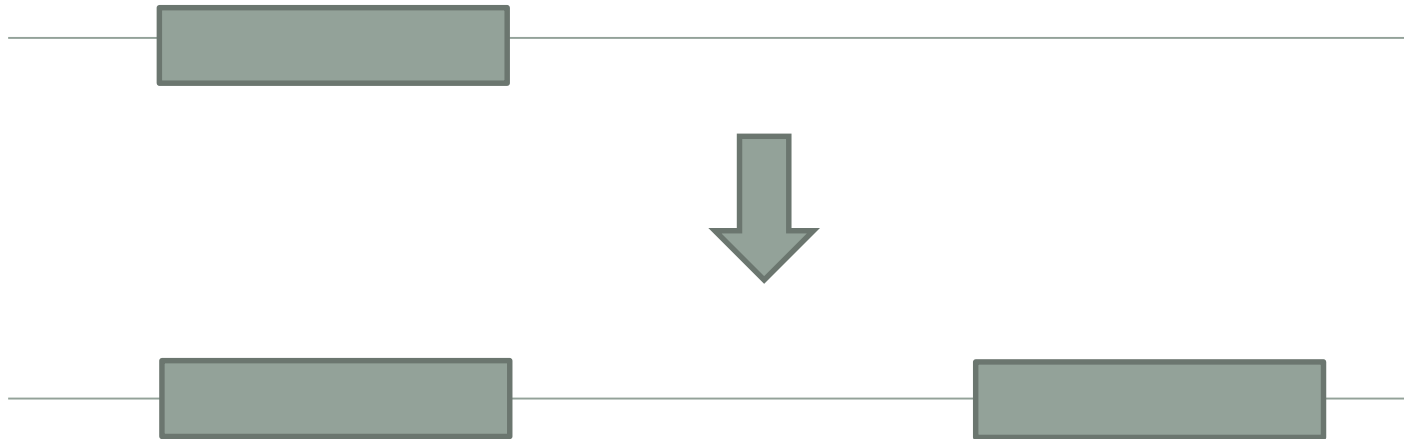# ANCIENT TRANSPOSON PROLIFERATION PROCESSES

Dr Beth Hellen
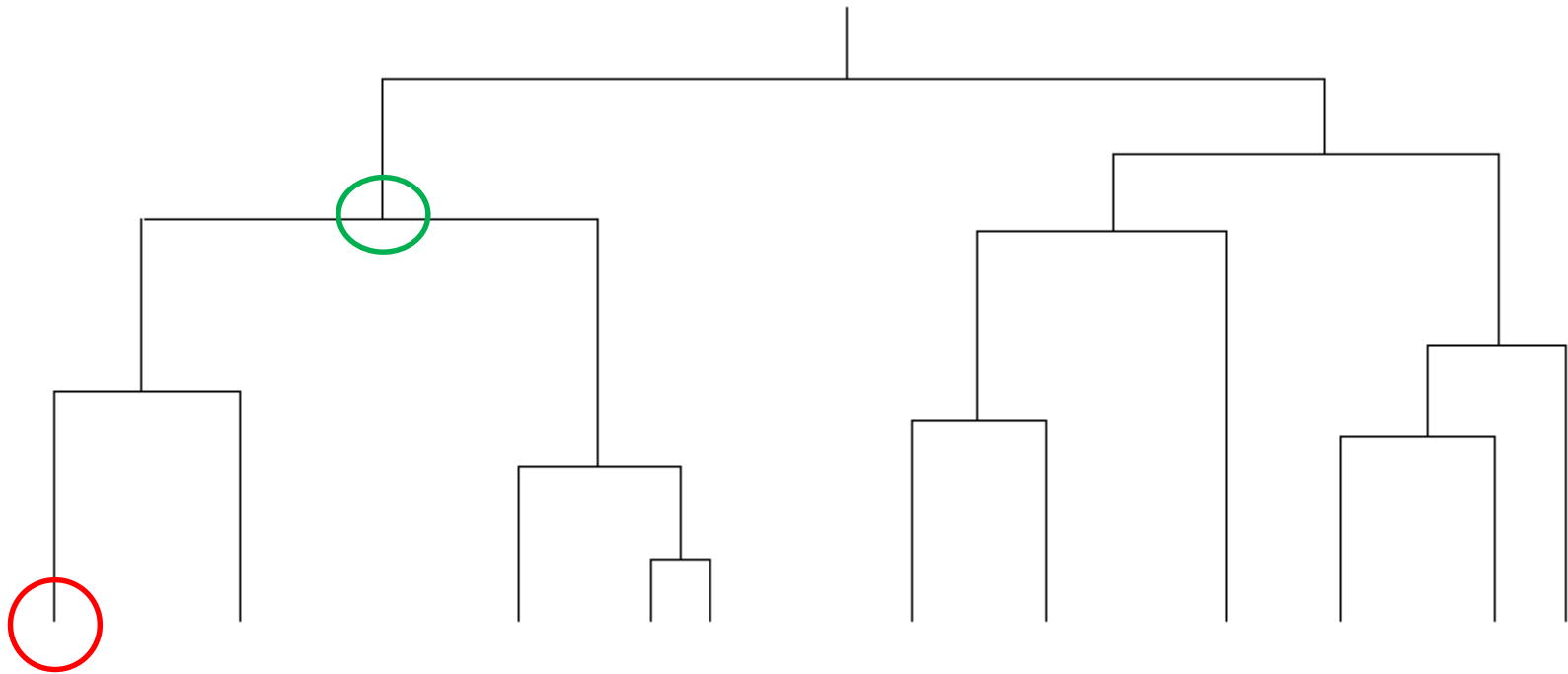
Modern Fossils of Ancient Transposons

