

# Example of essay on about santiago ramon y cajal

[Education](#), [Discipline](#)



## **Introduction**

Psychology was in its rudimentary form in the early nineteenth century. It was just beginning to separate its own identity from the discipline of Philosophy. Various concurrent developments were happening in Europe and the US. Major advancements were initiated by German psychologists Wilhelm Wundt and others, who believed in experiments as a way to develop theories by actively interfering in the natural phenomenon. A few decades before Wundt established a laboratory for psychology, rapid strides in understanding of the nervous system was happening. By 1830s, human physiology was turning into an experimental discipline from being a descriptive science. The emerging physiology influenced the then psychologists to turn their focus to studying neural mechanisms underlying behavior. It was during this period the contribution of Santiago Ramon Cajal, a Spanish histologist, becomes significant.

Santiago Ramon Cajal (SRC) was born in the year 1852 in Petilla de Aragón, a town and municipality of Navarra region at northern Spain. As a child, he was often transferred to many schools because of his belligerent and pugnacious nature. At the age of eleven, he was imprisoned for smashing a public property using homemade cannon. It seems later he worked hard to get into a doctor's career following his father's profession (a physician and anatomy lecturer). There are evidences that he worked as a barber and a shoemaker. He had interests in gymnastics and also in artistic skills, which he applied in the medical field for illustrating brain cells. His drawings are still preserved and used for explaining brain anatomy. SRC attended the

medical school of Zaragoza and graduated in the year 1873. Since then he held various medical and academic positions until he died in Madrid in 1934.

## **Santiago Ramon Cajal's Contributions**

When Ramón Cajal's was working in Universities of Zaragoza and Valencia, his focus was on the microbiology of cholera, pathology of inflammation and the arrangements of epithelial cells and tissues. After he had moved to the University of Barcelona in 1887, he was introduced to Golgi's silver nitrate preparation that helped in the study of neuro-anatomy. His interest turned to central nervous system, and he is considered as the most accomplished neuro-anatomist in the history of neuroscience. Three themes run through the works of SRC, the shapes of neurons, the synaptic connectivity and the network of neurons.

SRC through his skills of drawing depicted shapes of neurons as working hypothesis and often used imaginations to explain the functions of brain. He is the first scientist to know that neuron is the basic unit of the nervous system. He postulated that the presence of organized neuronal network is the fundamental characteristics of all brains, human or otherwise and the brain is a cellular community. Another important standpoint proposed by SRC is that the brain function must be understood in the context of evolutionary and ethological meanings. Probably, SRC is very much influenced by the theory of Charles Darwin.

One of most thrilling contribution of SRC is in comparative neuroscience. He pointed out the disparity of network size versus functional complexity. While comparing the nervous system of the large vertebrates, invertebrates and small insects, SRC was amazed that all three can carry out complex activities

such as eating, swimming, flying, fighting and reproducing. The brain size and functionality is quite disproportional in nature.

In contrast to the Golgi's theory of a reticular formation, SRC proposed that the nervous system is comprised of billions of neurons. SRC advocated that neurons communicate with each other via specific junctions called "synapses", a term coined by Sherrington in 1897. This hypothesis formed the basis of the neuron theory. Later, the invention of electron microscopy showed the structure of a neuron, supporting Cajal's theory and rejecting Golgi's reticular doctrine. However, for their contributions, SRC and Golgi shared the Nobel Prize in Physiology / Medicine in 1906.

## **REFERENCE**

Ascoli G A, Alonso-Nanclares L, Anderson SA et al. " Petilla terminology: nomenclature of features of GABAergic interneurons of the cerebral cortex". Nature Reviews Neuroscience. 9 (7): 557-68 , 2008. Print.