

# **Selection**

## **Evolution & Ecology**

**Jacopo Grilli, Ciudad de Guatemala, 27/11/2025**

# Plan

L1 - Exponential growth

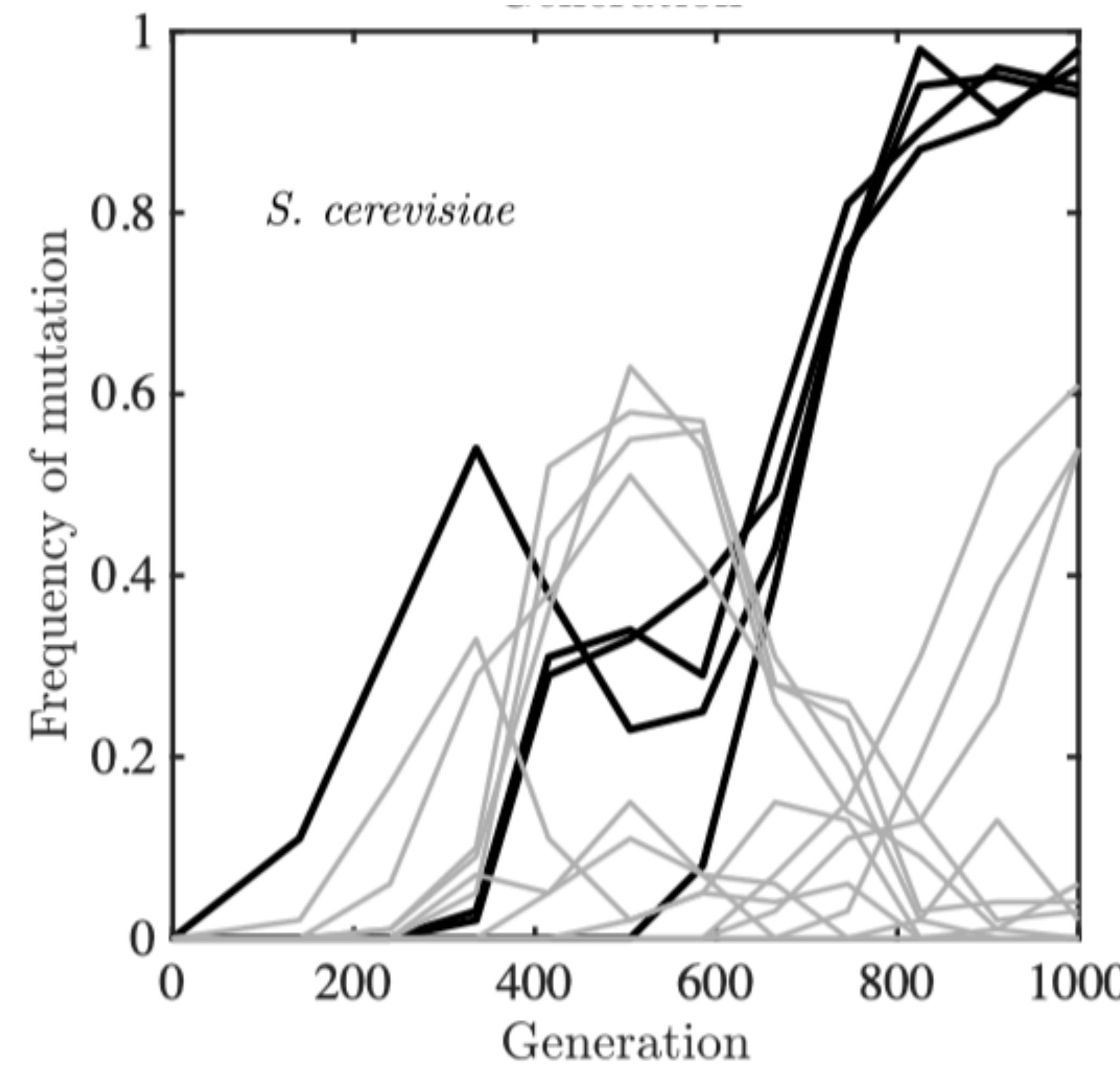
L2 - Mutations

L3 - Selection

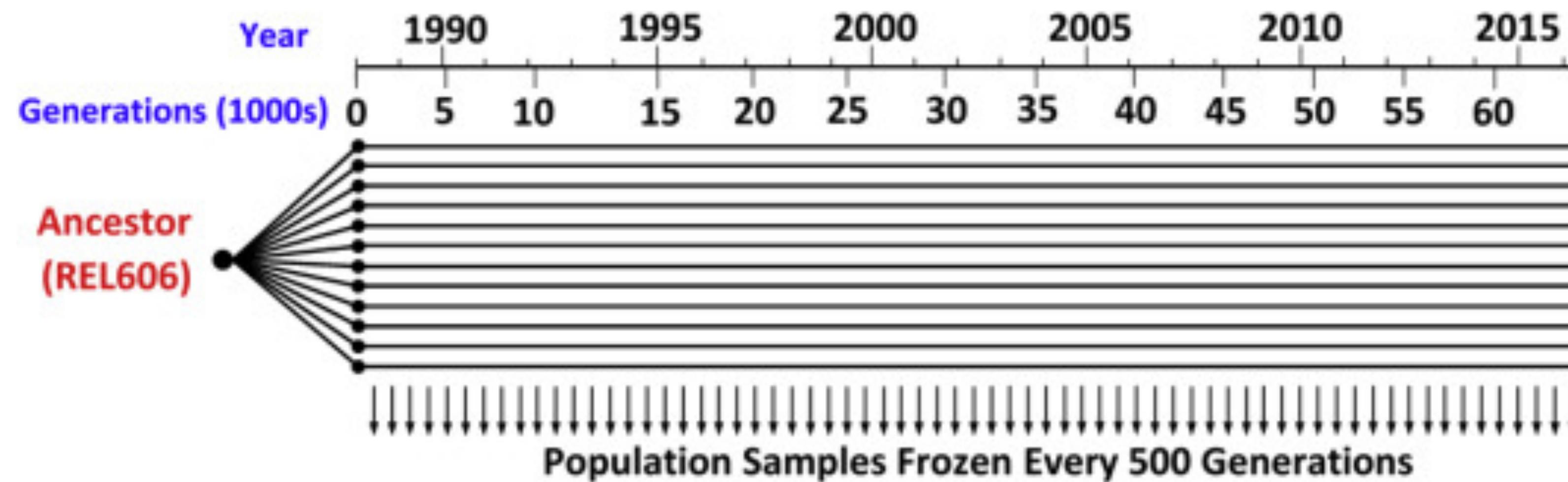
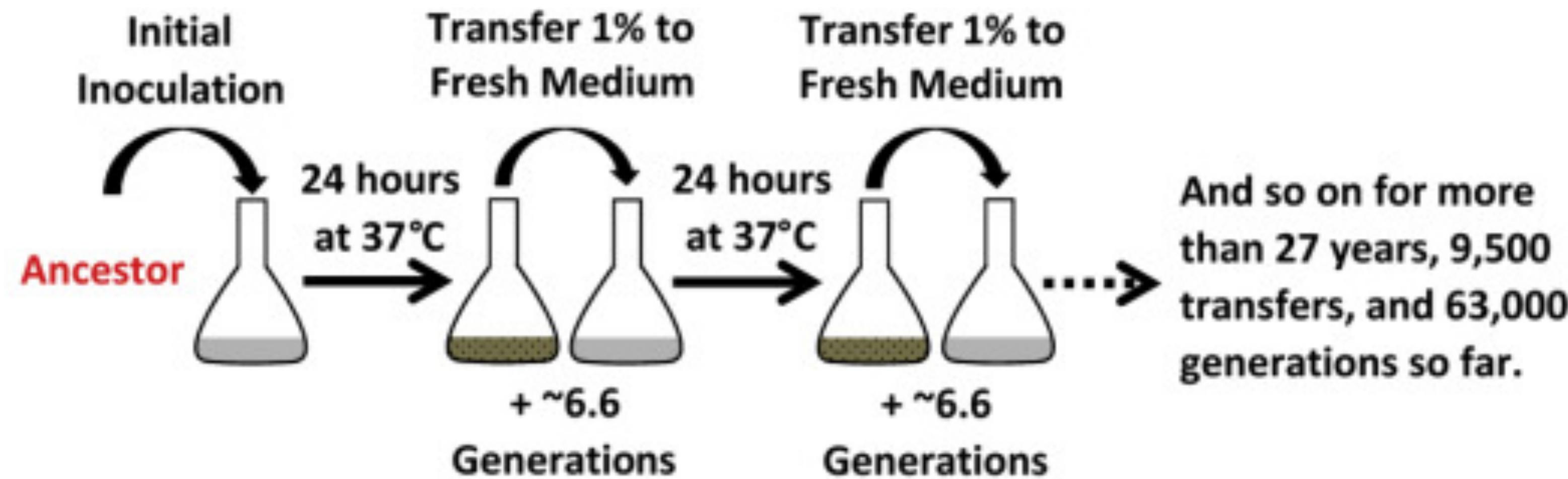
L4 - Ecology

