

# Delving Deeper into the Out of Taiwan Hypothesis

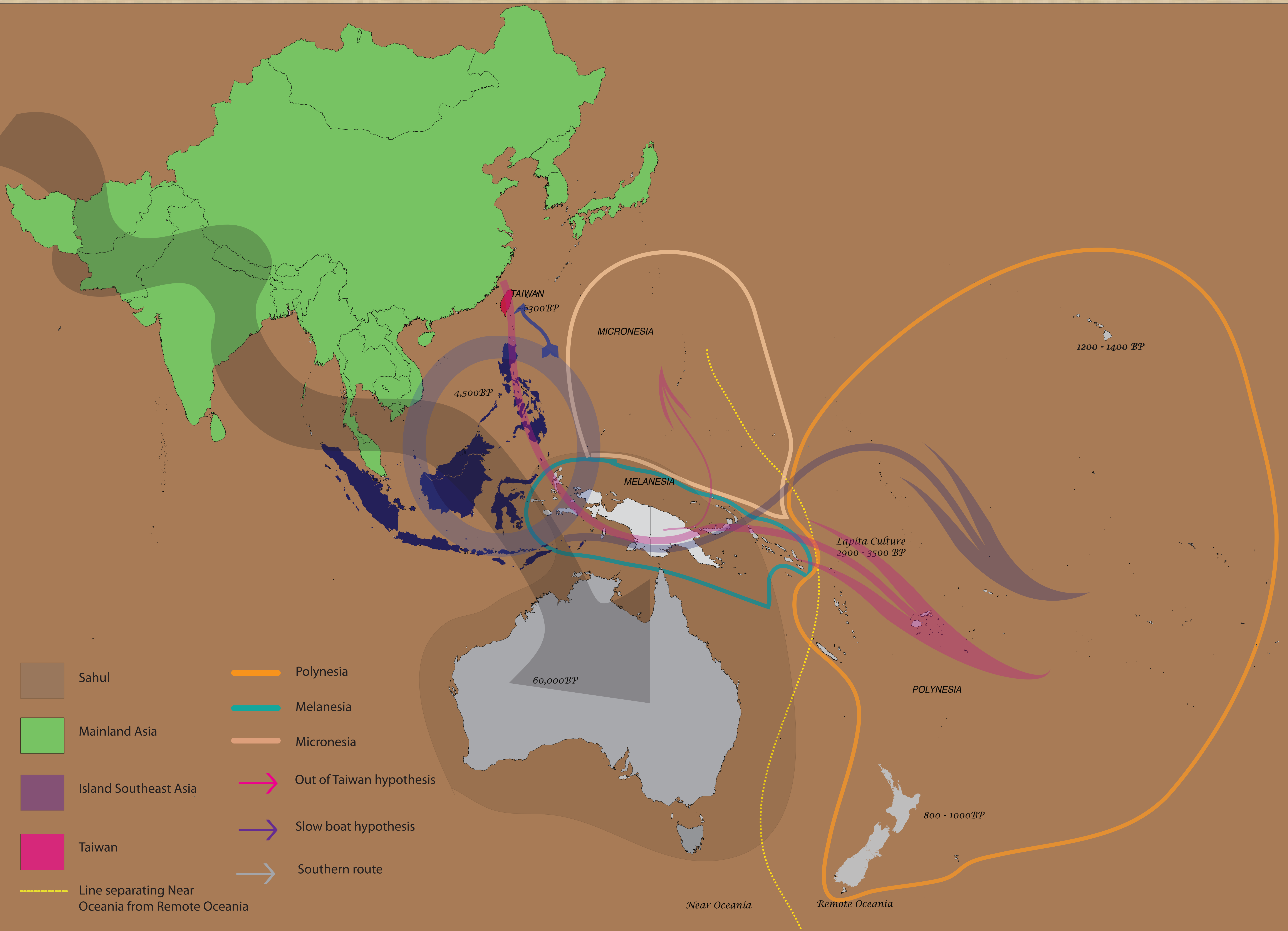
Vishnupriya Kolipakam<sup>1,2,3</sup>

vishnupriya.kolipakam@mpi.nl

<sup>1</sup>Max Planck Institute for Psycholinguistics, Nijmegen, The Netherlands

<sup>2</sup>International Max Planck Research School for Language Sciences, Radboud University, Nijmegen, The Netherlands

<sup>3</sup>Center for Integrative and Comparative Biology, University of Leeds, Leeds, UK



## Background

- Human settlement of the Pacific began ~60KYA with the colonisation of Sahul (Near Oceania)<sup>1</sup>
- Austronesian-speaking peoples settled remote Oceania more recently (3.5KYA)<sup>2</sup>
- Linguistic and Archaeological evidence suggest AN speakers originated "Out of Taiwan" approximately ~ 5-6 KYA<sup>3,4</sup>
- Genetic picture is less clear with contradicting evidence<sup>5,6</sup>

## Question

Does mtDNA from the coding region (M7C1C haplogroup) support the "Out of Taiwan" Hypothesis?

## Methods

- Extracted DNA and sequenced samples (n = 17) from Island Southeast Asia (ISEA), Taiwan and Mainland Southeast Asia (MSEA)
- Built Phylogenetic trees using maximum likelihood and network trees with the ISEAn, MSEAn, Taiwanese and published data from Japan and Pacific
- Calculated the age estimates of the different haplogroups, with particular attention to M7C1C

## Results

- The rho (from network trees) and MLE estimates put the age of the M7C1C in ISEA at 6,000 ± 2,800 Years
- Supports the "Out of Taiwan" hypothesis over other proposals e.g. Wallacean origins
- Has evidence of two ISEAn samples belonging to the M3 haplogroup, very common in India - evidence for the southern route of migration

## Future Directions

- Recalculate the age estimates by including control region and with the new calibration rate for complete mtDNA sequences<sup>7</sup>
- Include more samples from Taiwan

## References

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