

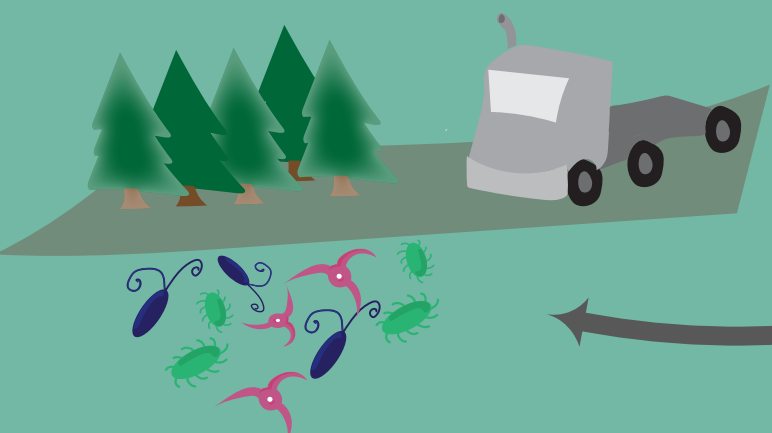
LIGNIN

Harnessing Microbial Diversity for Sustainable Use of Forest Biomass Resources

Theme #1

Health of Living Trees

What we want to know:
If and how the soil microorganisms, which are essential for the nutrition of trees, are affected by logging.



Why?

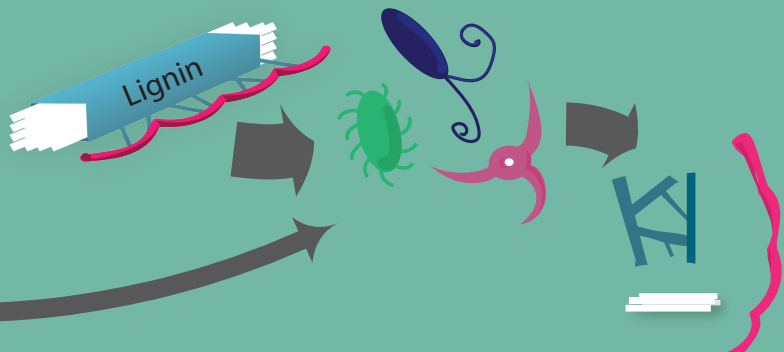
There are serious concerns that repeated logging has long-term consequences on the sustainability of forests.



Theme #2

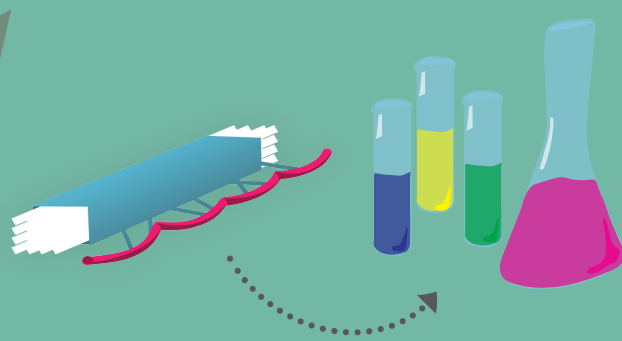
Added Value of Lignin, a Forest Industry Waste

What we want to do:
Find a soil bacterium that degrades lignin into valuable materials and industrial chemicals.



Why?

Lignin, a tough and complex molecule that gives wood its strength, cannot be transformed economically into useful products.



What is in our toolbox?

The power of genomics to examine the DNA of ALL microbes in the soil since they have the natural ability to degrade wood.



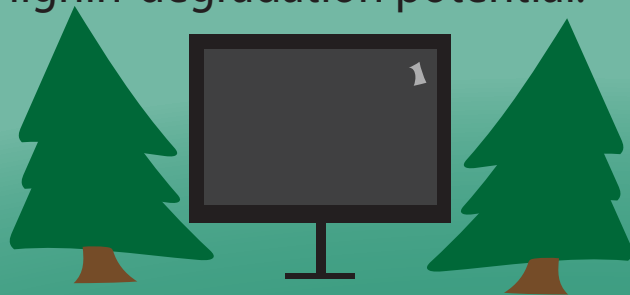
There are more microorganisms in the soil than all the stars in the sky, and even more than the number of neurons and neuron connections in your brain.



Who is working on this?

The Mohn Lab

is studying the entire soil microbial community to assess the impacts of logging on forest health. They are also searching for microorganisms with lignin-degradation potential.



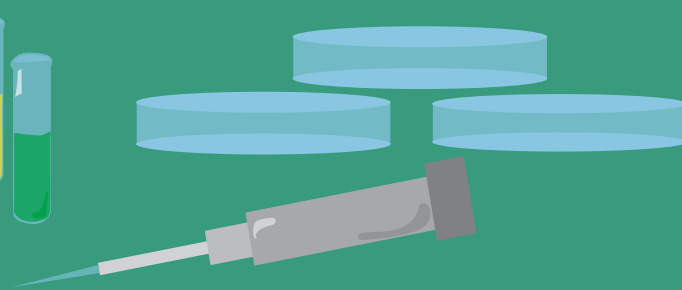
The Hallam Lab

is searching for DNA signals that would indicate lignin-transformation properties.



The Eltis Lab

is searching for lignin-transformation potential in known bacteria.



The Ko Lab

is examining how lignin is modified by bacteria, and is using engineering tools to transform regular lignin and bacteria-transformed lignin into useful products, such as carbon fibres and bioplastics.