L5 - Eco-Evo

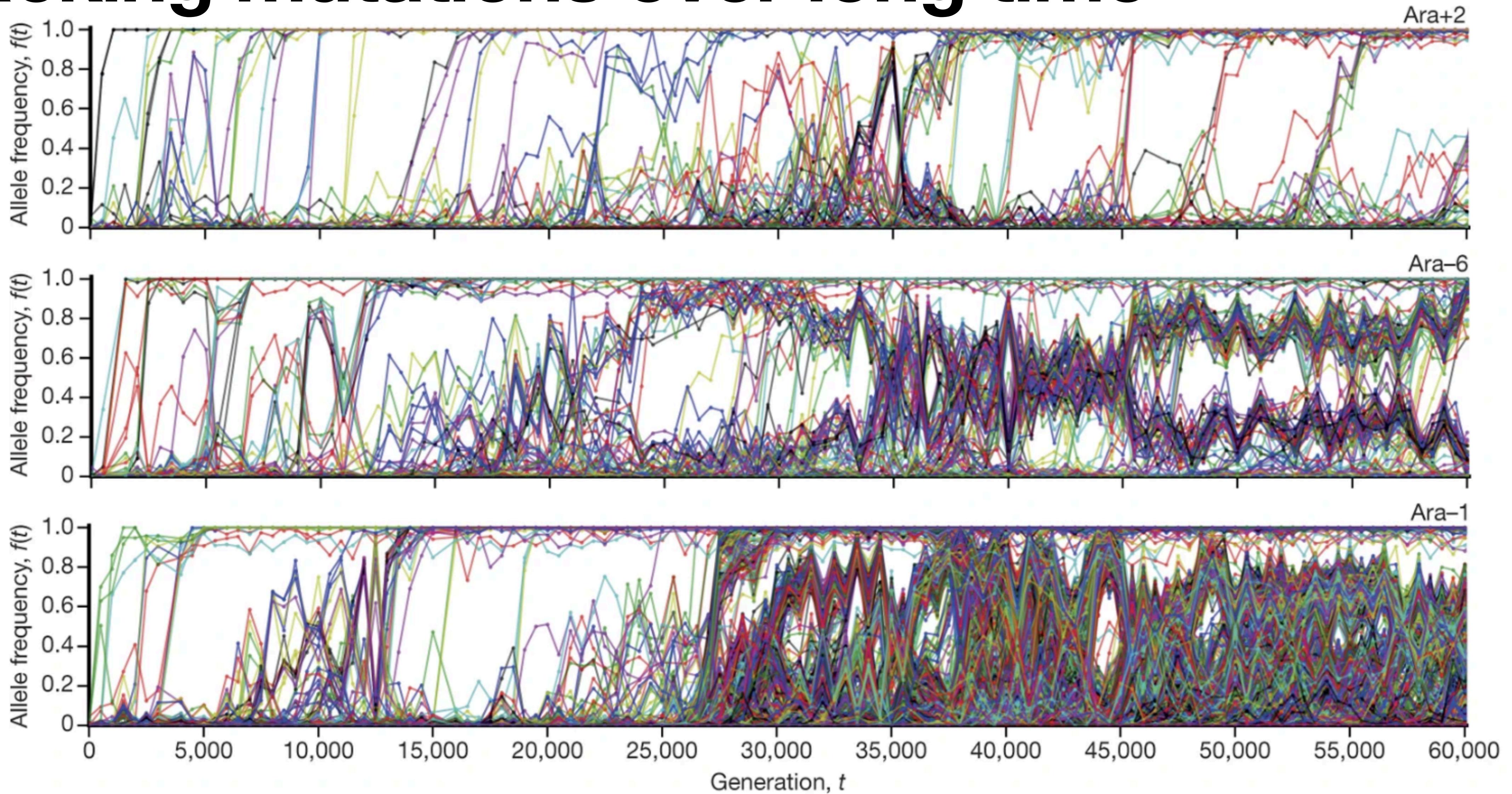
# Evolution in the lab, tracking mutations



