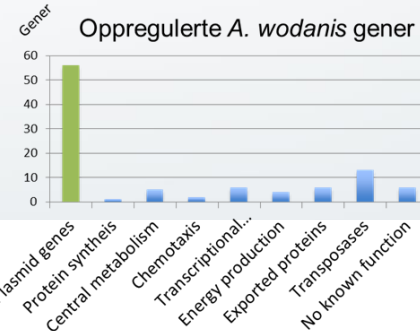
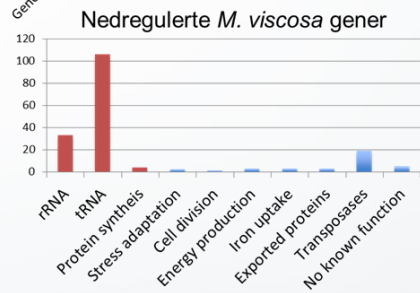
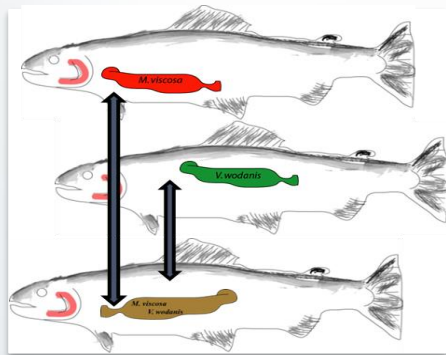


# A. wodanis effekten på M. viscosa

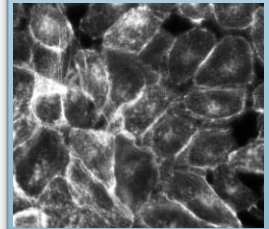
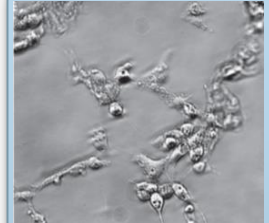
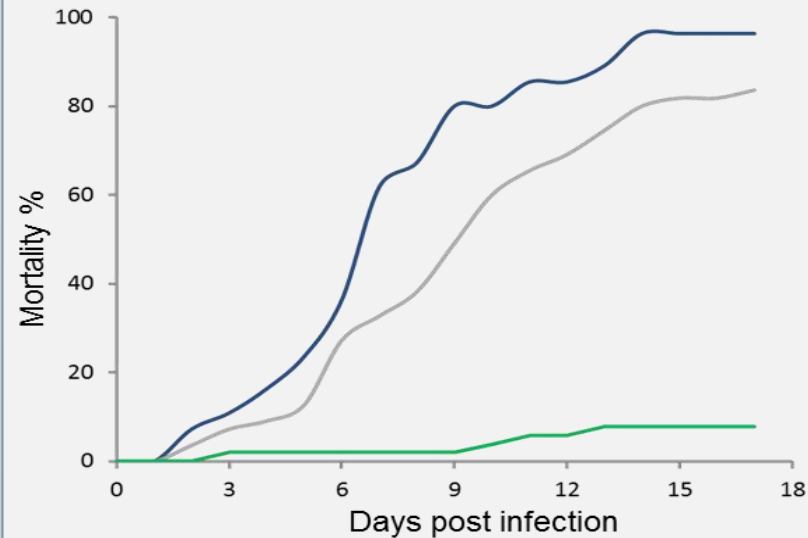
## Bakterier kan inhibere M. viscosa