- Class II (DNA) -> Tigger, Mariner, Charlie

- Actively transposing 50My - 200Mya

- Elements found in modern genomes (e.g. human) are inactive 'fossils' of previously active transposons

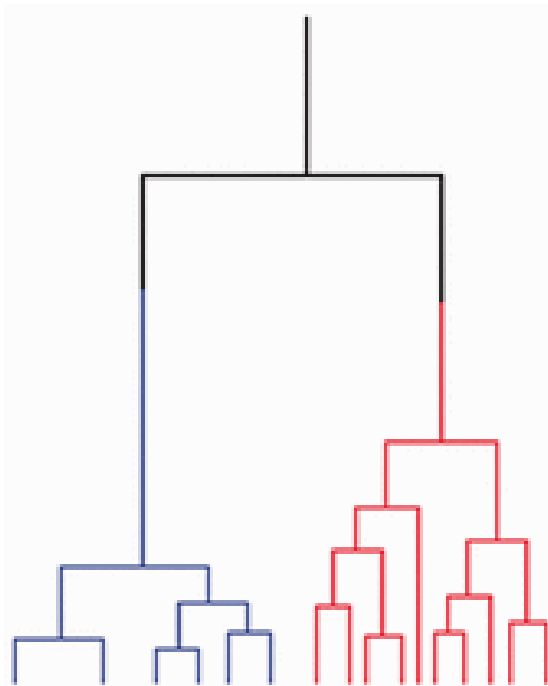# Modern