

George N. Papanicolaou (1883-1962): studying his first published article in *Science* 100 years on

Dear Editor,

One hundred (100) years have passed since the first publication in *Science* of Dr George Nicholas Papanicolaou (Dr Pap) (Figure 1), who was born in the Aegean coast of Kyme on the island of Euboea in Greece on May 13rd, 1883 and became known worldwide for his innovative revolutionary invention of the Pap smear test [1]. His article was entitled 'Sex determination and sex control in guinea-pigs' and was published in *Science* (*Science, Volume 41, Pages 401-404*) in March 1915 [2]. It was based on his



Figure 1. George N. Papanicolaou at the Cornell University Medical College in the USA with his wife and life companion Andromahi Mavrogeni, known as Mary Papanicolaou.

research performed on vaginal smears of female guinea pigs evaluating cytological changes during their menstrual cycle. His research was performed at the Cornell University Medical College in the USA in collaboration with the Professor of Anatomy Charles Stockard (1879-1939), a pioneer in the scientific fields of Embryology and Zoology [3]. At that time, Papanicolaou's findings added valuable data on the basic understanding of endocrinology of the reproductive organs.

Although many changes in basic research, clinical practice and medical education have occurred since then [4], it is very stimulating that the initial postdoctoral work of Papanicolaou, as a continuity of his PhD, involved animal specimens and was not focused on oncology. However, it provided him all the necessary scientific background with adequate knowledge of techniques and exploration strategies for new Lab methodologies. In the subsequent years, Papanicolaou expanded his experiments in human female cytological material and eventually he managed to develop the Pap smear test, a discovery which to date, even after the introduction of HPV vaccination into clinical practice, remains a principal component of the prevention strategy against cancer in women.

References

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