

# Phylogenetic Relationships of *Loxosceles* and *Sicarius* spiders are consistent with Western Gondwanan Vicariance

Greta J. Binford, Melissa S. Callahan, Melissa R. Bodner, Melody R. Rynerson, Pablo Berea Núñez, Christopher E. Ellison, Rebecca P. Duncan, *Molecular Phylogenetics and Evolution*, 2008, Vol. 49, 538-553



# The Spider: Classification



- Phylum: Arthropoda (Jointed Appendages)
- Subphylum: Chelicerata
- Class: Arachnida (Eight legged animals)
- Order: Araneae (Animals possessing spinnerets)



## *Loxosceles* and *Sicarius*

- Family: Sicariidae
- Both Produce a similar venom
- 100 Species of *Loxosceles*
- 23 Species of *Sicarius*

# Venom

- The venom of both the *loxosceles* and *sicarius* spiders are necrotoxins.



# Question & Hypothesis

- Are the large-scale divergence patterns within sicariid genera influenced by vicariance events caused by continental drift?
- The hypothesis was that the patterns were influenced by the continental drift.

# Pangea

- Pangea was the supercontinent that existed during the Paleozoic and Mesozoic eras about 250M years ago.



# Gondwana

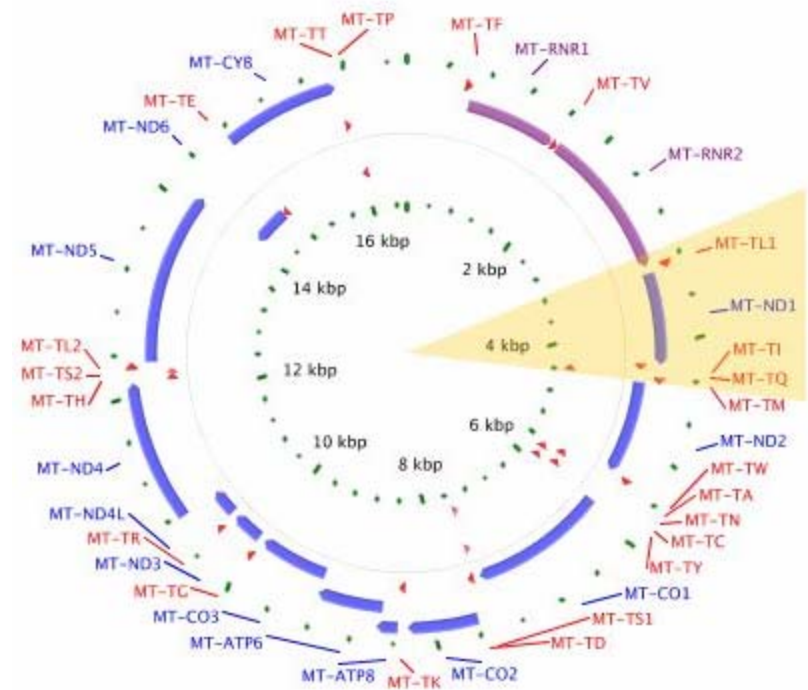
- Gondwana began to break up in the mid-Jurassic era. (About 167M years ago.)



**TRIÁSICO**  
Hace 200 millones de años

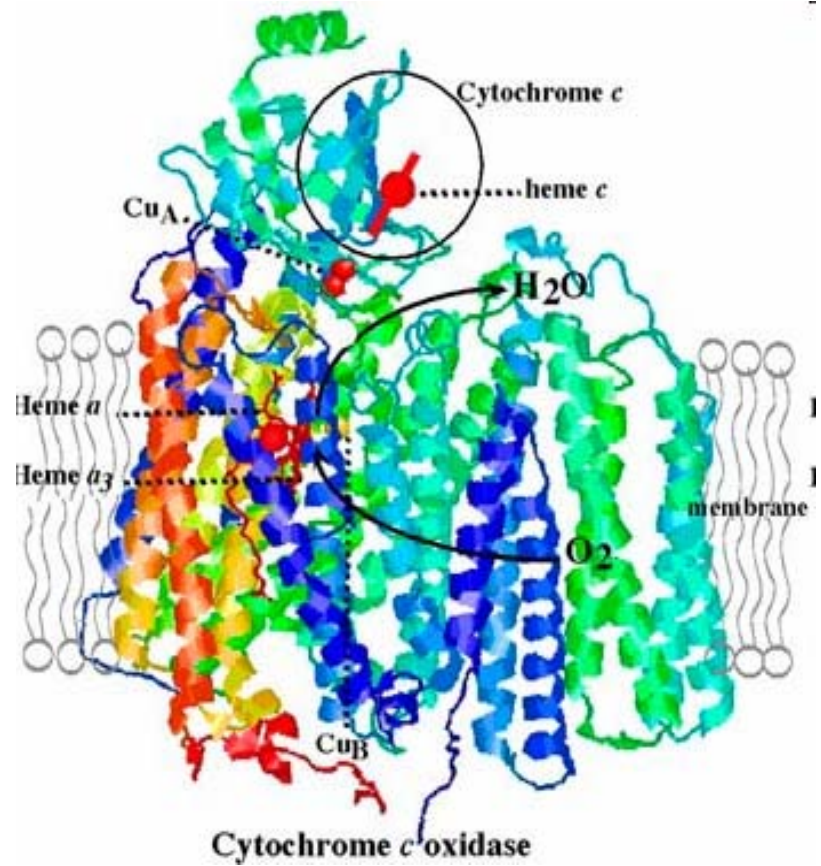
# MT-ND1 Mitochondrion

- ND1: ~900 bp
- Product NADH Dehydrogenase Subunit 1



# COI

- Product cytochrome oxidase subunit I



# 28S rRNA

- 28SrRNA: ~1900 bp
- Constituent of the 60S subunit of eukaryotic ribosomes. 28S rRNA is involved in the initiation of polypeptide synthesis in eukaryotes.
- Contains more GC's than the 16S or MT-ND1