Fossils of Ancient Transposons

- Each observable transposition event creates 2 elements (original & new elements)
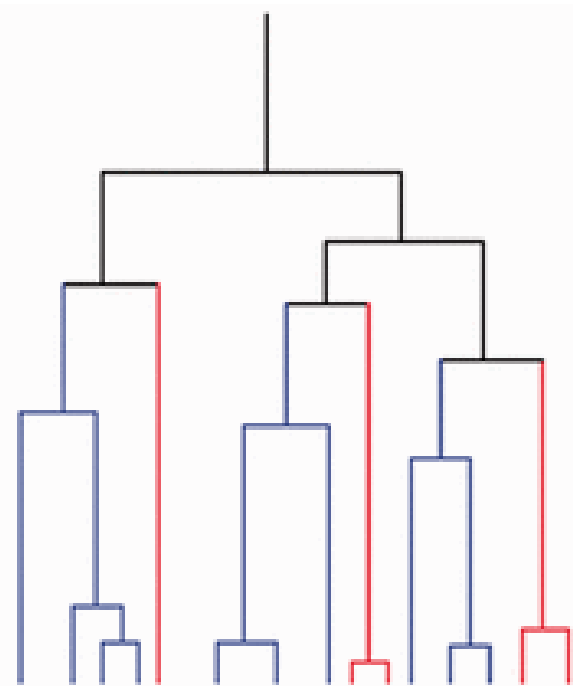
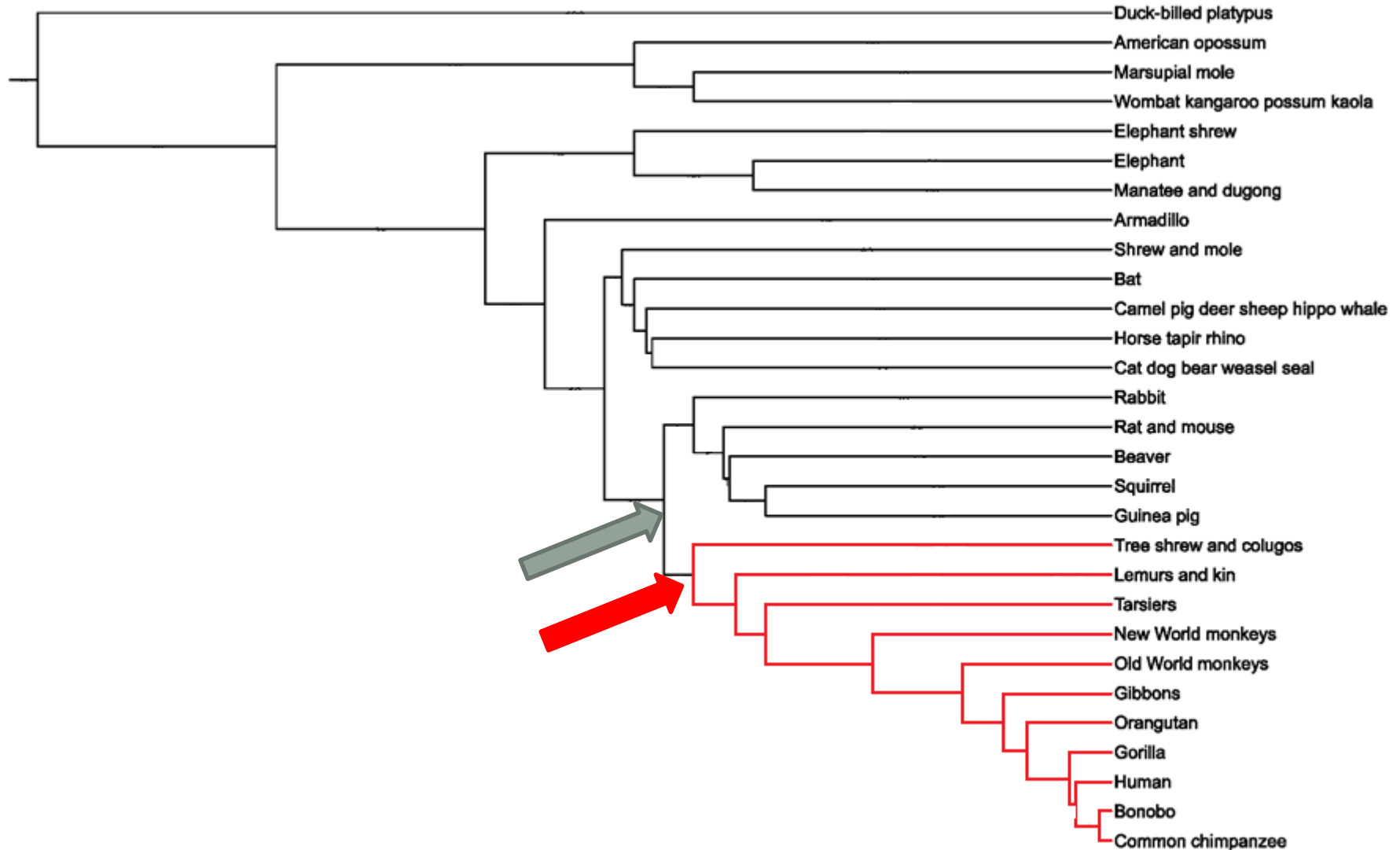# Transposon Phylogenies