# Long-term Evolution Experiment



# Tracking mutations over long time



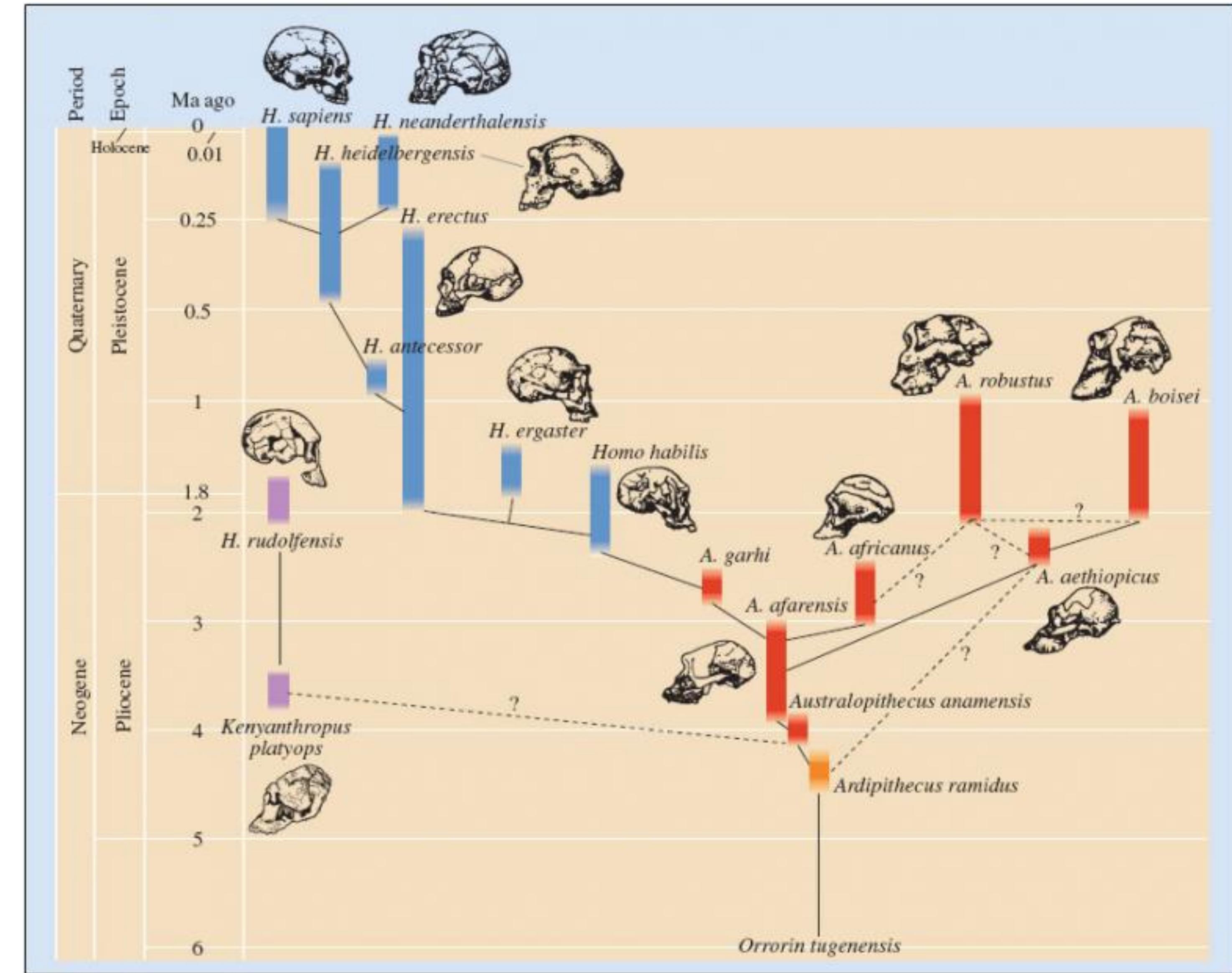