## ... påvirke genuttryket



## Kanskje også sykdomsforløpet



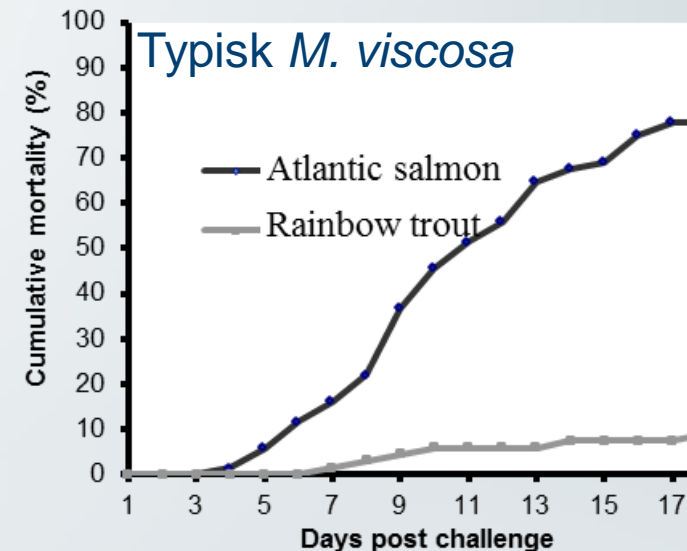
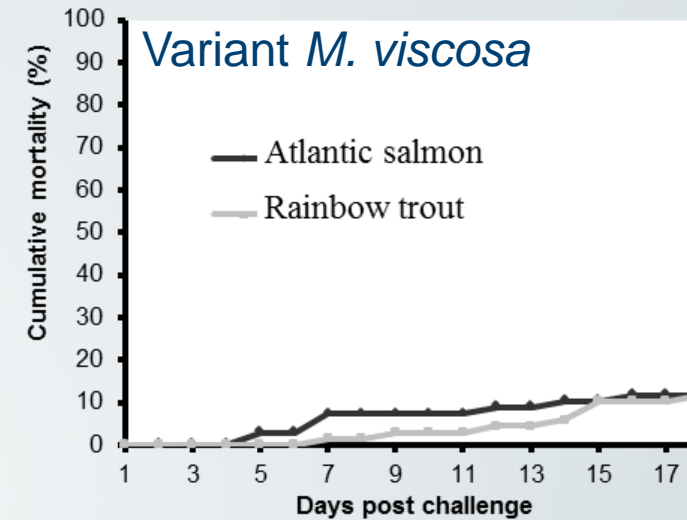
A. wodanis –  
cytotoksisk,  
aktindegraderende  
finneråte