Proliferation possibilities

Turnover

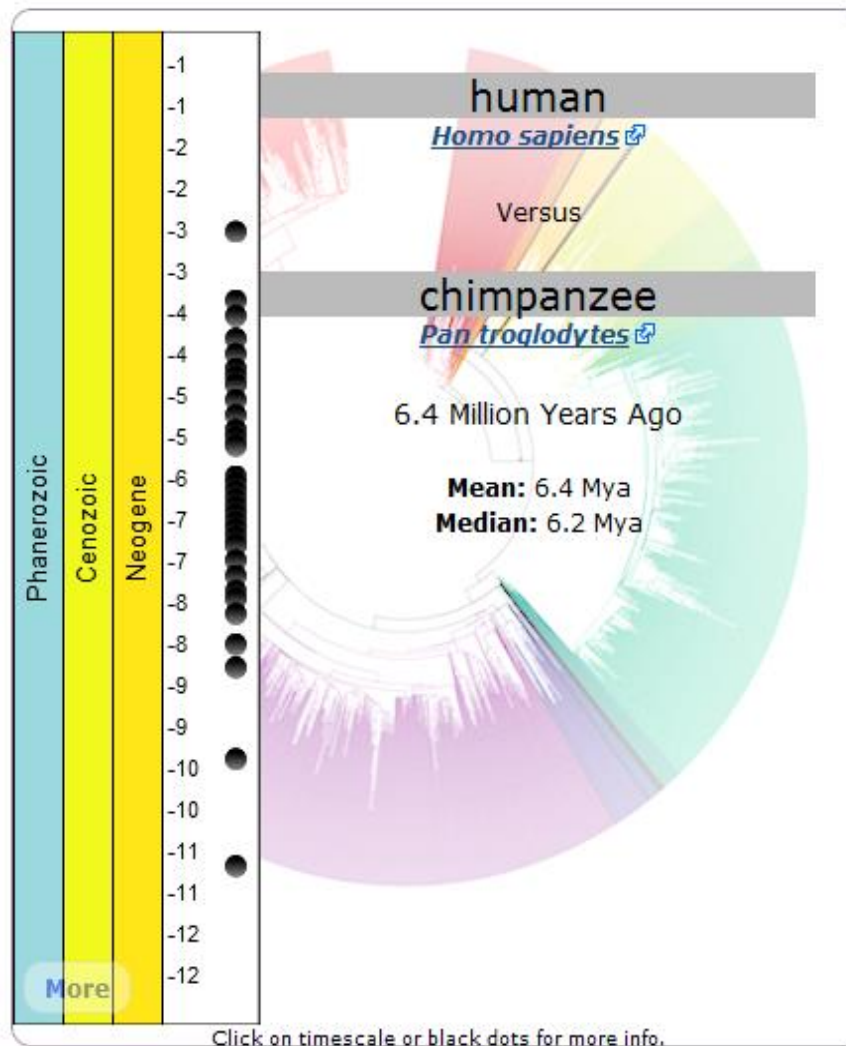Life Cycle

Which Proliferation process?

