

## Sarich, Vincent

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Vincent Sarich (1934–2012) was a Professor of Anthropology at the University of California, Berkeley from 1967–1994 and a pioneer in applying biochemical methods to the study of evolution. With Allan Wilson (see WILSON, ALLAN), he established the basic outlines of human evolutionary history within primates that is still accepted to this day. Most significantly, their work on species differences in the blood proteins albumin and transferrin, estimated by measuring the strength of immunological cross-reactions, concluded that humans were closely related to the African apes to the exclusion of all other primates, and were not an early, long-separate branch of hominoids (see HOMINOIDEA).

Sarich also made key contributions to assessing the existence of “molecular clocks (see MOLECULAR CLOCK),” showing that it was possible to assess the degree of rate constancy for any particular molecule through the application of a “relative rate test” on the data itself (Sarich and Wilson 1967). The logic involved assessing whether daughter species of any given node in a phylogenetic tree were equally distant from an outgroup. Applying this to their empirical estimates of albumin and transferrin differences, they showed these molecules had evolved in a reasonably clocklike fashion in primates and other orders of mammals. Once Sarich and Wilson demonstrated rate-constancy for these proteins, they reconstructed the relative branching order of major subgroups within the Order Primates. The approximate dates of different primate phylogenetic branch points were then estimated by calibrating the rate of molecular evolution using the most definitive fossil divergence dates then known. This analysis indicated that the human lineage had diverged from that of the other African apes only ~4–6

million years ago, a revolutionary suggestion at the time. Although their data could not resolve the human–chimp–gorilla trichotomy, their basic phylogenetic tree has been supported by decades of work using higher resolution molecular methods (e.g., DNA sequence comparisons).

Sarich and his students, including John Cronin, applied his methods to other orders of mammals, including carnivores, pinnipeds, the giant and lesser pandas, and rodents. Sarich also produced the first demonstrations of phylogenetic relationships of extinct taxa, outlining the positions of the extinct mammoth and Tasmanian wolf. In the late 1980s, with Jon Marks, Sarich was responsible for exposing important problems in published analyses of DNA hybridization data.

Later in his career, Sarich became increasingly interested in understanding human behavior from an evolutionary perspective. Several of his later Ph.D. students pursued research in this area. Along with John Allen, he published a theoretical paper on schizophrenia from an evolutionary perspective (see EVOLUTIONARY MEDICINE) and did pioneering work demonstrating the cross-cultural validity of schizophrenia using an endophenotype marker. Karen Schmidt studied the cross-cultural universality of facial expressions of patients with schizophrenia. P. Thomas Schoenemann studied the relationship of brain anatomy and behavior in modern humans using MRI. In collaboration with the linguist William S.-Y. Wang, Sarich applied the logic of reconstructing evolutionary histories from comparisons of differences between extant taxa (which Sarich developed for reconstructing mammalian evolutionary relationships) to the analysis of the evolution of languages, by mapping the relative rates of change in human languages in the Pacific islands.

Sarich was also actively engaged in public debates with “scientific” creationists, particularly with Dr. Duane Gish (Ph.D. UCB '83) (see INTELLIGENT DESIGN).

Sarich was an iconoclast, and much of his work was controversial, beginning with his early work on molecular evolution demonstrating that the human lineage was only ~5 million years

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old. A very popular and award-winning teacher, he addressed controversial topics in his classes, including questions of race, IQ, physical ability, and human variation generally. In 2004, he co-wrote *Race: The Reality of Human Differences* with Frank Miele. Sarich also wrote a positive review of *The Bell Curve*, as well as an editorial arguing against the use of affirmative action policies (see RACE: CONCEPTUAL HISTORY and RACIAL HIERARCHY (HISTORY, CLASSIFICATION OF MODERN HUMANS)). The latter was the catalyst for a disruption of his large introductory human evolution class in 1990, and brought charges of racism and Nazism against him. However, many colleagues and students argued that he spurred critical thinking, and he received numerous letters of support both from Berkeley and other institutions.

He authored 66 articles and one book, and in 2004 was awarded the Kistler Prize. His original work was described in *The Monkey Puzzle: Reshaping the Evolutionary Tree* (Gribbin and Cherkas 1982). A brief reference to Sarich and Wilson's molecular anthropological work occurs in the 1980 movie *Altered States*.

SEE ALSO: Ancient DNA; Anthropoid origins; Anthropological genetics; Catarrhine origins; Genetic distance; Mitochondrial DNA; Phylogenetics; Phylogeny; Platyrrhine evolution; Primate genomics; Primate origins; Primate phylogeny

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## FURTHER READING

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