# Long-term is really long-term

75000 generations

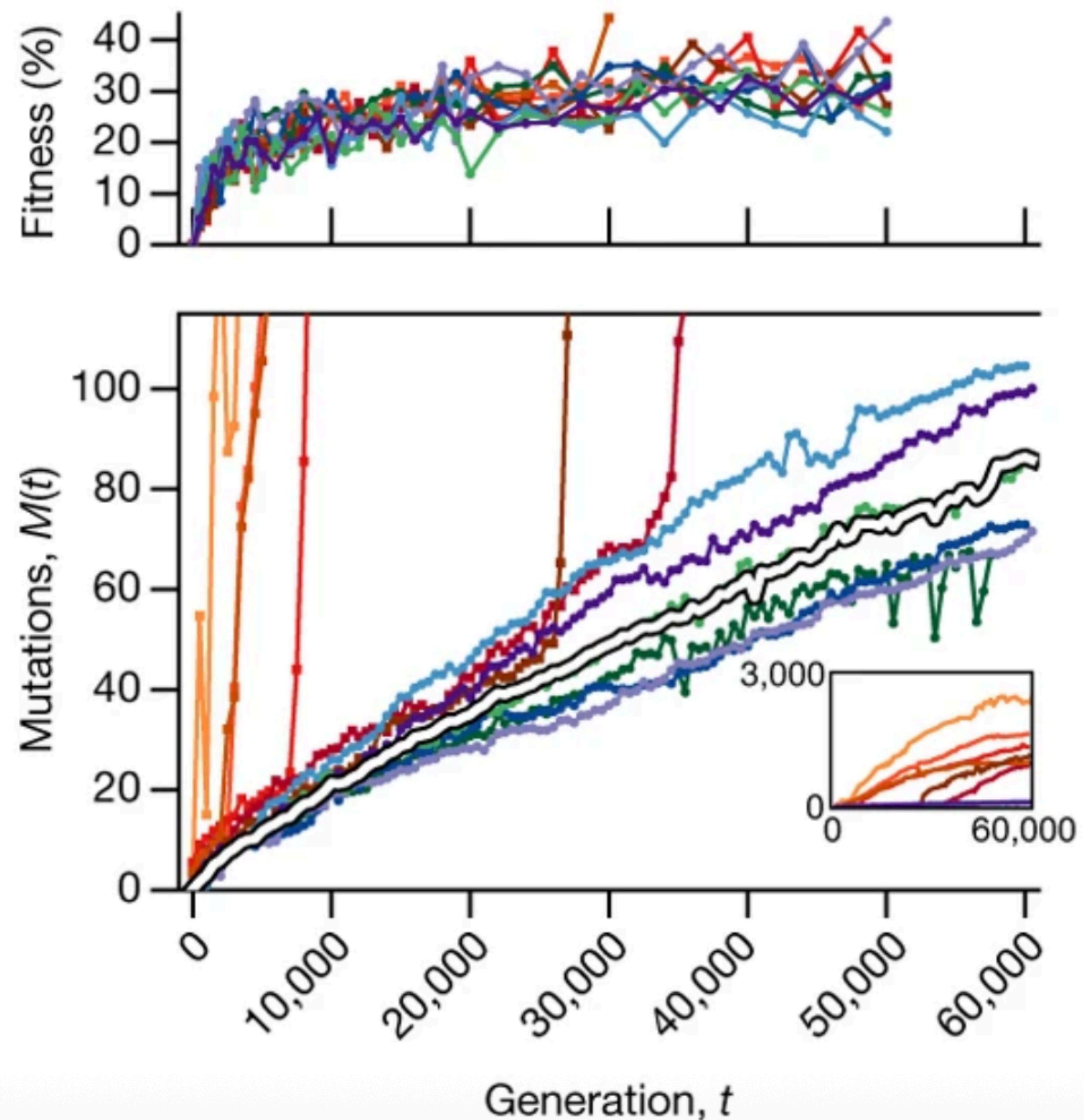
human generation ~ 20 years

~1.5M years ago