Turnover	Life Cycle
Phylogeny 'origin' is later than expected	Phylogeny 'origin' is at similar date to expected
Different lineages predict different origin dates	Different lineages predict similar origin dates

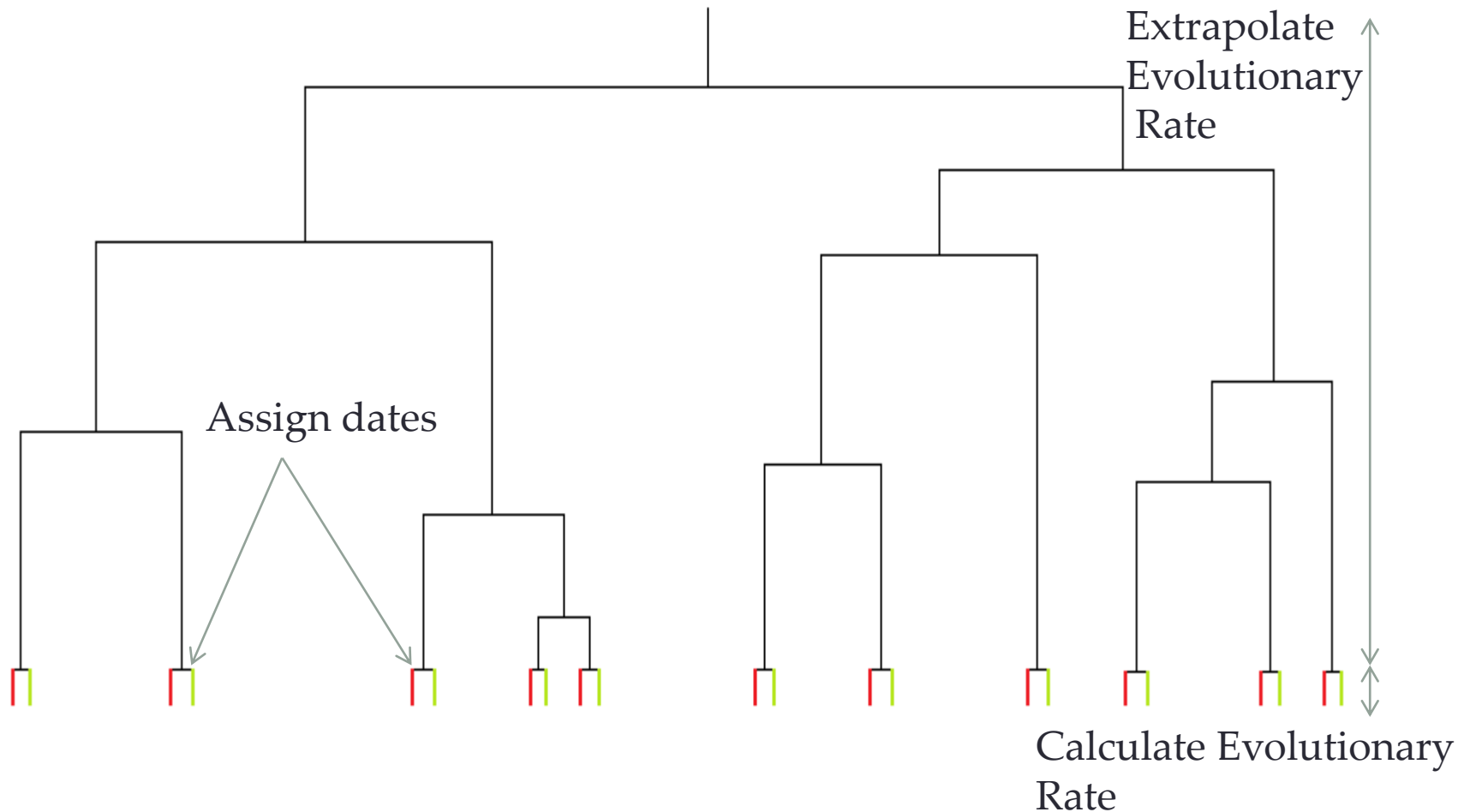# Predicting Benchmark Origin (sMRCA)

