

**LATERALIZATION IN BROCA'S AND WERNICKE'S AREAS IN THE CHIMPANZEE BRAIN**

W.D. Hopkins<sup>1,2</sup>, J.P. Tagliatela<sup>1</sup>

<sup>1</sup>*Yerkes National Primate Center Atlanta, Georgia United States,* <sup>2</sup>*Agnes Scott College Decatur, Georgia United States*

*Presenter's Email: [jtaglia@emory.edu](mailto:jtaglia@emory.edu)*

Two of the main cortical regions involved in language and speech in the human brain are Broca's and Wernicke's areas, particularly within the left hemisphere. Whether apes show population-level lateralization in these brain regions remains a topic of significant historical and contemporary research. In this paper, I summarize recent studies in chimpanzees that have assessed the volume and asymmetries of the cytoarchitectonic regions corresponding Broca's and Wernicke's areas in chimpanzees. I further present findings from our laboratory that have quantified grey and white matter volumes and asymmetries of Broca's and Wernicke's areas. The collective results suggest that leftward asymmetries are present at both the cytoarchitectonic and gross anatomical level for Wernicke's area in chimpanzees but the asymmetry results are less clear for Broca's area. The overall findings are discussed within the context of evolutionary theories of language evolution and its effect on cerebral organization and lateralization.

Keywords: Chimpanzee, Brain, Laterality, Language