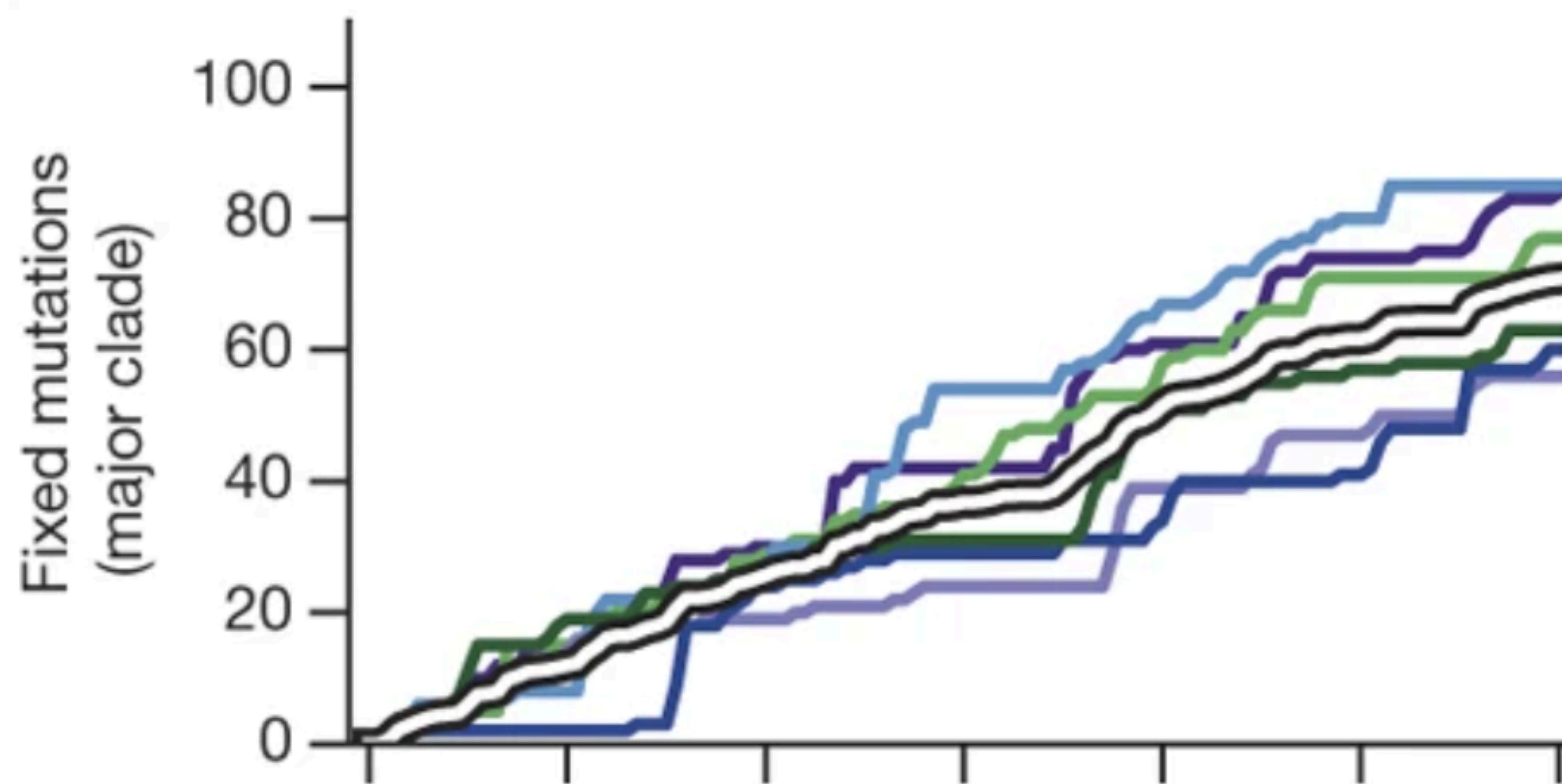
appearance of the genus Homo



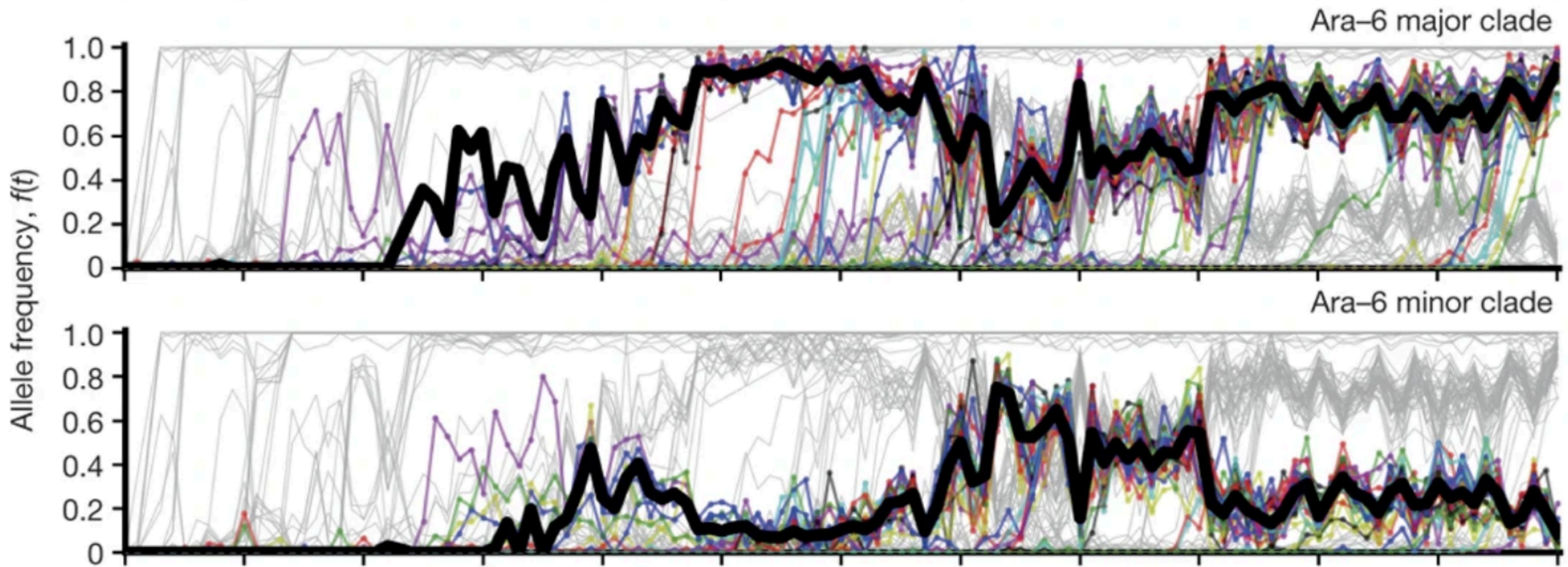