# Klassiske vintersår

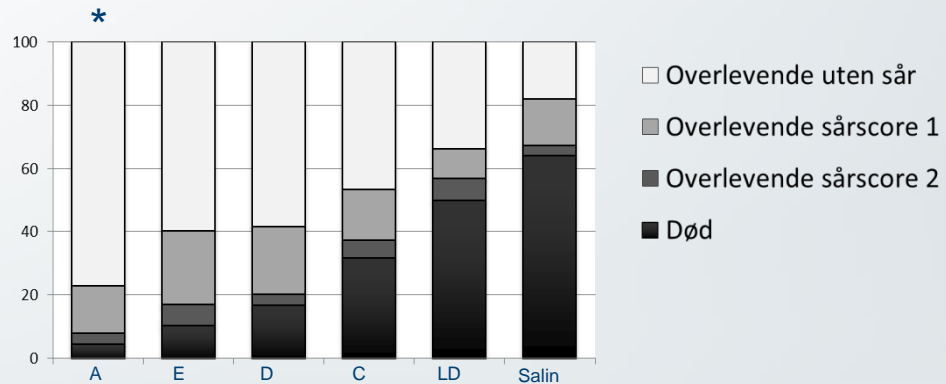
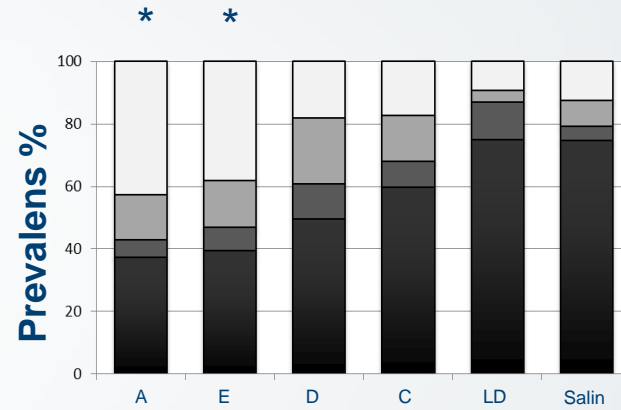
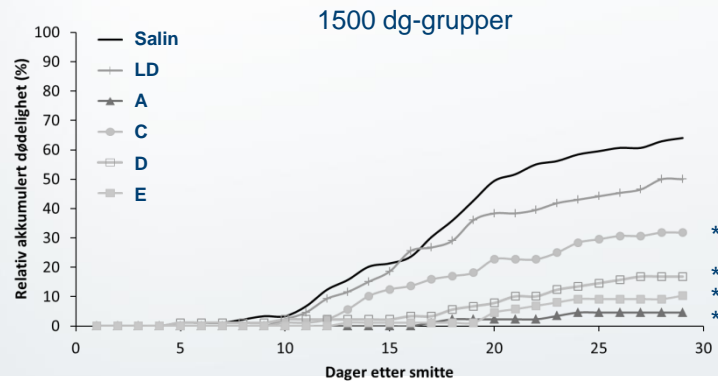
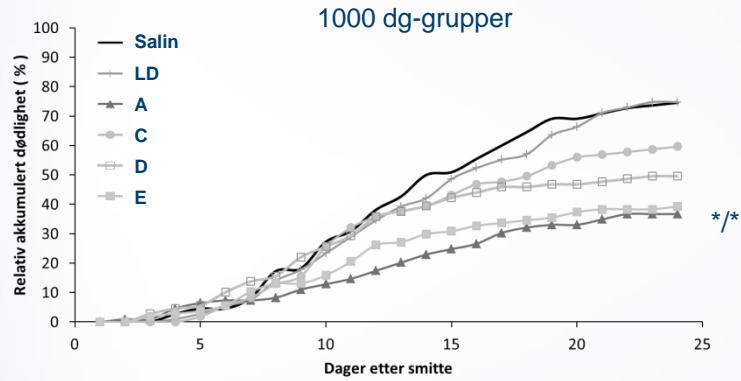
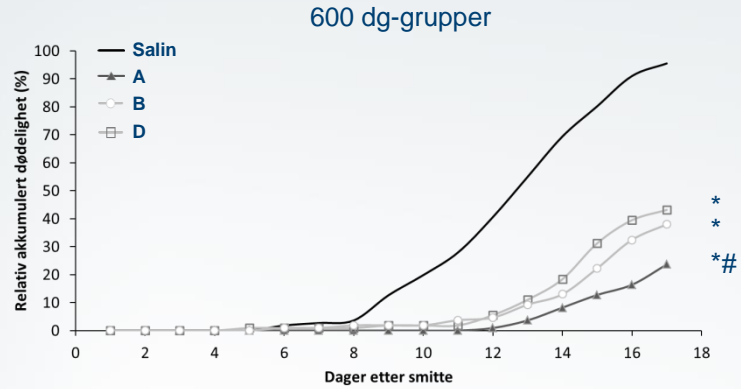
## *Moritella viscosa*