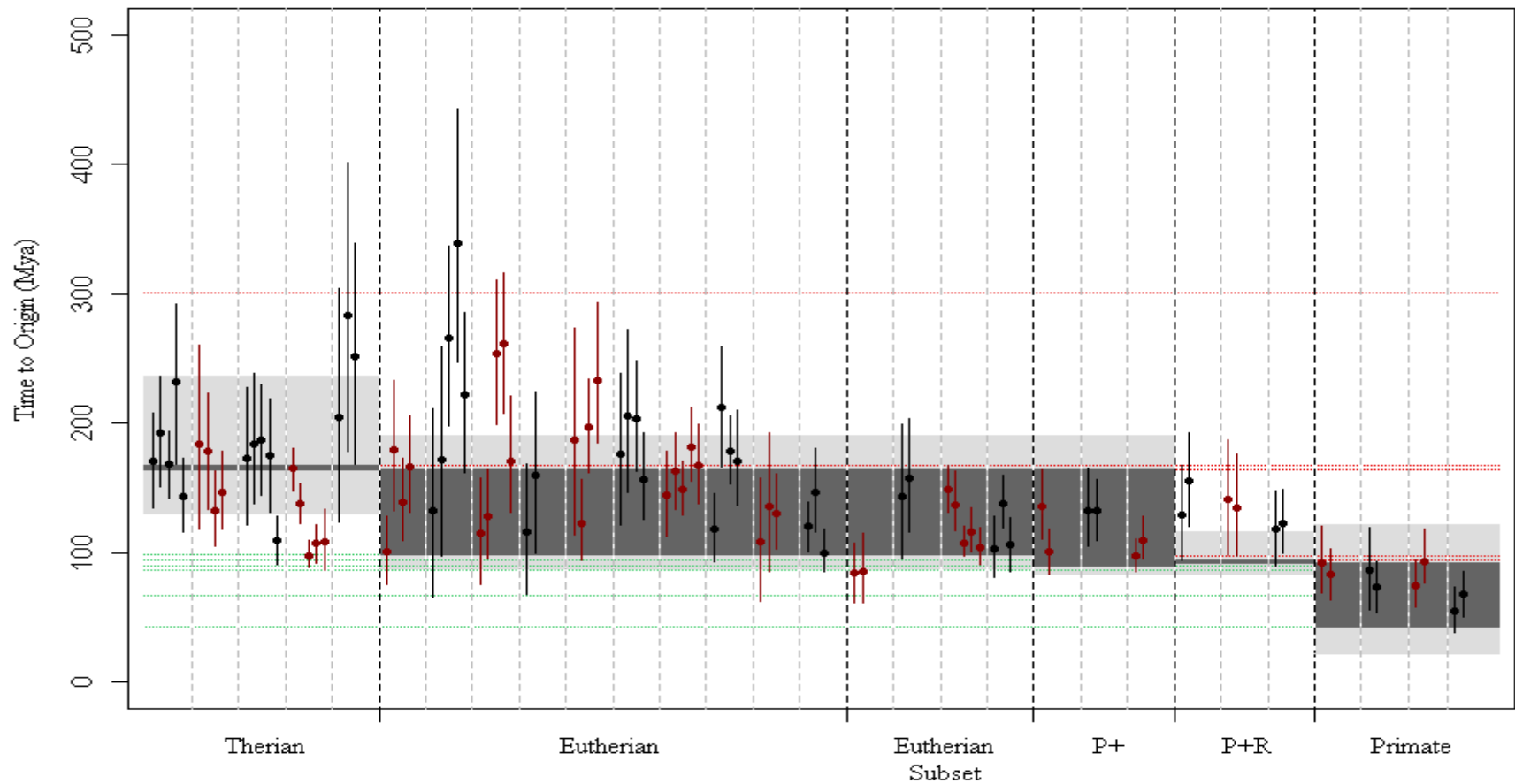# Predicting Benchmark Origin (sMRCA)

www.timetree.org

Predicting Phylogeny Origin (eMRCA)

MRCA Results

Life Cycle Proliferation Process

- Most Analyses traced back to at least expected time

- Primate, Carnivore & Artodactyl analyses agree

- Issues with large error on origin predictions

- Questions about why some prediction are earlier than expected

Acknowledgements

- Prof John Brookfield