# Mutations have an effect



# Evolution is not continuous

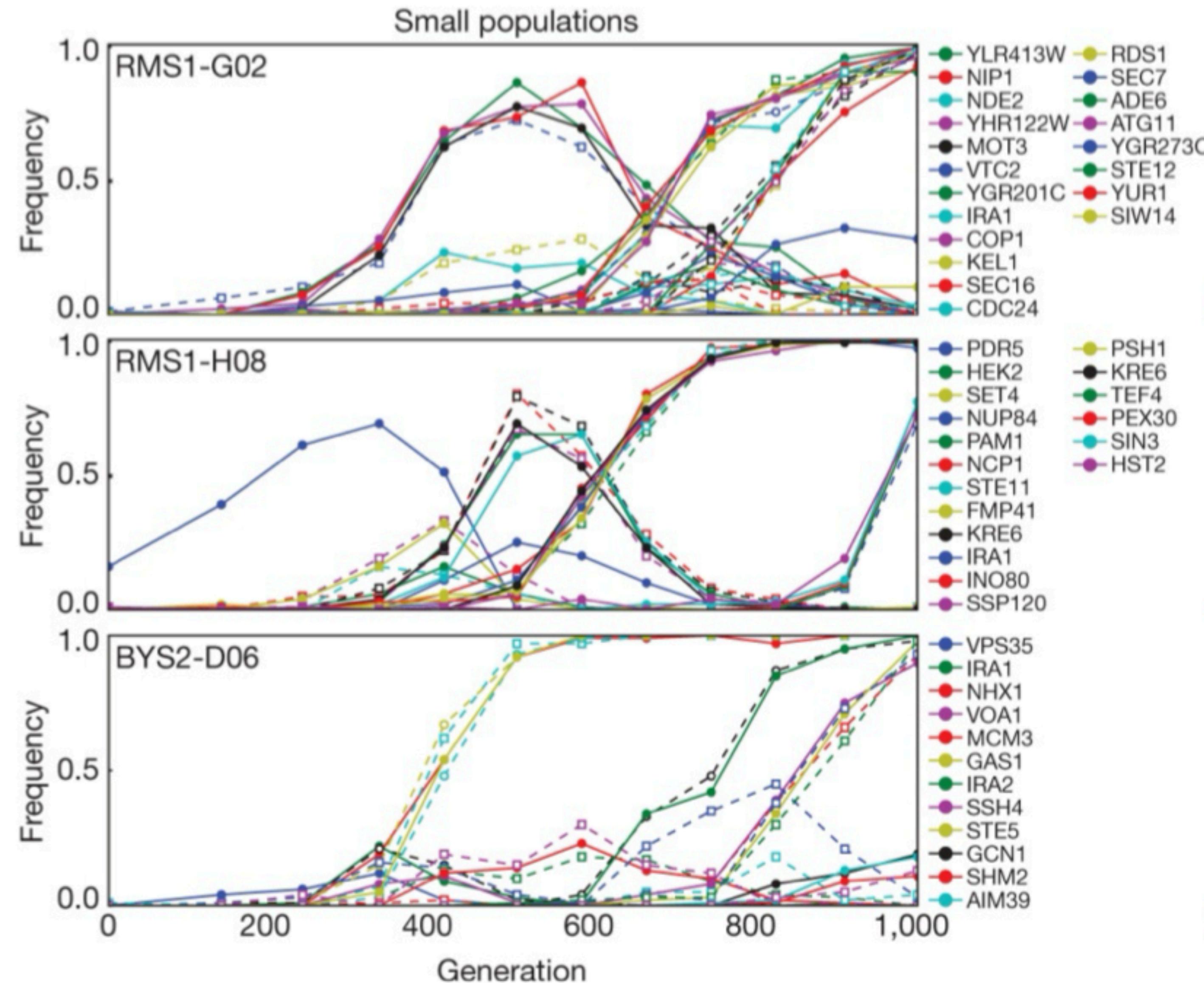


# Evolution creates Ecology



# A simple deterministic view

# Mutations hitchhike and interfere



# The role of genetic drift

# Fixation probability