- **Dødelighet:** sammenheng mellom eksponert del og dødelighet
- **Sårdannelse:** Signifikant til eksponert del

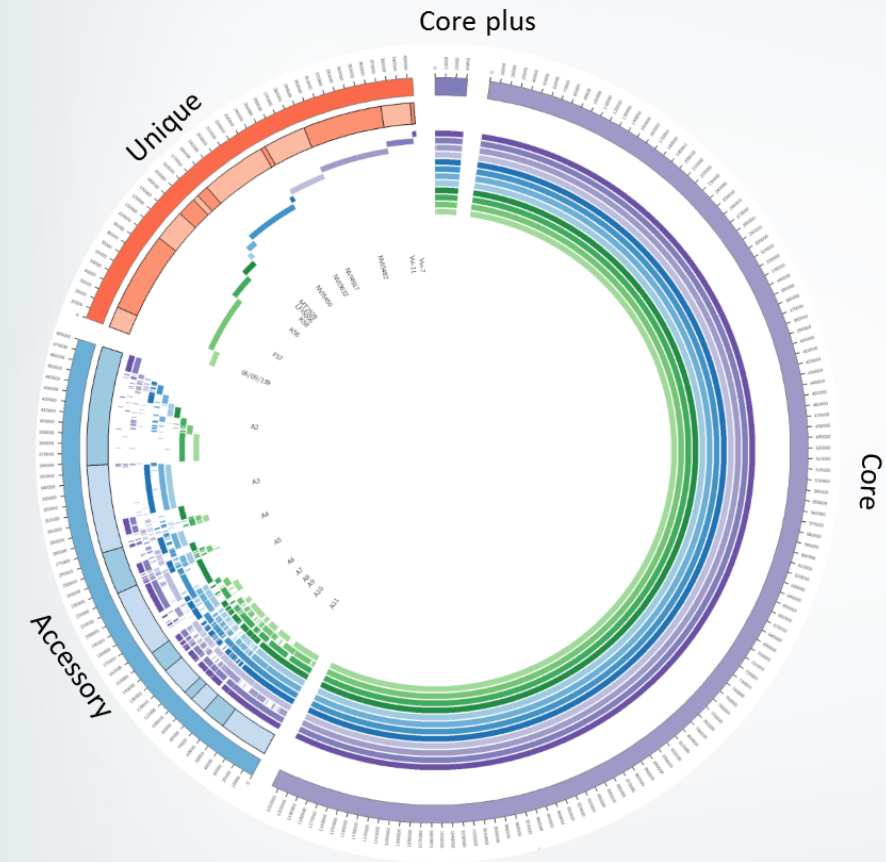
### Smitteforsøk



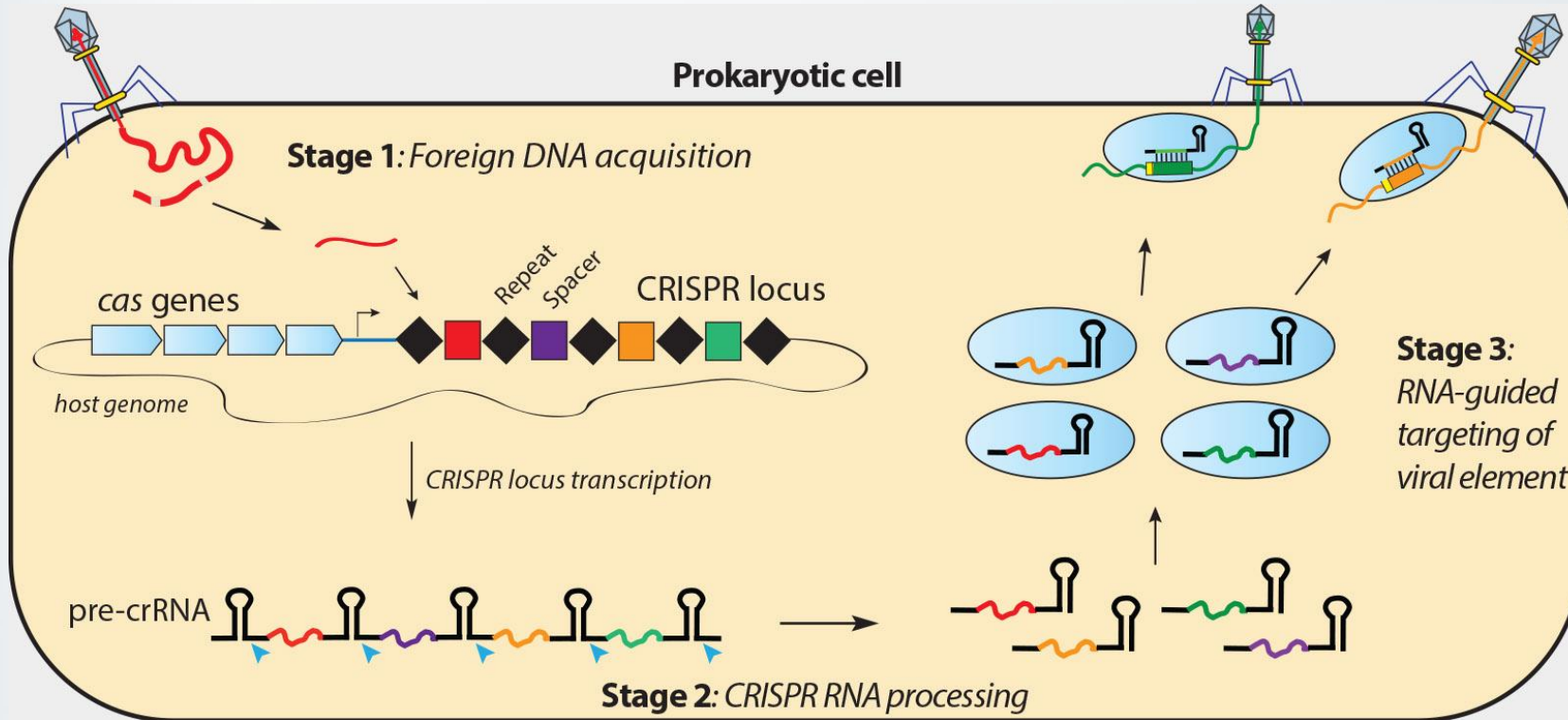
# Vaksineforsøk



# *M. viscosa* komparativ genomikk



# Bakterier har adaptiv immunitet



## CRISPR

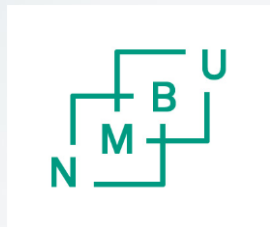
Clustered Regularly Interspaced  
Short Palindromic Repeats

- Evolusjon
- Epidemiologi/  
utbredelse
- Miljø

<http://rna.berkeley.edu/crispr.html>



# Prosjektpartnere



NMBU, MatInf  
Henning Sørum



UiT, Molekylære Biosystemer  
Erik Hjerde  
Nils Peder Willassen



Cermaq  
Karl Fredrik Ottem  
Øyvind Brevik



Veterinærinstituttet  
Norwegian Veterinary Institute

VI, Bakteriologi - fisk og dyr  
Duncan Colquhoun

